

**A STUDY ON THE FLORA OF SATHYAMANGALAM TIGER
RESERVE, SOUTHERN EASTERN GHATS, INDIA**

Thesis submitted to Bharathiar University, Coimbatore
in partial fulfilment of the requirements for the award of the Degree of
DOCTOR OF PHILOSOPHY

in
BOTANY

By
PRAKASH. L



Under the Guidance of
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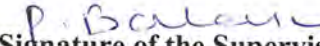
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I, **L. PRAKASH** hereby declare that the thesis entitled “**A STUDY ON THE FLORA OF SATHYAMANGALAM TIGER RESERVE, SOUTHERN EASTERN GHATS, INDIA**”, submitted to the Bharathiar University in partial fulfillment of the requirements for the award of the Degree of **DOCTOR OF PHILOSOPHY IN BOTANY** is a record of original work done by me during November 2014 to September 2019 under the research supervision and guidance of **Dr. P. BALASUBRAMANIAN**, Senior Principal Scientist, Landscape Ecology Division, Sálím Ali Centre for Ornithology and Natural History (SACON) and it has not formed the basis for the award of any Degree / Diploma / Associateship / Fellowship or any other similar title of any candidate of any University.



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12	Asteraceae	a) <i>Crassocephalum crepidioides</i> , b) <i>Kleinia grandiflora</i> , c) <i>Parthenium hysterophorus</i> , d) <i>Pentanema indicum</i> , e) <i>Sigesbeckia orientalis</i> , f) <i>Xanthium strumarium</i> , g) <i>Tithonia diversifolia</i> , h) <i>Tridax procumbens</i> , i) <i>Vernonia albicans</i> , j) <i>Synedrella nodiflora</i> , k) <i>Vernonia arborea</i> , l) <i>Dicoma tomentosa</i> , m) <i>Sonchus oleraceus</i> , n) <i>Vernonia cinerascens</i> , o) <i>Vernonia divergens</i> .
13	Asteraceae	a) <i>Acanthospermum hispidum</i> , b) <i>Acmella calva</i> , c) <i>Acmella radicans</i> , d) <i>Ageratina adenophora</i> , e) <i>Ageratum conyzoides</i> , f) <i>Bidens pilosa</i> , g) <i>Blainvillea acmella</i> , h) <i>Chromolaena odorata</i> , i) <i>Conyza leucantha</i> , j) <i>Eclipta prostrata</i> , k) <i>Emilia sonchifolia</i> , l) <i>Erigeron bonariensis</i> , m) <i>Erigeron karvinskianus</i> , n) <i>Galinsoga parviflora</i> , o) <i>Gnaphalium polycaulon</i> .
14	Asclepiadaceae	a) <i>Caralluma adscendens</i> var. <i>attenuata</i> , b) <i>Caralluma adscendens</i> var. <i>adscendens</i> , c) <i>Caralluma stalagmifera</i> var. <i>longipetala</i> , d) <i>Oxystelma esculentum</i> , e) <i>Asclepias curassavica</i> , f) <i>Sarcostemma acidum</i> , g) <i>Ceropegia candelabrum</i> , h) <i>Ceropegia juncea</i> , i) <i>Ceropegia elegans</i> , j) <i>Dregea volubilis</i> , k) <i>Secamone emetica</i> , l) <i>Pergularia daemia</i> .

Plate No.	Title	
15	Convolvulaceae	a) <i>Evolvulus nummularius</i> , b) <i>Argyreia cuneata</i> , c) <i>Evolvulus alsinoides</i> , d) <i>Cuscuta reflexa</i> , e) <i>Ipomoea carnea</i> subsp. <i>fistulosa</i> , f) <i>Ipomoea hederifolia</i> , g) <i>Argyreia elliptica</i> , h) <i>Ipomoea staphylina</i> , i) <i>Argyreia populifolia</i> , j) <i>Hewittia malabarica</i> , k) <i>Ipomoea obscura</i> , l) <i>Ipomoea marginata</i> , m) <i>Merremia tridentata</i> , n) <i>Ipomoea wightii</i> , o) <i>Ipomoea aquatica</i> , p) <i>Cuscuta chinensis</i> .
16	Solanaceae	a) <i>Solanum americanum</i> , b) <i>Solanum torvum</i> , c) <i>Solanum virginianum</i> , d) <i>Nicandra physalodes</i> , e) <i>Solanum erianthum</i> , f) <i>Solanum giganteum</i> , g) <i>Solanum trilobatum</i> , h) <i>Datura metel</i> , i) <i>Capsicum annuum</i> , j) <i>Solanum incanum</i> , k) <i>Solanum diphyllum</i> , l) <i>Datura stramonium</i> , m) <i>Solanum anguivi</i> , n) <i>Datura ferox</i> , o) <i>Solanum pubescens</i> , p) <i>Physalis angulata</i> .
17	Acanthaceae	a) <i>Barleria prionitis</i> , b) <i>Barleria acuminata</i> , c) <i>Asystasia gangetica</i> , d) <i>Ruellia tuberosa</i> , e) <i>Hygrophila auriculata</i> , f) <i>Crossandra infundibuliformis</i> , g) <i>Andrographis echinoides</i> , h) <i>Ecobolium ligustrinum</i> , i) <i>Barleria cuspidata</i> , j) <i>Lepidagathis scariosa</i> , k) <i>Dicliptera paniculata</i> , l) <i>Dicliptera cuneata</i> , m) <i>Strobilanthes consanguinea</i> , n) <i>Justicia tranquebariensis</i> , o) <i>Barleria mysorensis</i> .
18	Acanthaceae	a) <i>Andrographis serpyllifolia</i> , b) <i>Blepharis maderaspatensis</i> , c) <i>Justicia diffusa</i> , d) <i>Ruellia patula</i> , e) <i>Andrographis paniculata</i> , f) <i>Strobilanthes kunthiana</i> , g) <i>Justicia betonica</i> , h) <i>Justicia japonica</i> , i) <i>Justicia adhatoda</i> , j) <i>Barleria pilosa</i> , k) <i>Dyschoriste vagans</i> , l) <i>Phaulopsis imbricata</i> , m) <i>Thunbergia fragrans</i> , n) <i>Rungia repens</i> , o) <i>Elytraria acaulis</i> .
19	Verbenaceae	a) <i>Callicarpa tomentosa</i> , b) <i>Clerodendrum chinense</i> , c) <i>Clerodendrum infortunatum</i> , d) <i>Gmelina arborea</i> , e) <i>Gmelina asiatica</i> , f) <i>Lantana camara</i> var. <i>aculeata</i> , g) <i>Lantana indica</i> , h) <i>Lantana trifolia</i> , i) <i>Lantana veronicifolia</i> , j) <i>Phyla nodiflora</i> , k) <i>Premna tomentosa</i> , l) <i>Stachytarpheta jamaicensis</i> , m) <i>Tectona grandis</i> , n) <i>Vitex altissima</i> , o) <i>Volkameria inermis</i> .
20	Lamiaceae	a) <i>Anisochilus carnosus</i> , b) <i>Ocimum americanum</i> , c) <i>Orthosiphon thymiflorus</i> , d) <i>Leucas martinicensis</i> , e) <i>Leucas aspera</i> , f) <i>Leucas biflora</i> , g) <i>Leucas chinensis</i> , h) <i>Leucas zeylanica</i> , i) <i>Anisomeles indica</i> , j) <i>Anisomeles malabarica</i> , k) <i>Anisochilus carnosus</i> , l) <i>Pogostemon pubescens</i> , m) <i>Leonotis nepetifolia</i> , n) <i>Hyptis suaveolens</i> , o) <i>Leucas angularis</i> , p) <i>Endostemon viscosus</i> , q) <i>Leucas hirta</i> , r) <i>Leucas ciliata</i> , s) <i>Leucas decemdentata</i> , t) <i>Leucas marrubioides</i> , u) <i>Leucas urticifolia</i> .

Plate No.	Title	
21	Amaranthaceae	a) <i>Achyranthes aspera</i> , b) <i>Aerva javanica</i> , c) <i>Aerva lanata</i> , d) <i>Allmania nodiflora</i> , e) <i>Alternanthera paronychioides</i> , f) <i>Alternanthera pungens</i> , g) <i>Alternanthera sessilis</i> , h) <i>Amaranthus blitum</i> , i) <i>Amaranthus cruentus</i> , j) <i>Amaranthus spinosus</i> , k) <i>Amaranthus viridis</i> , l) <i>Celosia argentea</i> , m) <i>Celosia pulchella</i> , n) <i>Digera muricata</i> , o) <i>Gomphrena celosioides</i> , p) <i>Gomphrena serrata</i> , q) <i>Pupalia lappacea</i> .
22	Euphorbiaceae	a) <i>Euphorbia hirta</i> , b) <i>Flueggea leucopyrus</i> , c) <i>Phyllanthus indofischeri</i> , d) <i>Phyllanthus urinaria</i> , e) <i>Euphorbia umbellata</i> , f) <i>Jatropha gossypifolia</i> , g) <i>Micrococca mercurialis</i> , h) <i>Breynia vitis-idaea</i> , i) <i>Acalypha brachystachya</i> , j) <i>Euphorbia heterophylla</i> , k) <i>Phyllanthus emblica</i> , l) <i>Bridelia retusa</i> , m) <i>Euphorbia antiquorum</i> , n) <i>Euphorbia cyathophora</i> , o) <i>Microstachys chamaelea</i> , p) <i>Phyllanthus polyphyllus</i> .
23	Orchidaceae	a) <i>Acampe praemorsa</i> , b) <i>Zeuxine longilabris</i> , c) <i>Satyrrium nepalense</i> , d) <i>Vanda spathulata</i> , e) <i>Vanda testacea</i> , f) <i>Polystachya concreta</i> , g) <i>Oberonia verticillata</i> , h) <i>Luisia tristis</i> , i) <i>Aerides ringens</i> , j) <i>Luisia abrahami</i> , k) <i>Habenaria plantaginea</i> l) <i>Calanthe triplicata</i> .
24	Cyperaceae	a) <i>Bulbostylis barbata</i> , b) <i>Bulbostylis densa</i> , c) <i>Carex baccans</i> , d) <i>Cyperus articulatus</i> , e) <i>Cyperus compressus</i> , f) <i>Cyperus corymbosus</i> , g) <i>Cyperus cyperoides</i> , h) <i>Cyperus difformis</i> , i) <i>Cyperus distans</i> , j) <i>Cyperus dubius</i> , k) <i>Cyperus exaltatus</i> , l) <i>Cyperus iria</i> , m) <i>Cyperus rotundus</i> , n) <i>Cyperus rubicundus</i> , o) <i>Kyllinga nemoralis</i> , l) <i>Lipocarpha chinensis</i> , q) <i>Pycneus flavescens</i> , r) <i>Pycneus polystachyos</i> , s) <i>Pycneus pumilus</i> , t) <i>Scleria lithosperma</i> .
25	Poaceae	a) <i>Cyrtococcum patens</i> , b) <i>Echinochloa colona</i> , c) <i>Eragrostis cilianensis</i> , d) <i>Bothriochloa pertusa</i> , e) <i>Dactyloctenium aegyptium</i> , f) <i>Leersia hexandra</i> , g) <i>Sporobolus diandrus</i> , h) <i>Setaria intermedia</i> , i) <i>Cymbopogon nardus</i> , j) <i>Saccharum spontaneum</i> , k) <i>Apluda mutica</i> , l) <i>Chloris barbata</i> , m) <i>Imperata cylindrica</i> .
26	Poaceae	a) <i>Cenchrus ciliaris</i> , b) <i>Chloris roxburghiana</i> , c) <i>Trachys muricata</i> , d) <i>Melinis repens</i> , e) <i>Oplismenus compositus</i> , f) <i>Tragus roxburghii</i> , g) <i>Urochloa setigera</i> , h) <i>Themeda triandra</i> , i) <i>Themeda quadrivalvis</i> , j) <i>Paspalidium flavidum</i> , k) <i>Leptochloa chinensis</i> , l) <i>Heteropogon contortus</i> , m) <i>Oropetium thomaeum</i> , n) <i>Bambusa bambos</i> , o) <i>Alloteropsis cimicina</i> , p) <i>Coix lacryma-jobi</i> , q) <i>Paspalum dilatatum</i> , r) <i>Echinochloa crus-galli</i> , s) <i>Eragrostiella bifaria</i> , t) <i>Hackelochloa granularis</i> .

Introduction

Chapter 1

Introduction

Plants are the major and very important element of an ecosystem. Man depends directly or indirectly on plants for his existence. The floral diversity of the earth supports human life in many practical ways such as food, clothing, and shelter. Plants also produce forage of high nutritive value which is essential for livestock. The leguminous plants fix nitrogen and enrich the often-impooverished soils thus improving the yields of crops (Sayer, 1986). Plants of an ecosystem not only protect watersheds but also improve the agricultural microclimate by protecting crops against wind erosion. The forest vegetation of all kinds exchange moisture and energy with the atmosphere more intensively than do other types of land surface cover (Myers, 1988). Vegetation Diversity of the forest ecosystem depends on the topography, soil, climate and geographical formation of the area (Ram and Bhatt, 2004), whereas the diversity and regeneration status of species is greatly influenced by the nature of the forest community (Khumbongmayum *et al.*, 2006).

Tropical forests are one of the dominant features of the earth. They contain more than half of total plant biomass and at least one third of the entire world's living species (Melillo *et al.*, 1985). Tropical forests play a significant role in atmospheric mechanism not only at local and regional levels but also at global level (Myers, 1988). They cover only 7% of the earth's land surface yet they harbour more than 70% of the plant species in the biosphere, of which roughly 2% are exclusive endemics to tropical forests (Myers *et al.*, 2000). The greatest concentration of floristic and functional diversity occurs in tropical and subtropical regions (Tomlinson and Raven, 1977); but they are the most poorly studied regions (Prance, 1977). The destruction of the vegetation in tropics is alarmingly faster than the biological inventorisation (Raven, 1976).

It is estimated that there are about 2,65,000 species of plants (including bryophytes and vascular plants) in the world (Raven, 1988) of which 2,20,000 species are currently known angiosperms (Wilson, 1988). The tropical flora consists of 1,55,000 species of flowering plants, 11,000 ferns and fern-allies, 16,000 bryophytes and at least 90,000 fungi (Prance, 1977).

Taxonomy is the fundamental discipline of plant sciences. Flora is a systematic account of plants of a defined geographical area and, derived from field observations, herbaria and literature. Now, there are about 3,91,000 species of vascular plants known to Science, of which about 3,69,000 species (94 percent) are flowering plants, according to websites and data bases

including the Royal Botanic Gardens (Kew), the Plant list, International Plant Names Index (IPNI) and the World Checklist of Selected Plant Families (WCSPF). About 2,000 new plant species are discovered or described every year, many of which are already on the brink of extinction.

Botanical inventory is not only useful for the study of floristics and evolution but also for both conservation and utilization of tropical vegetation (Prance, 1977). Field knowledge of many wild plants and their ecology is an essential pre-requisite for conservation and utilization of them. Taxonomic research needs to be stimulated because it is an essential tool for managing biodiversity and mobilizing its benefits (Anonymous, 1992). To achieve the required knowledge on plant wealth of an area, systematists need to broaden their vision and work on analytical aspects of the floristics (Prance and Campbell, 1988). It is a difficult task to write a flora for a country like India but a series of minifloras or florulas of retain selected areas would go a long way to remedy the deficiency (Prance and Campbell, 1988).

Prance (1977) suggested that researchers must concentrate on a smaller area over an extended period of time; this type of inventory would yield data of great value for several disciplines including ecology and conservation biology. Raven (1988) is of the opinion that florulas of local areas would yield more complete information on the overall plant wealth of that region. Also, intense regional studies would yield more information on ecological and morphological variations that could be obtained from a study based on herbaria (Ashton, 1988). Florulas are shown to be more used by taxonomists than larger floras (Prance and Campbell, 1988).

Traditionally, biodiversity assessment has primarily been carried out by different botanical, zoological and anthropological survey organizations at international and national levels. International organizations like Royal Botanical Gardens (Kew), Smithsonian National Museum of Natural History (NMNH) and National organizations such as Botanical survey of India (BSI), Forest survey of India (FSI) and Zoological survey of India (ZSI) have been documenting biological diversity at species level since their existence (Roy *et al.*, 2012).

Rao *et al.* (1983) and Tinker (1974) observe that about 20,000 species are in danger of extinction and need immediate protection globally. Raven (1987) estimate that probably not more than 1,000 species have become extinct. Raven (1976) and Richardson (1970) quote '*the total loss of a species is irrevocable and each species is significant for the whole of mankind*'. About 28,000 species are, so far included in the IUCN (International Union for Conservation of Nature and Natural Resources) computer data as threatened plants (IUCN, 2019).

The purpose and enrolling of plant species growing in a particular area is necessary so that its utilization could be taken up for economic activities, scientific studies and conservation (Ali, 2008). Taxonomic study is the primary requirement for the assessment of diversity because many species with narrow distribution ranges, would become extinct before being described (Costell *et al.*, 2013). Additionally, most of the newly described species are critically endangered (Pimm *et al.*, 2014). The present extinction rates are exceptionally high due to loss of habitat and change in climate (Pimm, 2008). Most of the vulnerable species are geographically concentrated, so different habitats and wide range of geographical areas need to be explored to describe the unknown or poorly known taxa (Joppa *et al.*, 2010). Raven (1986) estimated that about 60,000 species of higher plants are likely to become extinct by the year 2050. Soule (1990) believes that 25 % of the tropical plant species will disappear by the year 2020, i.e., a loss of about 34,000 species of plants, 12.5 % of the world's flora.

Research on systematics, taxonomy, conservation biology and risk of extinction, threatened habitats and over exploitation of species are greatest challenges. There is an urgent need to give a special attention for inventorying the country's biodiversity rich areas and to develop a working list of all the known plant species. In the present state of our knowledge, India has 48,158 species of plants already identified and classified, but more needs to be explored.

India is one of the mega biodiversity countries of the world with diverse biogeographic regions and a wide range of topography, climate and habitat. Ayensu (1986) and Karthikeyan *et al.* (1989) have estimated that there are about 17,000 to 18,000 flowering plants in India. The data of plant wealth from published literatures like regional floras, national floras and monographic studies show that there is a total of 18,043 species, 296 subspecies, 2215 varieties, 33 subvarieties and 70 forma of angiosperms, 75 species of gymnosperms and 1268 species of pteridophytes in India (Singh and Dash, 2014).

The Peninsular India, together with Eastern Ghats along the east the Western Ghats on the west the Vindhyan range on the north, Indian Ocean on the south and Deccan Plateau in the middle has a characteristic palaeotropic flora derived from the Gondwanaland. Peninsular region is always considered equivalent to oceanic islands providing favourable conditions for high degree of endemism next to Islands (Turill, 1964; Subramanyam & Nayar, 1974). About 2,592 taxa of flowering plants are endemic to this region. Most of the endemic plants of Peninsular India are palaeoendemics concentrated in favourable ecological niches on either

side of the Western Ghats or Eastern Ghats (Nayar, 1996). The tropical moist deciduous and evergreen forests of Western Ghats harbour a large concentration of endemic plants in Peninsular India.

The Protected Areas are declared for specific purposes such as protection of the fauna and flora in that area and prevention of human interference through activities like deforestation, cultivation and grazing of animals. Moreover, taxonomic study and preparation of the flora is a prerequisite for understanding and evaluating the ecosystem and biosphere assessment of that area. Apart from conservation, preserving certain types of forests in their pristine condition for the posterity, outdoor recreation and educational values would provide permanent field laboratories for future scientific work (Ghosh and Kaul, 1977).

Sizeable natural areas have been selected and declared as National Parks and Sanctuaries to provide better conservation of our wild fauna and flora as gene pools in all their diversity. National parks and sanctuaries can be defined as areas of demarcated natural landscapes because of the legal restriction, natural conditions maintained, minimum human interferences and maintenance and protection and the predominant natural ecological processes (Fosberg and Sachet, 1965). The aim of the “Biosphere Reserve” is to provide ‘*in situ*’ conservation not in isolation but in totality. Expensive and serves as a best practice to conserve the gene pool than ex-situ conservation (Nayar, 1987).

In India, the enactment of the Indian Wildlife (Protection) Act (1972) led to the declaration of large areas as National Parks and Wildlife Sanctuaries for ‘*in situ*’ conservation. The total network of National Parks and Wildlife Sanctuaries covers 4.93% of the country with an area of about 1,62,099.47 sq km, out of the total area of 32,80,483 sq km. In India, there are 104 National Parks, 551 Wildlife Sanctuaries, 88 Conservation Reserves, 127 Community Reserves (ENVIS Centre, Wildlife Institute of India, 2018).

1.1. Reasons for undertaking the present work

Sathyamangalam Tiger Reserve has varied habitat types and forms a meeting point of Western Ghats and Eastern Ghats. Despite its unique geographical location, the Tiger Reserve has been under explored. The Tiger Reserve was expected to hold many interesting plants of botanical value owing to its geographical location hence, the present study was carried out.

The objectives of the present study were to comprehensive document the angiosperm plant diversity in Sathyamangalam Tiger Reserve. The information generated from the present will form a baseline data for this Tiger Reserve, which could be used by national / international organizations.

1.2.Objectives

Major objectives of the study are the following:

- Conduct intensive field explorations in all the forest types for collection and identification of Angiosperm taxa.
- Provide detailed description and taxonomic circumscription for the identified taxa.
- Prepare artificial key for families, genera and species to facilitate easy identification.
- Prepare herbarium for preservation of collected specimens and also to enrich the local as well as National Herbaria
- Provide the occurrence, distribution information and to record local names and uses of plants/ plant parts by local inhabitants.
- Aid the conservation of flora of the Tiger Reserve.

Study Area

Chapter 2

Study Area

2.1. Location and Boundaries

2.1.1. Eastern Ghats

The Eastern Ghats, one of the floristically rich phyto-geographical regions of India, forms a discontinuous range of mountains extending over 1750 km between the rivers of Mahanadi and Vaigai along the Eastern Coast of India across the states of Orissa, Andhra Pradesh, Telangana, Tamil Nadu and two districts of Karnataka (Rodgers *et al.*, 2000). Due to wide range of topography and expanded physical features, it harbours rich and varied flora. The hilly forest areas of Eastern Ghats are inhabited by several tribal communities, who still depend on forest resources for their livelihood.

The hills of Eastern Ghats with wealthy biological diversity form the center of endemism for floral and faunal life. This region is also an abode of many endemic elements and a number of species have become rare, threatened or endangered (Ahmedullah and Nayar, 1987; Reddy *et al.*, 2006). The number of flowering plant taxa occurring in the Eastern Ghats is about 3200 with 166 endemic species (Singh *et al.*, 2015). Most of the endemic plants in Eastern Ghats show narrow range of distribution. Eastern Ghats are hallowed with Tiger Reserves, Wildlife Sanctuaries and National Parks, has rich biodiversity with unique features. The physical feature of the Eastern Ghats, provided by the hills raising from almost 100 to about 1600 msl. The Eastern Ghats are older than Himalayas and Western Ghats. Several major rivers like Mahanadi, Godavari, Krishna, Pennar and Cauvery cut the Eastern Ghats into discontinuous blocks of hills.

Depending on the species richness and endemic diversity, the Eastern Ghats is divided into three broader zones (Rawat, 1997). The southern Eastern Ghats covering Tamil Nadu and parts of Karnataka, the middle Eastern Ghats covering Andhra Pradesh and Telangana and the northern Eastern Ghats covering parts of Andhra Pradesh and Odisha.

2.1.2. Southern Eastern Ghats

The Southern Eastern Ghats represents low hilly areas runs in a west-south-west direction meeting the high mountain ranges of the Western Ghats in the Nilgiris, covering hills of Javadi, Gingee, Kalrayan, Shevaroy, Kolli, Yelagiri, Bodamalai, Melagiri, Pachamalai, Nagamalai, Chitteri, Bargur in Tamil Nadu and Sandoor hills and Bilgirisirangan hills in Karnataka. The southern Eastern Ghats harbour five major forest types - tropical wet evergreen,

semi-evergreen, mixed deciduous, dry deciduous and thorn forests. The Southern Eastern Ghats is represented by only one Protected Area namely Sathyamangalam Tiger Reserve.

2.1.3. Sathyamangalam Tiger Reserve

Sathyamangalam Tiger Reserve is the largest Tiger Reserve in Tamil Nadu and 42nd in India (declared on 15th March 2013). Sathyamangalam Tiger Reserve having 1,41,161 ha of forest area, its tract falls between the latitudes 11° 29' 15" to 11° 43' 11" N and longitude 76° 50' 69" to 77° 27' 22" E (Plate 1a & 1b). Sathyamangalam Tiger Reserve has got a high diversity of flora and fauna owing to its location which is a confluence of two distinct geographical regions of biodiversity landscape, namely Eastern Ghats and Western Ghats. The altitude ranges from 250m to 1680m above sea level (Plate 2a).

Sathyamangalam Tiger Reserve also forms a part of Nilgiri-Biosphere Reserve. The Sathyamangalam Tiger Reserve lies in the Northern Part of Erode District, and is bounded on the North by Karnataka State, on the East and South by Erode Forest Division and in the West by Nilgiris (North Forest Division). Sathyamangalam Tiger Reserve is surrounded by Chamraj Nagar and Bilgiriangan Forest Division on the North and in the south by Nilgiri North Division, which is part of the Nilgiri Biosphere Reserve. The eastern part of the sanctuary falls in the rain shadow area of the Western Ghats and it receives poor rainfall so animals concentrate along Moyar, a Perennial water source.

The Tiger Reserve is rich in floral composition owing to its unique location. The region comprises of 14 different forest types described in Champion and Seth (1968). Sandal occurs predominantly in these forests which was designated as the Royal Tree by King Tipu Sultan.

2.2. Geological features

2.2.1. Rock

Although soil derived from a given type of rock varies considerably with climatic conditions, the nature of parent rock exerts a considerable influence on the properties of the soil. The rock types of the Sathyamangalam Tiger Reserve mainly belong to the great gneissic series of Pre-Cambrian age. The common metamorphic derivatives found in the Sanctuary are metamorphosed sedimentary rocks such as quartzite, hornblende, amphibolites, pyroxenites and Pyroxene. The minerals found in the sanctuary are feldspar, quartzite, magnetite, garnet, kyanite (Anuradha *et al.*, 2012; FMP, 2010).

2.2.2. Soil

The soil is a dynamic layer of surface material which is constantly changing and developing under process of adjustment to condition of climate, parent material, topography,

PLATE 1

Plate 1a. Map showing the Administrative Divisions and Ranges of the Sathyamangalam Tiger Reserve.

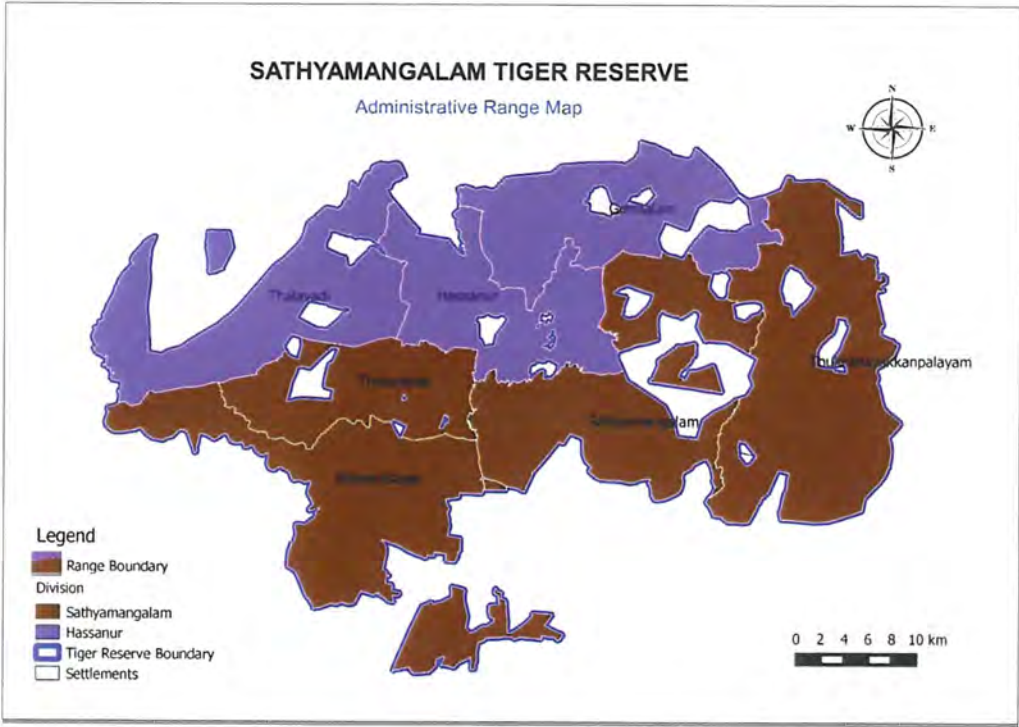
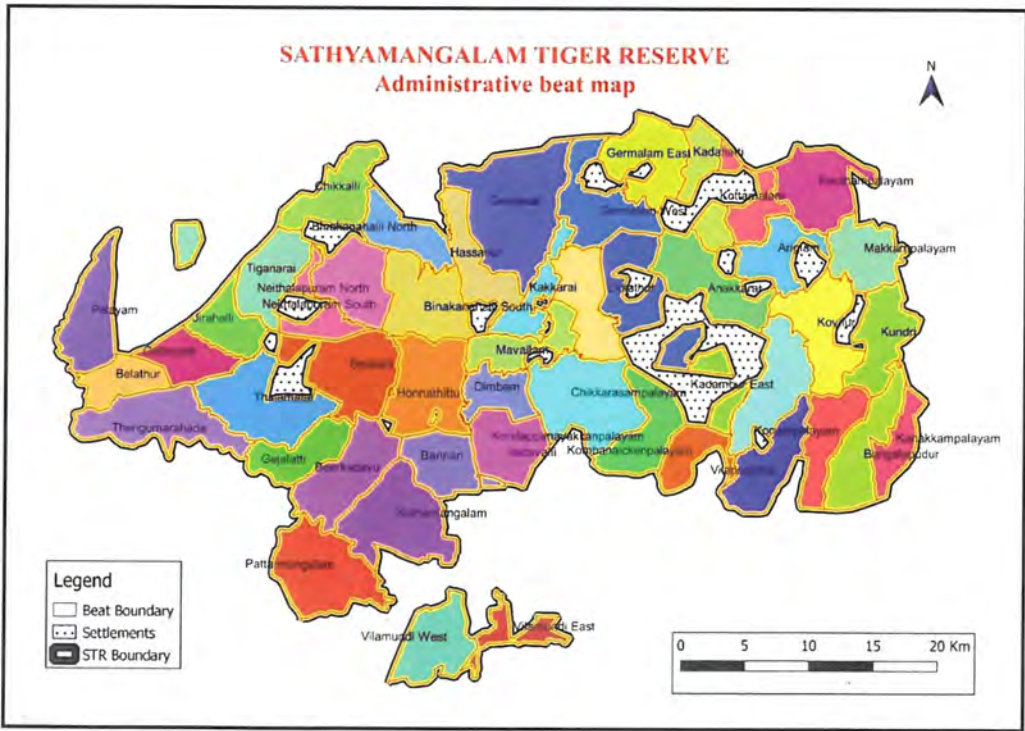


Plate 1b. Map showing the Administrative Beats of the Sathyamangalam Tiger Reserve.



and vegetation. The common soil types of the Sanctuary are red soils, laterite soils, black cotton soils and Alluvial soils.

2.2.3. Topography

The topography of the Tiger Reserve is highly variable with plains, slopes, hills, streams and rivers. The terrain is gently undulating in the Moyar Valley with the elevation ranging from 250m to 1680m in the Bhavanisagar, Sathyamangalam, T.N.Palayam, Germalam, Talavadi, Talamalai and Hasanur Ranges (Plate 1a & b). The western part of the Tiger Reserve is almost flat.

2.2.4. Climate and Rainfall

Generally, the Plateau region enjoys a mild and equitable climate. The slopes and plains are subjected to hot and dry climate. The average minimum and maximum temperatures are 21.54° C and 27.02° C in the plateau and 26.24° C and 32.84° C in the plains. Thus, the climate of the Sathyamangalam Tiger Reserve is moderate. There is a rainfall gradient from east to west of the Sanctuary. The eastern part of the Sanctuary falls in the rain shadow area of the Western Ghats and it receives poor rainfall. It receives a mean annual rainfall of 850 mm. But considerable variation could be noticed from place to place. The mean minimum temperature and mean maximum temperature is 21°C and 28°C, respectively (Nishanth *et al.*, 2012). The Plateau forests are subjected to strong and gusty winds blowing from south westerly direction, during the south west monsoon period of June to September. In May, thunder storms with the occasional cloud bursts are common in the Plateau.

2.2.5. River systems

Many big and small streams and rivers are flowing through this Tiger Reserve (Plate 2b). Bhavani, Moyar and Palar, Minchikully halla and Swarnavathi from the perennial rivers of this Reserve. The Bhavani River is the second longest river in Tamil Nadu and Bhavanisagar dam is constructed on Bhavani river, which is merely under the union of Moyar river. The Bhavanisagar Reservoir found in Bhavanisagar Range of this Tiger Reserve is considered to be the one among the biggest earthen dams in the country. There are two perennial streams, namely Gunderipallam and Perumpallam which runs between the hills. A total of 26 small ponds of both natural and man-made are found inside the Tiger Reserve.

2.3. Indigenous tribal communities

The indigenous tribal communities live in the interior forest area in various settlements. They depend on forests and forest products for their livelihoods. They practice agriculture

PLATE 2

Plate 2a. Map showing the Altitude gradient of the Sathyamangalam Tiger Reserve.

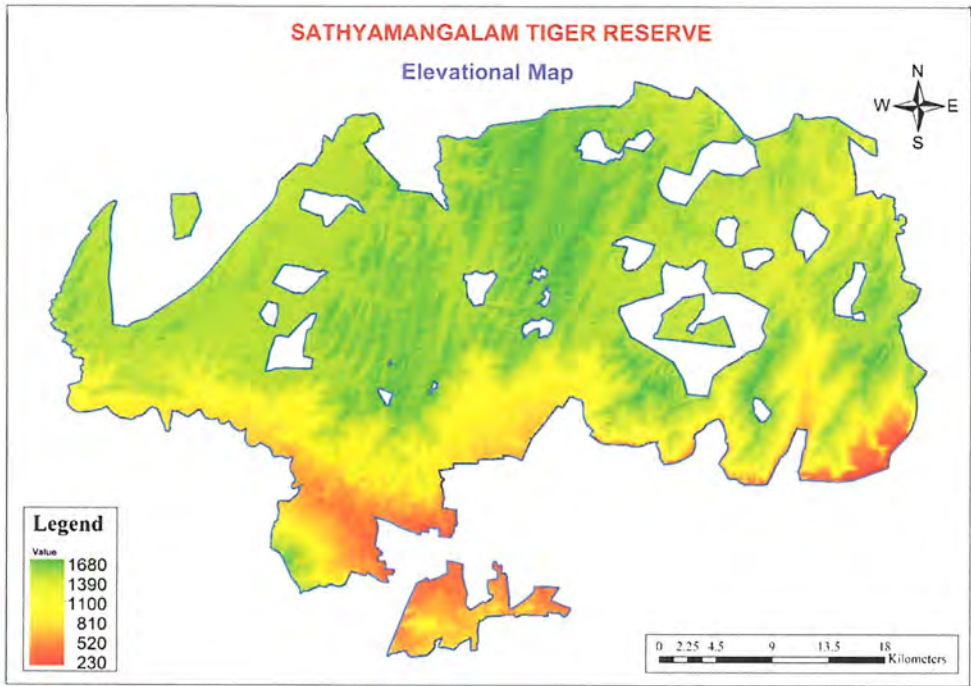
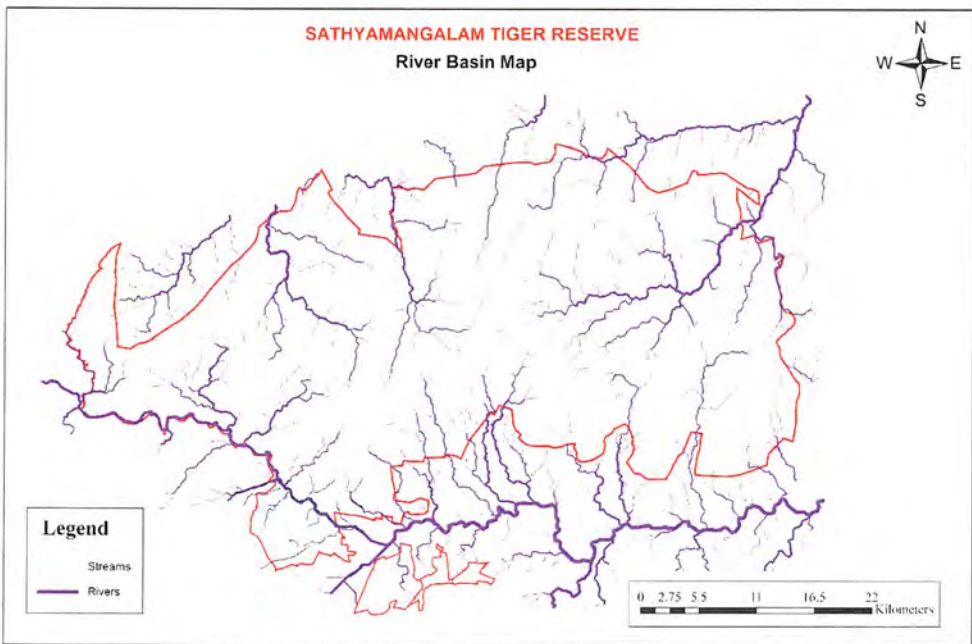


Plate 2b. Map showing the Drainage Rivers and Streams of Sathyamangalam Tiger Reserve.



alongside the streams, rivers and plains (Balasubramanian *et al.*, 2011). The tribes Irulas, Kurumbas, Soligars, Ooralis, Malayalee and Naickers are settled in the Reserve Forest areas. Presently, these people have small pockets of land near their settlements and cultivate wide variety of crops such as millets, cereals, thinai, maize and plantain for their use. They also gather food by hunting, fishing and digging off edible tubers from the forest. Many of them are nice craftsman and artisans. They use several medicinal plants collected from inside the Reserve Forest (Cinnasamy *et al.*, 2018; Rajalakshimi *et al.*, 2016; Revethi *et al.*, 2013; Arunachalam and Parimelazhagan, 2011; Revathi and Parimelazhagan, 2010) for treating various ailments.

2.4. Fauna

Sathyamangalam Tiger Reserve is known for its rich biodiversity. A huge population of wild animals such as Tiger, Elephant, Gaur, Black Buck, Four horned Antelope, Leopard, Hyena, Wild Dog, White-backed Vulture, variety of Primates, Deers, civets, reptiles, birds, amphibians, fishes and other creatures occur here. The Reserve is endowed with over 40 species of larger mammals, 225 species of birds and 30 species of reptiles, 15 species of amphibians and 10 species of fishes. The river Moyar which runs along the Bhavanisagar range is the lifeline for all the animals living in this region. The diverse vegetation types and topographical features is one of the reasons for the rich diversity of flora and fauna of this region.

2.5. General aspects of the vegetation

Based on Champion and Seth's Classification of the Forest Types of India (Champion and Seth, 1968), 14 different forest types were identified from Sathyamangalam Tiger Reserve (Plate3).

2.5.1. West coast semi-evergreen forest (2A/C2)

Tall trees with thick and buttressed tree trunks are found growing in the semi evergreen forests. This forest covering 12376 ha occurring in Hassanur, Germalam and Talamalai ranges in the Tiger Reserve (Plate 4a). The canopy is comparatively lighter than the evergreen forests. It has a mixture of species of evergreen forests and deciduous forests. This type of forest is found in an altitude of 800-1200 m that receives heavy rainfall. Epiphytic orchids, ferns, mosses and lichens are common. Climbers are prominent and spread over tree canopies. The ground vegetation is generally absent or very few individuals occur. Trees reach a height of 40 m or more. The top canopy is formed by *Cinnamomum* spp., *Litsea* spp., *Elaeocarpus serratus*,

PLATE 3

Plate 3. Map showing the different forest types of the Sathyamangalam Tiger Reserve.

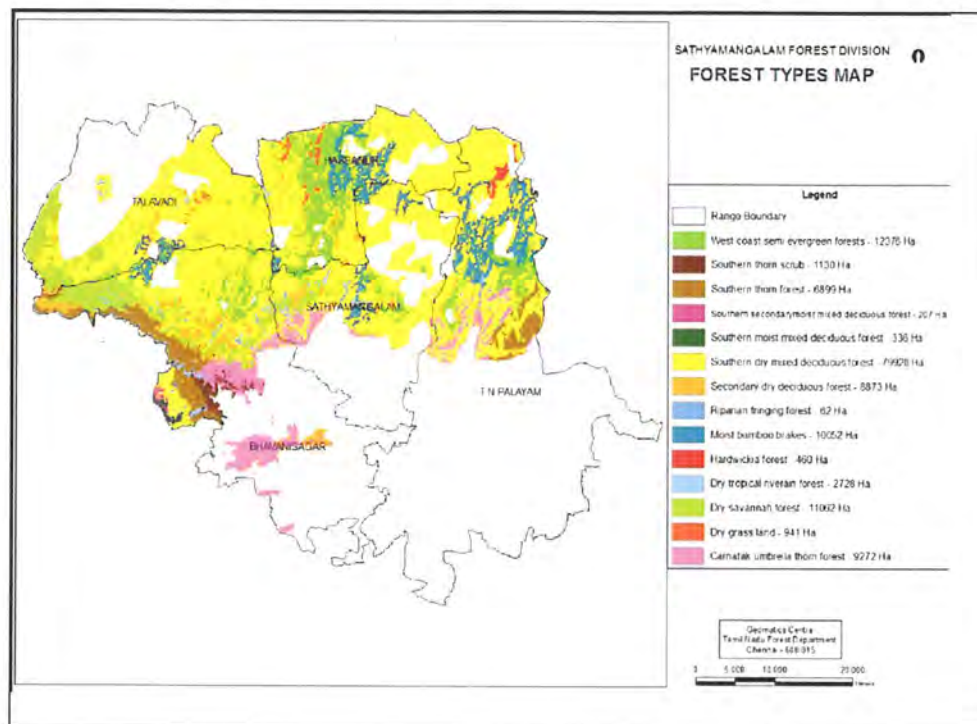


PLATE 4 FOREST TYPES



a) West coast semi evergreen Forest, b) Southern moist mixed deciduous Forest, c) Southern secondary moist mixed deciduous Forest, d) Moist Bamboo Brakes, e) Southern dry mixed deciduous Forest, f) Dry Grassland, g) Riparian fringing Forest, h) Dry savannah Forest.

PLATE 5- FOREST TYPES



a) Hardwickia Forest, b) Dry tropical riverine Forest, c) Southern thorn scrub Forest, d) Carnatak umbrella thorn Forest, e) Secondary dry deciduous Forest, f) Southern thorn Forest.

Mallotus philippensis, *Ixora arborea*, *Symplocos cochinchinensis*, *Neolitsea scrobiculata*, *Persea macrantha*, *Syzygium cumini*, *Vitex alitissima*, etc.

The ground flora is almost absent except for some ferns and herbs like *Spilanthes calva*, *Arisaema leschenaultii*, *Crotalaria fysonii*, *Cyanotis arachnoidea*, *Elatostema lineolatum*, *Peperomia* spp., *Spathaglottis plicata*, *Angiopteris evecta*, *Nephrolepis* and *Pteris* spp. The epiphytic orchid genera like *Bulbophyllum*, *Coelegyne*, *Dendrobium*, *Oberonia*, *Polystachya* are commonly found growing on large trees. The lianas and climbers which are characteristic to these forests are represented by *Clematis gouriana*, *Jasminum* sp., *Piper nigrum*, *Thunbergia elata*, etc.

2.5.2. Moist bamboo brakes (2/E3)

More or less continuous cover of one or two species of tall bamboos (*Bambusa bambos*) with occasional stands of *Terminalia* and other tree species (Plate 4d). Bamboo brakes are found in colonies in high elevations between 600-1200 m elevation.

2.5.3. Southern moist mixed deciduous forest (3B/C2)

In this forest type the evergreen species are usually higher and the teak is occasionally present. This forest covers 336 ha in Talamalai and Hassanur ranges of the Tiger Reserve (Plate 4b). Common trees species of the forest are *Pterocarpus marsupium*, *Anogeissus latifolia*, *Phyllanthus emblica*, *Buchanania lanzan*, *Cassia fistula*, *Gmelina arborea*, *Ziziphus rugosa*, *Bambusa bambos*, *Madhuca longifolia* and *Syzygium cumini*. The shrubby vegetation is dominated by *Helicteres isora*, *Anisomeles indica* and *Flacourtia indica*.

2.5.4. Southern secondary moist mixed deciduous forest (3B/ 2S1)

This forest type also included moist deciduous type. This forest covers 207 ha in Bhavanisagar, K.N.Palayam and Talamalai ranges of the Tiger Reserve (Plate 4c). Common tree species are *Phyllanthus emblica*, *Mangifera indica*, *Grewia tiliifolia*, *Terminalia bellirica* and *Terminalia paniculata*. Common shrubs include *Helicteres isora*, *Clerodendrum* spp. and *Glycosmis pentaphylla*.

2.5.5. Riparian fringing forest (4E/RS1)

A few species of large trees typically forming a rather narrow fringe along the water courses form the riparian forests. A small area of the forest occurring along the rivers of Moyar, Bhavani, Palar and stream sides covers 62 ha of the area (Plate 4g). The common trees of these forests are *Terminalia arjuna*, *Pongamia pinnata*, *Syzygium cumini*, *Schleichera oleosa* and *Mangifera indica*.

2.5.6. Southern dry mixed deciduous forest (5A/C3)

Thorny species are common in this forest type which is mainly found in dry regions. Bamboos are often absent. This is the major forest type covering 79928 ha, occurring in all the ranges of the Tiger Reserve (Plate 4e). The most characteristic tree is *Anogeissus latifolia* whilst *Chloroxylon swietenia* and *Terminalia tomentosa* is a very typical associate. The other common species are *Soymida febrifuga*, *Santalum album*, *Terminalia chebula*, *Boswellia serrata*, *Cassia fistula*, *Butea monosperma*, *Hardwickia binata*, *Mitragyna parvifolia* and *Diospyros montana*. The common shrub species of the forest are *Flueggea leucopyros*, *Erythroxylum monogynum*, *Breynia vitis-idaea*, *Carmona retusa*, *Tamilnadia uliginosa*, *Ziziphus oenoplia* and *Capparis sepiaria*.

2.5.7. Secondary dry deciduous forest (5/2S1)

This forest type is an inferior form of the climax type marked by the poor shape and size of the trees and absence of old trees. *Santalum album* is the dominant and important species of this forest type. This forest covering 8873 ha, and scatteredly distributed in all the ranges of the Tiger Reserve (Plate 5e). The common tree species are *Santalum album*, *Salvadora persica*, *Butea monosperma*, *Mitragyna parvifolia*, *Buchanania lanzan*, *Grewia tiliifolia*, *Dolichandron* spp., *Tectonia grandis*, *Limonia acidissima* and *Aegle marmelos*. The shrubby vegetation is dominated by *Dodonaea viscosa*, *Chromolaena odorata* and *Lantana camara*.

2.5.8. Hardwickia forest (5/E4)

This forest has the general appearance of the predominance of *Hardwickia binata*. Scattered in blocks and patches in the drier parts of the hill slopes. It is a special type of forest, found in Southern Peninsular regions. This forest types covering 460 ha found in dry hill slopes of the Talavadi, Hassanur and T.N.Palayam ranges (Plate 5a). The associated species are *Boswellia serrata*, *Givotia rotleriformis*, *Anogeissus latifolia*, *Pterocarpus marsupium* and *Chloroxylon swietenia*. A few invasive species of *Lantana camara*, *Chromolaena odorata* occur scatteredly.

2.5.9. Dry tropical riverine forest (5/1S1)

This forest type covering 2728 ha occur along the stream sides of the hill slopes and plains. The trees often being of larger size and forming patches and stripes with varying amounts of smaller trees and shrubby undergrowth (Plate 5b). The soil is often bare sand. These forests are found along the large streams in a dry deciduous forest widening as the valleys get border and extentending into the moist deciduous type also. Important tree species are *Terminalia arjuna*, *Holoptelea integrifolia*, *Schleichera oleosa*, *Mitragyna parvifolia* and *Pongamia pinnata*. Important grass species of this forest type are *Eragrostis* spp., *Cenchrus* spp., *Apluda mutica*, etc.

2.5.10. Dry savannah (5/DS2)

The usual open but typical formation is found in single or small groups of trees (Plate 4h). The stemless *Phoenix* (*Phoenix sylvestris*) is particularly characteristic. Thorny shrubs are common. This forest types covers 11062 ha and found in all the ranges. The fire-resistant trees such as *Pterocarpus marsupium*, *Anogeissus latifolia*, *Bridelia retusa*, *Terminalia chebula*, *Diospyros montana* and *Hardwickia binata* are common here. The grass species such as *Cymbopogon* spp., *Themeda* spp. and *Apluda mutica* are abundantly found.

2.5.11. Dry grassland (5/DS4)

Grass species dominates this forest type. It covers 941 ha and spread in Talavadi, Talamalai, Germalam and Hassanur ranges (Plate 4f). Important grass species this vegetation type are *Chrysopogon* spp., *Dichanthium* spp., *Heteropogon contortus* and *Bothriochloa pertusa*.

2.5.12. Southern thorn forest (6A/C1)

It is an open low forest in which thorny hardwood species predominate (Plate 5c). *Acacia catechu* is predominantly seen. Other common species are *Ziziphus jujuba*, *Acacia chundra*, *Acacia nilotica*, *Acacia leucophloea*, *Chloroxylon swietenia*, *Albizia amara* and *Azadirachta indica*. Thorny shrubs are common in this forest which is represented by *Carissa* spp., *Cassia auriculata*, *Scutia myrtina* and *Ziziphus oenoplia*. This forest extending to 6899 ha, is common in Bhavanisagar and T.N.Palayam ranges.

2.5.13. Southern thorn scrub (6A/DS1)

Degradation as a result of the usual maltreatment results in the formation of close almost impenetrable thorny thickets. This forest covering 1130 ha, common in Bhavanisagar range and few pockets of T.N. Palayam range (Plate 5f). Dominant tree species are *Chloroxylon swietenia*, *Albizia amara*, *Acacia chundra*, *Anogeissus latifolia*, *Azadirachta indica*, *Bauhinia racemosa*, *Dichrostachys cinerea*, *Gardenia gummifera*, *Hardwickia binata*, *Wrightia tinctoria* and *Ziziphus jujuba*. Thorny climbers and shrubs are common. Common species occur here includes *Capparis sepiaria*, *C.divaricata*, *C.grandiflora*, *Dodonea viscosa*, *Fluggea leucopyros*, *Erythroxylum monogynum*, *Pterolobium indicum* and *Carissa* spp. The herbaceous and shrubby climbers are *Cocculus hirsutus*, *Combretum albidum*, *Gymnema sylvestre*, *Ventilago madraspatana* and *Ziziphus oenoplia*. The forest undergrowth formed by *Byttneria herbacea*, *Decaschistia crotonifolia*, *Crotalaria calycina*, *Desmodium gangeticum* and *Triumfetta rhomboidea*.

2.5.14. Carnatic umbrella thorn forest (6A/C2)

An open thorny forest in which *Acacia planifrons* with its umbrella shaped crown is conspicuous with thickets of other species of *Acacia* and many of xerophytic evergreen species of the dry evergreen forest. These forests occur in the dry plains only, mainly found in Bhavanisagar, Sathyamangalam and T.N.Palayam ranges covering 9272 ha (Plate 5d). Major tree species are *Albizia amara*, *Chloroxylon swietenia*, *Dichrostachys cineria*, *Acacia nilotica*, *Acacia horrida* and *Balanites aegyptiaca*. The xerophytic species are *Euphorbia antiquorum*, *Kleinia grandiflora*, *Agave americana*, *Caralluma adscendens*, *C. diffusa* and *Aloe vera*. Ground layer is almost absent.

2.5.15. Secondary associates

2.5.15.1. Vegetation on Ponds, Tanks and Reservoirs

Ponds, tanks and reservoirs support aquatic vegetation. Common aquatic species include free floating hydrophytes such as *Eichhornia crassipes*, *Lemna gibba* and *Pistia stratiotes*. Submerged hydrophytes such as *Hydrilla verticillata*, *Vallisneria natans* and *Najas indica* also common. Fixed floating hydrophytes recorded include *Nymphaea pubescens*, *Ottelia alismoides* and *Nelumbo nucifera*.

Amphibious hydrophytes include *Persicaria glabra*, *Ipomoea aquatica*, *Monochoria vaginalis*, *Ludwigia peruviana*, *Ipomoea carnea* and *Cyperus iria*. Marshy and wetland hydrophytes include *Typha angustifolia*, *Utricularia bifida*, *Drosera burmanii*, *Eleusine indica*, *Hygrophila schulli*, *Fimbristylis bisumbellata*, *Asclepias curassavica*, *Bacopa monnieri*, *Eclipta prostrata*, *Melochia corchorifolia*, *Phyla nodiflora*, *Spilanthes calva* and *Crotalaria pallida*.

2.5.15.2. Plantations

The State Forest Department had raised extensive plantations in various places of the Reserve particularly along roadsides, irrigation tanks and river banks. Some of the common species are *Acacia nilotica* subsp. *indica*, *Azadirachta indica*, *Casuarina equisetifolia*, *Dalbergia sisoo*, *Eucalyptus tereticornis*, *Gliricidia sepium*, *Leucaena leucocephala*, *Pongamia pinnata*, *Senna siamea*, *Tamarindus indica* and *Terminalia arjuna*. Common trees planted along roadsides and private compounds for its shade and avenue value are *Polyalthia longifolia*, *Hibiscus tiliaceus*, *Thespesia populnea*, *Senna siamea*, *Delonix regia*, *Peltophorum pterocarpum*, *Albizia lebbek*, *Samanea saman*, *Terminalia catappa*, *Kigelia africana*, *Millingtonia hortensis*, *Ficus benghalensis* and *F. religiosa*. Groves of *Acacia planifrons* are raised for fuel wood by peoples in Bhavanisagar range.

2.6. Factors affecting the forest vegetation

2.6.1. Overgrazing

Continuous grazing by a large number of cattle generally affect the vegetation in several places. Grass cover and herbaceous flora is relinquished at an early age because of heavy grazing and trampling.

2.6.2. Fires

Purposeful or negligent fires by local inhabitants in forest areas and the burning of agricultural waste dumped along field borders disturbs the natural growth of the vegetation. This discriminates a large number of species which cannot endure fires and facilitates only a few fire-resistant species.

2.6.3. Collection of non-timber forest products (NTFP)

Honey, wax, gum, resin, edible fruits, shed deer-horns, fibre, firewood and medicinal plants are the major forest produces collected by the tribals and local people.

2.6.4. Invasive species

Invasive weeds such as *Prosopis juliflora*, *Lantana camara*, *Chromolaena odorata*, *Hyptis suaveolensis*, *Ageratum conyzoides*, *Senna* spp., *Sida* spp. *Opuntia dillenii* and *Parthenium hysterophorus* are common in the Tiger Reserve.

Previous Botanical Exploration

Chapter 3

Previous Botanical Exploration

Literature survey is the backbone for constructing a research design, planning and programming. The Britishers made major contributions to the floristic studies in India. Joseph Dalton Hooker and his associates (1872-1897) published the seven volumes of *The Flora of British India*. They recorded 171 families 2,325 genera 14,312 species, 25 subspecies, 2,302 varieties, 11 subvarieties and 9 formae. George Bentham and Joseph Dalton Hooker (1862-1883) enumerated 97,205 species belonging 202 families and 7,569 genera.

A total of 18,043 species, 296 subspecies, 2215 varieties, 33 subvarieties and 70 formae of angiosperms, 75 species of gymnosperms and 1268 species of pteridophytes in India (Singh and Dash, 2014), which amounts to 11.4% of the total recorded plant species in world (Arisdason and Lakshminarasimhan, 2015). About 28% of plants that occur in India are endemic to the country. The present political boundaries of the Indian Republic harbours 48,158 species (Singh *et al.*, 2017).

Among those who contributed to the botany of Peninsular India, Robert Wight is the most important. He contributed 28 publications including *Illustrations of Indian Botany* (1840-1850) and *Icones Plantarum Indiae Orientalis* (1838-1853). Robert Wight and Arnott (1843) published *Prodromus Florae Peninsulae Indiae Orientalis*. The other notable contributions during the 19th century including *The Flora Sylvatica for Southern India* (Beddome, 1869-1874), *Icones Plantarum Indiae Orientalis* (Beddome, 1868-1874), *Flora Indica* (Roxburgh, 1820-1824) and *Plants of the coasts of Coromandel* (Roxburgh, 1795-1920).

Subsequently regional floras like *Flora of the Presidency of Madras* (Gamble and Fischer, 1957) and additions to the flora of Presidency of Madras (Karthikeyan and Sharma, 1983), *Flora of Eastern Ghats* (Pullaiah and Rao, 2002; Pullaiah and Ramamurthy, 2003; Pullaiah *et al.*, 2007; Pullaiah *et al.*, 2010), *Flowering plants of the Western Ghats* (Nayar *et al.*, 2014) and the *Flora of Nilgiri Biosphere Reserve* (Balakrishnan and Ansari, 1990; Balakrishnan and Mohanan, 1999) were published.

The important works on flora of southern Peninsular India include *The Flora of Tamilnadu Carnatic* (Matthew 1981, 1982, 1983 & 1988), *Flora of South Indian Hill Stations* (Fyson, 1932), *Flora of Karnataka* (Saldana, 1984 & 1996; Sharma *et al.*, 1984), *Flora of Palani Hills* (Matthew, 1998 & 1999), *The Flora of Tamil Nadu* (Nair and Henry, 1983; Henry *et al.*, 1987 & 1989), *The flora of Andhra Pradesh* (Pullaiah and Chennaiah, 1997;

Pullaiah and Moulali, 1997; Pullaiah, 1997; Pullaiah and Babu, 1998; Pullaiah and Karuppusamy, 2008), Flora of Telangana (Pullaiah, 2015 a & b), Flowering plants of Kerala (Sasidharan, 2012), The flora of Nilgiri and Pulney Hill Tops (Fyson, 1975) and the Flora of Central Tamil Nadu (Matthew, 1991). Simultaneously work on regional as well as local floras were undertaken by the Botanical Survey of India with the view of preparing a complete and comprehensive flora of India.

Notable floristic works carried out in Eastern Ghats included Ellis (1987-1990) on Flora of Nallamalais; Subba Rao (1977) on the Flora of Visakhapatnam District; Sandhyarani *et al.* (2007) on Tree flora of Eastern Ghats; Tirupathi hills, Andhra Pradesh (Naidu and Suryaprakash Rao, 1967 & 1969; Naidu *et al.*, 1971); Matthew (1970 & 1975) on the Flora of Pachamalai and Narthamalais in Tiruchirapalli district, Tamil Nadu respectively; Sebastine and Henry (1961) on the Vascular plants of Pachamalais; Matthew (1989) on the Flora of Kodaikanal hills.

Notable floristic publications in Tamil Nadu includes Flora of Coimbatore District (Chandrabose and Nair, 1988), Flora of Periyar District (Venkatasubramanian, 1992), Flora of Madras (Livingstone, 1987), Flora of Nilgiris (Sharma, 1975 and Sharma *et al.*, 1977), Flora of Chengalpattu District (Narasimhan, 1991), Flora of Madurai District (Ravikumar, 1993), Flora of South Arcot District (Ramamurthy, 1982), Flora of North Arcot District (Viswanathan, 1989), Flora of Thanjavur District (Ragupathy, 1992), Flora of Viruthunagar District (Rajendran and Prasanna, 2015), Flora of Ramanathapuram District (Balasubramanian, 1991), Flora of Pudukottai District (Arulappan, 1988) and Flora of Dharmapuri District (Vajravelu and Radhakrishnan, 1968).

Subsequent works of the floristic regions and hills stations of Tamil Nadu are Flora of Agasthyamalai and surroundings (Henry and Subramanian, 1981), Flora of Anamalai Hills (Fischer, 1921), Kolli hills (Ranjithakani, 1998), Shevaroy hills (Senthil Kumar and Krishna Murthy, 1993), Javadi hills (Subramanyam and Henry, 1967), Pachamalai hills (Matthew, 1975; Sebastine and Henry, 1961), Alagar hills (Sriganesan, 1984), Velliangiri and Maruthamalai hills (Sebastine, 1959; Murugesan, 2005), Sirumalai hills (Pallitharan, 2001), Tirunelveli hills (Manickam *et al.*, 2003), Flora of Coutralam (Nair and Nayar, 1986-87) and Nagamalai hills (Paliwal *et al.*, 1984).

Some Flora works were related to specific groups of plants such as Flora of Tamil Nadu, Grasses (Kabeer, 2007), Flora of Kerala Grasses (Sreekumar and Nair, 1991), Poaceae in Andhra Pradesh (Gayathri, 1994) and Grass Flora of India (Jain, 1986), Legumes of India (Sanjappa, 1991), Malvaceae in Southern Peninsula (Sivarajan and Pradeep, 1996),

Pteridophytic flora of Kodaikanal (Bir and Vasudevan, 1971), Introduction to Orchids of India (Abraham and Vatsala, 1981), Pteridophytic flora of Western Ghats and Nilgiris (Manickam and Iruthayaraj, 1992 & 2003), Orchids of Eastern Ghats (Prasad *et al.*, 2019) and Moss flora of Palani hills (Alam *et al.*, 2011).

There were also floristic studies on Protected Areas of Tamil Nadu, Namely Indira Gandhi National Park (Arisdason, 2008), Mukurthi National Park (Varghese, 2002), Gulf of Mannar (Daniel and Umamakeshwari, 2001) and Mudumalai Wildlife Sanctuary (Sharma *et al.*, 1978 and Stephen, 1995).

Endemic taxa are essentially restricted to specified geographical regions. Tropical forests show a high degree of species richness and endemism. Endemic plant species in India have been estimated as 33% with ca. 140 endemic genera (Sheeba and Narasimhan, 2011). Singh *et al.* (2015) reported a total of 4381 species including infraspecific taxa of vascular plants belonging to 1007 genera and 176 families in India out of which 4303 are angiosperms. Botanical survey of India published a complete RET plants in Indian Red Data Books in three volumes (Nayar and Sastry 1987, 1988 & 1990), accounting for 1500 threatened species. Many papers have been published on threatened plants of individual states of India. The important works on endemic and endangered species of Peninsular India were worked by several authors, namely Nayar *et al.* (1984), Vajravelu (1983), Henry *et al.* (1978), Ahmedullah and Nayar (1987), Nair (1982), Jain and Rao (1983), Jain and Sastry (1980), Nayar (1996) Chatterjee (1939) and Gopalan and Henry (2000).

Some of the important floristic works near to the Present study area STR include Flora of Palaghat including Silent Valley National Park (Vajravelu, 1990 and Manilal, 1988), Flora of Bangalore district (Ramaswamy and Razi, 1973), A synoptic flora of the Mysore district (Rao and Razi, 1981), Flora of Eastern Karnataka (Singh, 1988), Flora of Hassan district (Saldanha and Nicolson, 1978), Flora of Palghat district (Subramanian *et al.*, 1987) and Flora of Bilgiriangan Wildlife Sanctuary (Ramesh, 1989).

3.1. Previous botanical research in Sathyamangalam Tiger Reserve

Subramanian and Kalyani (1977) studied the Flora of Dimbam Ghats, Sathyamangalam Forest Division and enumerated 293 species belonging to 82 families. Amirthalingam (2009) studied the flora of Minchigully Valley in STR and reported 182 species. The occurrence of three endemic plants species namely *Tarenna asiatica* (L.) Kuntze ex K. Schum. var. *asiatica* forma *rigida* (Wight) Raju (Rubiaceae), *Cryptocarya beddomei* Gamble (Lauraceae) and *Litsea floribunda* (Blume) Gamble (Lauraceae) were reported as new records to the flora of

Eastern Ghats (Murugesan *et al.*, 2009). Rediscovery of *Isonandra villosa*, a critically endangered species was reported by Balasubramanian and Murugesan (2010). Murugesan *et al.* (2010) reported the additions of two genera, *Nothopodytes blume* and *Fagraea thumb* to the flora of Eastern Ghats, India. *Anredera cordifolia* (Ten.) Steenis (Basellaceae) found in Sathyamangalam Tiger Reserve was reported as a new addition to the indigenous flora of India was recorded by Rasingam and Lakshinarasimhan (2012).

Revathi and Parimelazhagan (2010) recorded the traditional knowledge systems of medicinal plants used by the Irula tribe of Hasanur hills, STR. Revathi *et al.* (2013) studied the entnomedicinal plants and reported novel herbal formulations used by Hooralis tribe in Sathyamangalam forests. Rajalakshimi *et al.* (2016) documented the indigenous ethno-medicinal plants from Irula tribes of Kadambur hills in STR. Ethno medicinal plants used by tribal communities in Hassanur was reported by Poongodi *et al.* (2011). A recent study on herbal medicines reported 61 species from Sathyamangalam forest by Chinnasamy *et al.* (2017a). A list of 100 poisonous plant species belonging to 43 families were reported by Chinnasamy *et al.* (2017b) from STR.

3.2. Previous herbaria collections in Sathyamangalam Tiger Reserve

Fischer collected around 300 species from the Hassanur and Dhimbam Hills in STR during 1905-1932 and the specimens are available in MH and FRC Herbaria. Sathyanarayan (2007-2009) made a field inventory in the Sathyamangalam Reserve Forest and collected 486 specimens and submitted to MH. Subramanian and Venkatasubramanian (1962-2011) conducted field exploration in Erode district including parts of Sathyamangalam Tiger Reserve and the specimens are housed in FRC, Coimbatore. The other important plant collectors from Sathyamangalam forests are C.A. Barber (1910-1932), C.E.C. Fischer (1905-1932), K.C. Jacob (1924-1931), J. David (1924-1931), V. Narayanaswamy (1922-1930), S. Ramaswamy Raja (1929-1942), K.N. Subramanian (1962-1988), K. Ramaswamy (1986), E. Vajravelu (1914-1984), P. Sathyanarayanan (2007-2009), S.R. Narayanan (1929-1931), T. Ramaswamy Naidu (1930-1931), Venkatasubramanian (1985-2011) etc., The specimens of these collectors are housed in K, CAL, MH and FRC and the same has been critically studied during the present investigation.

A perusal of the above cited literature showed that a comprehensive information on the flora of Sathyamangalam Tiger Reserve was lacking.

Materials and Methods

Chapter 4

Materials and Methods

4.1 Preparation of earlier herbarium catalogue

An extensive revision of literature was done to contextualise and update available taxon information. The details regarding the taxa collected from different sources are libraries of institutions, Universities, and information retrieval systems. Earlier literature pertaining to Sathyamangalam Tiger Reserve and nearby areas was perused for distribution of species and a catalogue was made. Specimens collected from this region by earlier workers deposited at the Madras Herbarium (MH), Botanical Survey of India, Southern Circle, Coimbatore and Fischer's Herbarium (FRC), Institute of Forest Genetics and Tree Breeding, Coimbatore were studied and information was added to the already available index cards.

4.2. Exploratory phase

4.2.1. Field visit and collection of specimens

The exploration on the Sathyamangalam Tiger Reserve was carefully planned so as to cover all the habitat types in different seasons. The plant specimens were collected in triplet from different localities of the study area, in different habitats by using random sampling, between August 2013 and March 2017. To study the plants in the field and to make sample and complete collections, 17 intensive field explorations were made covering all seasons. Specimens were collected in flowering and fruiting stage and the numbers were given in the field. During the field days, collected 1480 field numbers, and the methodology indicated above is a personal account of the search. Based on field information on earlier collectors, field trips were conducted.

In herbaceous species, entire plants with underground parts (wherever possible) were collected and for the bigger plants, representative twigs with flowers and fruits were collected. Collections were made from various localities within the distribution range of the species in the study area, and during different seasons from the same locality to make sure that all stages of the life cycle of the plant were collected.

4.2.2. Field Notes

Detailed field notes were recorded about each taxon as much as possible in the field itself. In general, field characters that could be obtained from analysis of herbarium materials (colour, odour, bark type, root type, height of the tree, etc.,) were noted down to strengthen the keys. On the spot, field notes including habit, habitat, colour of flower, phenology, associated

species, local names, distribution pattern of the taxon were recorded in the field note book. The flowering and fruiting periods were recorded. Information on local name and uses were gathered after making enquiries with local people. Photographs of the fresh flower, fruits, twigs etc. were made with a Digital Camera. Collection number was given to each specimen.

4.2.3. Poisoning and drying

Poisoning kills the plants and prevents the formation of abscission layer and thereby the leaves, flowers and fruits will be intact with the specimen and will not be getting detached from the plant. The herbarium techniques and preservation were mostly adopted from Santapau (1955), Fosberg and Sachet (1965) and Jain and Rao (1977). After collecting the specimens, they were tagged with field numbers and poisoned by dipping the specimen or whole plant in a saturated solution of mercuric chloride in Ethyl alcohol (usually 20 mg in a litre of alcohol).

4.3. Herbarium preparation

4.3.1. Mounting

The poisoned and dried specimens were sorted out quality wise, and stored in fresh newspaper folders. The specimens was mounted on standard-size herbarium sheets (28 X 42 cm) using paste and thread. Small herbs were folded within flimsies and then fixed on to the mount board. Densely foliaceous twigs or plants were trimmed to remove excess of leaves or flowers on them clearing the bases, so that the specimens would be a representative sample that could be accommodated on the herbarium sheet.

4.3.2. Labelling and protection

A specimen packet on each mount board provided at the time of mounting ensured that any broken part of the specimen had a place to go. Meanwhile, information from the field book was transferred to the label, and affixed at the right-hand base of the mount board.

Precautions were taken to protect herbarium specimens from damage. Insect repellants such as naphthalene balls were kept in small quantities in the herbarium cabinet to keep away or ward off most destructive insects like beetles, booklice and silverfish.

4.3.3. Identification

Plant specimens were identified with the help of regional floras like Flora of British India (1872-1897), Flora of the Presidency of Madras (1957, repr.ed.), Flora of Tamilnadu Carnatic (1982, 1983, 1995 & 1998), Flora of Tamil Nadu (1983, 1987 & 1989), Flora of Eastern Ghats (Pullaiah and Rao, 2002; Pullaiah and Ramamurthy, 2003; Pullaiah *et al.*, 2007;

Pullaiah *et al.*, 2010) and other related publications such as monographs and revisions. Identifications were confirmed with the authentic and type specimens available in the Herbarium of the Botanical Survey of India, Southern Circle (MH), Coimbatore, and the Fischer's Herbarium (FRC), Coimbatore. Relevant type material either in digital or in hard copy from K, MH, FRC, LINN and JCB were consulted for confirmation of species. In a few cases, expert's opinion from BSI was obtained. The voucher specimens were prepared and housed in the Herbarium, Sálím Ali centre for Ornithology and Natural History, Anaikatty, Coimbatore. The mounted and accessioned herbarium sheets were incorporated in Herbarium, Sálím Ali Centre for Ornithology and Natural History, Anaikatty, Coimbatore, where the candidate carried out his research work.

4.3.4. Nomenclature

Citations of all taxa published were obtained from IPNI. The database of the International Plant Names Index (IPNI) (<http://www.ipni.org>) and 'The Plantlist', a database of Royal Botanic Garden, Kew, (<http://apps.kew.org>) were also referred. Authors of plant names are based on Brummitt & Powell (1992). Acronyms of herbaria were used according to Index Herbariorum (Thiers, 2011). For nomenclature clarifications ICN (Shenzhen Code) (Turland *et al.*, 2018) was used.

4.4. Plan of Presentation

The thesis begins with a general introduction in first chapter, which defines the importance of flora, floristic diversity and importance of floristic inventories. This is followed by the objectives. The second chapter deals with previous botanical exploration in the study area and neighbouring locations. The study area is clearly explained in third chapter detailing locations and boundaries, geological features, climate and rainfall, river system, fauna and vegetation types. The fourth chapter deals with materials and methods. The fifth chapter gives an analysis of the floristics, comparison of flora, endemism, threatened plants, invasive species, economically important plants and new findings. Figures, tables, maps, charts and plates were presented in appropriate places in the results and discussion chapter. Photographs are selectively provided to show the types of vegetation and select plant species.

Sixth chapter deals with systematic treatment with description and keys. The families are arranged based on Bentham and Hooker's (1862-1883) system of classification. In the present work, 1493 species of angiosperms (including 1187 dicots, 306 monocots) comprising 723 genera, spread over to 151 families are reported. Bracketed keys are provided for families, genera, species and infra specific taxa. Ornamental trees and shrubs also have been included

because they are planted on a large scale near human settlements. Exclusive garden plants have not been covered, but most of the commoner taxa are included. The keys were prepared with more emphasis on vegetative or morphological characters to facilitate easy identification.

The families are arranged according to the modified Bentham & Hooker classification followed in the Kew Herbarium. This system has the great practical advantage that most Indian Herbaria and Floras follow the same, and is the most familiar one in India. Besides, the system has been incorporating the recent family delimitations without disturbing the classical sequence. However, Hutchinson's classification (1973) is also used to further splitting up the families. The family name is given with author, publication and year.

Dichotomous bracketed keys are provided for the families, genera, species and infraspecific taxa are mostly based on the field characters and macroscopic features. Key has been constructed for an easy identification. The genera under the family and species within a genus are arranged in alphabetical order.

The Genus name with author is taken from Index Nominum Genoriorum. Each species is provided with the correct name followed by relevant synonyms if any and reference to floras and journals. Nomenclature of all taxa was regularized strictly according to the International Code of Botanical Nomenclature (ICBN). Attempts have been made to adopt the most recent and correct nomenclature. Citations are given in chronological order, the correct name of the plants is given in bold and italics followed by the citation of latest monographs and revisions. Basionym (if any) and relevant synonyms are also provided. References to major publications on the Flora of India in general and Tamil Nadu in particular (Flora of British India, Flora of Presidency of Madras, Flora of Tamil Nadu, Flora of Tamilnadu Carnadic and Flora of Eastern Ghats) are also provided. Generic monographs/revisions are also cited. Exhaustive citation of the floras has been avoided due to paucity of space. Illustrations and photographs are provided for some rare and threatened species.

Nomenclatural citation is followed by descriptions. The description of species is in the following sequence: 'habit, leaves, inflorescence, flower, calyx, corolla, stamens, ovary, fruit and seed'. Habitat, associated plants if any, and local names are also given based on literature and a list of specimens examined for the species specified. The flowering and fruiting periods are also given. The acronyms of the herbaria accessed for examining specimens are given. The abbreviation preceding the field numbers indicates the name of the collector.

The current status of IUCN threatened status was collected from the online website IUCN Red List Categories version 2019.1. Endemic status and distribution range of species

were collected from the published sources of Singh *et al.* (2015), Nayar (2014 a & b), Nayar *et al.* (1984), Ahmedullah and Nayar (1987) and Nair (1996). All the taxa were assigned IUCN status tentatively based on the knowledge from the field visits and herbaria reference.

The sixth chapter is followed by an Executive Summary. The systematic treatment is followed by the appendices. Under Annexure, a detailed bibliography on literature cited is given, which is followed by an index to families.

4.5. Abbreviations used in the Text

Floras

Abbreviation	Floras	Authors
FSIHS	The flora of the South Indian hill stations (Ootacamand, Coonoor, Kotagiri, Kodaikanal, Yercaud and the country round) Vol. 1-3	Fyson, P.F. 1932.
FBI	The flora of British India, Vols. 1-7	Hooker, J.D. (ed.) 1872-1897.
FTC	The Flora of Tamilnadu Carnatic, Vol. 3, part 1-3	Matthew, K.M. 1983.
FTN	Flora of Tamil Nadu, India, Ser. 1: Analysis Vol. 1	Nair, N.C. and A.N. Henry. 1983.
	Flora of Tamil Nadu, India. Ser. 1: Analysis. Vol. 2	Henry A.N., G.R. Kumari and V. Chitra. 1987.
	Flora of Tamil Nadu, India. Ser. 1: Analysis, Vol. 3	Henry, A.N., V. Chitra and N.P. Balakrishnan. 1989.
FEG	Flora of Eastern Ghats: Hill ranges of South East India. Vol. 1	Pullaiah, T. and M.D. Rao. 2002.
	Flora of Eastern Ghats: Hill ranges of South East India. Vol. 2	Pullaiah, T. and K. Sri Ramamurthy. 2003.
	Flora of Eastern Ghats: Hill ranges of South East India. Vol 3	Pullaiah, T., K. Sri Rama Murthy and S. Karuppusamy. 2007.
	Flora of Eastern Ghats: Hill ranges of South East India. Vol. 4	Pullaiah, T., S. Sandhya Rani and S. Karuppusamy. 2010.
FPM	Flora of Presidency of Madras. (Part 1-11) Vols. 1, 2 & 3	Gamble J.S. and C.E.C. Fischer. 1957 (Repr.ed).
FPI	Flowering Plants of India : Dicotyledons, Vol. I. Acanthaceae - Avicenniaceae	Karthikeyan, S., M. Sanjappa and S. Moorthy. 2009.
FIFTC	Further Illustrations on the Flora of Tamilnadu Carnatic, Vol. 4	Matthew, K.M. 1988.
OEG	Orchids of Eastern Ghats	Prasad, K., S. Karuppusamy and T. Pullaiah. 2019.

Abbreviation	Floras	Authors
GBCIP	Grasses of Burma, Ceylon, India and Pakistan (Excluding Bambuseae)	Bor, N. L. 1960.
FTNG	Flora of Tamil Nadu Grasses	Kabeer, K.A.A. and V.J. Nair. 2009.
MSPI	Malvaceae of southern peninsular India - A taxonomic monograph	Sivarajan, V.V. and A.K. Pradeep. 1996.
LOI	Legumes of India	Sanjappa, M. 1991.

Plant Collectors

- CECF - C.E.C. Fischer
- CAB - C.A. Barber
- JD - J. David
- VN - V. Narayanaswamy
- KNS - K.N. Subramanian
- KCJ - K.C. Jacob
- SRR - S. Ramaswamy Raja
- KR - K. Ramaswamy
- EV - E. Vajravelu
- VS - Venkatasubramanian
- PSAT - P. Sathyanarayanan
- SRN - S.R. Narayan
- TRN - T. Ramaswamy Naidu
- KA - K. Amirthalingam
- PB - P. Balasubramanian
- MM - M. Murugesan
- LP - L. Prakash

Herbaria

- K - Kew Herbarium, Royal Botanical Garden, Kew, England.
- MH - The Madras Herbarium, Botanical Survey of India, Southern Regional Centre, Tamil Nadu Agricultural University Campus, Coimbatore (Tamil Nadu).
- FRC - Fischer Herbarium, Institute of Forest Genetics and Tree Breeding (Indian Council of Forestry Research and Education) Coimbatore (Tamil Nadu).
- JCB - Centre for Ecological Sciences, Indian Institute of Science, Bangaluru (Karnataka).
- SACONH - Herbarium of Sálím Ali Centre for Ornithology and Natural History, Anaikatty, Coimbatore.

Abbreviation used in text

<i>auct. non</i>	- <i>auctorum non</i> ; not of authors
<i>ed.</i>	-editor, edition
<i>emend.</i>	- <i>emendavit</i> ; emended
<i>et al.</i> ,	- <i>et aliorum</i> ; and others
<i>etc.</i>	- <i>et cetera</i> ; and other things
<i>ex</i>	-published by
<i>excl.</i>	- <i>exclusus</i> ; excluding
<i>f.</i>	- <i>filius</i> ; son
<i>lc.</i>	- <i>lcone</i> ; illustration
<i>incl.</i>	- <i>inclusus</i> ; including
<i>nom.</i>	- <i>nomen</i> ; name
<i>subsp.</i>	-Subspecies
<i>ssp.</i>	-Subspecies
<i>sp.</i>	-Species
<i>sensu</i>	-in the sense of
<i>syn.</i>	-Synonym
<i>repr.ed.</i>	-Reprinted edition
m	-metre
max.	-maximum
min.	-Minimum
No.	-Number
cm	-Centimetre
var.	- <i>varietas</i> ; variety
Fig.	-Figure
ICBN	-International Code of Botanical Nomenclature
Sp.Ex.	-Specimen Examined
Fl. & Fr.:	-Flowering and Fruiting
VN.	-Vernacular Name
BSI	-Botanical Survey of India

Results and Discussion

Chapter 5

Results and Discussion

5.1. Floristics and Analysis

In the present study, a total of 1493 taxa (including intra specific taxa) of angiosperms have been described. It included diverse groups of plants such as orchids, parasitic plants, palms, figs, bamboos, grasses etc. A total of 273 species were reported for the first time from within the boundaries of the Sathyamangalam Tiger Reserve.

A total of 1493 taxa (including intra specific taxa) belonging to 723 genera in 151 families were recorded in Sathyamangalam Tiger Reserve, which form about 26.47 per cent of the estimated flora of Tamil Nadu. Dicots are dominating with 126 families (83.44%) and monocots with 25 families (16.56%) (Table 1 & 2).

Among Dicots, the group Polypetalae dominates with 71 families (47.02%) followed by Gamopetalae with 34 families (22.52%) and Monochlamydeae with 21 families (13.91%). The highest number of genera were recorded in Polypetalae which has 259 genera (35.82%) followed by Gamopetalae 241 (33.33%), Monocots 135 (18.67%) and Monochlamydeae 88 (12.17%).

Table 1. Statistical Analysis of the Flora of Sathyamangalam Tiger Reserve

Class	Family		Genera		Species (incl. intraspecific taxa)	
	No.	%	No.	%	No.	%
Monocots	25	16.56	135	18.67	306	20.50
Dicots	126	83.44	588	81.33	1187	79.50
Total	151		723		1493	

Polypetalae also dominates in the number of species with 531 species (35.57%) followed by Gamopetalae with 454 (30.41%), Monocots with 306 (20.50%) and Monochlamydeae with 202 (13.53%).

Poaceae formed the largest family with 151 species followed by Fabaceae (120 species) and Euphorbiaceae (74 species) (Fig.1). *Crotalaria* is the largest genus with 21 species followed by *Indigofera*, *Euphorbia*, *Ficus*, *Cyperus* (16 species each) (Fig.2).

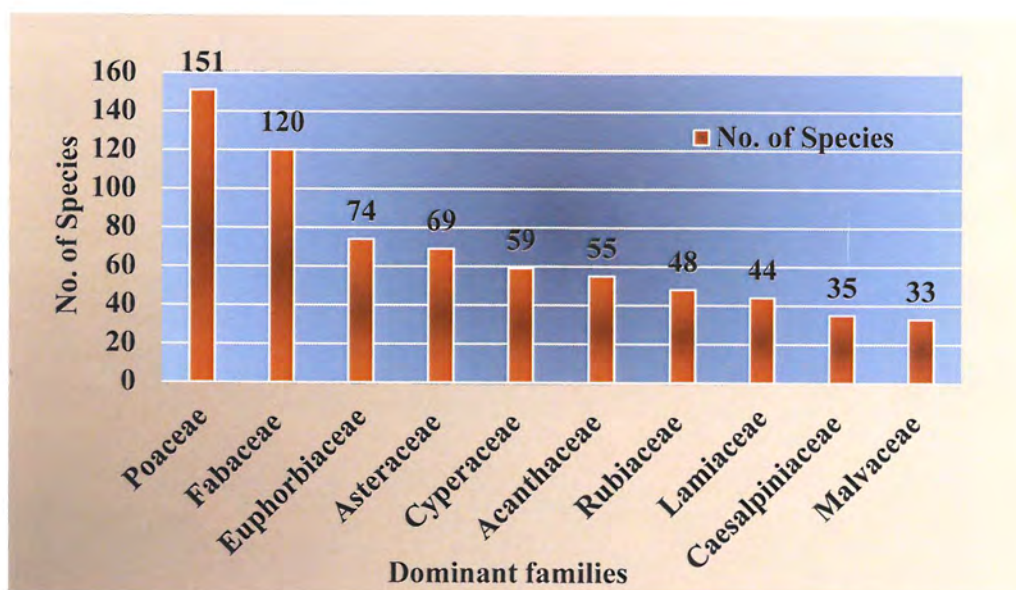


Fig. 1. Predominant plant families of the Flora of Sathyamangalam Tiger Reserve

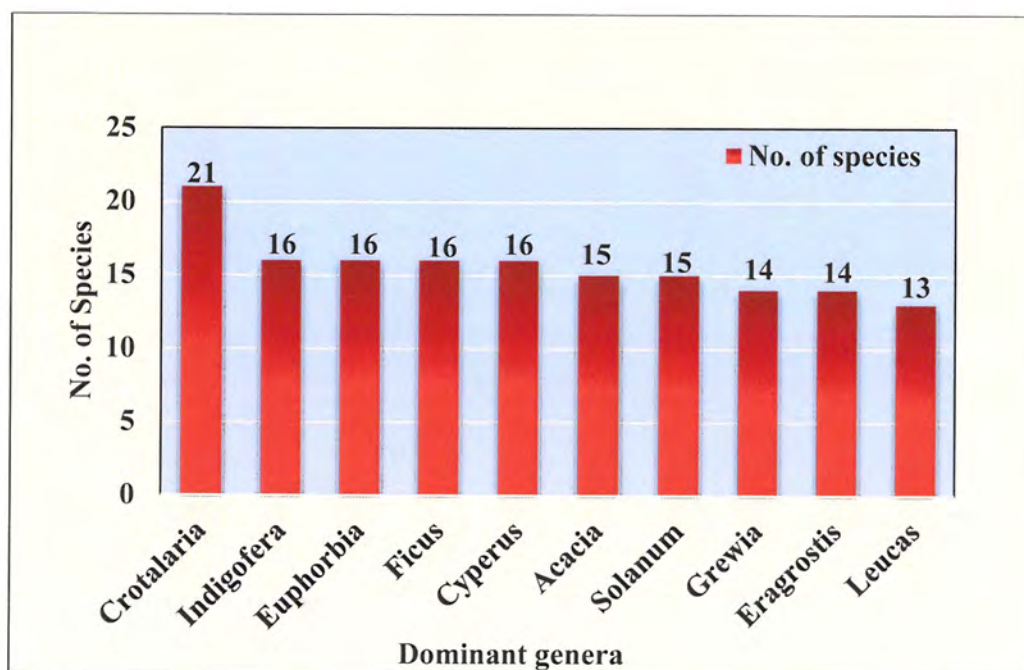


Fig. 2. Predominant plant genera of the Sathyamangalam Tiger Reserve

Table 2. Comparison of Sathyamangalam Tiger Reserve flora with other regional floras

Regional floras	Author	Genus	Taxa
Fl. Tamilnadu Carnatic	Matthew, 1983	990	2037
Fl. Silent Valley National Park	Manilal, 1988	559	1966
Fl. North Arcot District	Viswanathan, 1989	140	908
Fl. Mudumalai Tiger Reserve	Stephan, 1991	558	1046
Fl. Velliangiri hills. Western Ghats	Murugesan, 2005	731	1715
Fl. Sathyamangalam Tiger Reserve	Present study	723	1493

5.2. Life forms of the flora

The life forms of the flora of the Sathyamangalam Tiger Reserve showed that the herbs (34.96%) constituted the dominant growth forms followed by trees (22.84%), grasses & sedges (14.07%) climbers (10.52%), shrubs (9.78%), stragglers (4.02%) and epiphytes and parasites (3.82%) (Fig.3). Parasitic plants are represented by the families of Convolvulaceae (*Cuscuta* spp.), Loranthaceae, Viscaceae, Orobanchaceae, Santalaceae and Scrophulariaceae. Insectivorous plants are represented by the families of Droseraceae and Lentibulariaceae.

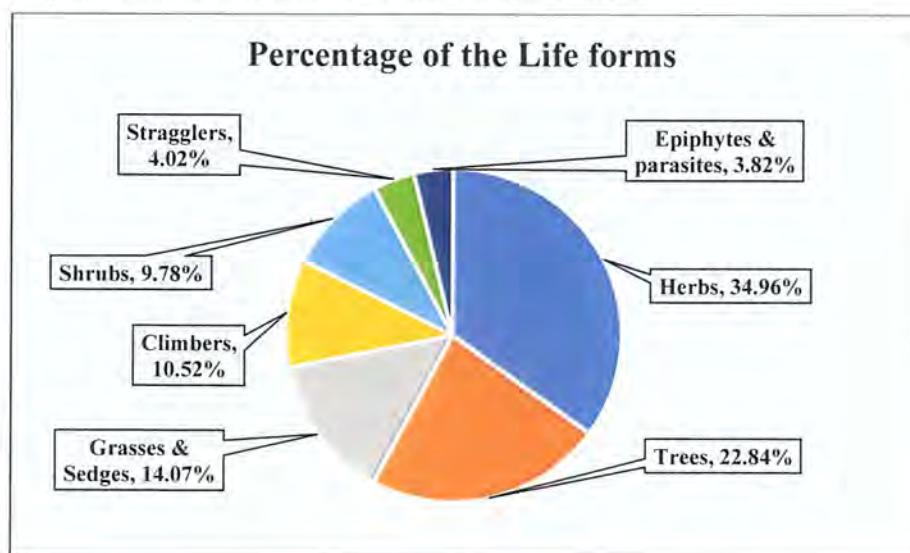


Fig. 3. Percentage propotion of different growth forms of the Flora of Sathyamangalam Tiger Reserve

5.3. Endemic plants

Based on the distribution of species and literature review on endemics, the present study enumerates 149 endemic flowering plant taxa belonging to 114 genera under 47 families from Sathyamangalam Tiger Reserve (Table 3). The dominant endemic family is Acanthaceae

(17 species) followed by Poaceae, Orchidaceae and Euphorbiaceae (9 species each). The dominant endemic flowering genera of the study area comprised *Andrographis* and *Strobilanthes* (4 species each). Among the endemic flora, trees (28.19%) constituted the predominant growth form followed by herbs (26.17%), shrubs (20.81%), climbers & stragglers (10.07%), grasses & sedges (7.38%) and epiphytes & parasites (7.38%) (Fig.). Highest number of endemic species was recorded from West-coast semi evergreen forest of the Minchigully Valley in STR.

The total endemic flora of Sathyamangalam Tiger Reserve comprised 17 species endemic to Western Ghats, 27 species endemic to southern Western Ghats, 11 species endemic to South India, 73 species endemic to Peninsular India and one species *Terminalia pallida* endemic to Eastern Ghats. In addition, 18 species endemic to India are also found here.

5.4. Additions to the flora

A total of 17 species of Western Ghats elements are found in the present study area, which form new additions to the flora of Eastern Ghats. The species are *Aeschynanthus perrottetii*, *Ampelocissus araneosa*, *Atalantia wightii*, *Cinnamomum sulphuratum*, *Crotalaria peduncularis*, *Crotalaria salicifolia*, *Decaschistia trilobata*, *Grewia umbellifera*, *Helixanthera obtusata*, *Jasminum bignoniaceum*, *Litsea floribunda*, *Murdannia dimorpha*, *Phyllocephalum scabridum*, *Pittosporum neelgherrense*, *Strobilanthes lawsoni*, *Tarenna asiatica*, var. *montana* and *Ventilago goughii*.

A total of 27 species of southern Western Ghats elements are found in the present study area, which are new additions to the flora of southern Eastern Ghats. The species are *Anaphalis leptophylla*, *Andrographis neesiana*, *Barleria pilosa*, *Bulbophyllum proudlockii*, *Capparis grandiflora*, *Ceropegia ciliata*, *Cinnamomum malabattrum*, *Claoxylon beddomei*, *Cryptocarya beddomei*, *Drypetes malabarica*, *Gomphostemma heyneanum*, *Hopea parviflora*, *Indobanalia thyrsiflora*, *Isonandra perrottetiana*, *Litsea wightiana*, *Miliusa wightiana*, *Neolitsea fischeri*, *Pogostemon wightii*, *Psychotria nilgiriensis*, *Pterospermum reticulatum*, *Stenosiphonium wightii*, *Syzygium densiflorum*, *Tabernaemontana gamblei*, *Taxillus recurves*, *Tragia bicolor*, *Vigna vexillata* var. *wightii* and *Dalechampia scandens* var. *velutina*.

Of the 1493 species recorded in Sathyamangalam Tiger Reserve 273 species recorded in the present study area form new additions to the Flora of Sathyamangalam Tiger reserve.

Table 3. A checklist of endemic flowering plants recorded in Sathyamangalam Tiger Reserve

S. No	Species Name	Family	Habit	Nature of Endemism
1	<i>Acalypha alnifolia</i> Klein ex Willd.	Euphorbiaceae	Shrub	PI
2	<i>Aerides maculosum</i> Lindl.	Orchidaceae	Epiphyte	IN
3	<i>Aeschynanthus perrottetii</i> A.DC.	Gesneriaceae	Herb	WG
4	<i>Albizia thompsonii</i> Brandis	Mimosaceae	Tree	SI
5	<i>Alstonia venenata</i> R. Br.	Apocynaceae	Tree	E & SI
6	<i>Alysicarpus scariousus</i> (Rottl. ex Spreng.) Graham. ex Thwaites var. <i>pilifer</i> (Prain) A. Pramanik & Thoth.	Fabaceae	Herb	PI
7	<i>Ampelocissus araneosa</i> (Dalzell) Planchon ex Gamble	Vitaceae	Climber	WG
8	<i>Anaphalis leptophylla</i> (DC.) DC.	Asteraceae	Herb	SWG
9	<i>Andrographis lineata</i> Nees	Acanthaceae	Herb	SI
10	<i>Andrographis lobelioides</i> Wight	Acanthaceae	Herb	TN
11	<i>Andrographis neesiana</i> Wight	Acanthaceae	Herb	SWG
12	<i>Andrographis serpyllifolia</i> (Vahl) Wight	Acanthaceae	Herb	PI
13	<i>Anisochilus scaber</i> Benth.	Lamiaceae	Shrub	PI
14	<i>Argyrea cuneata</i> (Willd.) Ker-Gawler	Convolvulaceae	Shrub	PI
15	<i>Argyrea pilosa</i> Wight & Arn.	Convolvulaceae	Climber	PI
16	<i>Arundinella ciliata</i> (Roxb.) Nees ex Miq.	Poaceae	Grass	PI
17	<i>Asystasia crispata</i> Benth.	Acanthaceae	Shrub	PI
18	<i>Atalantia wightii</i> Yu. Tanaka	Rutaceae	Shrub	WG
19	<i>Barleria cuspidata</i> B. Heyne ex Nees	Acanthaceae	Shrub	E & PI
20	<i>Barleria longiflora</i> L.f.	Acanthaceae	Shrub	E & PI
21	<i>Barleria pilosa</i> B. Heyne ex Nees	Acanthaceae	Shrub	SWG
22	<i>Blepharispermum subsessile</i> DC.	Asteraceae	Herb	C & PI
23	<i>Boswellia serrata</i> Roxb. ex Colebr.	Burseraceae	Tree	IN
24	<i>Brachystelma rangacharii</i> Gamble	Asclepiadaceae	Herb	SWG, EG
25	<i>Bulbophyllum proudlockii</i> (King & Pantl.) J.J. Sm.	Orchidaceae	Epiphyte	SWG
26	<i>Byttneria herbacea</i> Roxb.	Sterculiaceae	Herb	IN
27	<i>Capillipedium filiculme</i> (Hook. f.) Stapf	Poaceae	Grass	PI
28	<i>Capparis grandiflora</i> Wall. ex Hook. f. & Thomson	Capparaceae	Shrub	SWG
29	<i>Caralluma diffusa</i> (Wight) N.E. Br.	Asclepiadaceae	Herb	PI
30	<i>Caralluma stalagmifera</i> Fischer var. <i>longipetala</i> Karupp. & Pull.	Asclepiadaceae	Herb	PI
31	<i>Cassia intermedia</i> Sharma, Vivek & Rathakrishnan	Caesalpiniaceae	Shrub	PI
32	<i>Cassia montana</i> Heyne ex Roth	Caesalpiniaceae	Shrub	PI
33	<i>Ceropegia ciliata</i> Wight	Asclepiadaceae	Climber	SWG
34	<i>Chionanthus mala-elengi</i> (Dennst.) P.S. Green	Oleaceae	Tree	PI

S. No	Species Name	Family	Habit	Nature of Endemism
35	<i>Chloris bournei</i> Rang. & Tadul.	Poaceae	Grass	PI
36	<i>Chrysopogon asper</i> (B. Heyne ex Hook.f.) Blatt. & McCann	Poaceae	Grass	PI
37	<i>Chrysopogon hackelii</i> (Hook. f.) Fischer	Poaceae	Grass	PI
38	<i>Chrysopogon lawsonii</i> (Hook. f.) Veldkamp	Poaceae	Grass	SI
39	<i>Cinnamomum malabattrum</i> (Burm. f.) J. Presl	Lauraceae	Tree	SWG
40	<i>Cinnamomum sulphuratum</i> Nees	Lauraceae	Tree	WG
41	<i>Cissus woodrowii</i> (Stapf ex T.Cooke) Santapau	Vitaceae	Shrub	PI
42	<i>Claoxylon beddomei</i> Hook.f.	Euphorbiaceae	Shrub	SWG
43	<i>Cleome felina</i> L.f.	Cleomaceae	Herb	SI
44	<i>Coelogyne nervosa</i> A. Rich.	Orchidaceae	Epiphyte	PI
45	<i>Crotalaria fysonii</i> Dunn	Fabaceae	Herb	PI
46	<i>Crotalaria peduncularis</i> Graham ex Wight & Arn.	Fabaceae	Herb	WG
47	<i>Crotalaria salicifolia</i> Heyne ex Wight & Arn.	Fabaceae	Herb	WG
48	<i>Cryptocarya beddomei</i> Gamble	Lauraceae	Tree	SWG
49	<i>Cryptolepis grandiflora</i> Wight	Periplocaceae	Climber	A&N, E & PI
50	<i>Curcuma neilgherrensis</i> Wight	Zingiberaceae	Herb	SI
51	<i>Cymbopogon gidarba</i> (Buch.-Ham. ex Steud.) A.Camus	Poaceae	Grass	PI
52	<i>Dalbergia rubiginosa</i> Roxb.	Fabaceae	Straggler	PI
53	<i>Dalechampia scandens</i> L. var. <i>velutina</i> (Wight) Muell.-Arg.	Euphorbiaceae	Climber	PI
54	<i>Decalepis hamiltonii</i> Wight & Arn.	Periplocaceae	Climber	PI
55	<i>Decaschistia trilobata</i> Wight & Arn.	Malvaceae	Shrub	WG
56	<i>Deccania pubescens</i> (Roth) Tirvengadam var. <i>candolleana</i> (Wight & Arn.) Tirvengadam	Rubiaceae	Tree	PI
57	<i>Dendrobium nanum</i> Hook. f.	Orchidaceae	Epiphyte	PI
58	<i>Dicliptera cuneata</i> Nees	Acanthaceae	Herb	PI
59	<i>Didymocarpus tomentosus</i> Wight	Gesneriaceae	Herb	PI
60	<i>Dolichandrone arcuata</i> (Wight) C.B. Clarke	Bignoniaceae	Tree	PI
61	<i>Dolichandrone atrovirens</i> (Roth) K.Schum.	Bignoniaceae	Tree	PI
62	<i>Dolichandrone falcata</i> (Wall. ex DC.) Seem.	Bignoniaceae	Tree	IN
63	<i>Drypetes malabarica</i> (Bedd.) Airy Shaw	Euphorbiaceae	Tree	SWG
64	<i>Dyschoriste vagans</i> (Wight) Kuntze	Acanthaceae	Herb	E & PI
65	<i>Epiprinus mallotiformis</i> (Muell.-Arg.) Croizat	Euphorbiaceae	Tree	PI



S. No	Species Name	Family	Habit	Nature of Endemism
66	<i>Eria pauciflora</i> Wight	Orchidaceae	Epiphyte	PI
67	<i>Eriolaena quinquelocularis</i> (Wight & Arn.) Cleghorn	Sterculiaceae	Tree	IN
68	<i>Eriolaena stocksii</i> Hook. f. & Thomson ex Mast.	Sterculiaceae	Tree	PI
69	<i>Fimbristylis uliginosa</i> Hochst. ex Steud.	Cyperaceae	Sedge	PI
70	<i>Fuirena cuspidata</i> (Roth) Kunth	Cyperaceae	Sedge	SI
71	<i>Gardenia gummifera</i> L.f.	Rubiaceae	Tree	PI
72	<i>Garnotia elata</i> (Arn. ex Miq.) Janowski	Poaceae	Grass	SI
73	<i>Gomphostemma heyneanum</i> Wall. ex Benth.	Lamiaceae	Shrub	SWG
74	<i>Grewia umbellifera</i> Bedd.	Tiliaceae	Shrub	WG
75	<i>Habenaria longicorniculata</i> J.Graham	Orchidaceae	Herb	PI
76	<i>Habenaria rariflora</i> A.Rich.	Orchidaceae	Herb	PI
77	<i>Helicanthes elastica</i> (Desr.) Danser	Loranthaceae	Parasite	PI
78	<i>Helixanthera obtusata</i> (Wall.) Danser	Loranthaceae	Parasite	WG
79	<i>Hopea parviflora</i> Bedd.	Dipterocarpaceae	Tree	SWG
80	<i>Indigofera prostrata</i> Willd.	Fabaceae	Herb	SI
81	<i>Indobanalia thyrsiflora</i> (Moq.) A.N. Henry & B. Roy	Amaranthaceae	Herb	SWG
82	<i>Isodon nilghericus</i> (Benth.) H. Hara	Lamiaceae	Herb	SWG
83	<i>Isodon wightii</i> (Benth.) H. Hara	Lamiaceae	Herb	PI
84	<i>Isonandra perrottetiana</i> A. DC.	Sapotaceae	Tree	SWG
85	<i>Isonandra villosa</i> Wight	Sapotaceae	Tree	PI
86	<i>Ixora brachiata</i> Roxb.	Rubiaceae	Tree	PI
87	<i>Ixora notoniana</i> Wall. ex G. Don	Rubiaceae	Tree	PI
88	<i>Jasminum bignoniaceum</i> Wall. ex G. Don	Oleaceae	Shrub	WG
89	<i>Jasminum trichotomum</i> B. Heyne ex Roth	Oleaceae	Climber	PI
90	<i>Jatropha villosa</i> Wight	Euphorbiaceae	Shrub	PI
91	<i>Justicia nilgherrensis</i> (Nees) Wall. ex C.B. Clarke	Acanthaceae	Herb	PI
92	<i>Leucas hirta</i> (B. Heyne ex Roth.) Spreng.	Lamiaceae	Herb	PI
93	<i>Leucas montana</i> Spreng.	Lamiaceae	Shrub	IN
94	<i>Ligustrum perrottetii</i> A. DC. ex DC.	Oleaceae	Tree	PI
95	<i>Litsea floribunda</i> (Blume) Gamble	Lauraceae	Tree	WG
96	<i>Litsea wightiana</i> (Nees) Hook. f.	Lauraceae	Tree	SWG
97	<i>Lonicera leschenaultii</i> Wall.	Caprifoliaceae	Climber	PI
98	<i>Luisia abrahami</i> Vatsala	Orchidaceae	Epiphyte	PI
99	<i>Macrosolen trigonus</i> (Wight & Arn.) Tiegh.	Loranthaceae	Parasite	PI
100	<i>Mahonia leschenaultii</i> (Wight & Arn.) Takeda	Berberidaceae	Tree	PI

S. No	Species Name	Family	Habit	Nature of Endemism
101	<i>Manilkara roxburghiana</i> (Wight) Dubard	Sapotaceae	Tree	PI
102	<i>Manisuris myurus</i> L.	Poaceae	Grass	SI
103	<i>Maytenus heyneana</i> (Roth) Raju & Babu	Celastraceae	Shrub	PI
104	<i>Maytenus ovatus</i> (Wall. ex Wight & Arn.) Loes	Celastraceae	Tree	PI
105	<i>Memecylon lushingtonii</i> Gamble	Melastomataceae	Shrub	PI
106	<i>Memecylon talbotianum</i> Brandis	Melastomataceae	Tree	PI
107	<i>Miliusa wightiana</i> Hook. f. & Thomson	Annonaceae	Tree	SWG
108	<i>Murdannia dimorpha</i> (Dalz.) Brueck.	Commelinaceae	Herb	WG
109	<i>Murdannia lamuginosa</i> (Wall. ex C.B. Clarke) G. Brueck.	Commelinaceae	Herb	IN
110	<i>Myriophyllum oliganthum</i> (Wight & Arn.) F. v. Muell	Haloragaceae	Herb	SI
111	<i>Neolitsea fischeri</i> Gamble	Lauraceae	Tree	SWG
112	<i>Neolitsea scrobiculata</i> (Meisner) Gamble	Lauraceae	Tree	PI
113	<i>Oberonia verticillata</i> Wight	Orchidaceae	Epiphyte	PI
114	<i>Peperomia dindigulensis</i> Miq.	Piperaceae	Herb	PI
115	<i>Phoebe wightii</i> Meisner	Lauraceae	Tree	PI
116	<i>Phyllanthus indofischeri</i> Bennet	Euphorbiaceae	Tree	PI
117	<i>Phyllanthus narayanaswamii</i> Gamble	Euphorbiaceae	Shrub	PI
118	<i>Phyllocephalum scabridum</i> (DC.) K. Kirkman	Asteraceae	Herb	WG
119	<i>Pimpinella wallichiana</i> (Miq.) Gandhi	Apiaceae	Herb	E & PI
120	<i>Pittosporum neelgherrense</i> Wight & Arn.	Pittosporaceae	Tree	WG
121	<i>Pogostemon wightii</i> Benth.	Lamiaceae	Herb	SWG
122	<i>Psychotria nilgiriensis</i> Deb & M. Gangop.	Rubiaceae	Shrub	SWG
123	<i>Pterospermum reticulatum</i> Wight & Arn.	Sterculiaceae	Tree	SWG
124	<i>Radermachera xylocarpa</i> (Roxb.) Roxb. ex K. Schum.	Bignoniaceae	Tree	SI
125	<i>Senecio candicans</i> Wall.	Asteraceae	Herb	PI
126	<i>Sesbania procumbens</i> (Roxb.) Wight & Arn.	Fabaceae	Herb	PI
127	<i>Solena amplexicaulis</i> (Lam.) Gandhi	Cucurbitaceae	Climber	PI
128	<i>Stenosiphonium wightii</i> Bremek.	Acanthaceae	Shrub	SWG
129	<i>Strobilanthes consanguineus</i> (Nees) T. Anderson	Acanthaceae	Shrub	PI
130	<i>Strobilanthes kunthianus</i> (Nees) T. Anderson ex Benth.	Acanthaceae	Shrub	PI
131	<i>Strobilanthes lawsoni</i> Gamble	Acanthaceae	Shrub	WG
132	<i>Strobilanthes pulneyensis</i> C.B. Clarke	Acanthaceae	Shrub	E & SI

S. No	Species Name	Family	Habit	Nature of Endemism
133	<i>Swertia corymbosa</i> Wight ex Griseb.	Gentianaceae	Herb	PI
134	<i>Syzygium densiflorum</i> Wall. ex Wight & Arn.	Myrtaceae	Tree	SWG
135	<i>Tabernaemontana gamblei</i> Subr. & Henry	Apocynaceae	Shrub	SWG
136	<i>Tarenna asiatica</i> (L.) Kuntze ex Schum. var. <i>asiatica</i> forma <i>rigida</i> (Wight) Raju	Rubiaceae	Tree	SWG, EG
137	<i>Tarenna asiatica</i> (L.) Kuntze ex Schum. var. <i>montana</i> (Thw.) Raju	Rubiaceae	Shrub	WG
138	<i>Taxillus recurvus</i> (Wall. ex DC.) Tiegh.	Loranthaceae	Parasite	SWG
139	<i>Terminalia gella</i> Dalzell	Combretaceae	Tree	PI
140	<i>Terminalia pallida</i> Brandis	Combretaceae	Tree	EG
141	<i>Terminalia paniculata</i> Roth	Combretaceae	Tree	PI
142	<i>Thunbergia tomentosa</i> Wall. ex Nees	Acanthaceae	Climber	C, E & SI
143	<i>Tragia bicolor</i> Miq.	Euphorbiaceae	Climber	SWG
144	<i>Tricholepis radicans</i> (Roxb.) DC.	Asteraceae	Herb	W & SI
145	<i>Tylophora rotundifolia</i> Buch.-Ham. ex Wight	Asclepiadaceae	Climber	E, NE & PI
146	<i>Ventilago gamblei</i> Suesseng.	Rhamnaceae	Shrub	PI
147	<i>Ventilago goughii</i> Gamble	Rhamnaceae	Straggler	WG
148	<i>Vigna vexillata</i> (L.) A. Rich. var. <i>wightii</i> (Benth. ex Bedd.) Babu & Sharma	Fabaceae	Climber	SWG
19	<i>Ziziphus horrida</i> Roth.	Rhamnaceae	Tree	PI

SWG-Southern Western Ghats; WG-Western Ghats; EG-Eastern Ghats; E-Eastern India; NE-Northeast India; C-Central India; PI-Peninsular India; In-India; W-West India; TN-Tamil Nadu; SI-South India.

5.5. IUCN RedListed Species

Out of 1493 species found in Sathyamangalam Tiger Reserve, 21 species come under IUCN Redlist category ver. 2019.1. Among the 21 species, One species, *Tabernaemontana gamblei* is Critically endangered, three species are Endangered (*Isonandra villosa*, *Guaiacum officinale* and *Swietenia mahagoni*) and 17 species are Vulnerable category (Table 4).

Table 4. A checklist of IUCN Red listed species recorded in Sathyamangalam Tiger Reserve

S. No	Name of the species	Family	IUCN Category ver. 2019.1
1	<i>Tabernaemontana gamblei</i> Subr. & A.N. Henry	Apocynaceae	Critically Endangered
2	<i>Isonandra villosa</i> Wight	Sapotaceae	Endangered
3	<i>Guaiacum officinale</i> L.	Zygophyllaceae	Endangered
4	<i>Swietenia mahagoni</i> (L.) Jacq.	Meliaceae	Endangered
5	<i>Anaphalis leptophylla</i> (DC.) DC.	Asteraceae	Vulnerable

S. No	Name of the species	Family	IUCN Category ver. 2019.1
6	<i>Cayratia pedata</i> (Lam.) Juss. ex Gagnep.	Vitaceae	Vulnerable
7	<i>Chloroxylon swietenia</i> DC.	Rutaceae	Vulnerable
8	<i>Cinnamomum sulphuratum</i> Nees	Lauraceae	Vulnerable
9	<i>Cryptocarya beddomei</i> Gamble	Lauraceae	Vulnerable
10	<i>Dalbergia latifolia</i> Roxb.	Fabaceae	Vulnerable
11	<i>Jacaranda mimosifolia</i> D. Don	Bignoniaceae	Vulnerable
12	<i>Memecylon grande</i> Retz.	Melastomataceae	Vulnerable
13	<i>Neolitsea fischeri</i> Gamble	Lauraceae	Vulnerable
14	<i>Phyllanthus indofischeri</i> Bennet	Euphorbiaceae	Vulnerable
15	<i>Psydrax dicoccos</i> Gaertn.	Rubiaceae	Vulnerable
16	<i>Pterospermum reticulatum</i> Wight & Arn.	Sterculiaceae	Vulnerable
17	<i>Santalum album</i> L.	Santalaceae	Vulnerable
18	<i>Shorea roxburghii</i> G. Don	Dipterocarpaceae	Vulnerable
19	<i>Syzygium densiflorum</i> Wall. ex Wight & Arn.	Myrtaceae	Vulnerable
20	<i>Terminalia pallida</i> Brandis	Combretaceae	Vulnerable
21	<i>Vanda spathulata</i> (L.) Spreng.	Orchidaceae	Vulnerable

5.6. Invasive alien flora

A total of 107 species of invasive alien species belonging 39 families were recorded in Sathyamangalam Tiger Reserve. Among the life forms of the invasive alien species, herbs (73.83%) formed the predominant life-form followed by shrubs (10.28%), climbers (8.41%), trees (4.67%) and grasses (2.80%). Of the 39 families of invasive alien flora recorded in the study area, Asteraceae constituted the predominant family with 16 species, followed by Amaranthaceae (8) and Fabaceae (7 species) (Fig.4). These three families contributed almost one-third of the invasive alien flora of Sathyamangalam Tiger Reserve. The dominance sequence of invasive alien genera comprised *Ipomoea* and *Senna* (*Cassia*) (6 species each) and *Cleome* (4 species) (Fig.5).

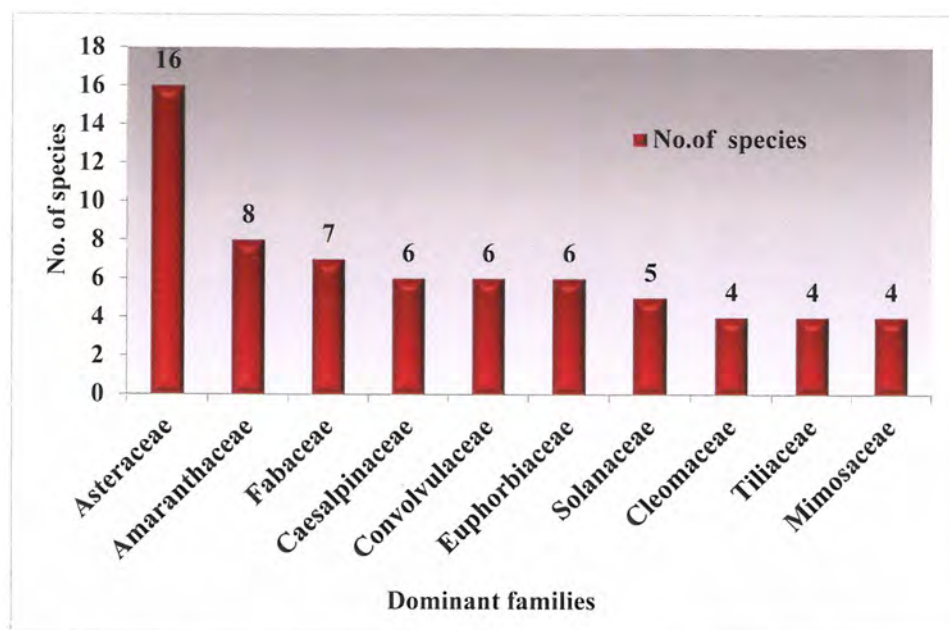


Fig. 4. Dominant families representing the invasive alien flora of Sathyamangalam Tiger Reserve

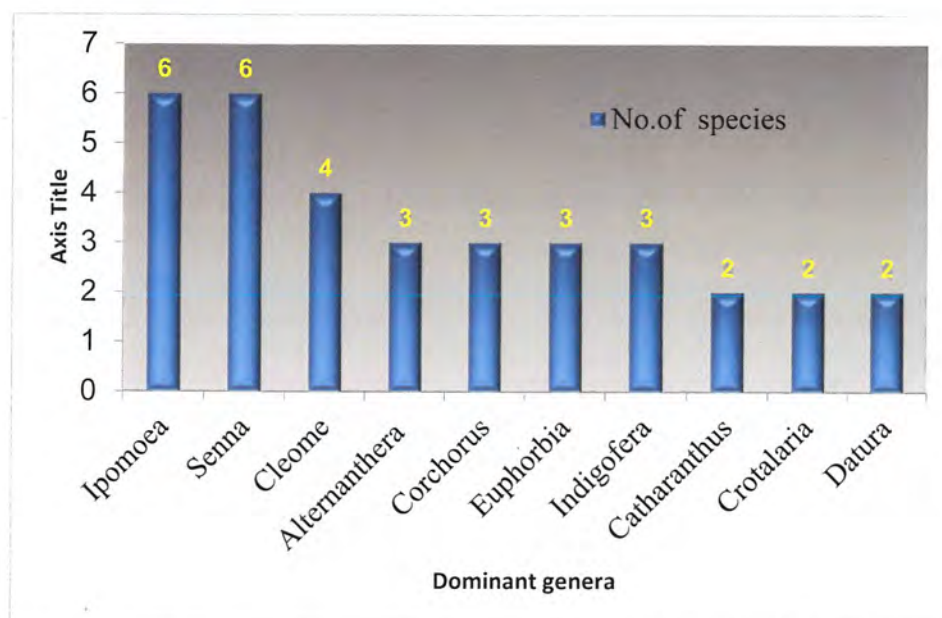


Fig. 5. Dominant genera representing the invasive alien flora of Sathyamangalam Tiger Reserve

The invasive alien species recorded in this study were categorized based on their geographic origin. A total of 17 geographical origins/regions were considered for the analysis. Tropical American elements contributed 59.43% (63 species) of the invasive alien species followed by Tropical Africa and South America (11.32%; 12 species each) (Fig.6).

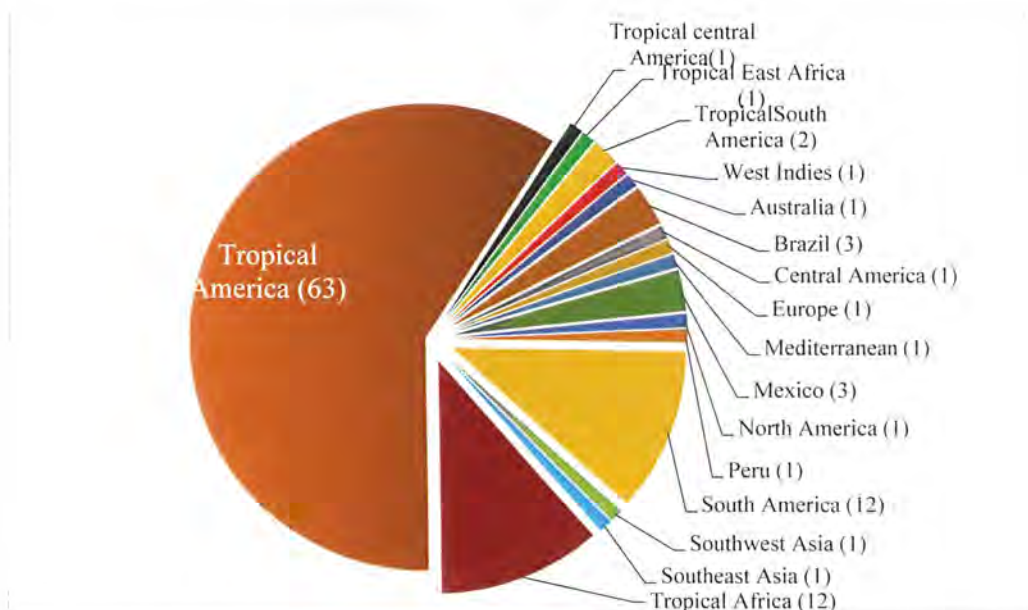


Fig. 6. Proportion of different geographical regions of origin of the invasive alien flora recorded in Sathyamangalam Tiger Reserve

Of the 107 invasive alien species found in Sathyamanagalam Tiger Reserve, highest number was found in the Southern dry deciduous forest (75 species) followed by Southern thorn forest (54 species) and Southern thorn scrub (53 species) (Fig.7). The obnoxious invasive species, *Lantana camara* was found in all the 11 forest types surveyed followed by *Chromolaena odorata* in 12 forest types and *Mimosa pudica* found in 8 forest types. *Prosopis juliflora* has extensively invaded the dry deciduous and thorn scrub forest. *Eichornia crassipes* and *Pistia stratiotes* were abundantly found in rivers and other water bodies.

Most of the invasive alien species recorded in the Sathyamangalam Tiger Reserve have use values for humans. Use values reported included medicinal, fodder, edible, fibre, fuel wood, manure, etc (Table 5). About 50% of the invasive alien species of the study area have medicinal uses (Fig. 8).

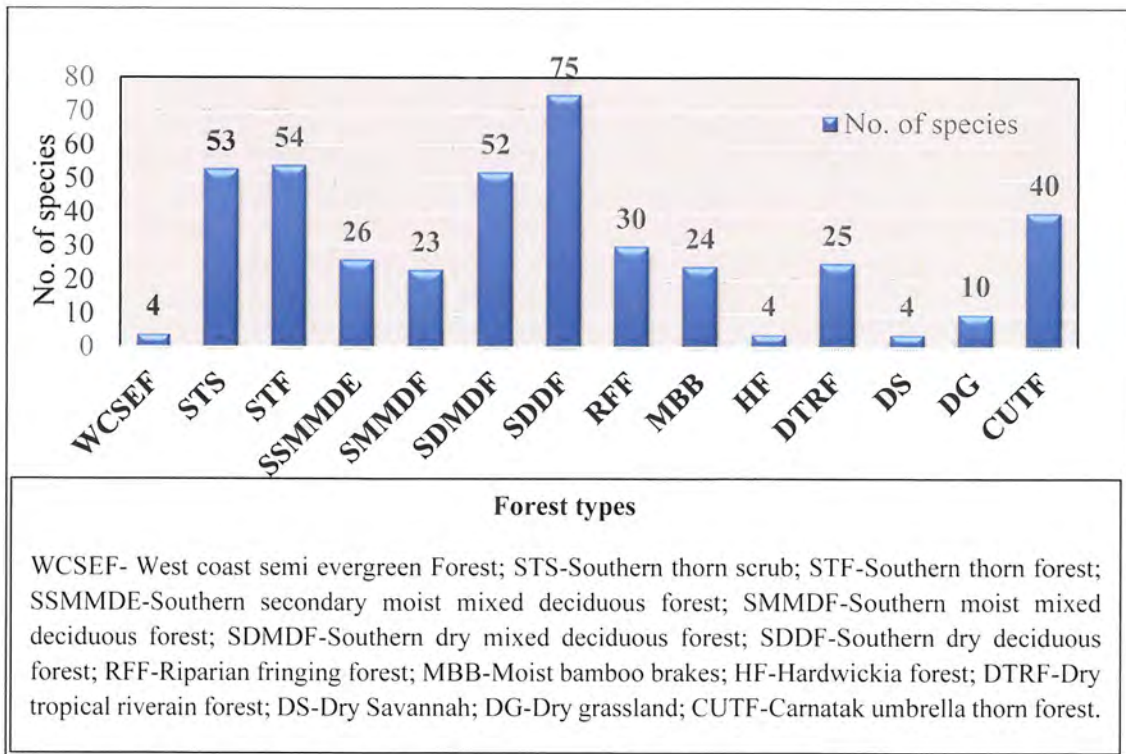


Fig. 7. Distribution of Invasive alien species in different Forest types of the Sathyamangalam Tiger Reserve

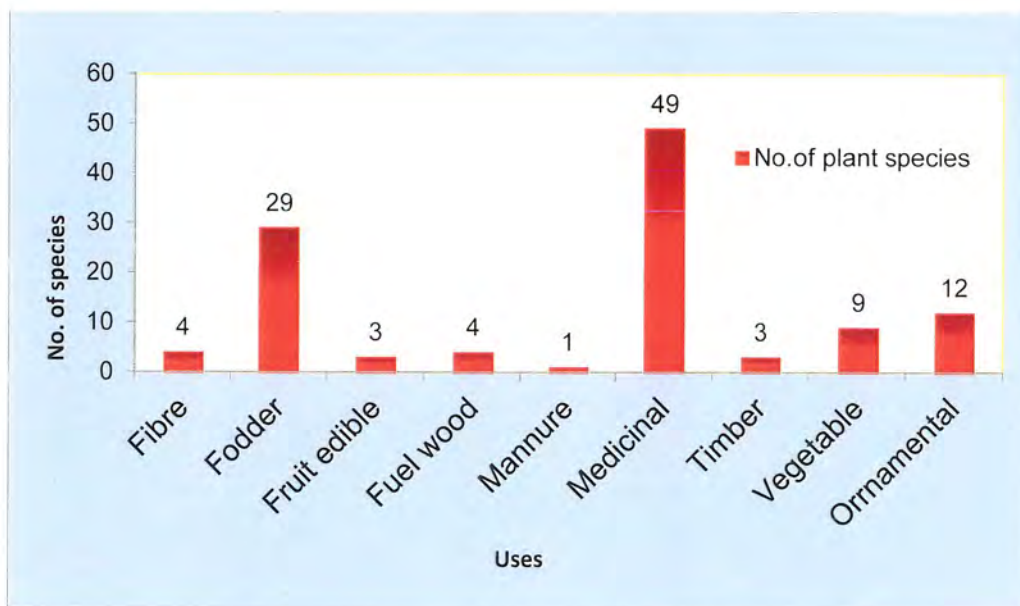


Fig. 8. Use values of invasive alien species recorded in Sathyamangalam Tiger Reserve

Table 5. List of invasive plant species in Sathyamangalam Tiger Reserve

S. No	Species Name	Family	Life form	Origin Country	Uses
1	<i>Acacia auriculiformis</i> L.	Mimosaceae	Tree	Australia	Fuel wood, Timber
2	<i>Acanthospermum hispidum</i> DC.	Asteraceae	Herb	Brazil	Medicinal
3	<i>Aerva javanica</i> (Burm. f.) Juss. ex Schult.	Amaranthaceae	Herb	Tropical America	Medicinal
4	<i>Ageratina adenophora</i> (Spreng.) King & Robinson	Asteraceae	Herb	Mexico	Fodder
5	<i>Ageratum conyzoides</i> L.	Asteraceae	Herb	Tropical America	Medicinal
6	<i>Alternanthera pungens</i> Humb.	Amaranthaceae	Herb	Tropical America	Fodder
7	<i>Alternanthera sessilis</i> (L.) DC.	Amaranthaceae	Herb	Tropical America	Medicinal
8	<i>Alternanthera tenella</i> Colla.	Amaranthaceae	Herb	Tropical America	Fodder, Vegetable
9	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Herb	Tropical America	Vegetable, Medicinal
10	<i>Antigonon leptopus</i> Hook. & Arn.	Polygonaceae	Climber	Tropical America	Ornamental
11	<i>Argemone mexicana</i> L.	Papaveraceae	Herb	South America	Medicinal
12	<i>Asclepias curassavica</i> L.	Asclepiadaceae	Herb	Tropical America	Medicinal
13	<i>Bidens pilosa</i> L.	Asteraceae	Herb	Tropical America	Fodder
14	<i>Blainvillea acmella</i> (L.) Philipson	Asteraceae	Herb	Tropical America	None
15	<i>Borassus flabellifer</i> L.	Arecaceae	Tree	Tropical Africa	Fruit edible, Timber
16	<i>Calotropis gigantea</i> (L.) R. Br.	Asclepiadaceae	Shrub	Tropical Africa	Medicinal, Ornamental
17	<i>Cassia alata</i> L.	Caesalpiniaceae	Shrub	South America	Medicinal
18	<i>Cassia hirsuta</i> L.	Caesalpiniaceae	Herb	Tropical America	Medicinal
19	<i>Cassia obtusifolia</i> L.	Caesalpiniaceae	Herb	Tropical America	Medicinal
20	<i>Cassia occidentalis</i> L.	Caesalpiniaceae	Herb	South America	Medicinal
21	<i>Cassia tora</i> L.	Caesalpiniaceae	Herb	South America	Medicinal
22	<i>Cassia uniflora</i> Miller	Caesalpiniaceae	Herb	Tropical America	Medicinal
23	<i>Catharanthus pusillus</i> (Murray) Don.	Apocynaceae	Herb	Tropical America	Fodder
24	<i>Catharanthus roseus</i> L.	Apocynaceae	Herb	Tropical America	Medicinal, Ornamental
25	<i>Celosia argentea</i> L.	Amaranthaceae	Herb	Tropical America	Fodder, Vegetable

S. No	Species Name	Family	Life form	Origin Country	Uses
26	<i>Chenopodium ambrosioides</i> L.	Chenopodiaceae	Herb	Tropical America	Fodder
27	<i>Chloris barbata</i> (L.) Sw.	Poaceae	Grass	Tropical America	Fodder, Medicinal
28	<i>Chromolaena odorata</i> L.	Asteraceae	Shrub	Tropical America	Fuel wood
29	<i>Chrozophora rotleri</i> (Geis.) Spreng.	Euphorbiaceae	Herb	Tropical Africa	Fodder
30	<i>Cleome gynandra</i> L.	Cleomaceae	Herb	Tropical America	Medicinal
31	<i>Cleome monophylla</i> L.	Cleomaceae	Herb	Tropical Africa	Vegetable
32	<i>Cleome rutidosperma</i> DC.	Cleomaceae	Herb	Tropical America	Fodder
33	<i>Cleome viscosa</i> L.	Cleomaceae	Herb	Tropical America	Medicinal
34	<i>Corchorus aestuans</i> L.	Tiliaceae	Herb	Tropical America	Medicinal
35	<i>Corchorus tridens</i> L.	Tiliaceae	Herb	Tropical Africa	Fodder, Fiber
36	<i>Corchorus trilocularis</i> L.	Tiliaceae	Herb	Tropical Africa	Fiber, Fodder
37	<i>Crotalaria pallida</i> Dryand	Fabaceae	Herb	Tropical America	Fodder
38	<i>Crotalaria retusa</i> L.	Fabaceae	Herb	Tropical America	Ornamental
39	<i>Croton bonplandianum</i> Baill.	Euphorbiaceae	Herb	South America	Fodder, Medicinal
40	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Twinner	Mediterranean	None
41	<i>Cyperus difformis</i> L.	Cyperaceae	Sedge	Tropical America	Fodder
42	<i>Datura innoxia</i> Mill.	Solanaceae	Herb	Tropical America	Medicinal
43	<i>Datura metel</i> L.	Solanaceae	Shrub	Tropical America	Medicinal
44	<i>Digera muricata</i> (L.) Mart.	Amaranthaceae	Herb	South West Asia	Medicinal, Vegetable
45	<i>Echinochloa colona</i> (L.) Link.	Poaceae	Grass	South America	Fodder
46	<i>Eclipta prostrata</i> (L.) Mant.	Asteraceae	Herb	Tropical America	Medicinal
47	<i>Eichornia crassipes</i> (C. Martius) Solms-Loub	Pontederiaceae	Aquatic floating Herb	Brazil	Medicinal
48	<i>Emilia sonchifolia</i> (L.) DC.	Asteraceae	Herb	Tropical America	Medicinal
49	<i>Euphorbia cyathophora</i> Murray	Euphorbiaceae	Herb	Tropical America	Ornamental
50	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	Herb	Tropical America	Ornamental
51	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Herb	Tropical America	Medicinal

S. No	Species Name	Family	Life form	Origin Country	Uses
52	<i>Gnaphalium polycaulon</i> Pers.	Asteraceae	Herb	Tropical America	Fodder
53	<i>Gomphrena serrata</i> L.	Amaranthaceae	Herb	Tropical America	Fodder
54	<i>Hyptis suaveolens</i> (L.) Poit.	Lamiaceae	Herb	Tropical America	Medicinal
55	<i>Imperata cylindrica</i> (L.) Raensch	Poaceae	Grass	Southeast Asia	Fodder
56	<i>Indigofera linifolia</i> (L.f.) Retz.	Fabaceae	Herb	Tropical South America	Fodder
57	<i>Indigofera linmaei</i> Ali.	Fabaceae	Herb	Tropical Africa	Fodder
58	<i>Indigofera trita</i> L.	Fabaceae	Shrub	Tropical Africa	Fodder
59	<i>Ipomoea carnea</i> Jacq.	Convolvulaceae	Aquatic Shrub	South America	Manure
60	<i>Ipomoea hederifolia</i> L.	Convolvulaceae	Twinner	Tropical America	Medicinal
61	<i>Ipomoea obscura</i> (L.) Ker. - Gawal.	Convolvulaceae	Twinner	Tropical Africa	Fodder
62	<i>Ipomoea pes-tigridis</i> L.	Convolvulaceae	Twinner	Tropical east Africa	Medicinal
63	<i>Ipomoea quamoclit</i> L.	Convolvulaceae	Twinner	Tropical America	Ornamental
64	<i>Ipomoea staphylina</i> Roem. and Schult.	Convolvulaceae	Climber	Tropical Africa	Fodder
65	<i>Lagascea mollis</i> Cav.	Asteraceae	Herb	Tropical central America	Medicinal
66	<i>Lantana camara</i> L.	Verbenaceae	Shrub	Tropical America	Ornamental
67	<i>Leonotis nepetifolia</i> (L.) R.Br.	Lamiaceae	Herb	Tropical Africa	Medicinal
68	<i>Leucaena leucocephala</i> (L.) de Wit	Mimosaceae	Tree	Mexico	Fodder, Fuel wood
69	<i>Ludwigia adscendens</i> (L.) Hara.	Onagraceae	Aquatic Herb	Tropical Africa	Medicinal
70	<i>Malvastrum coromandelianum</i> (L.) Garcke	Malvaceae	Herb	Tropical America	Fiber
71	<i>Martynia annua</i> L.	Pedaliaceae	Herb	Tropical America	Medicinal
72	<i>Mikania micrantha</i> Kunth.	Asteraceae	Climber	Tropical America	None
73	<i>Mimosa pudica</i> L.	Mimosaceae	Herb	Brazil	Medicinal
74	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	Herb	Peru	Ornamental
75	<i>Monochoria vaginalis</i> Burm. f.	Pontederiaceae	Aquatic Herb	Tropical America	None
76	<i>Ocimum americanum</i> L.	Lamiaceae	Herb	Tropical America	Medicinal

S. No	Species Name	Family	Life form	Origin Country	Uses
77	<i>Opuntia stricta</i> Haw.	Cactaceae	Shrub	Tropical America	Fruit edible
78	<i>Oxalis corniculata</i> L.	Oxalidaceae	Herb	Europe	Vegetable
79	<i>Parthenium hysterophorus</i> L.	Asteraceae	Herb	South America	Fodder
80	<i>Passiflora foetida</i> L.	Passifloraceae	Climber	South America	Medicinal
81	<i>Pedaliium murex</i> L.	Pedaliaceae	Herb	Tropical America	Medicinal
82	<i>Peperomia pellucida</i> (L.) Kunth	Piperaceae	Herb	Tropical South America	None
83	<i>Peristrophe paniculata</i> (Forssk.) Brummit	Acanthaceae	Herb	Tropical America	Fodder
84	<i>Physalis minima</i> L.	Solanaceae	Herb	Tropical America	Medicinal
85	<i>Pilea microphylla</i> (L.) Liebm.	Urticaceae	Herb	South America	Medicinal
86	<i>Pistia stratiotes</i> L.	Araceae	Aquatic floating Herb	Tropical America	Medicinal
87	<i>Portulaca oleracea</i> L.	Portulacaceae	Herb	South America	Vegetable
88	<i>Prosopis juliflora</i> (Sw.) DC.	Mimosaceae	Tree	Mexico	Fuel wood
89	<i>Ruellia tuberosa</i> L.	Acanthaceae	Herb	Tropical America	Ornamental
90	<i>Scoparia dulcis</i> L.	Scrophulariaceae	Herb	Tropical America	Medicinal
91	<i>Sesbania bispinosa</i> (Jacq.) Wight.	Fabaceae	Shrub	Tropical America	Fiber
92	<i>Sida acuta</i> Burm. f.	Malvaceae	Herb	Tropical America	Medicinal
93	<i>Solanum nigrum</i> L.	Solanaceae	Herb	Tropical America	Vegetable
94	<i>Solanum torvum</i> Sw.	Solanaceae	Shrub	Tropical America	Vegetable
95	<i>Spermacoce hispida</i> L.	Rubiaceae	Herb	Tropical America	Medicinal
96	<i>Spilanthes acmella</i> (L.) Murr.	Asteraceae	Herb	South America	Fodder
97	<i>Stachytarpheta jamaicensis</i> (L.) Vahl	Verbenaceae	Herb	Tropical America	Ornamental
98	<i>Sylosanthus hamata</i> L.	Fabaceae	Herb	Tropical America	Fodder
99	<i>Synadenium grantii</i> Hook. f.	Euphorbiaceae	Shrub	Tropical America	Ornamental
100	<i>Synedrella nodiflora</i> (L.) Gaertn.	Asteraceae	Herb	West Indies	Ornamental

S. No	Species Name	Family	Life form	Origin Country	Uses
101	<i>Tamarindus indica</i> L.	Caesalpinaceae	Tree	Ethiopia, Central Africa	Vegetable
102	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Herb	Tropical America	Medicinal
103	<i>Tridax procumbens</i> L.	Asteraceae	Herb	Central America	Medicinal
104	<i>Triumfetta rhomboidea</i> Jacq.	Tiliaceae	Herb	Tropical America	Medicinal
105	<i>Typha angustata</i> Bory and Chaup.	Typhaceae	Aquatic Herb	Tropical America	Ornamental
106	<i>Waltheria indica</i> L.	Sterculiaceae	Herb	Tropical America	Medicinal
107	<i>Xanthium strumarium</i> L.	Asteraceae	Herb	North America	Medicinal

5.7. Ethnobotany

Irulas, Kurumbas, Sholagas and Ooralis constitute the major tribal communities inhabiting Sathyamangalam Tiger Reserve. Presently, these people have small pockets of land near their settlements and cultivate wide variety of crops such as millets, cereals, and plantain for their use. Still they are following the traditional medicinal practices for curing diseases. The present study observed and gathered information on 101 species belonging to 52 families of medicinal plants used by tribal communities. The information on medicinal uses and practices were gathered from tribal peoples during the floristic survey itself. The medicinal plant species recorded are arranged in alphabetically, followed by local name, family name, parts used and medicinal uses are listed in Table 6.

The 101 plant species enumerated during the present study belongs to 91 genera and 52 families. Herbaceous species dominated the life forms with the representation of 39 species (38.61%) followed by trees with 24 (23.76%), climbers with 19 (18.81%) and shrubs with 19 (18.81%) species. Out of 52 families Euphorbiaceae is dominating (7 species) followed by Fabaceae, Lamiaceae and Malvaceae (5 species each) (Fig.9). In terms of plant parts used, leaves are most frequently used plant parts (53 species), followed by roots (15 species), fruits (12 species), bark (10 species), flower & whole plant (6 species each), Oil/latex (4 species), rhizome/tuber and stem (2 species each) and seed (one species). The study revealed that the tribes of Sathyamangalam Tiger Reserve use plant species for asthma, jaundice, skin diseases, body pain & head ache, cold & cough and urinary diseases etc.

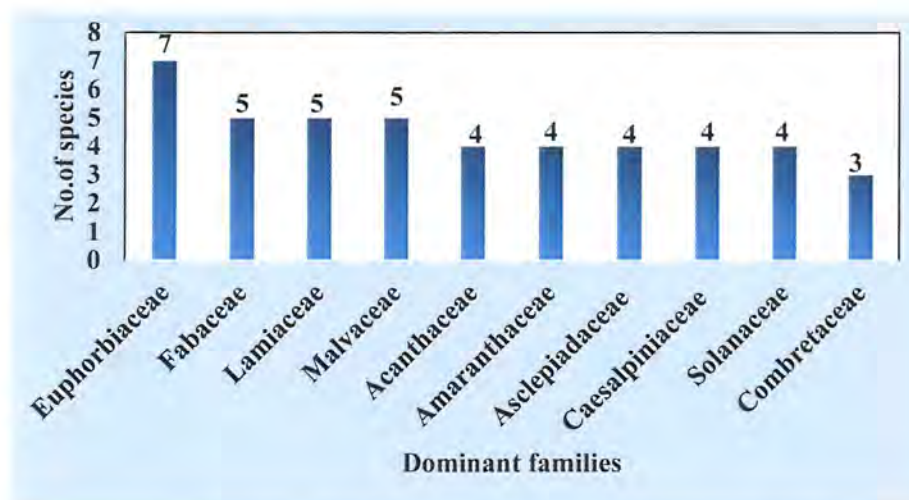


Fig. 9. Dominant plant families of ethnomedicinal Plants recorded in Sathyamangalam Tiger Reserve

Table 6. List of medicinal plants recorded in Sathyamangalam Tiger Reserve

S. No	Botanical Name	Local Name	Family	Parts Used	Medicinal Uses
1	<i>Abrus precatorius</i> L.	Kundumani	Fabaceae	Leaf	Stomach problem, dental disorders, Cold and cough
2	<i>Abutilon indicum</i> (L.) Sweet	Thutthi	Malvaceae	Leaf	Piles
3	<i>Acalypha indica</i> L.	Kuppai meni	Euphorbiaceae	Leaf	Jaundice & tooth ache
4	<i>Achyranthes aspera</i> L.	Nayuruvi	Amaranthaceae	Root	Tooth ache and skin diseases
5	<i>Aerva lanata</i> (L.) Juss.	Koolapoo	Amaranthaceae	Root	Diabetics, scorpion and insect bites
6	<i>Alternanthera pungens</i> Kunth	Sirunerungi	Amaranthaceae	Leaf	Night blindness
7	<i>Amaranthus spinosus</i> L.	Mullu keera	Amaranthaceae	Root	Stomach ulcer
8	<i>Andrographis echinoides</i> (L.) Nees	Kopuramthangi	Acanthaceae	Whole plant	Fever
9	<i>Andrographis paniculata</i> (Burm. f.) Wall. ex Nees	Nilavembu	Acanthaceae	Leaves	Fever
10	<i>Anisomeles malabarica</i> (L.) R. Br. ex Sims	Pei miratti	Lamiaceae	Leaf	Leucorrhea
11	<i>Anogeissus latifolia</i> (Roxb. ex DC.) Wall. ex Guill. & Perr.	Vella namai	Combretaceae	Flower	Intestinal worms
12	<i>Argemone mexicana</i> L.	Bramma thandu	Papaveraceae	Latex	Scabies and Boils
13	<i>Aristolochia indica</i> L.	Poochikadichedi	Aristolochiaceae	Root	Poisonous bite & stomach pain
14	<i>Asparagus racemosus</i> Willd.	Neermuthi	Liliaceae	Root	Increase immunity
15	<i>Azadirachta indica</i> A. Juss.	Veppamaram	Meliaceae	Leaf	Fever, Cold and Cough
16	<i>Azima tetraacantha</i> Lam.	Sangu mullu	Salvadoraceae	Leaf	Cold and cough
17	<i>Bambusa bambos</i> (L.) Voss	Moongil	Poaceae	Tender leaves	Abortion
18	<i>Barleria buxifolia</i> L.	Chullimullu	Acanthaceae	Leaf and Root	Cough and inflammations
19	<i>Boerhavia diffusa</i> L.	Mukurattai	Nyctaginaceae	Whole plant	Asthma and Digestive disorder.
20	<i>Bryophyllum pinnatum</i> (Lam.) Oken	Ranakalli	Crassulaceae	Leaf	Stomach ulcer

S. No	Botanical Name	Local Name	Family	Parts Used	Medicinal Uses
61	<i>Lantana veronicifolia</i> Hayek	Vella unni chedi	Verbenaceae	Leaf	Skin disease
62	<i>Lawsonia inermis</i> L.	Maruthani	Lythraceae	Leaf	Mouth ulcer
63	<i>Leonotis nepetifolia</i> (L.) R. Br.	Kaattu thumbai	Lamiaceae	Flowering head	Fever, boils, and ring worm.
64	<i>Leucas aspera</i> (Willd.) Link	Thumbai	Lamiaceae	Leaf	Reduces snake poison and pain
65	<i>Mallotus philippensis</i> (Lam.) Muell.-Arg.	Kumila maram	Euphorbiaceae	Fruits	Skin diseases
66	<i>Malvastrum coromandelianum</i> (L.) Garcke	Aruvalmana poondu	Malvaceae	Leaf	Wounds and swellings
67	<i>Mimosa pudica</i> L.	Thottasinungi	Mimosaceae	Leaf	Stomach pain
68	<i>Moringa oleifera</i> Lam.	Murungai	Moringaceae	Bark	Body pain
69	<i>Mukia maderaspatana</i> (L.) M. Roem.	Musumusuki	Cucurbitaceae	Whole plant	Cold & fever
70	<i>Murraya paniculata</i> (L.) Jack	Kattu karuveppilai	Rutaceae	Leaf	Wounds
71	<i>Ocimum americanum</i> L.	Nayi thulasi	Lamiaceae	Leaf	Mosquito repellent
72	<i>Ocimum tenuiflorum</i> L.	Tulasi	Lamiaceae	Leaf	Skin allergy, fever
73	<i>Oxalis corniculata</i> L.	Puliyarai	Oxalidaceae	Root	Fever
74	<i>Passiflora foetida</i> L.	Mookuchali pazham	Passifloraceae	Fruit	Asthma
75	<i>Pedaliium murex</i> L.	Anainerunji	Pedaliaceae	Leaf	Gonorrhoea.
76	<i>Pergularia daemia</i> (Forssk.) Chiov.	Veliparuthi	Asclepiadaceae	Leaf	Skin blisters & chest pain
77	<i>Phyllanthus amarus</i> Schumacher & Thonn.	Keelanelli	Euphorbiaceae	Leaves & fruits	Ring worm, Jaundice & Fever
78	<i>Phyllanthus emblica</i> L.	Nelli	Euphorbiaceae	Fruits	Skin diseases and Ulcer
79	<i>Plumbago zeylanica</i> L.	Kodiveli	Plumbaginaceae	Root	Fever
80	<i>Pongamia pinnata</i> (L.) Pierre	Pungamaram	Fabaceae	Leaves	Pains
81	<i>Psidium guajava</i> L.	Koyya	Myrtaceae	Tender leaves	Tooth ache

S. No	Botanical Name	Local Name	Family	Parts Used	Medicinal Uses
82	<i>Psydrax dicoccos</i> Gaertn., var. <i>dicoccos</i>	Payirai	Rubiaceae	Bark	Fever
83	<i>Senna auriculata</i> (L.) Roxb.	Aavaram	Caesalpiniaceae	Whole plant	Cure skin allergy
84	<i>Sida acuta</i> Burm. f.	Kurunthotti	Malvaceae	Leaf	Cures boils & blisters
85	<i>Sida cordifolia</i> L.	Nilathuthi	Malvaceae	Leaf	Dysentery
86	<i>Solanum americanum</i> Mill.	Manathakkali	Solanaceae	Leaf	Mouth problem
87	<i>Solanum pubescens</i> Willd.	Kattu sundai	Solanaceae	Fruit	Intestinal worms
88	<i>Solanum trilobatum</i> L.	Thoothuvalai	Solanaceae	Fruits	Cold
89	<i>Strychnos nux-vomica</i> L.	Etti maram	Loganiaceae	Fruit	Tonic, aphrodisiac and diuretic
90	<i>Tamarindus indica</i> L.	Pulia maram	Caesalpiniaceae	Fruit	Diphtheria and stomatitis.
91	<i>Tephrosia purpurea</i> (L.) Pers.	Kolinjii	Fabaceae	Root	Stomach pain & Fever
92	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Thaani maram	Combretaceae	Bark	Skin disease & Cough
93	<i>Terminalia chebula</i> Retz.	Kadukai maram	Combretaceae	Fruit	Cough & diabetes & Stomach problems
94	<i>Tinospora sinensis</i> (Lour.) Merr.	Seendhil	Menispermaceae	Leaf	Jaundice & Diabetes
95	<i>Toddalia asiatica</i> (L.) Lam.	Kattumizhagu	Rutaceae	Leaf	Insect bitten area as poultice
96	<i>Tribulus terrestris</i> L.	Nerungi	Zygophyllaceae	Leaf	Cures urinary problem and increase urination.
97	<i>Trichodesma indicum</i> (L.) Lehm.	Kavizhthumbai	Boraginaceae	Root	Swelling of joints
98	<i>Tridax procumbens</i> L.	Thalaivetti	Asteraceae	Leaves	Wounds and cuts
99	<i>Vitex negundo</i> L.	Notchi	Verbenaceae	Leaf	Head ache
100	<i>Zaleya decandra</i> (L.) Burm. f.	Saranai	Aizoaceae	Root	Elephantiasis
101	<i>Ziziphus jujuba</i> Mill.	Ilanthai	Rhamanaceae	Fruit	Gastric diarrhoea

5.8. Economic Botany

The agricultural prosperity of the Sathyamangalam Tiger Reserve is rich by virtue of having several riverbeds, valleys and hills. The important economic plants are classified under cereals, pulses, vegetables, oils, nonalcoholic beverages, sugars, fibres and timbers.

Cereals and Millets: *Oryza sativa* is the major cereal cultivated in Bhavanisagar range and its surroundings. Other cereals like *Zea mays* and millets *Eleusine coracana*, *Sorghum vulgare*, *Pennisetum typhoides*, etc. are cultivated in most of the settlements, especially in drier areas.

Pulses: Among pulses *Cajanus cajan*, *Cicer arietinum*, *Lablab purpureus*, *Vigna mungo*, *V. radiata* var. *radiata* & var. *sublobata*, *V. unguiculata* subsp. *cylindrica*, etc. are cultivated either as a single crop or as mixed crop in settlements of Sathyamangalam and Thookkanayakkanpalayam Ranges.

Vegetables: Underground vegetables such as *Allium cepa*, *Allium sativum*, *Beta vulgaris*, *Ipomoea batatas*, *Manihot esculentus*, *Raphanus sativus* are cultivated in the plains and, *Daucus carota* and *Solanum tuberosum* are cultivated in hilly regions. Herbage vegetables like *Brassica oleracea* var. *botrytis* & var. *capitata* are also cultivated in dry hill slopes areas. Fruit vegetables namely *Abelmoschus esculentus*, *Moringa oleifera*, *Cucumis sativas*, *Lycopersicon esculentum*, *Solanum melongena*, *Cucurbita maxima*, *C. pepo*, *Lablab purpureas*, *Lagenaria vulgaris*, *Luffa acutangula*, *Momordica charantia*, etc. are commonly cultivated in fields and house gardens. Leafy vegetables namely *Solanum americanum*, *Amaranthus viridis*, *Digera muricate*, *Alternanthera sessilis*, *Celosia polygonoides*, etc. are cultivated in home gardens.

Fruits: Tree fruits like *Artocarpus heterophyllus*, *Citrus aurantifolia*, *C. sinensis* and *Punica granatum* are cultivated in many settlements. Edible fruits species like *Achras sapota*, *Musa paradisiaca*, *Limonia acidissima*, *Syzygium cumini*, *Vitis vinifera*, *Zizyphus mauritiana*, *Annona squamosa*, *Carica papaya*, *Mangifera indica*, *Psidium guajava*, etc. are cultivated on a large scale in fields as well as in groves and in-house gardens.

Spices and Condiments: Species like *Brassica juncea*, *Capsicum annuum*, *Coriandrum sativum*, *Myristica fragrans*, *Piper longum*, and *P. nigrum* are chiefly cultivated in plains and foothills of Hassanur and Germalam Ranges.

Non-alcoholic beverages: Coffee *Coffea arabica* and *C. robusta* is cultivated in several parts of the hill stations. *Theobroma cacao* is cultivated as a mixed crop in plains.

Fumitories and Masticatories: *Nicotiana tabaccum* is cultivated in large scale near the Bhavanisagar range and *Piper betle* is cultivated in the hill areas. *Areca catechu* is cultivated in the foot hills in a small scale.

Sugar: *Saccharum officinarum* is one of the major crops cultivated in the Talavadi range.

Fibres: Surface fibres obtained from *Ceiba pentandra*, *Gossypium* spp., and *Cocos nucifera* are used to make a clothing materials and other products. Bast fibres are derived from *Crotalaria juncea*, *Calotropis gigantea* and *Helicteres isora*. Hard fibres are received from *Agave americana*, *Furcraea foetida* and *Sansevieria thyrsiflora*. Leaves of *Typha angustifolia* is used for thatching and *Cyperus pangorei* is used for making mats. Plaiting and rough weaving fibres are got from *Bambusa bambos*, *Calamus* spp., and *Borassus flabellifer*. Dried fruits of *Luffa aegyptiaca* and *L. cylindrica* are used as bathing sponges. The obnoxious invasive species of *Lantana camara* stumps are used to make a furniture items.

Timber: Dense forest wealth in this Tiger Reserve provide many potential timber trees which are useful for construction, furniture, musical, sports equipment, match box industries, carvings, packing boxes, etc. Trees of commercial timber value are *Albizia lebbek*, *Anogeissus latifolia*, *Azadirachta indica*, *Dalbergia latifolia*, *D.sissoo*, *Hardwickia binata*, *Madhuca longifolia*, *Mangifera indica*, *Melia dubia*, *Mitragyna parvifolia*, *Pterocarpus marsupium*, *Syzygium cumini*, *Tectona grandis*, etc. Species like *Ailanthes excelsa*, *Bombax insigne*, *Ceiba pentandra*, etc. are useful in plywood and packing industries.

Fuel wood: Tree species such as *Acacia planifrons*, *A. nilotica* subsp. *indica*, *Dichrostachys cineria*, *Azadirachta indica*, *Prosopis juliflora* are used for fuel wood.

Edible oil: Species like *Arachis hypogaea*, *Cocos nucifera* and *Sesamum orientale* are extensively cultivated on a large scale in majority of the plain area. Non-edible oil extracted from *Azadirachta indica*, *Pongamia pinnata*, *Sapindus emarginatus* and *Ricinus communis* are used in making soaps, paints and medicines.

5.9. Conservation and management of floristic wealth

Sathyamangalam Tiger Reserve forms a major biodiversity rich area in the Eastern Ghats with a mixture of both indigenous and exotic species. The Reserve is rich in floristic diversity and varied vegetation types from dry scrub to West-coast semi evergreen forests which is already well protected by strict laws. The present study recorded substantial number of flowering plant species from the Sathyamangalam Tiger Reserve. The Tiger Reserve was subjected to high anthropogenic disturbances for than several decades. The degraded areas of the Reserve has been invaded with exotic species that pose threat to native plant species. There is an urgent need to develop conservation strategies for the protection of flowering plants of the Sathyamangalam Tiger Reserve.

Systematic Treatment

Chapter 6

Systematic Treatment

Key to the families

1a. Plants with tap root system; flowers pentamerous, tetramerous, rarely trimerous; vascular bundles in concentric ring, enclosing a central pith; bark separable; embryo with 2 cotyledons (Dicotyledons).....	2
1b. Plants with fibrous root system; flowers trimerous, rarely tetramerous; vascular bundles scattered or several concentric rings without a central pith; bark inseparable; embryo with one cotyledon (Monocotyledons).....	133
2a. Perianth always biseriate or multiseriate.....	3
2b. Perianth uniseriate rarely biseriate or absent (Monochlamydeae).....	112
3a. Inner perianth lobes (petals) usually free, rarely united (Polypetalae).....	4
3b. Inner perianth lobes (petals) usually connate, at least at base (Gamopetalae).....	74
4a. Ovary superior; flower hypogynous or perigynous.....	5
4b. Ovary inferior or half inferior; flower epigynous.....	53
5a. Sepals imbricate in bud.....	6
5b. Sepals valvate in bud.....	44
6a. Sepals free.....	7
6b. Sepals more or less united at the base.....	28
7a. Stamens more than 12.....	8
7b. Stamens 10 or less.....	17
8a. Sepals 2-3.....	9
8b. Sepals 4 or more.....	11
9a. Aquatic plants.....	Cabombaceae
9b. Terrestrial plants.....	10
10a. Plant with yellow sap; leaves spinescent.....	Papaveraceae
10b. Plants without yellow sap; leaves not spinescent.....	Portulacaceae
11a. Plants rhizomatous.....	12
11b. Plants not rhizomatous.....	13
12a. Leaves orbicular.....	Nelumbonaceae
12b. Leaves cordate.....	Nymphaeaceae
13a. Sepals deciduous.....	14
13b. Sepals persistent.....	Ochnaceae
14a. Carpels free.....	Ranunculaceae
14b. Carpels united.....	15
15a. Herbaceous.....	Cleomaceae
15b. Trees or shrubs.....	16
16a. Ovary supported by gynophore; young leaves greenish.....	Capparaceae
16b. Ovary not as above; young leaves reddish.....	Flacourtiaceae
17a. Flowers trimerous.....	18
17b. Flowers 4-5 merous.....	19
18a. Flowers unisexual.....	Menispermaceae
18b. Flowers bisexual.....	Magnoliaceae
19a. Petals 4.....	Brassicaceae
19b. Petals 5.....	20

20a. Sepals persistent; ovary unilocular.....	21
20b. Sepals deciduous; ovule 2 or more locular.....	23
21a. Placentation parietal.....	22
21b. Placentation free-central.....	Caryophyllaceae
22a. Leaves stipulate.....	Violaceae
22b. Leaves exstipulate.....	Pittosporaceae
23a. Filaments free.....	24
23b. Filaments connate.....	25
24a. Leaves stipulate.....	Balsaminaceae
24b. Leaves exstipulate.....	Sapindaceae
25a. Flowers zygomorphic.....	Polygalaceae
25b. Flowers actinomorphic.....	26
26a. Fruits samroid.....	Malpigiaceae
26b. Fruits not samaroid.....	27
27a. Plants are straggler; fruit a capsule.....	Linaceae
27b. Plants are non-straggler; fruit a drupe or nut.....	Erythroxylaceae
28a. Two sepals enlarged in fruits.....	Dipterocarpaceae
28b. Sepals not as above.....	29
29a. Leaves gland-dotted.....	Rutaceae
29b. Leaves not gland-dotted.....	30
30a. Stamens alternating with petals.....	31
30b. Stamens opposite to petals.....	41
31a. Ovules pendulous.....	32
31b. Ovules erect.....	39
32a. Leaves compound.....	33
32b. Leaves simple.....	Icacinaceae
33a. Herbs.....	34
33b. Trees or shrubs.....	35
34a. Fruit a schizocarp; seeds not ariliate.....	Zygophyllaceae
34b. Fruit a capsule; seeds ariliate.....	Oxalidaceae
35a. Leaflets 2.....	Balantiaceae
35b. Leaflets more than 2.....	36
36a. Filaments free.....	37
36b. Filaments connate into a tube.....	Meliaceae
37a. Leaves even-pinnate.....	Simaroubaceae
37b. Leaves odd-pinnate.....	38
38a. Fruits a long capsule.....	Moringaceae
38b. Fruits a berry.....	Berberidaceae
39a. Ovary mostly 1-loculed (except <i>Buchanania</i>).....	Anacardiaceae
39b. Ovary 3-5-loculed.....	40
40a. Stamens 4-5.....	Celastraceae
40b. Stamens 3.....	Hippocrateaceae
41a. Petals imbricate.....	Sabiaceae
41b. Petals valvate.....	42
42a. Leaves exstipulate.....	43
42b. Leaves stipulate.....	Vitaceae

43a. Ovary 3-5-loculed.....	Olacaceae
43b. Ovary unilocular.....	Opiliaceae
44a. Flowers trimerous.....	Annonaceae
44b. Flowers 4-6 merous.....	45
45a. Filaments connate.....	46
45b. Filaments free.....	49
46a. Anthers unilocular.....	47
46b. Anthers bilocular.....	48
47a. Stamens monadelphous.....	Malvaceae
47b. Stamens polyadelphous.....	Bombocaceae
48a. Leaves opposite.....	Hypericaceae
48b. Leaves alternate.....	Sterculiaceae
49a. Leaves compound.....	Burseraceae
49b. Leaves simple.....	50
50a. Stamens many.....	51
50b. Stamens 4-5.....	Rhamnaceae
51a. Petals ciliate or laciniate.....	Elaeocarpaceae
51b. Petals not ciliate.....	52
52a. Seeds with cottony hairs.....	Cochlospermaceae
52b. Seeds without cottony hairs.....	Tiliaceae
53a. Stamens not flattened or articulated.....	54
53b. Stem flattened and articulated.....	Cactaceae
54a. Carpels free.....	55
54b. Capsules united.....	73
55a. Ovule pendulous.....	69
55b. Ovules basal or axile.....	56
56a. Carpel one.....	57
56b. Carpels more than one.....	59
57a. Flowers actinomorphic.....	Mimosaceae
57b. Flowers gynomorphic.....	58
58a. Upper petal outermost.....	Fabaceae
58b. Upper petal innermost.....	Caesalpinjiaceae
59a. Flowers bisexual or polygamous.....	60
59b. Flowers unisexual.....	68
60a. Styles free.....	61
60b. Styles united.....	64
61a. Leaves stipulate.....	Rosaceae
61b. Leaves exstipulate.....	62
62a. Carpels free; fruit a folicle.....	Crassulaceae
62b. Carpels united; fruit a capsule.....	63
63a. Ovary superior.....	Molluginaceae
63b. Ovary half inferior.....	Aizoaceae
64a. Calyx lobes imbricate.....	65
64b. Calyx lobes valvate.....	67
65a. Petals imbricate in bud.....	66
65b. Petals contorted in bud.....	Melastomataceae

66a. Flowers in spike.....	Lecythidaceae
66b. Flowers other than spikes.....	Myrtaceae
67a. Ovary free from calyx.....	Lythraceae
67b. Ovary adnate to calyx-tube.....	Onagraceae
68a. Fruits 2-3 winged.....	Begoniaceae
68b. Fruits not winged.....	Cucurbitaceae
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SYSTEMATIC TREATMENT
RANUNCULACEAE Juss., Gen. Pl. 231. 1789.

Key to the genera

- 1a. Terminal leaflet modified into tendril, filaments ligulate.....*Naravelia*
 1b. Terminal leaflet normal, filaments linear.....*Clematis*

CLEMATIS L., Sp. Pl. 1: 543. 1753.

Key to the species

- 1a. Stems and branches glabrous.....*C. gouriana*
 1b. Stems and branches pubescent or villous.....*C. roylei*

Clematis gouriana Roxb. ex DC., Syst. Nat. 1: 138 1817; FBI 1: 4. 1872; FSIHS 1: 4. 1932; FPM 1: 2. 1957; FTC 3(1): 1. 1983; FTN 1: 1. 1983; FEG 1: 24. 2002.

Climber. Leaves 2 or 3 pinnate. Leaflets oblong, ovate-lanceolate. Panicles dense, sparsely pubescent. Sepals 4, cream, oblong or obovate. Petals 0. Stamens 30-35. Carpels 10-15. Seeds linear.

Common along forest border on moist deciduous forest. **Fl. & Fr.:** Aug.-May. **VN:** *Aattumeesaikodi*. **Sp.Ex.:** KA & PB 1449 (SACONH); VS 19360, 19359 (FRC); KNS 11835, 11836 (FRC); PSAT 187175 (MH); VN 79137, 78257, 78844 (MH); SRR 83203 (MH); KCJ 81261 (MH).

Clematis roylei Rehder in J. Arnold. Arbor. 22: 575. 1941; FEG 1: 25. 2002. *C. nutans* Royle in Ill. Bot. Himal. Mts. 51. 1834; FBI 1: 5. 1872 (non Crantz, 1763); FPM 1: 3. 1957.

Climbing shrub. Leaves pinnately 3-5 foliate. Inflorescences axillary, 3 to many flowered, pubescent panicles. Flowers cream-white or pale yellow. Petals oblong with curled back tips, densely hairy outside, glabrous inside. Achenes ovoid, ellipsoid.

Occasional in riverbanks or streams in forests. **Fl. & Fr.:** Sept.-May. **Sp.Ex.:** VS 19357, 18767, 18768 (FRC).

NARAVELIA Adens., Fam. Pl. 2: 460, 581. 1763.

Naravelia zeylanica (L.) DC., Syst. Nat. 1: 167. 1818; FBI 1: 7. 1872; FSIHS 1: 4. 1932; FPM 1: 3. 1957; FTC 3(1): 2. 1983; FTN 1: 1. 1983; FEG 1: 28. 2002. *Atragene zeylanica* L., Sp. Pl. 542. 1753.

Climbing tomentose shrubs. Leaves trifoliate. Leaflets broadly ovate, entire or serrate, terminal leaflets modified into a trifid tendril. Inflorescence a terminal or axillary panicle. Sepals 4, ovate, pubescent outside. Petals 10, clavate, green. Stamens many. Achenes few.

Common in moist deciduous forests. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** VS 19358 (FRC).

MAGNOLIACEAE Juss., Gen. Pl. 280. 1789.

MAGNOLIA L., Sp. Pl. 1: 535. 1753.

Magnolia champaca (L.) Baill. ex Pierre, Fl. Forest. Cochinch. t. 3 1880. *Michelia champaca* L., Sp. Pl. 536. 1753; FBI 1: 42. 1872; FSIHS 1: 11. 1932; FPM 1: 6. 1957; FTC 3(1): 3. 1983; FTN 1: 3. 1983; FEG 1: 34. 2002.

Densely foliaceous, evergreen tree, bark grey, thick, smooth. Leaves elliptic-lanceolate. Flowers axillary, rarely terminal, solitary, pale yellow, fragrant. Follicles warty. Seeds many.

Planted in gardens. **Fl. & Fr.:** Mar.-July. **VN:** *Chenbagam*. **Sp.Ex.:** VN 79849, 79859 (MH).

ANNONACEAE Juss., Gen. Pl. 283. 1789.

Key to the genera

- 1a. Ripe carpels united, forming many-loculed syncarpous fruits.....*Annona*
- 1b. Ripe carpels free, forming apocarpous fruits.....2
- 2a. Petals of outer whorl longer than inner.....*Alphonsea*
- 2b. Petals of inner whorl longer than outer.....3
- 3a. Pistils numerous; petals similar; stamens compactly arranged.....*Polyalthia*
- 3b. Pistils 6; petals dissimilar; stamens laxly arranged.....*Miliusa*

ALPHONSEA Hook. f. & Thomson, Fl. Ind. 1: 152. 1855.

Alphonsea lutea (Roxb.) Hook. f. & Thomson, Fl. Ind. 1: 153. 1855 & FBI 1: 89. 1872; FPM 1: 17. 1957; FTC 3(1): 6. 1983; FTN 1: 3. 1983; FPI 1: 85. 2009. *Uvaria lutea* Roxb., Pl. Coromandel 1: t. 36. 1795 & Fl. Ind. 2: 666. 1832.

Trees, young branches brown pubescent. Leaves ovate to oblong or elliptic. Flowers in dense fascicles, leaf-opposed, subcapitate. Sepals 3, connate into a 3-angled shallow cup. Petals 6 (3 + 3), subequal, ovate. Stamens many. Carpels few. Stigma sessile, capitate. Seeds 3 - 6, in 2 rows. Rare in moist deciduous forests along streams. **Fl. & Fr.:** April-Sept. **Sp.Ex.:** LP 2013, 1102 (SACONH); KNS 8055 (FRC).

ANNONA L., Sp. Pl. 1: 536. 1753.

Annona squamosa L., Sp. Pl. 1: 537. 1753; Roxb., Fl. Ind. 2: 657. 1832; FBI 1: 78. 1872; FPM 1: 14. 1957; FTC 3(1): 8. 1983; FTN 1: 3. 1983; FEG 1: 38. 2002; FPI 1: 86. 2009.

Small tree. Leaves oblong-lanceolate, glabrescent, margin entire. Flowers axillary, solitary or 2-4 in clusters, greenish-yellow. Fruits ovate-globose, glaucous, seeds many. Common in settlements, dry forests and waste lands. **Fl. & Fr.:** April-Sept. **VN:** *Seethapazham*. **Sp.Ex.:** PSAT 187077 (MH); VS 19040, 18769 (FRC).

MILIUSA Lesch. ex A. DC, Mem. Soc. Phys. Geneve 5: 213. 1832.

Miliusa wightiana Hook. f. & Thomson, Fl. Ind. 1: 149. 1855 & FBI 1: 87. 1872; FPM 1: 15. 1957; FTN 1: 5. 1983; FPI 1: 92. 2009.

Small evergreen trees. Leaves narrowly oblong to lanceolate, coriaceous, glabrous. Flowers pink, bisexual, solitary, axillary. Sepals 3, minute, reflexed. Petals 6 (3 + 3). Stamens many, in a few series. Carpels many, oblong. Stigma oblong. Fruits are clustered with 1 or 2 seeded berries.

Occasional in evergreen forests. **Fl. & Fr.:** Jan.-Aug. **Sp.Ex.:** PSAT 186647, 186648, 186926 (MH).

POLYALTHIA Blume, Fl. Javae Anon. 68. 1830.

Key to the species

- 1a. Young shoots and leaves tomentose below.....*P. cerasoides*
- 1b. Young shoots and leaves glabrous.....2
- 2a. Leaves narrow lanceolate, margins undulate.....*P. longifolia*
- 2b. Leaves ovate oblong or elliptic; margins not undulate.....*P. coffeoides*

Polyalthia cerasoides (Roxb.) Bedd., Fl. Sylv. S. India t. 1. 1869; FBI 1: 63. 1872; FPM 1: 12. 1957; FTC 3(1): 12. 1983; FTN 1: 5. 1983; FEG 1: 43. 2002; FPI 1: 94. 2009.

Deciduous trees. Leaves oblong or elliptic-lanceolate, glabrous above, acute, entire, base obtuse. Flowers greenish, axillary or solitary of in clusters. Fruitlets globose, red. Seed solitary. Rare in evergreen forests. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** VS 18770 (MH); KNS 8960, 8959 (FRC); VN 79634; VN78944, 78943, 78948 (MH); PSAT 187097, 187096 (MH).

Polyalthia coffeoides (Thwaites ex Hook. f. & Thomson) Thwaites ex Bedd., Icon. Pl. Ind. Or. 11, t. 53. 1869; FBI 1: 62. 1872; FPM 1: 11. 1957; FTN 1: 5. 1983; FPI 1: 94. 2009.

Trees. Leaves simple, alternate, distichous, oblong-lanceolate, coriaceous. Flowers yellow, solitary, extra axillary. Petals 3+3, yellow. Stamens numerous. Carpels numerous, oblong. Fruit aggregate of berries, ovoid, apiculate, dark purplish.

Occasional in evergreen forest. **Fl & Fr.:** April-Aug. **Sp.Ex.:** KA & PB 1679 (SACONH).

Polyalthia longifolia (Sonn.) Thwaites, Enum. Pl. Zeyl. 398. 1864; FBI 1: 62. 1872; FPM 1: 11. 1957; FTC 3(1): 12. 1983; FTN 1: 6. 1983; FEG 1: 43. 2002; FPI 1: 95. 2009.

Large trees. Leaves ovate-lanceolate, margin undulate. Inflorescence axillary, racemose or umbellate. Flowers many. Carpels few, one ovuled. Stigma sessile. Fruitlets ovoid.

Cultivated throughout in gardens and as avenue trees. **Fl. & Fr.:** Mar.-Sept. VN: *Ashokamaram & Nettiingam*. **Sp.Ex.:** LP 2966 (SACONH).

MENISPERMACEAE Juss., Gen. Pl. 284. 1789.

Key to the genera

- 1a. Leaves peltate.....2
- 1b. Leaves other than peltate.....4
- 2a. Inflorescence umbellate.....*Stephania*
- 2b. Inflorescence a panicle or fascicles.....3
- 3a. Female flowers 3-6 together in the axil of large orbicular bracts.....*Cissampelos*
- 3b. Female flowers otherwise.....*Cyclea*
- 4a. Stamens connate.....*Anamirta*
- 4b. Stamens free.....5
- 5a. Bark corky, style-scar terminal.....*Tinospora*
- 5b. Bark smooth, style-scar in fruit subbasal.....6
- 6a. Leaves apically round to obtuse.....*Pachygone*
- 6b. Leaves apically acute or acuminate.....7
- 7a. Carpels 6, cotyledons foliaceous, endosperm ruminant.....*Tiliacora*
- 7b. Carpels 3, cotyledons not foliaceous, endosperm not ruminant.....*Cocculus*

ANAMIRTA Colebr., Trans. Linn. Soc. London 13: 52, 66. 1821.

Anamirta cocculus (L.) Wight & Arn., Prodr. Fl. Ind. Orient. 446. 1834; FBI 1: 98. 1872; FPM 1: 19. 1957; FTC 3(1): 17. 1983; FTN 1: 7. 1983; FEG 1: 46. 2002.

Large climbers. Leaves alternate, broadly ovate, coriaceous. Flowers unisexual, many, in large drooping panicles on old branches. Sepals 6 in 2 rows, ovate, yellow. Petals absent. Carpels 3, free. Stigma recurved. Fruits of 1-3 drupes, obliquely ovoid.

Common in moist deciduous, semi-evergreen forests and riparian zones. **Fl. & Fr.:** Sept.-May. **Sp.Ex.:** LP 2985 (SACONH).

CISSAMPELOS L., Sp. Pl. 2: 1031. 1753.

Cissampelos pareira L., Sp. Pl. 2: 1031. 1753; FBI 1: 103. 1872; FSIHS 1: 14. 1932; FPM 1: 21. 1957. *C. pareira* L. var. *hirsuta* (Buch.-Ham. ex DC.) Forman, Kew Bull. 22: 356. 1968; FTC 3(1): 18. 1983; FTN 1: 7. 1983; FEG 1: 46. 2002.

Slender climbers, stem pubescent. Leaves broadly ovate, cordate at base. *Male flowers*: in axillary cymes, sessile; Sepals 4, orbicular, hairy inside; petals 4, connate into a truncate cup, glabrous; stamens 4. *Female flowers*: in bracteate racemes, 3-8 together in the axil of each bract; sepals 2; petals absent; ovary densely hairy; styles 3. Fruit a globose drupe, glabrous; seeds 1, black.

Common in dry deciduous forests near the bushes on streams. **Fl. & Fr.**: April-Oct. **VN**: Appattakodi. **Sp.Ex.**: LP 1670 (SACONH); KA & PB 1714 (SACONH); VS 19244, 19243 (FRC); VS 18772 (FRC); VS 18385, 18327; VS 18280; PSAT 187541, 187542 (MH); CECF 1030 (MH); VN 79142 (MH).

COCCULUS DC, Syst. Nat. 1: 515. 1817.

Key to the species

- 1a. Erect shrubs or small tree; peduncle glabrous *C. laurifolius*
- 1b. Climbing or straggling shrub; peduncle densely pubescent.....2
- 2a. Leaves narrowly elliptic, acute at base, sub-glabrous..... *C. pendulus*
- 2b. Leaves ovate, obtuse at base, softly pubescent..... *C. hirsutus*

Cocculus hirsutus (L.) W. Theob., Burmah ed. 3. 2: 657. 1860; FPM 1: 21. 1957; FTC 3(1): 19. 1983; FTN 1: 7. 1983; FEG 1: 48. 2002. *Menispermum hirsutum* L., Sp. Pl. 341. 1753.

Stragglers. Leaves ovate, cordate, obtuse, hirsute. *Male flowers*: in axillary panicles; sepals 6, obovate, free; petals 6, obovate bifid, free, base auricled; stamens 6, free, included. *Female flowers*: in axillary fascicles or racemes; sepals 6, obovate, biseriata; petals 6, oblanceolate, hairy; carpels 3. Drupe globose, purple.

Common in dry deciduous forests. **Fl. & Fr.**: Throughout the year. **VN**: Kattu-k-kodi. **Sp.Ex.**: LP 2024, 3185 (SACONH); VS 18328 (FRC); KNS 1859 (FRC); KNS 6927 (FRC); - KCJ 939, 940, 941, 942, 81200 (MH); PSAT 187235, 187377 (MH).

Cocculus laurifolius DC., Syst. Nat. 1: 530. 1817; FBI 1: 101. 1872; FPM 1: 21. 1957; FTN 1: 7. 1983.

Large shrubs to small trees with drooping branches. Leaves oblanceolate, 3-ribbed, abruptly acuminate at apex, glabrous, shining above. Flowers unisexual, in axillary panicles. Sepals 4, ovate, obtuse. Petals broadly ovate, obtuse, glabrous. Stamens 6 in male flowers, free; staminodes 12 in female flowers, 2-seriate. Ovaries 5-6, free, curved. Stigma sessile. Drupes globose, glabrous. Seeds 1, ovoid, depressed at either ends, tubercled.

Rare in evergreen forests. **Fl. & Fr.**: Nov. **Sp.Ex.**: KCJ 81496, 78017, 81490 (MH).

Cocculus pendulus (J. R. Forst. & G. Forst.) Diels in Engler, Pflanzenr. IV. 96: 237. 1910; FPM 1: 21. 1957; FTN 1: 7. 1983. *C. leaeba* (Delile) DC., Syst. Nat. 1: 529. 1817; FBI 1: 102. 1872.

Twining shrub. Leaves oblong-lanceolate to oblong-ovate, mucronate or emarginate at apex. *Male flowers*: minute, sessile or subsessile in axillary. *Female flowers* axillary, solitary or rarely in pairs. Drupes ovoid to obovoid or reniform, compressed, reddish, black on drying.

Occasional in dry deciduous forest. **Fl. & Fr.**: Oct.-Jan. (Often throughout the year). **Sp.Ex.**: KNS 1853 (FRC); VS 19240 (FRC).

CYCLEA Arn. ex Wight, Illu. Ind. Bot1: 22. 1840.

Cyclea peltata (Lam.) Hook. f. & Thomson, Fl. Ind. 1: 201 1855; FBI 1: 104. 1872; FPM 1: 22. 1957; FTC 3(1): 19. 1983; FTN 1: 7. 1983; FEG 1: 48. 2002.

Twiner; young branches pubescent. Leaves ovate, acute-acuminate at apex. Panicles axillary. Flowers densely packed towards the branch tips, sessile, densely hairy. *Male flowers*:

sepals hairy outside; petals glabrous; stamens 4-5(6). *Female flowers*: smaller; sepal-1, hairy; petal-1, hairy; ovary-1, densely hairy. Drupe sub-globose, white, pilose. Seeds sub-globose, black. Common in semi-evergreen and moist deciduous forests. **Fl. & Fr.**: Aug.-Mar. **Sp.Ex.**: KA & PB 1715 (SACONH).

PACHYGONE Miers in Ann. Mag. Nat. Hist., ser. 2. 7(37): 43. 1851.

Pachygone ovata Mier ex Hook. f. & Thomson, Fl. Ind. 1. 203. 1855; FBI 1: 105. 1872; FPM 1: 22. 1957; FTC 3(1): 21. 1983; FTN 1: 8. 1983; FEG 1: 50. 2002.

Woody climber. Leaves ovate to lanceolate or ovate, truncate, or rounded at the base, acuminate-mucronate or rarely obtuse at the apex. Inflorescences racemose, axillary, solitary or 2- 3-fascicled. Flowers minute. Male flowers yellowish. Drupes obovoid, sub-compressed, reniform.

Scrub jungles and hill slopes. **Fl. & Fr.**: Jan.-Sept. **VN**: *Kattu-kodi*. **Sp.Ex.**: VS 18326, 18325, 24001 (FRC); VN 79633 (MH); VN 79050 (MH); SRR 83216 (MH); KCJ 1145, 1146, 1147 (MH); KCJ & JD 81182 (MH); PSAT 186599, 186600 (MH).

STEPHANIA Lour., Fl. Cochinch. 608. 1790.

Stephania japonica (Thunb.) Miers in Ann. Mag. Nat. Hist. ser. 3. 18: 14. 1866; FSIHS 1: 13. 1932; FPM 1: 21. 1957; FTC 3(1): 22. 1983; FTN 1: 8. 1983; FEG 1: 50. 2002.

Twining herbs. Leaves truncate to cordate at base, acute at apex. Umbel peduncled, axillary. Flowers many, sessile. Sepals 5, free, glabrous. Petals 5, oblong, glabrous, greenish-yellow. Drupe curved, oblong to obovoid, shortly stalked, glabrous.

Common in secondary dry forests. **Fl. & Fr.**: Oct.-Dec. **Sp.Ex.**: KA & PB 1659 (SACONH); VN 79738 (MH); CECF 982 (MH).

TILIACORA Colebr., Trans. Linn. Soc. London 13: 53, 67. 1821.

Tiliacora racemosa Colebr. in Trans. Linn. Soc. London 13: 53, 67. 1821; FBI 1: 99. 1872. *T. acuminata* (Lam.) Miers, Ann. Mag. Nat. Hist. ser. 2, 7(37): 39. 1851; FPM 1: 20. 1957; FTC 3(1): 23. 1983; FTN 1: 8. 1983; FEG 1: 50. 2002.

Large evergreen climber with milky latex. Leaves ovate, glabrous, margins undulate. Flowers small, greenish-yellow in axillary racemose panicles. Sepals 6 in two series. Petals 6, yellow. *Male flowers*: stamens 3-9, free, dehiscing vertically. *Female flowers*: carpels 3-12. Drupes oblong-ovoid to obovoid, orange- reddish.

Occasional in riverine zones. **Fl. & Fr.**: Sept.-Mar. **Sp.Ex.**: PSAT 186834, 186835 (MH).

TINOSPORA Miers, Ann. Mag. Nat. Hist. ser. 2. 7: 35, 38. 1851.

Tinospora sinensis (Lour.) Merr. in Sunyatsenia 1(4): 193. 1934; FEG 1: 56. 2002. *T. cordifolia* (Willd.) Miers ex Hook. f. & Thompson, Fl. Ind. 184. 1855; FBI 1: 97. 1872; FPM 1: 19. 1957; FTC 3(1): 23. 1983; FTN 1: 8. 1983; FEG 1: 56. 2002.

Climbing shrubs, sap watery. Leaves glabrous, deeply cordate. Racemes cauliflorous. *Male flowers*: outer sepals smaller; petals shorter than the inner sepals; stamens 6, free, opposite to petals. *Female flowers*: staminodes 6; carpels 3; stigma forked. Drupes sessile. Seeds grooved vertically.

Common in moist deciduous forests and along road sides. **Fl. & Fr.**: Jan.-Feb. **VN**: *Seenthilkodi*. **Sp.Ex.**: KNS 1724 (FRC); PSAT 187234 (MH).

BERBERIDACEAE Juss., Gen. Pl. 286. 1789.

BERBERIS L., Sp. Pl. 1: 330. 1753.

Berberis leschenaultii Wall. ex Wight & Arn., Prodr. Fl. Ind. Orient. 1: 16. 1834. *Mahonia leschenaultii* (Wall. ex Wight & Arn.) Takeda ex Gamble, Fl. Madras 1(1): 32. 1915; FSIHS 1: 16. 1932; FPM 1: 23. 1957; FTC 3(1): 25. 1983; FTN 1: 9. 1983; FEG 1: 57. 2002.

Small evergreen tree. Leaves compound, imparipinnate, leaflets spinous serrate, more or less falcate. Flowers bisexual, yellow, in racemes, generally fascicled at the apices of the stem, in umbel fashion. Fruit a berry, globose, purple, pruinose, bitter, 3-5 seeded.

Rare in margins of evergreen forests. **Fl. & Fr.:** June-Dec. **Sp.Ex.:** KA & PB 1584 (SACONH); VS 18771 (FRC); KCJ 81412 (MH); PSAT 186703, 186704 (MH).

NYMPHAEACEAE Salisb. in Koenig & Sims, Ann. Bot. 2: 70. 1805.

NYMPHAEA L., Sp. Pl. 510. 1753.

Key to the species

- 1a. Flowers white, less than 15 cm across.....*N. nouchali*
- 1b. Flowers red or pink, 15-25 cm across.....*N. pubescens*

Nymphaea nouchali Burm. f., Fl. Indica 120. 1768; FTC 3(1): 27. 1983; FTN 1: 9. 1983; FEG 1: 58. 2002. *N. stellata* Willd., Sp. Pl. 2: 1153. 1799; FBI 1: 114. 1872 incl. vars.; FSIHS 1: 18. 1932; FPM 1: 24. 1957.

Stoloniferous, perennial aquatic herbs. Leaves floating, peltate, orbicular or reniform, deeply cordate, green above and reddish purple beneath, petioles long, cylindric. Flowers solitary, white, usually pubescent. Fruit flashy, globose, green, ripening beneath the water. Seeds many.

Common in fresh water pools, ponds, lakes. **Fl. & Fr.:** Throughout the year. **VN:** *Alli*. **Sp.Ex.:** LP 2805 (SACONH).

Nymphaea pubescens Willd., Sp. Pl. 2: 1154. 1799; FPM 1: 24. 1957; FTN 1: 9. 1983; FEG 1: 58. 2002. *N. lotus* L. var. *pubescens* (Willd.) Hook. f & Thomson, Fl. Ind. 241. 1855; FBI 1: 114. 1872; FSIHS 1: 18. 1932.

Aquatic perennial herb, rhizome submerged. Leaves peltate, orbicular or reniform, deeply cordate at the base. Petioles long cylindric. Flowers solitary, reddish. Peduncles long, pubescent. Sepals oblong, 5-10 ribbed. Petals ca. 12, oblong. Stamens ca 40. Fruit flashy, green. Seeds many.

Occasional in ponds. **Fl. & Fr.:** July-Oct. **VN:** *Alli*. **Sp.Ex.:** LP 2005 (SACONH).

NELUMBONACEAE A. Rich., Dict. Class. His. Nat. 11: 492. 1827.

NELUMBO Adens., Fam. 2: 76. 1763.

Nelumbo nucifera Gaertn., Fruct. Sem. Pl. 1: 73. t. 19. f. 2. 1788; FTC 3(1): 26. 1983; FTN 1: 9. 1983; FEG 1: 57. 2002. *Nelumbium speciosum* Willd., Sp. Pl. 2: 1258. 1799; FBI 1: 116. 1872; FSIHS 1: 18. 1932; FPM 1: 24. 1957.

Rhizomatous aquatic herbs. Leaves flat, peltate. Flowers emergent, rose pinkish, fragrant. Perianth many, free; outer ovate or elliptic, pinkish-green; inner petal-like, rose-pinkish. Stamens numerous. Receptacles spongy. Carpels numerous, free, oblong. Stigma peltate. Seeds smooth.

In flooded lowlands, ponds and lakes, also grown as an ornamental plant. **Fl. & Fr.:** Sept.-Dec. **VN:** *Thamarai*. **Sp.Ex.:** LP 2806 (SACONH).

PAPAVERACEAE Juss., Gen. Pl. 235. 1789.

ARGEMONE L., Sp. Pl. 1: 508. 1753.

Argemone mexicana L., Sp. Pl. 508. 1753; FBI 1: 117. 1872; FPM 1: 25. 1957; FTC 3(1): 2629 1983; FTN 1: 9. 1983; FEG 1: 60. 2002.

Prickly, erect, annual herb, branchlets with yellow latex. Leaves sinuate-pinnatifid, spinous margined. Flowers yellow, terminal, solitary. Capsules oblong-ellipsoid, 3-5 valved, prickly. Seeds numerous, suborbicular, reticulately ribbed, black.

Common weed of dry fields and waste lands. **Fl. & Fr.:** Throughout the year. Vern.: *Brammaththandu*. **Sp.Ex.:** LP 1392 (SACONH); KNS 6926, 6925 (FRC); VS 18252, 18528 (FRC); KCJ & JD 81149 (MH); PSAT 186627, 186628, 187143 (MH).

BRASSICACEAE Burnett, Outliness Bot. 854, 1093, 1123. 1835, *nom. alt.: Cruciferae*.

Key to the genera

- 1a. Diffuse herbs; leaves lyrate.....*Cardamine*
- 1b. Erect herbs; leaves entire.....*Brassica*

BRASSICA L., Sp. Pl. 2: 666. 1753.

Brassica juncea (L.) Czern., Conspect. Pl. Charc. 8. n. 5. 1859; FBI 1: 157. 1872; FSIHS 1: 23. 1932; FPM 1: 28. 1957; FTC 3(1): 32. 1983; FTN 1: 11. 1983; FEG 1: 60. 2002.

Herb. Basal leaves larger, lyrate to pinnatifid, upper smaller, obovate. Flowers in terminal panicle, yellow. Fruit a capsule, glabrous. Seeds many, minute, ovoid, black.

Common, cultivated, but also run wild along roadsides, fallow fields and near domestic waste lands. **Fl. & Fr.:** Throughout the year. **VN.:** *Kadugu*. **Sp.Ex.:** VS 18428 (FRC).

CARDAMINE L., Sp. Pl. 2: 654 (1753).

Cardamine trichocarpa Hochst. ex A. Rich., Tent. Fl. Abyss. 1: 18. 1847; FPM 1: 27. 1957; FTC 3(1): 33. 1983; FTN 1: 11. 1983; FEG 1: 60. 2002.

Diffuse branched herbs. Stem sparsely hairy. Leaflets orbicular, deeply crenate, sparsely hairy. Flowers white, in terminal racemes. Sepals 4, oblong. Stamens 4. Pod compressed. Seeds 1-seriate, oblong, smooth, brown.

Rare in open grasslands. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** KA & PB 1409 (SACONH).

CAPPARACEAE Juss., Gen. Pl. 242. 1789.

Key to the genera

- 1a. Stamens 4 or 6; fruit cylindric.....*Cadaba*
- 1b. Stamens more than 8; fruit globose or subglobose.....2
- 2a. Leaves simple.....*Capparis*
- 2b. Leaves 3-5-foliate.....3
- 3a. Trees; sepals free; petals present.....*Crataeva*
- 3b. Climbers; sepals fused; petals present or absent.....*Maerua*

CADABA Forssk., Fl. Aegypt-Arab. 67. 1775.

Cadaba fruticosa (L.) Druce, Rep. Bot. Exch. Club Soc. Brit. Isles 3: 415. 1913; FTC 3(1): 37. 1983; FTN 1: 12. 1983; FEG 1: 63. 2002. *C. indica* Lam., Encycl. 1: 544. 1785; FBI 1: 172. 1872; FPM 1: 31. 1957.

Shrub. Leaves oblong. Flowers in corymbs. Sepals 4. Petals 4, greenish, spatulate. Stamens 4. Ovary oblong. Fruit a berry. Occasional in thorn forests and hedges. **Fl. & Fr.:** Mar.-Sept. **Sp.Ex.:** KNS 1852 (FRC); VN 79153, 79158 (MH); KCJ 81174 (MH); PSAT 187311, 187312 (MH).

CAPPARIS L., Sp. Pl. 1: 503. 1753.

Key to the species

- 1a. Tree, unarmed.....*C. grandis*
- 1b. Shrubs or stragglers, armed.....2
- 2a. Flowers solitary or nearly so.....3
- 2b. Flowers other than solitary.....6
- 3a. Ovary glabrous; flowers 2.5 - 3 cm across.....4
- 3b. Ovary tomentose; flowers 1.5 - 2 cm across.....*C. brevispina*
- 4a. Thorns straight; leaves glabrous beneath; fruit globular.....*C. divaricata*
- 4b. Thorns curved; leaves pubescent beneath; fruit oblong.....5
- 5a. Twigs with brownish stellate indumentum; petioles 2 - 3 mm long.....*C. grandiflora*
- 5b. Twigs with cobweb-like tomentum; petioles more than 5 mm long.....*C. spinosa*
- 6a. Flowers > 6 cm across; berry > 4 cm across.....*C. roxburghii*
- 6b. Flowers < 4 cm across; berry < 3 cm across.....7
- 7a. Leaves > 5 x 2 cm across; seeds many.....*C. zeylanica*
- 7b. Leaves < 3 x 1 cm across; seeds 2.....*C. sepiaria*

Capparis brevispina DC., Prodr. 1: 246. 1824; FPM 1: 32. 1957; FTC 3(1): 39. 1983; FTN 1: 13. 1983; FEG 1: 65. 2002. *C. zeylanica* auct. non. L. 1762; FBI 1: 174. 1872.

Straggler. Leaves variable, oblong, lanceolate or elliptic, emarginate, mucronate, stipular thorns recurved. Flower white, in corymbose umbel. Sepals 4, subequal, ovate, ciliate. Petals 4, subequal, ovate, obovate or spatulate. Ovary ovoid, glabrous. Fruits globose. Seed 1. Occasional in dry deciduous and scrub jungles. **Fl. & Fr.:** Mar.-Nov. **Sp.Ex.:** PSAT 187373 (MH).

Capparis divaricata Lam., Encycl. 1(2): 606. 1785; FBI 1: 174. 1872; FTC 3(1): 39. 1983; FTN 1: 13. 1983; FEG 1: 66. 2002. *C. stylosa* DC., Prodr. 1: 246. 1824; FPM 1: 32. 1957.

Shrubs, branches zig-zag. Leaves sub-coriaceous, acute at apex, cuneate at base, stipular thorns straight or rarely curved. Flowers axillary, solitary. Sepals 4, elliptic, inner sepals petaloid. Petals green, linear. Stamens many. Ovary ovoid, 5-6-ribbed. Berry globose, red when ripe. Occasional in dry deciduous and scrub jungles. **Fl. & Fr.:** April-Sept. **Sp.Ex.:** KNS 1719, 1720 (FRC); PSAT 186671, 186672, 187295, 187296 (MH); PSAT 187337, 187338 (MH).

Capparis grandiflora Wall. ex Hook. f. & Thomson, Fl. Brit. India 1: 174. 1872; FPM 1: 32. 1957; FTN 1: 13. 1983.

Armed shrub. Leaves elliptic-ovate, cuneate or rarely rounded, obtuse. Flowers axillary, solitary, yellow. Sepals 4, ovate or oblong. Petals 4, yellow, obovate. Stamens numerous. Ovary stalked. Stigma capitate. Fruit a berry.

Common in scrub jungles. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** KNS 6928 (FRC); VS 18723 (FRC); KCJ 81203 (MH).

Capparis grandis L. f., Suppl. Pl. 263. 1782; FBI 1: 176. 1872; FPM 1: 33. 1957; FTC 3(1): 40. 1983; FTN 1: 13. 1983; FEG 1: 67. 2002.

Small trees. Leaves ovate, tomentose on both sides. Corymbs terminal, lower with leaves, upper with small bracts. Flowers white, tomentose, buds tomentose. Berry globose.

Common in dry deciduous forests. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** LP 1509, 1552, 2018, 2687 (SACONH); KA & PB 1618 (SACONH); CECF 1650, 1651 (MH); KNS 6929, 6930 (FRC); VS 18332, 18333 (FRC); VN 79632, 79640, 79653, 79753 (MH); KCJ 81277 (MH); PSAT 186816, 186817, 186891, 187049, 187050, 187174 (MH).

Capparis roxburghii DC., Prodr. 1: 247. 1824; FBI 1: 175. 1872; FPM 1: 33. 1957; FTN 1: 14. 1983; FEG 1: 69. 2002.

Straggler. Leaves obovate or elliptic, subcoriaceous, glabrous. Flowers in corymbose racemes. Sepals 2+2, subequal, outer 2 concave, inner 2 obovate. Petals 4, white, subequal, spatulate or obovate. Stamens numerous. Berry globose. Seeds 8-10, reniform.

Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** LP 1522 (SACONH).

Capparis sepiaria L., Syst. Nat. ed. 10. 2: 1071. 1759; FBI 1: 176. 1872; FPM 1: 33. 1957; FTC 3(1): 43. 1983; FTN 1: 14. 1983; FEG 1: 70. 2002. *C. incanescens* DC., Prodr. 1: 247. 1824.

Stragglers. Leaves oblong, lanceolate, emarginate, pubescent, stipular spines in pairs, small recurved. Umbels corymbose, terminal and axillary. Flowers white. Sepals ovate. Berry globose.

Common in dry deciduous forests and scrub jungles. **Fl. & Fr.:** Mar.-June. **VN:** *Thorattimullu*. **Sp.Ex.:** LP 1553, 2107 (SACONH); PSAT 186497, 186496 (MH); VN 79657, 78412 (MH); VS 18331, 18330 (FRC); CECF 6931, 1684 (MH).

Capparis spinosa L., Sp. Pl. 503. 1753; FBI 1: 173. 1872; FTN 1: 14. 1983.

Under shrubs, diffuse, prostrate or trailing, stipular thorns divaricate, hooked. Leaves variable, ovate, obovate, elliptic or orbicular, rounded at base, retuse, obtuse. Flowers solitary, axillary, white suffused with red, fading rosy-pink to purple. Sepals subequal. Petals slightly exceeding sepals. Stamens numerous. Fruits smooth, ellipsoid.

Occasional in dry rocky areas. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** PSAT 186804, 186805 (MH); PSAT 186902 (MH).

Capparis zeylanica L., Sp. Pl. ed. 2. 720. 1762; FPM 1: 33. 1957; FTC 3(1): 43. 1983; FTN 1: 14. 1983; FEG 1: 70. 2002. *C. horrida* L. f., Suppl. Pl. 264. 1781.

Straggler with recurved spines. Leaves simple, oblong-lanceolate. Flowers pinkish-white, in supra axillary rows of 2 - 6 flowers. Sepals subequal in 2-series. Petals white with reddish spot inside, oblong, tomentose inside. Stamens 30-50. Ovary glabrous.

Common in foothills of deciduous and scrub forests. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** PSAT 187595, 187596 (MH); CECF 1742, 1742 (MH); VS 18329 (FRC); VN 79215 (MH); KCJ 81214 (MH); PSAT 186588, 186673, 186674, 186914, 187309, 187310 (MH).

CRATAEVA L., Sp. Pl. 1: 444. 1753.

Crateva adansonii DC., subsp. *odora* (Buch.-Ham.) Jacobs, Blumea 12: 198. 1964; FTC 3(1): 50. 1983; FTN 1: 14. 1983; FEG 1: 71. 2002. *C. religiosa* G. Forst., De Plantis Esculentis 45. 1786; FBI 1: 172. 1872; FPM 1: 34. 1957.

Trees. Leaves 3-foliolate. Leaflets ovate or lanceolate. Flowers yellowish, in corymbs. Sepals free, oblong to elliptic, petaloid. Petals 4, cream to yellow. Stamens numerous. Gynophore pinkish. Ovary ovoid or ellipsoid. Fruit globose, orange-yellow. Seeds reniform, ellipsoid.

Occasional in plains and sometimes along water courses. **Fl. & Fr.:** Feb.-April. **VN:** *Mavilangam*. **Sp.Ex.:** PSAT 186683, 186684 (MH); VN78951 (MH).

MAERUA Forssk., Fl. Aegypt-Arab. 104. 1775.

Maerua oblongifolia (Forssk.) A. Rich. in Guill. & Perr., Tent. Fl. Abyss. 1: 32. t. 5. 1847; FTC 3(1): 51. 1983; FTN 1: 15. 1983; FEG 1: 73. 2002. *M. arenaria* Hook. f. & Thomson in Hook. f., Fl. Brit. India 1: 171. 1872 (incl. vars. *glabra* & *scabra*); FPM 1: 30. 1957.

Unarmed straggler. Leaves ovate or lanceolate. Flowers in corymbose racemes. Sepals 4, unequal, elliptic. Petals 4, greenish white, obovate. Berry moniliform. Seeds globose, tuberculate. Occasional in scrub jungles. **Fl. & Fr.:** Jan. -May. **Sp.Ex.:** KCJ 1439, 1440, 1441, 81204 (MH); KNS 2051, 6935, 6936 (FRC); VS 19396 (FRC); PSAT 186661, 186662 (MH).

CLEOMACEAE Horan., Prim. Lin. Syst. Nat. 92. 1834.

CLEOME L., Sp. Pl. 2: 671. 1753.

Key to the species

- 1a. Leaves simple.....*C. monophylla*
- 1b. Leaves compound.....2
- 2a. Herbs prostrate or decumbent.....3
- 2b. Herbs erect.....4
- 3a. Flowers yellow; fruits glabrous.....*C. aspera*
- 3b. Flowers pink; fruits scabrous.....*C. felina*
- 4a. Flowers rosy pink; capsules glabrous.....*C. chelidonii*
- 4b. Flowers white or yellow; capsules viscid-pubescent.....5
- 5a. Stamens 6; gynophore present.....*C. gynandra*
- 5b. Stamens 12-18; gynophore absent.....*C. viscosa*

Cleome aspera J. Koenig ex DC., Prodr. 1: 241. 1824; FBI 1: 169. 1872; FPM 1: 29. 1957; FTC 3(1): 45. 1983; FTN 1: 15. 1983; FEG 1: 75. 2002.

Annual prostrate herbs, distantly prickled. Leaflets 3-foliate, oblanceolate. Flowers solitary, axillary. Sepals 4, linear. Petals 4, yellow, elliptic. Stamens 6. Ovary oblong. Capsules terete, obliquely ribbed, beaked. Seeds many, prominently ridged with closed clefts.

Common in open wastelands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1523 (SACONH).

Cleome chelidonii L. f., Suppl. Pl. 300. 1782; FBI 1: 170. 1872; FPM 1: 29. 1957; FTC 3(1): 45. 1983; FTN 1: 15. 1983; FEG 1: 75. 2002.

Erect herbs, scabrid, sparsely glandular-pubescent. Leaves 1-3-foliate above, 3-7-foliate below. Leaflets elliptic-oblong to oblanceolate. Flowers in axillary and terminal racemes. Sepals 4, ovate. Petals 4, obovate. Stamens many. Capsules cylindric, linear. Seeds many, globose, warty.

Common in dried up ponds and on moist places. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** LP 2602 (SACONH).

Cleome felina L. f., Suppl. Pl. 300. 1782; FBI 1: 170. 1872; FPM 1: 29. 1957; FTC 3(1): 46. 1983; FTN 1: 15. 1983; FEG 1: 76. 2002.

Prostrate herb. Leaves apically simple, basally 3-foliate, leaflets obovate. Sepals 4, linear. Petals 4, rose, obovate. Stamens 25-30. Ovary closely striate, glabrous. Seeds α , echinate with oblique closed clefts.

Occasional in dry open areas. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** LP 2528, 3188, 2159, 2552 (SACONH).

Cleome gynandra L., Sp. Pl. ed. 1. 671. 1753; FTC 3(1): 46. 1983; FTN 1: 16. 1983; FEG 1: 76. 2002. *Gynandropsis pentaphylla* (L.) DC., Prodr. 1: 238. 1824; FBI 1: 171. 1872; FPM 1: 29. 1957.

Erect herbs, stems glandular-pubescent. Leaves 3-5 foliate. Leaflets obovate. Sepals 4, linear. Petals obovate. Capsules terete, striate, glandular. Seeds α , cleft closed, ridges transverse, pubescent.

Common in along the moist places of roadsides and riparian zones. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1524 (SACONH).

Cleome monophylla L., Sp. Pl. 672. 1753; FBI 1: 168. 1872; FSIHS 1: 25. 1932; FPM 1: 29. 1957; FTC 3(1): 48. 1983; FTN 1: 16. 1983; FEG 1: 76. 2002.

Erect herbs, densely glandular hairy. Leaves oblong-lanceolate, rounded or cordate at base, pubescent. Raceme terminal, elongate. Bracts ovate triangular, cordate at base. Flowers many. Sepals oblong, acuminate. Petals obovate. Stamens 6. Capsule pubescent. Seeds strongly reniform.

Common in wet rocky areas. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** PSAT 186871 (MH); CECF 1328 (MH); VS 18454 (FRC); VN 79719 (MH).

Cleome viscosa L., Sp. Pl. 672. 1753; FBI 1: 170. 1872; FPM 1: 29. 1957; FTC 3(1): 49. 1983; FTN 1: 15. 1983; FEG 1: 77. 2002.

Viscid-glandular herbs. Leaflets 3-5, unequal, cuneate, entire, ciliate, acute. Flowers axillary, solitary. Sepals 4, oblong. Petals 4, yellow, oblong or obovate. Ovary oblong. Capsules terete, obliquely ribbed, beaked. Seeds many, reniform to orbicular, transversely ridged with closed clefts.

Common in plains and wastelands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18742 (FRC); SRR 81033 (MH).

VIOLACEAE Batsch., Tab. Affin. Regni. Veg. 57. 1802.

HYBANTHUS Jacq., Enum. Syst. Pl. 2: 17. 1760.

Hybanthus enneaspermus F.V. Muell., Fragm. 10 (85): 81. 1876; FTC 3(1): 53. 1983; FTN 1: 16. 1983; FEG 1: 77. 2002. *Ionidium suffruticosum* (L.) Ging. ex. DC., Prodr. 1: 311. 1824; FBI 1: 185. 1872; FPM 1: 35. 1957.

A perennial erect herb. Leaves linear-lanceolate, base attenuate, margin serrate, tip acute, glabrous above, glaucous below. Flowers pink, axillary solitary. Capsules globose, pilose. Seeds ovoid, striate.

A common weed of cultivated fields, road sides and open waste lands. **Fl. & Fr.:** Throughout the year. **VN:** *Orithal thamarai*. **Sp.Ex.:** LP 2198 (SACONH); VN 79225, 79630 (MH); SRR 81031 (MH).

COCHLOSPERMACEAE Planch., London J. Bot. 6: 305. 1847.

COCHLOSPERMUM Kunth. Nova. Gen. Sp. 5: 297. 1822.

Cochlospermum religiosum (L.) Alston, Handb. Fl. Ceylon 6 (Suppl.): 14. 1931; FTC 3(1): 56. 1983; FTN 1: 17. 1983; FEG 1: 81. 2002. *Bombax religiosum* L., Sp. Pl. 55. 1753.

Small trees. Leaves palmately 3-5-lobed, lobes elliptic-lanceolate, densely tomentose below. Flowers in terminal cymes, subsessile, 3-7 together. Calyx lobes 5, obtuse, densely tomentose. Corolla yellow, lobes 5, obovate. Stamens many, free. Capsule obovoid, 5-angled, many-ridged, 3-5-valved. Seeds many, globose, with woolly hairs.

Common in rocky areas. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** KNS 1725 (FRC); VS 18349, 18350 (FRC); VN 79191 (MH).

FLACOURTIACEAE Rich. ex DC., Prodr. 1: 255. 1824.**Key to the genera**

- 1a. Plants armed.....*Flacourtia*
 1b. Plants unarmed.....2
 2a. Flowers bisexual, petals 0; fruit a capsule.....*Casearia*
 2b. Flowers unisexual, petals 5; fruit a berry.....*Hydnocarpus*

CASEARIA Jacq., Enum. Syst. Pl. 4, 21. 1760.

Casearia tomentosa Roxb., Fl. Ind. 2: 421. 1824; FBI 2: 593. 1879; FPM 1: 368. 1957; FEG 1: 84. 2002. *C. elliptica* Willd., Sp. Pl. 2: 628. 1799; FTC 3(1): 58. 1983; FTN 1: 17. 1983.

Small tree, young shoots tomentose. Leaves oblong-lanceolate. Flowers in dense axillary, somewhat capitate clusters. Sepals 5, green, ovate or lanceolate. Petals 0. Stamens 6 or 8. Staminodes 6. Ovary ovoid, 1-celled. Capsule greenish yellow, globose. Seeds numerous. Rare in moist deciduous forests. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** PSAT 186957 (MH).

FLACOURTIA Comm. ex L'Hér., Stirp. Nov. 3: 59. 1786.

Flacourtia indica (Burm. f.) Merr., Interpr. Herb. Amboin. 371. 1917; FTN 1: 18. 1983; FTC 3(1): 59. 1983; FEG 1: 85. 2002. *F. sepiaria* Roxb., Pl. Coromandel 1: 48. t. 68. 1796; FBI 1: 194. 1872; FPM 1: 39. 1957.

Small weak shrubs, sparsely spiny. Leaves alternate, clustered at the apex of branchlets, obovate, margins crenulate at the apex. Flowers axillary, greenish. Sepals 4, imbricate, broadly ovate, ciliate. Petals absent. Disc lobed. Stamens more than 20. Fruit indehiscent berry, ellipsoid-globose.

Occasional in rocky areas of moist deciduous forests. **Fl. & Fr.:** Dec.-Aug. **Sp.Ex.:** CECF 2109, 2110, 2111, 2112, 2142 (MH); VS 18281, 18456 (FRC); VN 78391 (MH); KCJ 81230 (MH); PSAT 186522, 186523, 186852, 187109 (MH).

HYDNOCARPUS Gaertn., Fruct. Sem. Pl. 1: 288. 1788.

Hydnocarpus alpina Wight, Icon. Pl. Ind. Orient. t. 942. 1845; FBI 1: 197. 1872; FSIHS 1: 29. t. 19. 1932; FPM 1: 37. 1957; FTN 1: 18. 1983.

Medium sized tree. Leaves ovate, young sprouts copper reddish. Flowers unisexual, yellowish-white, solitary or in axillary fascicles. Sepals oblong, pubescent. Petals narrow, glabrous. *Female flowers:* ovary globular, tomentose. Stigma 5, free, recurved. Fruit a berry, dark brown.

Occasional in evergreen forests. **Fl. & Fr.:** Feb.-June. **Sp.Ex.:** SRN 80566 (MH).

PITTOSPORACEAE R. Br., Voy. Terra Austral. 2: 542. 1814.**PITTOSPORUM** Banks ex Gaertn., Fruct. Sem. Pl. 1: 286. 1788.**Key to the species**

- 1a. Racemes >20-flowered, tomentose.....2
 1b. Racemes < 8-flowered, glabrous.....*P. neelgherrense*
 2a. Sepals obovate, rounded at apex; seeds 4.....*P. tetraspermum*
 2b. Sepals ovate, acute at apex; seeds 6-10.....*P. napaulense*

Pittosporum napaulense (DC.) Rehder & E. H. Wilson, Pl. Wilson. 3(2): 326. 1916; FTN 1: 19. 1983; FEG 1: 90. 2002. *P. floribundum* Wight & Arn., Prodr. Fl. Ind. Orient. 154. 1834; FBI 1: 199. 1872; FSIHS 1: 31. 1932; FPM 1: 40. 1957; FTC 3(1): 63. 1983.

Small tree. Leaves simple, alternate, oblong-lanceolate to obovate, cuneate at base, acuminate. Flowers in corymbose panicles, axillary and terminal, tomentose. Sepals 5, yellow. Stamens 5. Capsule globose, fleshy. Seeds ovoid, shining.

Occasional in moist deciduous and evergreen forests. **Fl. & Fr.:** Oct.- Jan. **Sp.Ex.:** CECF 2209, 2210, 2211, 2212, 2213 (MH); VN 78304, 78602 (MH); EV 14205, 142014, 142070 (MH); KCJ 81294 (MH); KNS 1824, 3354, 8148, 8149 (FRC); VS 18231, 18253, 18284, 18389 (FRC); PSAT 186739, 186740, 187385 (MH).

Pittosporum neelgherrense Wight & Arn., Prodr. Fl. Ind. Orient. 154. 1834; FBI 1: 198. 1872; FSIHS 1: 31. 1932; FPM 1: 40. 1957; FTN 1: 20. 1983.

Trees. Leaves oblong-lanceolate, acute to acuminate at apex, cuneate at base, margin reflexed. Flowers in terminal panicle, corymbose. Sepals 5, ovate, free. Petals 5, cream, pale yellow to chocolate-brown. Ovary tomentose. Capsules globose.

Occasional in border of evergreen forests. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** KCJ 81415 (MH).

Pittosporum tetraspermum Wight & Arn., Prodr. Fl. Ind. Orient. 154.1834; FBI 1: 198. 1872; FSIHS 1: 31. t. 20. 1932; FPM 1: 40. 1957; FTN 1: 20. 1983.

Tree. Leaves oblanceolate, subcoriaceous, cuneate at base, entire at margins, acute at apex, glabrous. Flowers in terminal panicle, corymbose. Sepals 5, obovate. Petals 5, cream, oblanceolate. Stamens 5. Ovary ovoid. Stigma 4-lobed. Seeds 4, globose.

Occasional in evergreen forests. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** PSAT 186967, 187013, 187014, 187525, 187526, 187557, 187558 (MH).

POLYGALACEAE Hoffmanns. & Link, Fl. Portug. 1: 62. 1809.

POLYGALA L., Sp. Pl. 701. 1753.

Key to the species

- 1a. Wing sepals broader above the middle, acute to obtuse at apex.....*P. erioptera*
- 1b. Wing sepals broader below the middle, acute to acuminate at apex.....2
- 2a. Racemes longer than leaves.....3
- 2b. Racemes shorter than leaves.....4
- 3a. Wing sepals symmetric, triangular, obovate, elliptic, blunt at apex.....*P. javana*
- 3b. Wing sepals asymmetric, subfalcate, oblong to elliptic, acute at apex, green.....*P. elongata*
- 4a. Erect branching upwards; mucronulate at apex.....*P. rosmarinifolia*
- 4b. Prostrate, decumbent or ascending branching; acuminate at apex.....5
- 5a. Prostrate or decumbent weak herbs; leaves orbicular or oblong-obovate, up to 4cm long; caruncle appendages subequal.....*P. arvensis*
- 5b. Erect stout herbs. Stems woody; leaves linear to linear-lanceolate or oblong- ovate to oblong-lanceolate, 4 - 9 cm long; caruncle appendages equal.....*P. chinensis*

Polygala arvensis Willd., Sp. Pl., ed. 4. 3(2): 876. 1802; FTN 1: 20. 1983; FTC 3(1): 64. 1983; FEG 1: 93. 2002. *P. chinensis* auct. non L. 1753; FBI 1: 204. 1872; FPM 1: 42. 1957.

Erect or procumbent herbs. Leaves obovate, linear-lanceolate, glabrous or densely pubescent, obtuse to emarginated at apex. Flowers in solitary or lateral racemes, yellow. Style curved. Capsules ovate-oblong, ciliate along margins. Seeds black, elliptic-obovate, pilose.

Occasional in open wastelands, roadsides and in cultivated fields in plains. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2505 (SACONH); CECF 2446 (MH).

Polygala chinensis L., Sp. Pl. 2: 704. 1753; FBI 1: 204.1872; FPM 1: 42. 1957; FEG 1: 94. 2002. *P. glomerata* Lour., Fl. Cochinch.: 426.1790; FBI 1: 206. 1872.

Common in moist shady localities, sandy river beds. **Fl. & Fr.:** July-Sept. **VN:** *Pasalai keerai*. **Sp.Ex.:** LP 2036 (SACONH).

Portulaca pilosa L., Sp. Pl. 445. 1753, ssp. **pilosa** Geesink, Blumea 17: 294. 1969, var. **tuberosa** (Roxb.) Sivar., J. Bombay Nat. His. Soc. 78: 259. 1981. *P. tuberosa* Roxb., Hort. Bengal. 2: 464. 1832; FBI 1: 247. 1874; FPM 1: 47. 1957; FTC 3(1): 83. 1983; FEG 1: 105. 2002. *P. suffruticosa* Wight ex G. Don, Gen. Hist. 3: 73. 1834; FBI 1: 247. 1874; FPM 1: 47. 1957; FTN 1: 25. 1983.

Erect perennial herbs, stem glabrescent, thick tuberous roots. Leaves spirally arranged 4-7, entire at margins, glabrous. Flowers solitary, terminal, yellow. Sepals 2, linear. Petals 5, yellow, obovate. Ovary ovoid. Capsules ovoid, operculum smooth. Seeds red brown, glabrous.

Common in moist wastelands. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** VS 18352 (FRC).

Portulaca quadrifida L., Mant., Pl. 73. 1767; FBI 1: 247. 1874; FPM 1: 47. 1957; FTC 3(1): 82. 1983; FTN 1: 25. 1983; FEG 1: 104. 2002.

Prostrate herb, stem filiform, succulent. Leaves whorled at nodes, ovate or lanceolate. Flowers terminal, solitary. Sepals 2, elliptic-oblong. Petals 4, cream. Stamens 8. Style filiform, 4-fid. Ovary ovoid.

Fairly common in sandy soils. **Fl. & Fr.:** Oct.-April. **Sp.Ex.:** VN 79220 (MH).

TALINUM Adens., Fam. Pl. 2: 245, 609. 1763.

Talinum portulacifolium Aschers ex Schweinf., Bull. Herb. Boissier. 4. App. 2: 172. 1896; FTN 1: 25. 1983; FTC 3(1): 84. 1983; FEG 1: 105. 2002. *T. indicum* Wight & Arn., Prodr. Fl. Ind. Orient. 356. 1834; FBI 1: 247. 1874; FPM 1: 48. 1957; FTN 1: 25. 1983.

Herb, robust. Leaves alternate, obovate-oblong, fleshy, glabrous. Panicles terminal. Sepals 2, lanceolate. Petals 5, pink, obovate, round, apiculate. Stamens many, basally connate. Ovary superior, 1-celled. Capsule globose, 3-valved. Seeds ovoid with regular concentric striations.

Rarely found in rock crevices of moist localities. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** LP 1358 (SACONH).

HYPERICACEAE Juss., Gen. Pl. 254. 1789, *nom. cons.*

HYPERICUM L., Sp. Pl. 2: 783. 1753.

Hypericum mysurense B. Heyne ex Wight & Arn., Prodr. Fl. Ind. Orient. 1: 99. 1934; FBI 1: 253. 1874; FSIHS 1: 46. t. 29. 1932; FPM 1: 50. 1957; FTC 3(1): 92. 1983; FTN 1: 26. 1983; FEG 1: 107. 2002.

Shrub. Leaves elliptic. Flowers in terminal cymes. Sepals 5, lanceolate. Petals 5, yellow, elliptic to ovate, forming a spreading corolla. Stamens numerous in 5-bundles, 30-40 per bundle. Ovary ovoid, 5-lobed. Capsule ovoid, septicidal.

High altitude open grasslands and hill slopes **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** KA & PB 1416 (SACONH).

DIPTEROCARPACEAE Blume, Bijdr. Fl. Ned. Ind. 4: 222. 1825.

Key to the genera

- 1a. Leaves with domatia in the nerve axils.....*Hopea*
- 1b. Leaves without domatia in the nerve axils.....*Shorea*

HOPEA Roxb., Pl. Coromandel 3: 7. 1811.

Hopea parviflora Bedd., Fl. Sylv. S. India. t. 7. 1869; FBI 1: 308. 1874; FPM 1: 59. 1957; FTN 1: 30. 1983.

Large buttressed trees, bark vertically fissured. Leaves simple, alternate, lanceolate, glabrous, coriaceous. Flowers in racemose panicles, axillary or unilateral terminal. Sepals 5, tomentose. Petals 5, glabrous. Stamens 5, rarely 10. Ovary superior, ovules 2 in each cell. Nut terete, glabrous, winged.

Occasional in riparian and evergreen forest. **Fl. & Fr.:** Jan.-June. **Sp.Ex.:** LP 1228 (SACONH).

SHOREA Roxb. ex C.F. Gaertn., Suppl. Carp. 47. t. 186, f. 1. 1805.

Shorea roxburghii G. Don, Gen. Hist. 1: 813. 1831; FBI 1: 304.1874; FPM 1: 60. 1957; FTC 3(1): 99. 1983; FTN 30. 1983; FEG 1: 110. 2002.

Medium sized trees. Leaves, elliptic, oblong, coriaceous. Panicles axillary and terminal, pale brown, glabrous. Sepals 5, oblong to ovate. Petals 5, ovate, villous. Stamens 15. Ovary globose. Stigma 3 fid. Capsules enclosed by wing-like sepals.

Rare in moist deciduous forest and along riparian zones. **Fl. & Fr.:** Feb.-June. **Sp.Ex.:** LP 2967, 2976 (SACONH); CECF 3049 (FRC); KNS 11536, 18511 (FRC); VS 18200, 20756 (FRC); PSAT 186756, 186757 (MH).

MALVACEAE Juss., Gen. Pl. 271. 1789.

Key to the genera

- 1a. Antheriferous filaments terminal to column, styles as many carpels.....2
- 1b. Antheriferous filaments lateral to column.....6
- 2a. Trees; flowers polygamous, connate anthers (5 phalanges), capsules loculicidal.....*Kydia*
- 2b. Herbs to shrubs; flowers bisexual, anthers free, capsules schizocarpic.....3
- 3a. Epicalyx lobes 3, cocci 1-seeded.....4
- 3b. Epicalyx absent.....5
- 4a. Stigma capitate.....*Malvastrum*
- 4b. Stigma linear.....*Malva*
- 5a. Ovules 2-many per locule, cocci 2-many seeded.....*Abutilon*
- 5b. Ovule 1 per locule, cocci 1-seeded.....*Sida*
- 6a. Style single, stigma clavate, young twigs with peltate scales.....*Thespesia*
- 6b. Styles as many as or twice the number of carpels.....7
- 7a. Styles as many as carpels, capsule loculicidal.....8
- 7b. Styles twice the number of carpels, capsule schizocarpic.....11
- 8a. Carpels 10, each 1-ovuled.....9
- 8b. Carpels 5, each 3-many-ovuled.....10
- 9a. Shrub; epicalyx lobes 10-12, leaves elliptic or lanceolate.....*Decaschistia*
- 9b. Herb; epicalyx absent, leaves cordiform, or sagitate.....*Herissantia*
- 10a. Calyx spathaceous deciduous.....*Abelmoschus*
- 10b. Calyx not spathaceous persistent.....*Hibiscus*
- 11a. Leaves glandular beneath, cocci glochidiate.....*Urena*
- 11b. Leaves not glandular beneath, cocci not glochidiate.....*Pavonia*

ABELMOSCHUS Medik., Malvenfam. 45. 1787.

Abelmoschus moschatus Medik., Malvenfam. 46. 1787; FTN 1: 31. 1983; FEG 1: 117. 2002. *Hibiscus abelmoschus* L., Sp. Pl. 696. 1753; FBI 1: 342. 1874; FPM 1: 69. 1957. *A. angulosus* Wall. ex Wight & Arn., Prodr. Fl. Ind. Orient. 53. 1834; FSIHS 1: 60. t. 40. 1932; FTC 3(1): 103. 1983.

Erect herb, stem densely retrorsely hairy. Leaves deeply 3-7-lobed, cordate, lobes acuminate, crenate, hairy, serrate-dentate. Flowers axillary, solitary. Calyx spathaceous, minutely stellate hairy. Corolla yellow with purple centre. Stamens many. Capsule hairy. Occasional in moist deciduous forests. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** VN 79698 (MH).

ABUTILON Mill., Gard. Dict. Abr., ed. 4. 1754.

Key to the species

- 1a. Styles and mericarps 5.....*A. persicum* 2
- 1b. Styles and mericarps 8-25.....2
- 2a. Plants covered with short, appressed hairs.....*A. indicum*
- 2b. Plants covered with long, patent hairs.....3
- 3a. Schizocarp exceeding calyx, hairs on schizocarps silvery.....*A. hirtum*
- 3b. Schizocarp not exceeding calyx, hairs on schizocarps golden-brown.....*A. pannosum*

Abutilon hirtum (Lam.) Sweet, Hort. Brit. ed. 1. 53. 1826; FPM 1: 65. 1957; FTN 1: 32. 1983; FTC 3(1): 106. 1983; MSPI 190. 1996; FEG 1: 118. 2002.

Erect, under shrubs, densely pubescent. Leaves broadly ovate, cordate at base, margin coarsely crenate, tomentose below. Flowers axillary, solitary. Calyx campanulate, lobes triangular-ovoid. Corolla yellow. Petals ovate-orbicular. Schizocarp globose, truncate, densely pubescent. Mericarps 20-25, oblong. Seeds reniform, brown, stellate hairy.

Common in dry deciduous forests, along roadsides and wastelands. **Fl. & Fr.:** Feb.-April. VN: *Thutthi*. **Sp.Ex.:** KNS 6889 (FRC); VS 18499 (FRC); KCJ 81321 (MH).

Abutilon indicum (L.) Sweet, Hort. Brit. ed. 1: 54. 1826; FBI 1: 326. 1874; FPM 1: 65. 1957; FTN 1: 32. 1983; FTC 3(1): 107. 1983; MSPI 192. 1996; FEG 1: 120. 2002.

Key to the varieties

- 1a. Calyx shorter than schizocarp, lobes apreading at maturity; mericarps shortly acuminate at apex.....var. *indicum*
- 1b. Calyx about as long as schizocarp, lobes appressed; mericarps obtuse or rounded to acute at apex, with an erect acumen.....var. *australiense*

var. **australiense** Hochr. ex Britten, Illu. Austral. Pl. Cook's Voy. 1: 10 1900. *A. albescens* Miq., Pl. Jungh. 285 1854; FBI 1: 327. 1874; FEG 1: 120. 2002.

Annual undershrub. Leaves simple, alternate, broadly ovate to suborbicular. Inflorescence usually axillary, solitary or aggregated lax panicles. Flowers bisexual. Stamens usually shorter than petals. Fruit schizocarp, with 15-17 mericarps. Seed many, reniform.

Rare in dry deciduous forest. **Fl. & Fr.:** Sept.-April. **Sp.Ex.:** VS 18506 (FRC).

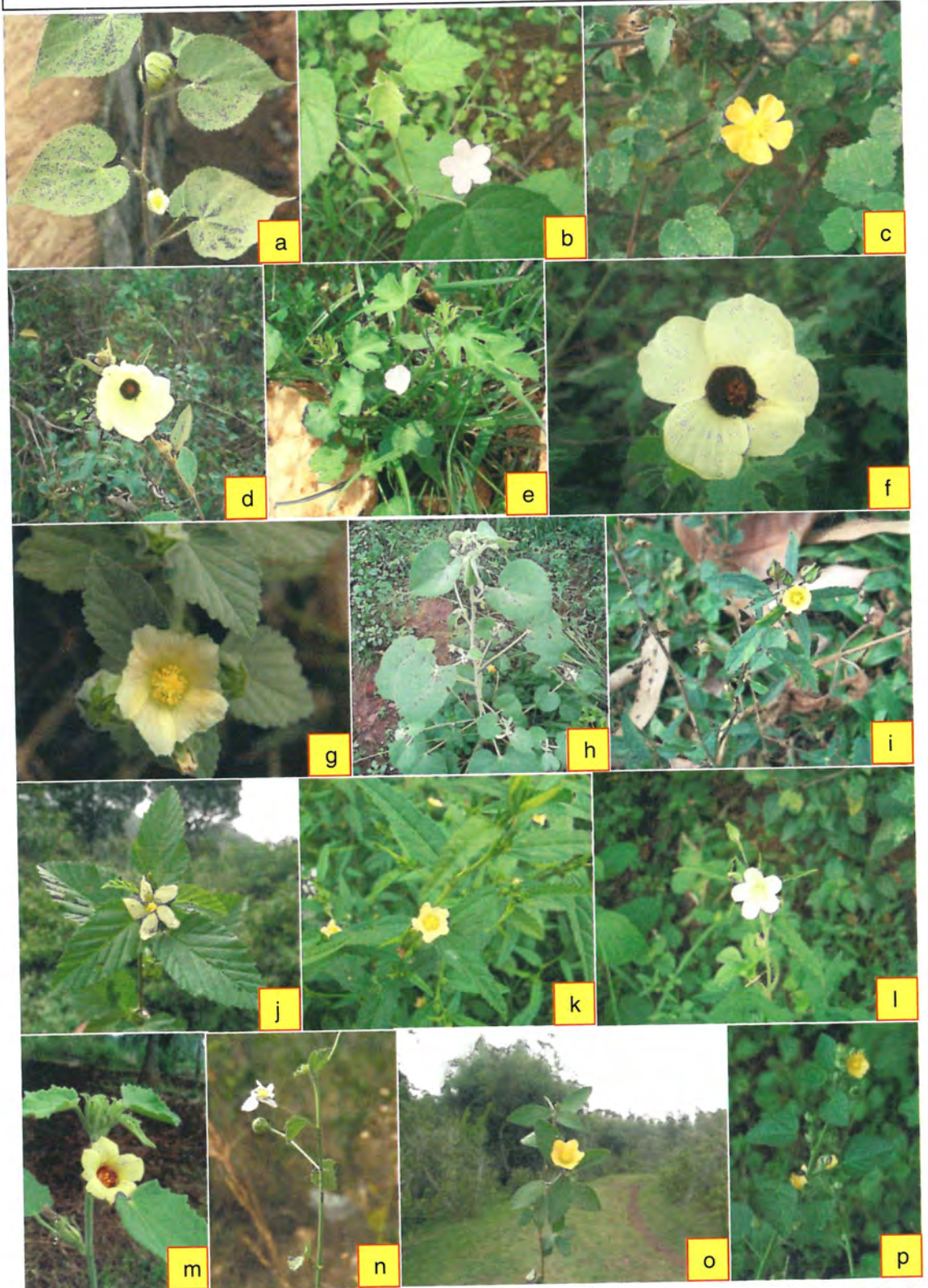
var. **indicum**

Erect, subshrub. Leaves, cordiform, ovate, cordate at base, serrate at margins. Flowers axillary, solitary. Calyx lobes 5, lanceolate. Corolla yellow. Petals obovate. Schizocarp globular, stellate pubescent. Mericarps 15-20, reniform, shortly acuminate. Seeds reniform, brownish-black.

Common in wastelands and hedges. **Fl. & Fr.:** Aug.-Jan. **Sp.Ex.:** CECF 3822 (MH); KCJ 81211 (MH); PSAT 187152, 187202 (MH).

Abutilon pannosum (G. Forst.) Schltdl., Bot. Zeitung (Berlin) 9: 828. 1851; FTC 3(1): 107. 1983; FTN 1: 32. 1983; FEG 1: 121. 2002. *A. glaucum* (Cav.) Sweet, Hort. Brit. ed. 1: 54. 1826; FPM 1: 66. 1957.

PLATE 6 - MALVACEAE



a) *Herissantia crisper*, b) *Pavonia odorata*, c) *Abutilon indicum* var. *indicum*, d) *Decaschistia crotonifolia*, e) *Pavonia zeylanica*, f) *Abelmoschus moschatus*, g) *Sida cordata*, h) *Abutilon pannosum*, i) *Sida rhombifolia* subsp. *alnifolia*, j) *Malvastrum coromandelianum*, k) *Sida acuta*, l) *Hibiscus lobatus*, m) *Hibiscus panduriformis*, n) *Hibiscus micranthus*, o) *Sida rhombifolia* subsp. *hombifolia*, p) *Sida cordifolia*.

Erect perennial shrub. Leaves orbicular to ovate, irregularly toothed. Flowers yellow, solitary or panicles. Fruit is spherical. Sepals ovate. Seeds hairy, kidney shaped, brown.

Rare, hedges of dry deciduous forests along roadsides. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** LP 1525 (SACONH).

Abutilon persicum (Burm. f.) Merr., Philipp. J. Sci. 19: 364. 1921; FTN 1: 32. 1983; FTC 3(1): 108. 1983; MSPI 201. 1996; FEG 1: 121. 2002. *A. polyandrum* (Roxb.) ex Wight & Arn., Cat. Indian Pl. 1. 1833, non G. Don, 1831; FBI 1: 325. 1874; FPM 1: 65. 1957.

Shrubs. Leaves broadly ovate, irregularly dentate velutinous-tomentose, cordate at base. Flowers axillary and terminal racemes or panicles. Bracts leafy. Sepals 5, connate at base. Petals 5, yellow, obovate. Stamens many. Schizocarps campanulate, mericarps 5. Seeds reniform.

Occasional in dry thorn forest. **Fl. & Fr.:** Dec.-Jan. **Sp.Ex.:** KCJ 81455 (MH).

DECASCHISTIA Wight & Arn., Prodr. Fl. Ind. Orient. 1: 52. 1834.

Key to the species

1a. Leaves not lobed, greyish-tomentose beneath.....*D. crotonifolia*

1b. Leaves at least lower palmately 3-lobed yellowish-brown tomentose beneath.....*D. trilobata*

Decaschistia crotonifolia Wight & Arn., Prodr. Fl. Ind. Orient. 1: 52. 1834; FBI 1: 332. 1874; FSIHS 1: 61. 1932; FPM 1: 68. 1957; FTC 3(1): 110. 1983; FTN 1: 33. 1983; MSPI 18. 1996; FEG 1: 122. 2002.

Shrub. Leaves ovate, elliptic or lanceolate, margin serrate. Flowers solitary or in terminal condensed racemes. Epicalyx segments 10 -12. Calyx campanulate. Corolla bright yellow with maroon in central. Stamens many in staminal tube. Capsules globose. Seeds reniform, brownish-black.

Occasional in open moist deciduous forests. **Fl. & Fr.:** Mar.-Nov. **Sp.Ex.:** LP 2933 (SACONH); KA & PB 1629 (SACONH); CECF 4165 (MH); KNS 2465, 6887, 6888, 8772, 8773, 9914, 11825, 11826 (FRC); VS 18338, 19312 (FRC); KCJ 81368 (MH).

Decaschistia trilobata Wight, Icon. Pl. Ind. Orient. 1: 88. 1838; FBI 1: 332. 1874; FPM 1: 68. 1957 (*triloba*).

Erect shrub. Stipules 3-fid. Middle and lower leaves palmately 3-lobed; lobes serrate, either yellow to brown tomentum on lower surface. Pedicels longer than petiole. Calyx lobed to the middle; lobes triangular, acute. Capsules globose. Seeds reniform.

Rare in moist deciduous forest. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** EV 142050, 142051 (MH).

HERISSANTIA Medik., Vorles. Churpfälz. Phys.-Ökon. Ges. 4: 244. 1788.

Herissantia crispa (L.) Brizicky., J. Arnold Arbor. 49: 279 1968; MSPI 209. 1996; FEG 1: 127. 2002. *Abutilon crispum* (L.) Medik., Malvenfam. 29. 1787; FBI 1: 327. 1874; FPM 1: 66. 1957; FTC 3(1): 105. 1983; FTN 1: 32. 1983.

Diffuse herb. Leaves ovate, cordiform, or sagittate, velutinous, cordate at base, serrate at margins. Flower yellow, solitary, axillary. Sepals 5, lanceolate. Petals 5, pale yellow, obovate-orbicular. Staminal column. Ovary globose. Schizocarp globular; mericarps 10. Seeds reniform.

Common in foothills and hill slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2984 (SACONH).

HIBISCUS L., Sp. Pl. 2: 693. 1753.

Key to the species

1a. Leaves simple, not incised.....2

1b. Leaves partite or lobed.....3

2a. Stem reddish brown; flowers large < 3cm, epicalyx present.....*H. sabdariffa*

2b. Stem greenish; flowers small > 3cm, epicalyx absent.....	<i>H. micranthus</i>
3a. Flowers without epicalyx.....	<i>H. lobatus</i>
3b. Flowers with epicalyx	4
4a. Epicalyx segments basally connate.....	5
4b. Epicalyx segments free, simple or appendaged, cauducous.....	7
5a. Herbs or shrubs; pedicels jointed.....	6
5b. Trees; pedicel not jointed.....	<i>H. tiliaceous</i>
6a. Stipules linear, with 2-or 3-parted filiform segments.....	<i>H. panduriformis</i>
6b. Stipules setaceous, without filiform segments.....	<i>H. lunariifolius</i>
7a. Epicalyx segments appendged; stem prickled.....	<i>H. surattensis</i>
7b. Epicalyx segments simple; stem not prickled.....	8
8a. Leaves lobed; flowers yellowish.....	<i>H. vitifolius</i>
8b. Leaves not lobed; flowers reddish.....	<i>H. rosa-sinensis</i>

Hibiscus lobatus (Murray) Kuntze., Revis. Gen. Pl. 3(3): 19. 1898; FTC 3(1): 114. 1983; FTN 1: 34. 1983; MSPI 125. 1996; FEG 1: 130. 2002. *H. solandra* L' Herit., Stirp. Nov. 1: 103. t. 49. 1789. nom. illeg., FBI 1: 336. 1874; FPM 1: 70. 1957.

Annual herbs, stem pubescent with simple hairs. Basal leaves orbicular-ovate; upper ones 3-lobed, lobes lanceolate, serrate. Lower leaves linear-oblong. Flowers solitary, axillary. Calyx lobes deep, glabrous. Petals 5, white, obovate. Capsule ovoid, acute, hispid. Seeds numerous, trigonous.

Common in degraded forest areas, foothills and scrub jungles. **Fl. & Fr.:** Aug.-Jan. **Sp.Ex.:** LP 2052 (SACONH); CECF 4378, 4379, 4380 (MH); VS 18390 (FRC); PSAT 186948 (MH).

Hibiscus lunariifolius Willd., Sp. Pl. 3: 811. 1800; FBI 1: 338. 1874; FPM 1: 70. 1957; FTC 3(1): 114. 1983; FTN 1: 34. 1983; FEG 1: 130. 2002.

Shrub. Lower leaves 3 or 5-lobed; upper ones ovate or angular. Flowers axillary, solitary or in terminal racemes. Epicalyx segments 5, linear. Calyx lobes 5. Petals 5, yellow, oblanceolate. Stamens many in a staminal column. Capsule obovoid, densely bristly. Seeds numerous.

Common in scrub-jungles and forest floor. **Fl. & Fr.:** Oct. -Feb. **Sp.Ex.:** VS 18341 (FRC); VN 79071 (MH); SRN 80535 (MH).

Hibiscus micranthus L. f., Suppl. Pl. 308. 1782; FBI 1: 335. 1874; FPM 1: 70. 1957; MSPI 97. 1996; FEG 1: 131. 2002. *H. ovalifolius* Vahl, Symb. Bot. 1: 50. 1790; FTN 1: 34. 1983; FTC 3(1): 115. 1983.

Subshrubs. Branchlets stellate, pubescent. Leaves broadly ovate, apex acute, shallowly 3-lobed, dentate. Stipules linear. Flowers axillary, solitary. Bracteoles 6. Calyx lobes 5, ovate. Petals 5, oblong, white. Capsule sub-globose. Seeds 3-4 in each cell, clothed with long silky hairs.

Common in dry deciduous forests, foothills and scrub-jungles. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1533 (SACONH); VS 18340 (FRC); KCJ & JD 81141, 81210 (MH); PSAT 186492, 186493, 186518, 186519, 186681, 186682, 186794, 186795, 186858 (MH).

Hibiscus panduriformis Burm. f., Fl. Ind. 151. t. 47. f. 2. 1768; FBI 1: 338. 1874 (*"panduraeformis"*); FPM 1: 70. 1957; FTC 3(1): 116. 1983; FTN 1: 34. 1983; FEG 1: 132. 2002.

Subshrub, rootstock woody. Leaves leathery, cordate-ovate, sometimes 3-lobed or angular, palmilobed, crenate-serrate, acute. Flower solitary, axillary. Calyx lobes 5, ovate. Petals yellow with dark purple central, obovate. Ovary globose, 5-celled. Capsule ovoid. Seeds numerous, reniform.

Rare in foothills and scrub jungles. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** PSAT 186753, 186754 (MH).

Hibiscus rosa-sinensis L., Sp. Pl. 694. 1753; FBI 1: 334. 1874; FTN 1: 34. 1983; FTC 3(1): 117. 1983; FEG 1: 134. 2002.

Shrubs. Leaves broadly ovate, acuminate at apex, tapering at base, crenate at margins, glabrous. Flowers axillary, solitary. Epicalyx segments 5-8, linear-lanceolate. Calyx campanulate, lobes 5, lanceolate, pilose. Corolla infundibular. Petals oblong-obovate, irregularly lobed at apex. Cultivated as an ornamental plant. *Fl.*: Throughout the year. **Sp.Ex.**: LP 1352 (SACONH).

Hibiscus sabdariffa L., Sp. Pl. 695. 1753; FBI 1: 340. 1874; FPM 1: 71. 1957; FTN 1: 35. 1983; FTC 3(1): 117. 1983; MSPI 114. 1996; FEG 1: 134. 2002.

Annual herb. Leaves simple, alternate, midrib reddish purple. Inflorescence axillary, solitary or racemose panicles. Epicalyx 8-12. Flowers purplish red. Calyx 5 lobed, lobes lanceolate. Corolla showy and large, yellow, white, orange, and purple at the base. Ovary superior, 5 locular. Fruit capsule, globose-cylindrical. Seeds reniform or sub-globose.

Cultivated and naturalized. **Fl. & Fr.**: Dec.-Feb. **Sp.Ex.**: PSAT 186846 (MH).

Hibiscus surattensis L., Sp. Pl. 696. 1763; FBI 1: 334. 1874; FPM 1: 70. 1957; FTC 3(1): 118. 1983; FTN 1: 35. 1983; MSPI 119. 1996; FEG 1: 133. 2002.

Scandent subshrubs, stem greenish, retrorsely prickled. Leaves 3-5-lobed; lower leaves 3-5-lobed; upper ones palmi-partite, cordate at base, lobes elliptic, acuminate, serrate, pubescent. Flowers axillary, prickled. Calyx 10-costate, 5-lobed. Corolla yellow with brown centre. Ovary subconical. Capsule ovoid. Seeds reniform.

Degraded forest areas, scrub jungles; **Fl. & Fr.**: Nov.-Feb. **Sp.Ex.**: VS 18500 (FRC).

Hibiscus tiliaceus L., Sp. Pl. 694. 1753; FBI 1: 343. 1874; FPM 1: 70. 1957; FTN 1: 35. 1983; FTC 3(1): 118. 1983. *Partium tiliaceum* (L.) A. St. Hil., Bras. Merid. 1: 256. 1828.

Tree. Leaves orbicular, abruptly acuminate at apex, cordate at base, entire at margins, glabrous above, tomentose beneath. Flowers in terminal racemes. Epicalyx segments 8-10, connate at base, lanceolate. Calyx lobes 5, lanceolate. Corolla campanulate, petals obovate, yellow, purplish at base. Capsules globose, 5-valved, pubescent. Seeds subreniform, black, sulcate.

Often planted along road sides and near villages for its shade. **Fl. & Fr.**: May-Sept. **Sp.Ex.**: KR & KNS 23381, 23382 (FRC).

Hibiscus vitifolius L., Sp. Pl. 696. 1753; FBI 1: 338. 1874; FPM 1: 70. 1957; FTN 1: 35. 1983; FTC 3(1): 119. 1983. *Fioria vitifolia* (L.) Mattei, Boll. Reale Orto, Bot. Palermo 2: 71. 1916; MSPI 75. 1996; FEG 1: 126. 2002.

Shrubs, tomentose. Leaves cordate, dentate-crenate, shallowly 3-5-lobed, lobes triangular, stellate pubescent. Flowers axillary, solitary. Epicalyx slender, linear, lobes 5-7. Calyx lobes lanceolate. Petals obovate, yellow, base purplish inside. Capsule 5 celled, winged. Seeds glabrous.

Occasional in wild, grown as a hedge plant. **Fl. & Fr.**: Nov.-Mar. **Sp.Ex.**: CECF 4391, 4392 (MH); VS 18339, 19308 (FRC); KCJ 81328 (MH); PSAT 187111, 187232 (MH).

KYDIA Roxb., Pl. Coromandel 3: 11. tt. 215, 216. 1819.

Kydia calycina Roxb., Pl. Coromandel 3: 11. t. 215. 1819; FBI 1: 348. 1874; FPM 1: 67. 1957; FTN 1: 35. 1983; FTC 3(1): 120. 1983; FEG 1: 126. 2002.

Trees. Leaves broadly ovate-orbicular, 3-5-lobed, rarely entire. Panicles axillary and terminal. Flowers pinkish white, polygamous. Epicalyx lobes 4. Calyx lobes 5, ovate. Petals 5, white, fragrant, clawed. Staminal tube 5-branched. Capsules depressed-globose. Seeds 4-6, reddish brown, reniform.

Common in moist deciduous forest. **Fl. & Fr.**: Oct.-Jan. **Sp.Ex.**: KA & PB 1431 (SACONH); CECF 4135, 4136 (MH); KNS 13391, 13392 (FRC); VS 18235 (FRC); KCJ 81427 (MH); PSAT 186992, 187069, 187471, 187472, 187489, 187490 (MH).

MALVA L., Sp. Pl. 2: 687. 1753.

Malva verticillata L., Sp. Pl. 689. 1753; FBI 1: 320. 1874; FSIHS 1: 57. 1932; FPM 1: 63. 1957; FTN 1: 35. 1983. *Althaea verticillata* Alef., Oesterr. Bot. Z. 12: 261 1862.

Erect herbs. Leaves alternate, simple, 3-7 palmately lobed, lobes linear lanceolate. Inflorescence axillary, 5 compact fascicles. Flowers bisexual. Involucellar branchlets 3. Epicalyx 3, linear. Calyx 5 lobed, cupular. Corolla showy, purplish blue; petals obovate, glabrous. Staminal column, densely stellate hairy. Fruit indehiscent, schizocarp in persistent calyx. Seeds reniform. Occasional in wild, cultivated. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** CECF 3527, 3626 (MH).

MALVASTRUM A. Gray, Mem. Amer. Acad. Arts. 2, 4: 21. 1849.

Malvastrum coromandelianum (L.) Garcke, Bonplandia 5: 295. 1857; FPM 1: 64. 1957; FTN 1: 36. 1983; FTC 3(1): 121. 1983; MSPI 219. 1996; FEG 1: 136. 2002.

Erect herbs. Stem stellate hairy. Leaves ovate-lanceolate, truncate at base, crenate-serrate at margins, hairy beneath. Flowers solitary or crowded at apex. Calyx tubular, lobes angular, hairy without. Petals 5, obovate, pale yellow. Mericarps reniform, flattened, 1- seeded. Seeds ascending, reniform, compressed, glabrous.

Common in wastelands. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** LP 3003 (SACONH); CECF 3538, 3539 (MH); VS 18503 (FRC); PSAT 186859 (MH).

PAVONIA Cav., Diss. 2: 5. 1786.

Key to the species

- 1a. Leaves deeply lobed; mericarps glabrous.....*P. zeylanica*
- 1b. Leaves shallowly lobed; mericarps hairy.....*P. odorata*

Pavonia odorata Wild., Sp. Pl. 3: 837. 1822; FBI 1: 331. 1874; FPM 1: 67. 1957; FTN 1: 36. 1983; FTC 3(1): 123. 1983; MSPI 171. 1996; FEG 1: 137. 2002.

Subshrub, viscid tomentose. Leaves ovate-suborbicular, shallowly 3-lobed; lobes ovate, cordate at base, densely hairy beneath. Flowers axillary, solitary or paired, long pedicelled. Calyx lobes 5, ovate. Petals 5. Stamens 10-12. Mericarps 5. Seeds trigonous, pubescent.

Very common in foothills and scrub jungles. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2845, 3025 (SACONH); VS 18504 (FRC).

Pavonia zeylanica (L.) Cav., Diss. 3: 134. t. 48. f. 2. 1787; FBI 1: 330. 1874; FPM 1: 67. 1957; FTN 1: 36. 1983; FTC 3(1): 124. 1983; MSPI 173. 1996; FEG 1: 138. 2002.

Subshrub, branchlets viscid and stellate-pubescent. Leaves deeply 3-lobed, lobes obovate. Flowers 1. Epicalyx segments 8-11. Calyx lobes 5. Petals 5, pink or white. Ovule 1 per cell. Mericarp winged at edges. Seeds pubescent.

Common in foothills and scrub jungles. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1332, 3085, 2518, 1581 (SACONH); CECF 4033 (MH); SRR 81016 (MH).

SIDA L., Sp. Pl. 2: 683. 1753.

Key to the species

- 1a. Mature leaves cordate at base.....2
- 1b. Mature leaves cuneate-truncate at base.....4
- 2a. Branches thick; pedicels more than 1 cm long.....*S. cordata*
- 2a. Branches slender; pedicels less than 1 cm long.....3
- 3a. Plants viscid hairy.....*S. mysorensis*

- 3b. Plants not viscid hairy.....*S. cordifolia*
 4a. Stem spiny at the base of petiole.....*S. spinosa*
 4b. Stems not spiny.....5
 5a. Pedicels longer than petiole.....*S. rhombifolia*
 5b. Pedicels shorter or equalling the petiole.....*S. acuta*

Sida acuta Burm. f., Fl. Indica 147. 1768; FSIHS 1: 58. 1932; FPM 1: 64. 1957; FTC 3(1): 127. 1983; FTN 1: 36. 1983; MSPI 238. 1996; FEG 1: 140. 2002.

Herb, branchlets prostrate to ascending. Basal leaves suborbicular upper ones cordate-ovate. Flowers axillary, 1 or 2, sometimes in lax racemes. Petals yellow, oblique-obovate. Calyx lobes 5, deltoid. Ovary 5-celled. Mericarps 5, 4-hedral. Seeds ovoid or 3-gonous.

Common throughout the area. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CAB 3714 (MH); VS 18384 (FRC); KCJ & JD 81186 (MH); PSAT 186954, 187481, 187482 (MH).

Sida cordata (Burm. f.) Borss.Waalk, Blumea 14: 182. 1966; FTN 1: 36. 1983; FTC 3(1): 128. 1983; FEG 1: 142. 2002. *S. veronicifolia* Lam., Encycl. 1: 5. 1783; FPM 1: 64. 1957.

Subshrub. Leaves ovate-cordate or suborbicular, truncate-cordate at base, crenate-serrate, acuminate. Flowers usually solitary, axillary, sometimes in lax racemes. Calyx lobes 5. Petals 5, yellow, ovate. Ovary 5-celled. Schizocarp globose. Mericarps 5. Seeds ovoid.

Common in foothills. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 3614, 84987 (MH); KCJ 81329 (MH).

Sida cordifolia L., Sp. Pl. 684. 1753; FBI 1: 324. 1874; FPM 1: 64. 1957; FTN 1: 36. 1983; FTC 3(1): 128. 1983; MSPI 256. 1996; FEG 1: 142. 2002.

Herbs, stellate tomentose, pedicel tomentose. Leaves ovate, oblong or orbicular cordate at base. Flowers yellow or whitish-yellow, axillary, solitary. Schizocarps globose, pubescent towards apex. Mericarps 8-10, trigonous, apically 2-awned. Seeds ovoid, brownish or black.

Common in dry open places, foothills, scrub jungles and disturbed areas. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 3545 (MH); VS 18243, 18336 (FRC).

Sida mysorensis Herb. Madr. ex Wight & Arn., Prodr. Fl. Ind. Orient. 1: 59. 1834; FBI 1: 322. 1874; MSPI 271. 1996; FEG 1: 142. 2002. *S. glutinosa* Roxb., Fl. Ind. 3: 172. 1832. non Cav. 1785; FPM 1: 64. 1957; FTC 3(1): 130. 1983; FTN 1: 37. 1983.

Erect herbs. Leaves ovate, acute, crenate, membranous, tomentose. Flowers, solitary or in 5-7 flowered, axillary or in short racemes. Calyx ribbed, lobes shorter than tube, acute. Petals yellow. Mericarps 5, trigonous, smooth.

Occasional in moist deciduous forests and plantations. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CAB 3630, 3631 (MH); VS 18335 (FRC); KCJ 81382 (MH).

Sida rhombifolia L., Sp. Pl. 684. 1753; FBI 1: 323. 1874 incl. vars. *obovata*, *retusa*, *rhomboidea*; FSIHS 59. 1932; FPM 1: 65. 1957; FTN 1: 37. 1983; FTC 3(1): 131. 1983; MSPI 245. 1996. *S. rhomboidea* Roxb., Asiat. Res. 11: 178. 1810; FSIHS 1: 58. t. 38. 1932; FPM 1: 65. 1957.

Key to the subspecies

- 1a. Mericarps mucronate at apexsubsp. *alnifolia*
 1b. Mericarps awned or beaked at apex.....subsp. *rhombifolia*

subsp. *rhombifolia*

Subshrubs or herbs with erect stem. Leaves ovate-elliptic or rhomboid, minutely stellately hairy. Flowers solitary or in 5-7-flowered, cymose clusters. Calyx lobes 5. Petals 5, yellow to orange, oblique to rhomboid, emarginate. Ovary spherical. Mericarps 7-10. Seeds ovoid.

Very common in foothills and scrub jungles. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 15383, 18334 (FRC); KCJ 81185 (MH); PSAT 186955 (MH).

subsp. *alnifolia* (L.) Ugbor. Bol. Soc. Brot. 2. 54: 70 1980-1981 publ. 1980. *S. alnifolia* L., Sp. Pl. 2. 684. 1753; Sivar. & Pradeep, *Sida* 16: 69. 1994 & MSPI 241. 1996. *S. rhombifolia* L., subsp. *retusa* (L.) Borss.Wallk., Blumea 14: 198. 1966; FEG 1: 144. 2002.

Erect herbs, woody, branches green or purplish tinged. Leaves obovate, obtuse or retuse at apex, emarginate. Stipules filiform. Flowers yellow, axillary, solitary. Calyx lobes acute. Corolla yellow. Mericarps trigonous, with a pair of short mucro at apex. Seeds black.

Occasional in moist forests, hills to plains in open areas. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** LP 3058 (SACONH).

Sida spinosa L., Sp. Pl. 683. 1753; FBI 1: 323. 1874; FPM 1: 64. 1957; FTC 3(1): 132. 1983; FTN 1: 37. 1983; FEG 1: 145. 2002.

Herbs. Leaves obtuse, ovate-oblong, rounded at base, serrate-dentate, petiole with 1 or 2 spines at base. Flowers usually solitary, axillary. Calyx lobes 5, ovate. Petals white or yellow, ovate. Stamens many. Ovary ovoid. Schizocarps globose. Mericarps 5.

Occasional in marshy places. **Fl. & Fr.:** Aug.-Oct. **Sp.Ex.:** VS 18337 (FRC); PSAT 187144 (MH).

THESPESIA Sol. ex Corrêa, Ann. Mus. Natl. Hist. Nat. 9: 290. 1807.

Thespesia populnea (L.) Sol. ex Corrêa, Ann. Mus. Natl. Hist. Nat. 9: 290. t. 8. f. 2. 1807, nom. cons.; FBI 1: 345. 1874; FPM 1: 72. 1957; FTN 1: 37. 1983; FTC 3(1): 133. 1983; MSPI 37. 1996; FEG 1: 147. 2002.

Trees, young branches covered with peltate scales. Leaves broadly ovate, cordate at base, acuminate at apex. Stipules linear-lanceolate, cauducous. Flowers solitary, axillary. Epicalyx segments 3-5. Calyx tube cupular. Corolla campanulate, yellow with a dark purple centre. Capsules globose, with persistent calyx, indehiscent. Seeds 2-4 per cell, obovoid.

Along water bodies in the backwaters. Usually planted along roadsides and gardens as avenue value. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VN 79774 (MH).

URENA L., Sp. Pl. 2: 692. 1753.

Key to the species

1a. Leaves irregularly dentate, acuminate at apex; epicalyx lobes deltoid.....*U. lobata*

1b. Leaves dentate-serrulate, acute or obtuse at apex; epicalyx lobes linear.....*U. sinuata*

Urena lobata L. Sp. Pl. 692. 1753; FBI 1: 329. 1874; FSIHS 1: 59. t. 39. 1932; FPM 1: 66. 1957; FTC 3(1): 134. 1983; FTN 1: 37. 1983; MSPI 180. 1996; FEG 1: 148. 2002.

Erect branched subshrubs. Leaves ovate, broadly ovate-lanceolate, truncate or cordate at base. Stipules linear to subulate. Flowers axillary, usually solitary or 2 or 3 in a cluster. Calyx campanulate, 5-parted. Corolla pink with dark central. Staminal column pinkish. Stigmas capitate. Schizocarp globose, mericarps 5, trigonous, rounded, clothed with many glochidiate spines.

Common in degraded areas and along the margins of moist deciduous forests. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** CECF 3891 (MH); KNS 12339, 12340 (FRC); VS 18240 (FRC); KCJ 81220 (MH).

Urena sinuata L., Sp. Pl. 692. 1753; Roxb., Fl. Ind. 3: 182. 1832; FBI 1: 327. 1874; FPM 1: 66. 1957; MSPI 184. 1996. *U. lobata* L. ssp. *sinuata* (L.) Borss. Waalk., Blumea 14: 142. 1966; FTN 1: 37. 1983; FTC 3(1): 135. 1983; FEG 1: 148. 2002.

Undershrub. Leaves deeply lobed; lobes linear-lanceolate, serrulate, acute at apex. Flowers axillary, solitary or in clusters of 2-3. Epicalyx segments 5, linear-lanceolate. Sepals 5. Petals 5, pink with purple centre. Stamens many. Capsule glochidiate. Seeds reniform. Common along the margins of moist deciduous forests. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 3181 (SACONH); VS 18498 (FRC).

BOMBACACEAE Kunth, Malvac. Büttner. Tiliac. 5. 1822.

Key to the genera

- 1a. Trunk armed.....*Bombax*
1b. Trunk unarmed.....*Ceiba*

BOMBAX L., Sp. Pl. 1: 511. 1753.

Bombax ceiba L., Sp. Pl. 511. 1753; FTN 1: 38. 1983; FTC 3(1): 136. 1983; FEG 1: 150. 2002. *B. malabaricum* DC., Prodr. 1: 479. 1824; FBI 1: 349. 1874; FPM 1: 71. 1957.

Large trees with broad buttresses, branchlets prickled. Leaves palmately lobed. Leaflets elliptic. Flowers solitary or 2-5 together. Calyx cupshaped. Petals reddish, oblong. Stamens many, polyadelphous. Fruit a dehiscent capsule, 5-valved, valves thick, leathery, tomentose, terete. Common in deciduous forest. **Fl. & Fr.:** Jan.-April. **VN:** *Mullilavam*. **Sp.Ex.:** PSAT 187211 (MH); VS 18799, 20746, 21214 (FRC); KCJ 81506 (MH).

CEIBA Mill., Gard. Dict. Abridg. ed. 4. 1754.

Ceiba pentandra (L.) Gaertn., Fruct. Sem. Pl. 2: 244. t. 133. 1791; FTN 1: 38. 1983; FTC 3(1): 137. 1983. *Bombax pentandrum* L. Sp. Pl. 511. 1753; FEG 1: 150. 2002.

Deciduous trees, buttressed, straight armed with conical prickles. Leaves digitately compound, crowded at the tip of branchlets. Leaflets 6-8, whorled. Flowers bisexual, pale pink or creamy yellow, solitary, axillary. Calyx irregularly lobed, campanulate, densely silky. Petals 5, linear-oblong. Stamens numerous in 5 bundles. Fruit a capsule, 5-angled, 5-valved, glabrous. Moist forests, stream side and planted as hedge for Agricultural area. **Fl. & Fr.:** Nov.-Mar. **VN:** *Ilavam*. **Sp.Ex.:** LP 1362 (SACONH)

STERCULIACEAE Vent., Parad. Lond. 2: ad t. 69. 1807.

Key to the genera

- 1a. Plant an herb or subshrub, below 1 m tall.....2
1b. Plant a shrub or tree, above 3 m tall.....5
2a. Stems prostrate or ascending.....3
2b. Stems erect.....4
3a. Petals clawed; flowers purple.....*Byttneria*
3b. Petals not clawed; flowers yellow.....*Melhania*
4a. Calyx 5-toothed; petals pink.....*Melochia*
4b. Calyx 5-lobed; petals yellow.....*Waltheria*
5a. Petals absent; flowers unisexual.....6
5b. Petals present; flowers bisexual.....7
6a. Fruit leathery, rarely woody, dehiscent when mature.....*Sterculia*
6b. Fruit membranous, dehiscent before maturity and foliaceous.....*Firmiana*
7a. Flowers under 1 cm across.....*Guazuma*
7b. Flowers over 2 cm across.....8
8a. Fruits twisted; seeds not winged.....*Helicteres*
8b. Fruits not twisted; seeds winged.....9

- 9a. Flowers white; staminodes present.....*Pterospermum*
 9b. Flowers yellow; staminodes absent.....*Eriolaena*

BYTTNERIA Loebl., Iter Hispan. 313. 1758.

Byttneria herbacea Roxb., Pl. Coromandel t. 29. 1795; FBI 1: 376. 1874; FPM 1: 80. 1957; FTC 3(1): 140. 1983; FTN 1: 38. 1983; FEG 1: 151. 2002.

Herbs. Leaves opposite, sometimes alternate, ovate-lanceolate. Flowers 2-3, in axillary cymes. Sepals connate at base, ovate-lanceolate. Petals maroon, puberulous. Ovary 5-loculed. Capsule globose, spiny, 5-lobed with prickles. Seeds 1 in each locule.

As an undergrowth in dry deciduous forests. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2807 (SACONH).

ERIOLAENA DC., Mém. Mus. Hist. Nat. 10: 102. 1823.

Key to the species

- 1a. Branchlets and petiole appressed stellate-pubescent; bracteoles minute....*E. quinquelocularis*
 1b. Branchlets and petioles stellate-tomentose, glabrescent; bracteoles prominent.....2
 2a. Sepals cuspidate; capsule globose not beaked.....*E. stocksii*
 2b. Sepals acute; capsule ovoid beaked.....*E. hookeriana*

Eriolaena hookeriana Wight & Arn., Prodr. Fl. Ind. Orient. 70. 1834; FBI 1: 370. 1874; FPM 1: 78. 1957; FTN 1: 39. 1983; FTC 3(1): 141. 1983; FEG 1: 153. 2002.

Small deciduous tree, younger parts stellate-tomentose. Leaves ovate, cordate, margin crenate-dentate, tomentose below. Flowers yellow, in axillary cymes. Sepals linear-lanceolate. Petals obovate. Stamens many. Stigma 8-10-lobed. Capsule pyriform, woody. Seeds numerous, winged. Rare in hills slopes. **Fl. & Fr.:** Mar.-June. **Sp.Ex.:** KA & PB 1712 (SACONH); VN 79720 (MH); PSAT 186931, 187007 (MH).

Eriolaena quinquelocularis (Wight & Arn.) Drury, Hanb. Ind. Fl. 1: 99. 1864; FBI 1: 371. 1874; FPM 1: 78. 1957; FTN 1: 39. 1983.

Trees. Leaves ovate or orbicular, cordate at base, acute at apex, dentate along margins. Flowers axillary, solitary or in terminal cymes. Capsules ovate with acuminate apex, rusty. Rare in hill slopes. **Fl. & Fr.:** May-Aug. **Sp.Ex.:** KNS 2065 (FRC); CECF 5137, 5138, 5139 (MH); VS 18758 (FRC).

Eriolaena stocksii Hook. f. & Thomson ex Mast. in Hook. f., Fl. Brit. India 1: 370. 1874.

Branchlets pubescent, glaucous. Leaf blade crenate-dentate, tomentose beneath. Peduncle usually 3-flowered, about twice the length of petiole, bracteoles bipinnatisect, shorter than buds. Sepals cuspidate. Staminal column antheriferous towards apex. Capsule globose, 8-valved, warted. Rare in deciduous forest. **Fl. & Fr.:** June-Sept. **Sp.Ex.:** CECF 3148 (FRC); VS 18204, 18451 (FRC).

FIRMIANA Marsili, Saggi Sci. Lett. Accad. Padova. 1: 114, 116. 1786.

Firmiana simplex (L.) W. Wight, Bull. Bur. Pl. Industr. U.S.D.A. 142: 67. 1909. *Sterculia urens* Roxb., Pl. Coromandel t. 24. 1795; FBI 1: 355. 1874; FPM 1: 75. 1957; FTC 3(1): 153. 1983; FTN 1: 42. 1983; FEG 1: 164. 2002.

Small deciduous trees. Leaves simple, alternate, palmately 3-5 lobed, clustered at the tips of branchlets. Flowers unisexual, polygamous, greenish-yellow, in axillary tomentose panicles. Calyx yellow, lobes 5. Petals absent. Carpels usually 5, free. Stigmas 5. Stamens in a ring round the carpel. Fruit an aggregate of 4-6 follicles, red, dense pubescent. Seeds brown, 3-6, oblong. Occasional in rocky stream side. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** VN 79235, 79691 (MH).

GUAZUMA Mill., Gard. Dict. Abr. ed. 4. 2. 1754.

Guazuma ulmifolia Lam., Encycl. 3: 52. 1789; FTN 1: 39. 1983; FTC 3(1): 143. 1983; FTN 1: 39. 1983; FEG 1: 155. 2002. *G. tomentosa* Kunth. Nov. Gen. Sp. 5: 320. 1823; FBI 1: 375. 1874; FPM 1: 79. 1957.

Trees. Leaves lanceolate, chartaceous, oblique, margin serrulate. Cymes axillary and terminal. Flowers bisexual. Calyx-tube sub-globose; lobes 3, elliptic, sub equal. Petals 5, yellow, obovate, cucullate. Stamens 15. Ovary sessile, globose. Capsule sub-globose. Seeds numerous. Common in foothills and planted as avenue tree. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** LP 1635 (SACONH).

HELICTERES L., Sp. Pl. 2: 963. 1753.

Helicteres isora L., Sp. Pl. 963. 1753; FBI 1: 365. 1874; FPM 1: 77. 1957; FTC 3(1): 144. 1983; FTN 1: 39. 1983; FEG 1: 156. 2002.

Large shrubs. Leaves obovate, orbicular, obliquely cordate at base, obtuse at apex, serrate, scabrous. Flowers axillary, solitary or fascicled. Calyx tubular, 5-toothed, yellowish. Petals unequal, reddish. Stamens 5. Ovary 5-celled. Fruit a spirally twisted follicle. Seeds many. Common in moist deciduous forest. **Fl. & Fr.:** Sept.-Dec. **VN:** *Idampuri-valamburi*. **Sp.Ex.:** LP 2939 (SACONH); CECF 4855 (MH).

MELHANIA Forssk., Fl. Aegypt.-Arab. 64. 1775.

Melhania incana B.Heyne, Numer. List 1200. 1829; FBI 1: 372. 1874; FPM 1: 77. 1957; FTC 3(1): 146. 1983; FTN 1: 40. 1983; FEG 1: 160. 2002.

Branched, suffruticose herbs. Leaves elliptic-lanceolate, obtuse at apex, subcordate at base, serrate at margins. Sepals lanceolate, acute, hairy. Petals yellow, obovate. Stamens 5, alternating with staminodes. Ovary ovoid, pubescent. Style 5-fid. Seeds ovoid, tubercled. Occasional in wastelands and agricultural fields. **Fl. & Fr.:** Sept.-Jan. **Sp.Ex.:** LP 3006 (SACONH); VS 18505 (FRC).

MELOCHIA L., Sp. Pl. 2: 674 (774). 1753.

Melochia corchorifolia L., Sp. Pl. 675. 1753; FBI 1: 374. 1874; FPM 1: 77. 1957; FTN 1: 40. 1983; FTC 3(1): 147. 1983; FEG 1: 160. 2002.

Slender herbs. Leaves obovate-lanceolate, cordate or rounded at base. Flowers bisexual, 2-6 together, in densely crowded in terminal. Cymes sessile. Sepals campanulate, lobes subulate. Petals pink. Stamens 5. Styles 5, free. Capsule 5-valved, depressed globose. Seeds 1 or 2, trigonous. A common weed in dry open areas and near stream side. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KR 138897, 138898 (MH).

PTEROSPERMUM Schreb., Gen. Pl. 2: 461. 1791.

Pterospermum reticulatum Wight & Arn., Prodr. Fl. Ind. Orient. 69 1834; FBI 1: 368. 1874; FPM 1: 77. 1957; FTN 1: 41. 1983.

Medium sized tree. Leaves obovate, 3-7-toothed at apex. Flowers in terminal or axillary fascicles. Bracts laciniate. Sepals oblong, densely stellate-tomentose. Petals obovate, densely stellate-hairy. Stamens 15, staminodes 5. Capsule oblong, densely rugose, tomentose. Seeds solitary, winged.

Occasional in semi-evergreen and moist deciduous forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** LP 1363 (SACONH).

STERCULIA L., Sp. Pl. 2: 1007. 1753.

Key to the species

- 1a. Leaves simple; fruits hairy.....*S. guttata*
- 1b. Leaves compound; fruits glabrous.....2
- 2a. Bark pale brown; sepals greenish brown.....*S. villosa*
- 2b. Bark whitish; sepals reddish purple.....*S. foetida*

Sterculia foetida L., Sp. Pl. 1008. 1753; FBI 1: 354. 1874; FPM 1: 75. 1957; FTC 3(1): 151. 1983; FTN 1: 41. 1983; FEG 1: 164. 2002.

Deciduous trees. Leaves digitately 5- 9-foliolate, crowded at end of branchlets. Leaflets elliptic to oblong. Flowers unisexual in racemose panicles. Calyx campanulate, deeply 5-lobed. *Male flowers*: anthers 10 in a staminal column. *Female flowers*: ovaries on gynandrophore, surrounded by sterile anthers. Follicles 5, boat shaped, woody. Seeds many, ovoid-ellipsoid.

Introduced, often planted. **Fl. & Fr.**: Mar.-Aug. **Sp.Ex.**: LP 1364 (SACONH).

Sterculia guttata Roxb., Hort. Bengal. 50. 1814; FBI 1: 355. 1874; FPM 1: 76. 1957; FTC 3(1): 152. 1983; FTN 1: 42. 1983.

Trees. Leaves simple, alternate, broadly ovate-oblong. Flowers unisexual, polygamous, arranged in simple cymes, white, dotted with pink. Calyx campanulate, lobes 5. Petals absent. Ovary 5, free. Fruit an aggregate of 1-5 radiating follicles, obovoid, red. Seeds ovoid, black, smooth.

Occasional in moist deciduous forest. **Fl. & Fr.**: Oct.-Mar. **Sp.Ex.**: VS 18757 (FRC).

Sterculia villosa Roxb., Fl. Ind., ed. 1832. 3: 153-154. 1832; FBI 1: 355. 1874; FPM 1: 76. 1957; FTN 1: 40. 1983; FEG 1: 166. 2002.

Small trees. Leaves simple, palmately 5-7 lobed, alternate, cordate at base. Flowers unisexual, on terminal panicles, cream-coloured. Calyx lobes oblong. Petals absent. Stamens 10, staminodes 10 in female flowers. Fruit an aggregate of 2-7 follicles. Seeds many, black, smooth.

Occasional in moist deciduous rocky areas. **Fl. & Fr.**: Feb.-May. **Sp.Ex.**: PSAT 187313, 187314 (MH).

WALTHERIA L., Sp. Pl. 2: 673. 1753.

Waltheria indica L., Sp. Pl. 673. 1753; FBI 1: 374. 1874; FPM 1: 79. 1957; FTC 3(1): 154. 1983; FTN 1: 42. 1983; FEG 1: 166. 2002.

Herbs, densely tomentose. Leaves ovate, obtuse to cordate at base, crenate. Flowers 3-10-together, in axillary or terminal heads, bisexual, sessile. Calyx tubular, lobes subulate. Petals yellow, equal, obovate. Stamens 5, monadelphous. Ovary 1-celled, pubescent.

A common weed for open wet areas. **Fl. & Fr.**: Oct.-April. **Sp.Ex.**: LP 3051 (SACONH); VN 78987 (MH); KCJ 81303 (MH); PSAT 186568, 186569, 186881, 187203 (MH).

TILIACEAE Juss., Gen. Pl. 289. 1789.

Key to the genera

- 1a. Trees or shrubs; fruit a drupe.....*Grewia*
- 1b. Herbs or subshrubs; fruit a capsule.....2
- 2a. Capsule globose, prickled.....*Triumfetta*
- 2b. Capsule elongate, smooth.....*Corchorus*

CORCHORUS L., Sp. Pl. 1: 529. 1753.**Key to the species**

- 1a. Capsules 3-fid at apex.....2
- 1b. Capsules 1-fid at apex.....3
- 2a. Fruits and seeds winged.....*C. aestuans*
- 2b. Fruits and seeds not winged.....*C. tridens*
- 3a. Capsules pubescent, falcate.....*C. urticifolius*
- 3b. Capsules glabrous, straight.....*C. trilocularis*

Corchorus aestuans L., Syst. Nat. ed. 10. 2: 1079. 1759; FTN 1: 42. 1983; FTC 3(1): 157. 1983; FEG 1: 167. 2002. *C. acutangulus* Lam., Encycl. 2: 104. 1786; FBI 1: 398. 1874; FPM 1: 86. 1957.

Herbs. Leaves ovate, elliptic or oblong, obtuse, scabrid, base slightly cordate, basal teeth prolonged in to long hairs. Cymes 1-3- flowered, yellow, leaf-opposed. Sepals 5, oblong, mucronate. Petals 5, yellow. Stamens 8 or 12. Stigma capitate. Fruit a capsule. Seeds many, disc shaped.

Common in the deciduous forest. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** LP 2598 (SACONH).

Corchorus tridens L., Mant. Pl. Altera 2: 566. 1771; FBI 1: 398. 1874; FPM 1: 87. 1957; FTN 1: 43. 1983; FTC 3(1): 160. 1983; FEG 1: 169. 2002.

Erect Herb. Leaves oblong, lanceolate or elliptic, serrate at margin. Flowers yellowish. Sepals 5, linear. Petals 5, oblong. Stamens 5-10. Capsule 3 valved, valves pitted on inner surface, Seeds black, truncate at both ends.

Common in foothills. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 3007 (SACONH).

Corchorus trilocularis L., Syst. Nat. ed. 12. 369. 1766 & Mant. Pl. 77. 1767; FBI 1: 397. 1874; FPM 1: 87. 1957; FTN 1: 43. 1983; FTC 3(1): 161. 1983; FEG 1: 170. 2002.

Herbs. Leaves ovate-oblong or lanceolate, truncate at base, crenate-serrate, basal serrated, rarely prolonged. Cymes leaf opposed. Sepals 5, linear-oblong. Petals 5, yellow. Stamens 15-20. Capsule angular. Seeds many.

Common in waste lands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18522, 18523, 19405 (FRC).

Corchorus urticifolius Wight & Arn., Prodr. Fl. Ind. Orient. 73. 1834 "*urticaefolius*"; FBI 1: 397. 1874; FPM 1: 87. 1957; FTN 1: 43. 1983; FTC 3(1): 120. 1983; FEG 1: 170. 2002.

Erect herbs. Leaves ovate-elliptic, obtuse at apex, truncate at base, crenate-serrate at margins, strigose hairy on both surfaces. Flowers in leaf opposed, 2-3-flowered cymes. Sepals lanceolate. Petals obovate, yellow. Ovary oblong. Capsules triangular, softly pubescent. Seeds trigonous, black.

Occasional on open areas and bunds of cultivated fields. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 3060 (SACONH).

GREWIA L., Sp. Pl. 2: 964. 1753.**Key to the species**

- 1a. Peduncle more than twice the length of petiole.....2
- 1b. Peduncle less than twice the length of petiole.....7
- 2a. Inflorescence axillary usually of cymes.....3
- 2b. Inflorescence terminal or subterminal usually umbellate.....5
- 3a. Leaves glaucous beneath.....*G. orbiculata*
- 3b. Leaves not glaucous beneath.....4

- 4a. Flowers polygamous, petals white.....*G. hirsuta*
 4b. Flowers bisexual, petals yellow.....*G. asiatica*
 5a. Torus pubescent throughout; fruits of 4 distinct spreading lobes.....*G. umbellifera*
 5b. Torus glabrous in lower part; fruit of 2 emarginate lobes.....6
 6a. Leaf buds greyish, softly pubescent; torus usually 0.3-0.4 cm long sulcate; petals narrowed to apex; fruits crustaceous pilose-glabrescent.....*G. oppositifolia*
 6b. Leaf buds golden brown, harshly pubescent; torus over 0.4 cm long; petals oblong; fruit fleshy.....*G. heterotricha*
 7a. Inflorescence never leaf-opposed always axillary.....8
 7b. Inflorescence often leaf opposed.....12
 8a. Stipules auricled; leaves 5-6 nerved from oblique base.....*G. tilifolia*
 8b. Stipules not auricled and not glaucous beneath.....9
 9a. Branchlets stellate tomentose.....10
 9b. Branchlets scabroid or sparsely pubescent.....11
 10a. Leaves rhomboid-ovate; flowers bisexual.....*G. rhamnifolia*
 10b. Leaves elliptic to lanceolate; flowers polygamous.....*G. hirsuta*
 11a. Flowers yellow; anthers pilose.....*G. flavescens*
 11b. Flowers white; anthers glabrous.....*G. abutilifolia*
 12a. Leaves grey-tomentose beneath, teeth ciliate.....*G. villosa*
 12b. Leaves at most scabroid mostly on nerves beneath.....13
 13a. Leaves to 4cm long; cymes leaf-opposed, buds and torus at apex grey-pubescent.....*G. tenax*
 13b. Leaves exceeding 4 cm; inflorescence axillary, leaf-opposed or at the ends of branches, buds golden brown.....14
 14a. Peduncle shorter than petiole; buds ovoid-cylindric, limb of petal reflexed; fruits rusty tomentose.....*G. bracteata*
 14b. Peduncle equal to or longer than petiole; buds conical, petals not reflexed; fruits with stiff hairs from glandular base.....*G. orientalis*

Grewia abutilifolia Vent. ex Juss., Ann. Mus. Natl. Hist. Nat. 4: 92. 1804; FBI 1: 390. 1874; FTN 1: 43. 1983; FTC 3(1): 163. 1983; FEG 1: 171. 2002. *G. aspera* Roxb., Fl. Ind. 2: 591. 1832; FPM 1: 85. 1957.

Shrubs, branches densely stellate-tomentose. Leaves orbicular, ovate-rhomboid, 3-5-toothed at apex, serrate. Flowers in axillary, umbellate cymes. Sepals oblong, stellate-pubescent. Petals white, oblong, gynandrophore glabrous. Stamens numerous. Drupe globose, obscurely 4-lobed.

Rare in dry deciduous forests. **Fl. & Fr.:** Mar.-Sept. **Sp.Ex.:** LP 1573 (SACONH); CECF 6169, 6170 (MH); KNS 6891, 8966 (FRC); VS 18230, 18514 (FRC); VN 78379 (MH); KCJ & JD 81244 (MH); KCJ 81516 (MH); SRR 83204 (MH).

Grewia asiatica L., Mant. Pl. 1: 122. 1767; FBI 1: 386. 1874; FEG 1: 172. 2002. *G. subinaequalis* DC., Prodr. Sys. Nat. 1: 511. 1824; FPM 1: 84. 1957. FTN 1: 44. 1983.

Medium sized trees. Leaves simple, alternate, spiral, broadly ovate or suborbicular. Flowers in axillary, umbellate cymes. Sepals lobes 5, lanceolate. Petals yellow. Stamens numerous. Ovary ovoid, villous. Stigma 4-lobed. Drupes red or purple, sub-globose, obscurely lobed, pilose.

Occasional in deciduous forest, hill slopes and hill tops. **Fl. & Fr.:** Nov.-Sept. **Sp.Ex.:** LP 2555 (SACONH); VS 18345 (FRC).

Grewia bracteata Roth., Nov. Pl. Sp. 243. 1821; FBI 1: 389. 1874; FTC 3(1): 164. 1983; FEG 1: 172. 2002. *G. obtusa* Wall. ex Dunn, Fl. Madras 1: 83. 1957; FTN 1: 44. 1983.

Straggling shrub. Leaves elliptic to oblong-lanceolate, acuminate, irregularly serrulate at margin. Cymes axillary and terminal 3-flowered, leaf opposed. Sepals 5, oblong lanceolate. Petals 5, white or yellow. Androgynophore woolly, stamens numerous. Ovary spherical. Drupes subglobose or turbinate, obscurely 4-lobed, wrinkled. Seeds 4.

Occasional common in dry open localities and along riversides. **Fl. & Fr.:** April-Oct. **Sp.Ex.:** LP 1500 (SACONH); CAB 5413, 5414, 5437 (MH); CECF 5419, 5420 (MH); KNS 8157, 8158 (FRC); VN 79030, 79032 (MH); KCJ 81393 (MH).

Grewia flavescens Juss., Ann. Mus. Natl. Hist. Nat. 4: 91. 1804; FPM 1: 85. 1957; FTC 3(1): 170. 1983; FTN 1: 43. 1983; FEG 1: 174. 2002.

Small trees, branchlets rusty tomentose. Leaves oblong-elliptic, unequal, truncate to obtuse, denticulate. Cymes axillary, 1-3-flowered. Sepals 5, oblong. Petals 5, yellow. Stamens many. Ovary linear, ovoid, hirsute. Stigma 4-fid. Drupes globose, 2-4 lobed, densely tomentose. Seeds 4, pitted.

Occasional in dry deciduous forests and scrub jungles. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** KNS 1858 (FRC); CECF 3202 (FRC); VS 18267, 18518, 18519 (FRC); SRN 80508 (MH); PSAT 186504, 186505, 186870, 186964, 187227, 187236 (MH).

Grewia heterotricha Mast. in Hook. f., Fl. Brit. India 1: 385. 1874; FSIHS 1: 63. 1932; FPM 1: 84. 1957; FTN 1: 43. 1983; FEG 1: 176. 2002.

Large shrub. Leaves, elliptic, obovate or elliptic-ovate, crenate-serrate at margins, scabrid. Flowers in axillary or leaf-opposed, umbellate cymes. Sepals linear-oblong, pubescent. Petals white, oblong-lanceolate. Ovary subglobose, pilose. Stigma obscurely 4-5-lobed. Drupe 4-lobed.

Rare in deciduous slopes near stream banks. **Fl. & Fr.:** June-Nov. **Sp.Ex.:** LP 1416 (SACONH); VS 18197 (FRC).

Grewia hirsuta Vahl, Symb. Bot. 1: 34. 1790; FBI 1: 391. 1874; FPM 1: 85. 1957; FTC 3(1): 170. 1983; FTN 1: 44. 1983; FEG 1: 176. 2002. *G. roxburghii* G.Don, Gen. Hist. 1: 548. 1831, excl. syn.

Erect shrub. Leaves simple, alternate, lanceolate to oblong, base oblique. Cymes 2-4-flowered. Flowers, polygamous, in axillary umbellate cymes. Sepals 5, oblong-lanceolate. Petals 5, white, oblong. Torus subterete, glandular. *Male flowers:* Stamens many. *Female flowers:* ovary grooved; calyx persistent; stigma capitate. Drupes globose, hirsute, obscurely 4-lobed. Seeds 4.

Common in moist and dry deciduous forest undergrowth. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** KA & PB 1711 (SACONH); CAB 6176, 6251, 6255 (MH); CECF 6191 (MH); KNS 12089, 12090 (FRC); VS 18264, 18348, 18394 (FRC); VN 78376, 79647 (MH); KCJ 81232 (MH); EV 142054, 142055 (MH); PSAT 186973, 187412, 187413, 187438, 187439, 187485, 187486, 187553, 187554 (MH).

Grewia oppositifolia Buch.-Ham. ex DC., Prodr. 1: 509. 1824; FBI 1: 384. 1874; FTN 1: 44. 1983. *G. emarginata* Wight & Arn., Prodr. Fl. Ind. Orient. 79. 1834; FPM 1: 84. 1957; FTC 3(1): 168. 1983.

Straggling shrub. Leaves ovate-oblong to suborbicular, obtuse at base, crenate-serrate, acute-obtuse, glaucous beneath. Cymes leaf opposed, terminal and axillary. Sepals 5, lanceolate. Petals 5, oblong, white. Stamens many. Capsules subglobose. Drupe 4-lobed.

Rare, in dry places. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** VS 18521, 18706 (FRC); VN 78954, 79765 (MH); KCJ 81191 (MH); PSAT 186860 (MH).

Grewia orbiculata Rottler, Neue Schriften Ges. Naturf. Freunde Berlin 4: 205. 1803; FBI 1: 386. 1874; FTC 3(1): 171. 1983; FTN 1: 44. 1983; FEG 1: 177. 2002.

Tree, branchlets tomentose. Leaves ovate, obovate-orbicular, oblique or obtuse-subcordate at base, margins minutely serrate. Cymes axillary, terminal or leaf opposed. Sepals 5, woolly outside. Petals 5, oblong, yellow. Stamens many. Stigma capitate. Drupe sub-globose, woolly, 2-4-lobed.

Rare in dry deciduous forests. **Fl. & Fr.:** April-July. **Sp.Ex.:** LP 2282 (SACONH); VN 79660, 79764 (MH).

Grewia orientalis L., Sp. Pl. 2: 964. 1753; FBI 1: 384. 1874; FPM 1: 84. 1957; FTN 1: 44. 1983; FEG 1: 178. 2002. *G. columnaris* J.E. Smith in Rees, Cyclop. 17: 5. 1811; FBI 1: 383. 1874.

Shrubs, branchlets tomentose. Leaves ovate or obovate, acuminate, margins crenulated, tomentose above, glabrous beneath. Cymes axillary or leaf opposed. Sepals 5, lanceolate. Petals 5, emarginated or ciliate. Fruit slightly 4-lobed, sub-globose shortly bristly.

Rare in scrub jungles and dry deciduous forests. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18516, 18517 (FRC).

Grewia rhamnifolia Burret, Notizbl. Bot. Gart. Berlin-Dahlem 9: 698. 1926; FPM 1: 83. 1957; FTN 1: 44. 1983; FTC 3(1): 172. 1983; FEG 1: 178. 2002.

Scandent shrubs. Leaves ovate-elliptic, crenate-serrate at margins. Flowers in terminal and axillary cymes. Sepals 5, linear-oblong. Petals 5, ovate-oblong yellow. Torus 5-angled, pubescent. Stamens many. Drupe globose, 4-lobed, yellow, wrinkled, woolly-tomentose. Seeds 3 or 4, muricate.

Common in scrub jungles and dry deciduous forests. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** VS 18246, 18344 (FRC).

Grewia tenax (Forssk.) Fiori, Agric. Colon. 5. Suppl.: 23. 1912; FTC 3(1): 172. 1983; FTN 1: 45. 1983; FEG 1: 183. 2002. *G. abutilifolia* Vent. ex Juss., Ann. Mus. Natl. Hist. Nat. 4: 92. t. 50. f. 1. 1804; FPM 1: 83. 1957; FTC 3(1): 163. 1983.

Shrub. Leaves ovate, rotund, base rounded or obtuse, margin coarsely dentate. Flowers white, axillary or in leaf opposed cymes. Sepals linear-oblong, tomentose. Petals linear-oblong. Stamens numerous. Stigma 4-lobed. Drupes orange yellow.

Occasional in hill slopes of dry deciduous forests. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** VS 18342, 18343, 18515 (FRC).

Grewia tiliifolia Vahl, Symb. Bot. 1: 35. 1790; FBI 1: 386. 1874, "*tiliaefolia*"; FSIHS 1: 63. 1932; FPM 1: 84. 1957; FTC 3(1): 173. 1983; FTN 1: 45. 1983; FEG 1: 184. 2002.

Large trees. Leaves simple, alternate, ovate-cordate, orbicular, base obliquely cordate, margin crenate-serrate, obtuse. Stipules lanceolate, falcate. Flowers in axillary umbels or cymes. Sepals 5, oblanceolate. Petals 5, yellow. Stamens many. Drupe globose, 2-lobed, reddish, hairy.

Common in dry and moist deciduous forests. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** CECF 5906, 5907 (MH); KNS 13405, 13406 (FRC); VS 18265, 18266, 18392, 18396, 18513, 20728 (FRC); VN 78365 (MH); KCJ 81209 (MH); EV 142118, 142119 (MH); PSAT 186735, 186736, 187047, 187048 (MH).

Grewia umbellifera Bedd., Fl. Sylv. S. India Manual: 37. 1870 & For. Man. Bot. 37. 1871; FBI 1: 393. 1874; FPM 1: 84. 1957.

Large scandent woody shrubs, stellate-scabrid, rough. Leaves oblong or elliptic-oblong, glandular-serrulate or dentate. Flowers in axillary and terminal umbels, peduncles longer than the petioles. Petals white, oblong. Drupe yellowish-red, fleshy, patently 4 lobed, glabrous.

Occasional in moist deciduous forest. **Fl. & Fr.:** Jan. -Oct. **Sp.Ex.:** VS 18707 (FRC).

Grewia villosa Willd. Neue Schriften Ges. Naturf. Freunde Berlin 4: 205. 1803; FBI 1: 388. 1874; FPM 1: 85. 1957; FTN 1: 45. 1983; FTC 3(1): 174. 1983; FEG 1: 184. 2002.

Shrub, branchlets villous. Leaves ovate-cordate, orbicular, serrate, acute, thin coriaceous, serrate. Flowers in axillary cymes or leaf opposed. Sepals 5, villous outside. Petals 5, yellow, spatulate. Stamens many. Drupe globose, faintly 4-lobed, yellowish-red villous. Common in scrub jungles. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** LP 3010 (SACONH); KNS 1867 (FRC); VS 18346, 18347 (FRC); PSAT 187131, 187339, 187340, 187397 (MH).

TRIUMFETTA L., Sp. Pl. 1: 444. 1753.

Key to the species

- 1a. Herbs; stigma 2-3-lobed.....2
- 1b. Woody herb; stigma 3-5-lobed.....3
- 2a. Leaves lobed; stamens 5-15; ovary 2-3-loculed.....*T. rhomboidea*
- 2b. Leaves not lobed; stamens 5-10; ovary 4-loculed.....*T. pentandra*
- 3a. Branchlets densely hairy; leaves lanceolate.....*T. pilosa*
- 3b. Branchlets glabrescent; leaves ovate.....*T. annua*

Triumfetta annua L., Mant. Pl. 73. 1767; FBI 1: 396. 1874; FPM 1: 86. 1957; FTN 1: 45. 1983; FTC 3(1): 175. 1983; FEG 1: 185. 2002.

Herbs. Leaves simple, ovate, chartaceous, base rotund, margin serrate. Stipules linear. Flowers in a cluster. Sepals 4. Petals 4. Bracteoles lanceolate. Capsule globose, prickled, glabrous.

Occasional in moist deciduous and evergreen forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KA & PB 1545 (SACONH).

Triumfetta pentandra A. Rich in Guill. & Perr., Fl. Seneg. Tent. 93. t. 19. 1831; FPM 1: 86. 1957; FTN 1: 45. 1983; FTC 3(1): 175. 1983; FEG 1: 185. 2002.

Annual erect herb. Leaves rhomboid, base truncate, margin dentate. Flowers yellow, in leaf opposed cyme. Sepals 4, cucullate, awned. Petals 4, spatulate. Stamens 5-10. Ovary ovoid, pubescent, 4-loculed. Stigma 2-fid. Capsule with hooked spines, tomentose pericarp.

Common in moist localities and open areas. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 3049 (SACONH).

Triumfetta pilosa Roth, Nov. Pl. Sp. 223. 1821; FBI 1: 394. 1874; FSIHS 1: 62. 1932; FPM 1: 86. 1957; FTC 3(1): 176. 1983; FTN 1: 45. 1983; FEG 1: 186. 2002.

Woody herb. Leaves 3-lobed. Flowers yellow, in leaf opposed umbellate cyme. Sepals 5, oblong, beaked, densely stellate pubescent without. Petals 5, oblong, retuse. Stamens 10. Ovary, 4-loculed. Stigma 3-5-lobed. Capsule globose, with hooked spines, 8-seeded. Seeds ovoid.

Common in shady regions of the forests. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KA & PB 1632 (SACONH); SRN 80537 (MH); KCJ 81436 (MH).

Triumfetta rhomboidea Jacq., Enum. Syst. Pl. 22. 1760; FBI 1: 395. 1874; FPM 1: 86. 1957; FTN 1: 45. 1983; FTC 3(1): 176. 1983.

Subshrubs. Lower leaves orbicular, 3-lobed. Upper leaves oblong. Flowers on terminal or leaf-opposed or axillary. Sepals 5, oblong, apiculate. Petals 5, yellow, oblong. Stamens 10. Capsule stellate tomentose with glabrous prickles. Seeds 1 or 2 in each coccus.

Occasional in moist localities and open areas. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** LP 2632, 3102 (SACONH); KA & PB 1558 (SACONH); CECF 6470 (MH); CAB 6481, 6482 (MH); VS 18244, 18391 (FRC); SRR 81018 (MH); KCJ 81286 (MH).

ELAEOCARPACEAE Juss., Essai Propr. Méd. Pl., ed. 2: 87. 1816.

Key to the genera

- 1a. Flowers in racemes; ovules 2 in each locule; fruit a drupe.....*Elaeocarpus*
 1b. Flowers fascicled or in pairs; ovules many in each locule; fruit a berry.....*Muntingia*

ELAEOCARPUS L., Sp. Pl. 1: 515. 1753.

Key to the species

- 1a. Leaves densely brown tomentose on nerves below; flower >1 cm across.....*E. tuberculatus*
 1b. Leaves glabrous or glabrescent below; flower under 1 cm across.....*E. serratus*

Elaeocarpus serratus L., Sp. Pl. 515. 1753, var. *serratus*; FBI 1: 401. 1874; FPM 1: 88. 1957; FTC 3(1): 178. 1983; FTN 1: 46. 1983. *E. oblongus* Gaertn., Fruct. Sem. Pl. 1: 202. t. 43. f. 3. 1788; FBI 1: 403. 1874, non Sm. 1809 & Wight, 1838; FSIHS 1: 65. t. 41. 1932.

Large trees, twigs glabrous, large buttresses. Leaves simple, alternate, obovate, crenate-serrate, glabrous. Raceme axillary, glabrous. Flowers greenish white. Sepals densely glandulose. Petals glabrous. Ovary densely tomentose, 3-celled. Drupe ovoid to oblong, pyrene tubercled. Rare in evergreen forests. **Fl. & Fr.:** July-Feb. **Sp.Ex.:** KCJ 81466 (MH); PSAT 187422, 187423 (MH).

Elaeocarpus tuberculatus Roxb., Hort. Bengal. 2: 594. 1832; FBI 1: 404. 1874; FPM 1: 88. 1957; FTN 1: 46. 1983.

Medium sized buttressed trees. Leaves simple, alternate, clustered at the tip of branchlets. Raceme ferruginous tomentose. Flowers facing downwards. Sepals lanceolate. Petals 5, white, fragrant, fimbriate, fulvous tomentose, thinly tomentose. Drupe ferruginous tomentose. Rare, along banks of streams in evergreen forests. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** VS 18903 (FRC).

MUNTINGIA L. Sp. Pl. 1: 509. 1753.

Muntingia calabura L., Sp. Pl. 1: 509. 1753; FTN 1: 47. 1983; FTC 3(1): 179. 1983; FEG 1: 192. 2002.

Evergreen small trees, bark pale brownish-grey, smooth. Leaves oblong-lanceolate, glandular hairy above, woolly pubescent beneath. Flowers white, in superaxillary, sessile. Berry subglobose, red or yellow.

Often as escape, introduced and cultivated in India. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 1365 (SACONH).

LINACEAE DC. ex Perleb, Vers. Arzeneikr. Pfl. 107. 1818.

HUGONIA L., Sp. Pl. 675. 1753.

Hugonia mystax L., Sp. Pl. 675. 1753 '*myxstrax*'; FBI 1: 413. 1874; FPM 1: 90. 1957; FTC 3(1): 180. 1983; FTN 1: 47. 1983; FEG 1: 193. 2002.

Shrubs rambling or climbing. Branchlets are horizontal with a pair of strong circinate hooks. Leaves are simple, alternate, elliptic-obovate. Flowers yellow. Sepals imbricate, ovate-lanceolate. Petals unequal, twisted. Fruits are globose fleshy drupes. Seeds 2 or 3 compressed.

Common in deciduous forest. **Fl. & Fr.:** Aug.-Oct. **VN:** *Modhirakanni*. **Sp.Ex.:** LP 1366 (SACONH); VS 24002, 18353 (FRC); VS 18755 (FRC); PSAT 187106 (MH); CECF 3203 (FRC).

ERYTHROXYLACEAE Kunth, Nov. Gen. Sp. Pl. 5: 135 ed. 175. 1822.

ERYTHROXYLUM P. Browne, Civ. Nat. Hist. Jamaica, 278. 1756.

Erythroxylum monogynum Roxb., Pl. Coromandel 1: 61. t. 88. 1798 & Fl. Ind. 1: 449. 1832; FBI 1: 414. 1874; FSIHS 1: 68. 1932; FPM 1: 90. 1957; FTC 3(1): 182. 1983; FTN 1: 47. 1983; FEG 1: 194. 2002. *E. indicum* (DC.) Bedd., Fl. Sylv. S. Ind. t. 81. 1871.

Shrub or small tree. Leaves cunneate-obovate, coriaceous. Flowers whitish green in axillary fascicles. Calyx campanulate, glabrous. Petals 5, whitish green, oblong with ligule. Drupes green, turning to red when ripe, ovoid, with persistent calyx. Seed one.

Common in dry and moist deciduous forest. **Fl. & Fr.:** June-Nov. **VN:** *Sempulichan*. **Sp.Ex.:** LP 1367 (SACONH); VS 23982, 18479, 18354 (FRC); KCJ 81111, 6939, 6938, 6940, 6941 (MH); CECF 6973, 6971 (MH); PSAT 186969, 187127, 187515, 187516, 187587, 187588 (MH).

MALPIGHIACEAE Juss., Gen. Pl. 252. 1789.

HIPTAGE J. Gaertn. Fruct. 2: 169. 1790, nom. cons.

Hiptage benghalensis (L.) Kurz, J. Asiat. Soc. Bengal Part 2. Nat. Hist. 43: 136. 1874; FTC 3(1): 183. 1983; FTN 1: 48. 1983; FEG 1: 198. 2002. *H. madablota* Gaertn., Fruct. 2: 169. t. 116. 1790; FBI 1: 418. 1874; FPM 1: 91. 1957.

Liana. Leaves opposite, elliptic. Flowers on terminal and axillary racemes. Bracts lanceolate. Flowers white. Calyx lobes ovate, with a large red gland on one lobe. Petals 5, obovate, obtuse. Stamens 10, free. Samara 3 winged, wings elliptic to obovate. Seeds globose, compressed.

Along banks of river and stream in moist forests. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** KNS 1821, 6970, 6971, 10592, 13440 (FRC); CECF 3238 (FRC); KCJ 7025, 7026, 7027, 81275 (MH); VS 18462, 18585 (FRC); PSAT 186723, 186724, 186796, 186797, 186993, 186994, 187095, 187179 (MH).

ZYGOPHYLLACEAE R. Br., Voy. Terra Austral. 2: 545. 1814.

Key to the genera

- 1a. Stipules spiny.....*Fagonia*
- 1b. Stipules not spiny.....2
- 2a. Petals golden yellow; seeds having two spines.....*Tribulus*
- 2b. Petals bluish purple; spines absent in seeds.....*Guaiaacum*

FAGONIA L., Sp. Pl. 386. 1753.

Fagonia paulayana Wagn. & Vierh. ex Vierh. Oesterr., Bot. Z. 54: 34. 1904. *F. schweinfurthii* (Hadidi) Hadidi ex Ghafoor in Jafri & El-Gadi, Fl. Libya 38: 31. 1977; FEG 1: 200. 2002. *F. cretica* L., Sp. Pl. 386. 1753; FTN 1: 48. 1983. *F. arabica* auct. non L. 1753; FBI 1: 425. 1874; FPM 1: 93. 1957.

Spiny undershrub. Leaves opposite, 1-3 foliolate. Leaflets entire, linear-elliptic, stipular spines patent, shorter than leaves, sometimes much reduced. Flowers pinkish-purple. Sepals persistent, ovate, sparsely glandular outside. Petals obtuse. Capsules softly hairy.

Rare in evergreen forest. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** PSAT 186820, 186821, 187589, 187590 (MH).

GUAIAACUM L., Sp. Pl. 381. 1753.

Guaiaacum officinale L. Sp. Pl. 381. 1753; FTN 1: 49. 1983. *G. bijugum* Stokes, Bot. Mat. Med. 2: 486 1812.

Small tree. Leaves compound. Flowers showy, bluish purple, fading to white. Petals 5. Fruit bright yellow-orange fruit with red flesh and black seeds.

Planted in gardens as ornamental. *Fl.*: Mar.-Oct. *Sp.Ex.*: MN 1699 (FRC).

TRIBULUS L., Sp. Pl. 1: 386. 1753.

Tribulus terrestris L., Sp. Pl. 387. 1753; FBI 1: 423. 1874; FPM 1: 92. 1957; FTC 3(1): 185. 1983; FTN 1: 49. 1983; FEG 1: 201. 2002. *T. lanuginosus* L., Sp. Pl. 387. 1753; FEG 1: 201. 2002.

Herb, prostrate. Leaves paripinnate. Leaflets 4 or 5 pairs. Flowers axillary, solitary. Sepals 5, free. Petals golden yellow, obovate. Disc annular, 10-lobbed. Stamens 5. Ovary lobed, 5-celled. Schizocarp 5-angled; cocci 5, woody, each with pair of unequal spines. Seed 1 per coccus. Occasional in dry gravelly grounds. *Fl. & Fr.*: Throughout the year. *Sp.Ex.*: LP 2884, 3089 (SACONH); VS 18463 (FRC); PSAT 187100 (MH).

OXALIDACEAE R. Br., Narr. Exped. Zaire: 433. 1818.

Key to the genera

- 1a. Diffuse creeping herbs; leaves 3-foliate, equidistant.....*Oxalis*
- 1b. Erect herbs; leaves paripinnate, crowded on the top of the stem.....*Biophytum*

BIOPHYTUM DC., Prodr. 1: 689. 1824.

Key to the species

- 1a. Flowers sessile or nearly so; sepals longer than the capsule.....*B. sensitivum*
- 1b. Flowers pedicelled; sepals equal or shorter than the capsule.....*B. reinwardtii*

Biophytum reinwardtii (Zucc.) Klotzsch in Peters, Naturw. Reise Mossambique 1: 85. 1861, var. *reinwardtii*; FBI 1: 437. 1874, incl. var. *metziana*; FPM 1: 95. 1957; FTN 1: 50. 1983; FEG 1: 202. 2002.

Erect herb. Leaflets 7-12 pairs, terminal pair largest, obovate, curved, others elliptic. Peduncles appressed strigose to glandular hairy. Flowers in terminal, ca. 10-flowered. Sepals ovate-lanceolate. Petals elliptic to oblanceolate. Ovary glabrous. Stigma flattened. Rare in moist soils of the moist deciduous forests. *Fl. & Fr.*: July-Sept. *Sp.Ex.*: LP 2233 (SACONH); CECF 7230, 7231 (MH).

Biophytum sensitivum (L.) DC., Prodr. 1: 690. 1824; FBI 1: 436. 1874; FPM 1: 95. 1957; FTN 1: 50. 1983; FTC 3(1): 189. 1983; FEG 1: 203. 2002. *Oxalis sensitiva* L., Sp. Pl. 434. 1753.

Key to the varieties

- 1a. Leaflets more or less glabrous; seeds prominently ridged, not tubercled.....var. *sensitivum*
- 1b. Leaflets strigosely hirsute; seeds ridged and tubercled.....var. *candolleianum*

var. sensitivum

Erect herb, branchlets glabrous. Leaves crowded on top of stem, terminal pair largest, leaflets 6-15 pairs, oblong, glabrous. Flowers in umbels, yellow. Bracts lanceolate. Sepals ovate-lanceolate. Petals lanceolate, yellow. Stigma flattened. Capsules glandular, pubescent. Common in moist deciduous forests. *Fl. & Fr.*: July-Dec. *Sp.Ex.*: KA & PB 1476 (SACONH); CECF 7229, 7232 (MH); KCJ 81387 (MH).

var. **candolleianum** (Wight) Edgew. & Hook. f. in Hook. f., Fl. Brit. India 1: 437. 1874, "*candolianum*"; FSIHS 1: 77. 1932; FTN 1: 51. 1983; FTC 3(1): 188. 1983; FEG 1: 203. 2002.

B. candolleianum Wight, Illu. 1: 161. t. 62. 1840, "*candolianum*"; FPM 1: 95. 1957.

Herbs, erect. Leaflets 7-19 pairs, terminal pair largest, oblong, apiculate at apex, strigose above. Flowers yellow. Capsules globose, pubescent. Less common; along moist places in evergreen forests.

Occasional in moist places of evergreen forest. **Fl. & Fr.:** Sept.-Nov. **Sp.Ex.:** VS 18464 (FRC); PSAT 187503, 187504 (MH).

OXALIS L., Sp. Pl. 1: 433. 1753.

Key to the species

- 1a. Diffuse herb with stems, bulbs 0; flowers yellowish.....*O. corniculata*
1b. Stemless erect herb, bulbiferous; flowers rose-purple.....*O. latifolia*

Oxalis corniculata L., Sp. Pl. 435. 1753; Roxb., Fl. Ind. 2: 457. 1832; FBI 1: 436. 1874; FSIHS 1: 73. t. 47. 1932; FPM 1: 94. 1957; FTC 3(1): 190. 1983; FTN 1: 51. 1983; FEG 1: 204. 2002.

Creeping herbs, branchlets softly pilose, rooting at nodes. Leaves digitately 3- foliolate. Leaflets obcordate, pilose, base cuneate, apex emarginate, margin entire. Flowers axillary, pseudoumbels, 2-6-flowered, yellow. Sepals 5, ovate to lanceolate. Petals oblanceolate. Capsules oblong. Seeds many.

Cosmopolitan distribution in moist and shady places. **Fl. & Fr.:** Throughout the year. **VN:** *Arakeerai*. **Sp.Ex.:** LP 1546, 1890, 2621 (SACONH); VS 20745, 18807, 18743 (FRC); VN 79662 (MH); CECF 7168 (MH).

Oxalis latifolia Kunth, Nov. Gen. Sp. 5: 237. 1822; FSIHS 1: 75. t. 51. 1932; FTN 1: 51. 1983.

Herb, annual, scapigerous. Leaves 3- foliate. Leaflets subsessile, broadly deltoid with 2 obtuse divergent lobes. Flowers 9-12, pink to violet. Petals oblanceolate. Stamens 5 + 5; outer ones short, opposite to petals; inner ones long, opposite to sepals. Ovary 5-celled, ovules α . Seeds with integument.

Common in moist shady places. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1221 (SACONH).

BALSAMINACEAE A. Rich., Dict. Class. Hist. Nat. 2: 173. 1822.

IMPATIENS L., Sp. Pl. 937. 1753.

Key to the species

- 1a. Leaves broad, serrulate; calyx glabrous; seeds hirsute.....*I. rosea*
1b. Leaves narrow, serrate; calyx hairy; seeds smooth.....*I. balsamina*

Impatiens balsamina L., Sp. Pl. 938. 1753, var. *balsamina*; FBI 1: 453. 1874; FSIHS 1: 91. 1932; FPM 1: 101. 1957; FTC 3(1): 194. 1983; FTN 1: 52. 1983; FEG 1: 206. 2002.

Succulent herb. Leaves linear-lanceolate, alternate. Inflorescence lateral raceme. Flowers solitary or in clusters of 2-3. Sepals small, green, lip cymbiform, lower one petaloid with a spur. Petals pink, spur filiform. Capsule oblong-ellipsoid, tomentose. Seeds ovoid, tubercled.

Occasional, along stream side of moist and semi-evergreen forest. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** CECF 7612, 7613 (MH).

Impatiens rosea Lindl., Edwards's Bot. Reg. 27 (Misc.): 6. 1841. *I. trichocarpa* Hook. f., Hooker's Icon. Pl. ser. 4. 30: t. 2914. 1913; FPM 1: 101. 1957; FTN 1: 56. 1983; V. Bhaskaran, Tax. Mon. *Impatiens* of Western Ghats 218. 2012.

Annual herb, branching, appressed hairy. Leaves alternate, elliptic-lanceolate shaped, serrulate along margins, leathery. Flowers are solitary or binate. Sepals ovate. Lip boat-shaped, velvet-hairy. Spur shorter than lip. Capsules ellipsoid, turgid, woolly. Seeds spherical, papillose.

Rare, among rock crevices of high-altitude grasslands and semi-evergreen forest (as lithophytic). **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** VS 18465 (FRC).

RUTACEAE Juss., Gen. Pl. 296. 1789.

Key to the genera

1a. Plants armed.....	2
1b. Plants unarmed.....	8
2a. Armed straggling shrub.....	<i>Toddalia</i>
2b. Armed trees.....	3
3a. Leaves 1-foliolate.....	<i>Atalantia</i>
3b. Leaves compound.....	4
4a. Leaves unifoliately compound.....	<i>Citrus</i>
4b. Leaves 3-7 foliately compound.....	5
5a. Petiole not winged.....	<i>Aegle</i>
5b. Petiole winged.....	6
6a. Petiole narrowly winged; style eglandular.....	<i>Pleospermum</i>
6b. Petiole broadly winged; style with a ring of glands at apex.....	7
7a. Leaflets entire; berry woody.....	<i>Limonia</i>
7b. Leaflets crenulate; berry not woody.....	<i>Naringi</i>
8a. Trees.....	9
8b. Shrubs.....	10
9a. Leaves compound.....	<i>Chloroxylon</i>
9b. Leaves simple.....	<i>Melicope</i>
10a. Anthers glandular; style persistent.....	<i>Glycosmis</i>
10b. Anthers eglandular; style deciduous.....	11
11a. Leaflets glabrous; alternating stamens longer.....	<i>Murraya</i>
11b. Leaflets pubescent below; stamens all equal.....	<i>Clausena</i>

AEGLE Corrêa, Trans. Linn. Soc. London. 5: 222. 1800.

Aegle marmelos (L.) Corrêa, Trans. Linn. Soc. London 5: 223. 1800; FBI 1: 516. 1875; FPM 1: 115. 1957; FTN 1: 57. 1983; FTC 3(1): 199. 1983; FEG 1: 209. 2002.

Deciduous armed trees, bark grey, branchlets with axillary spines. Leaves 3-foliolate. Leaflets ovate-lanceolate, retuse at apex, cuneate at base. Flowers in axillary panicles. Calyx tube pubescent. Petals 4, oblong-greenish-white. Stamens many. Ovary ovoid-oblong. Berry yellowish, globose, stony, with sticky mucilage around the seeds. Seeds many, oblong. Common in dry deciduous forest and planted near temple premises as sacred. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** PSAT 186689, 186690, 187149 (MH).

ATALANTIA Corrêa, Ann. Mus. Natl. Hist. Nat. 6: 383, 385, 386. 1805.

Key to the species

1a. Inflorescence corymbose; calyx cupular.....	<i>A. monophylla</i>
1b. Inflorescence racemose or fascicled; calyx not cupular.....	2
2a. Fruit ellipsoid; filaments free.....	<i>A. wightii</i>
2b. Fruit globose; filaments united at least in lower half.....	<i>A. racemosa</i>

Atalantia monophylla DC., Prodr. 1: 535. 1824; FBI 1: 511. 1875; FPM 1: 113. 1957; FTN 1: 57. 1983; FTC 3(1): 200. 1983; FEG 1: 210. 2002.

Small trees, branches with straight spines in axillary. Leaves 1-foliolate, ovate-oblong, unequal at base, entire at margins. Flowers in axillary raceme or fascicled. Calyx lobes small, unequal. Petals 4, white, unguiculate. Stamens 8. Stigma capitate. Berries greenish yellow. Seeds 4, ovoid.

Common in dry evergreen forests and scrub jungles. **Fl. & Fr.:** Sept.-May. **VN:** *Kattu-elumichai*. **Sp.Ex.:** LP 2881 (SACONH); CECF 3332 (FRC); KNS 6877 (FRC); VS 18356, 18365 (FRC); VN 79017, 79673 (MH); KCJ 81362 (MH); PSAT 186548, 186549, 186826, 186827, 186875, 187315, 187316, 187368 (MH).

Atalantia racemosa Wight & Arn., Prodr. Fl. Ind. Orient. 1: 91. 1834; FBI 1: 512. 1875; FPM 1: 114. 1957; FTC 3(1): 201. 1983; FTN 1: 58. 1983; FEG 1: 210. 2002.

Armed shrub, spines axillary. Leaves 1-foliolate, elliptic ovate, margin entire. Flowers white, in terminal and axillary racemes. Sepals usually 4, sericeous and ciliate along margins. Petals 4, obtuse, elliptic. Stamens 8. Berry globose, orange coloured.

Occasional in moist deciduous forests. **Fl. & Fr.:** Oct.-June. **Sp.Ex.:** CECF 3334 (FRC); VN 78939 (MH).

Atalantia wightii Yu. Tanaka, Bull. Soc. Bot. France 75: 714. 1928; FPM 1: 114. 1957; FTN 1: 58. 1983. *A. ceylanica* (Arn.) Oliv., J. Linn. Soc. Bot. 5. Suppl. 2: 25. 1861; FBI 1: 512. 1875; FPM 1: 114. 1957.

Armed shrubs, branchlets minutely hispid. Leaves ovate-elliptic, acute, tip rounded or emarginate, prominent below, glabrous, subcoriaceous. Flowers aggregated in raceme. Sepals ovate, acute, ciliate. Petals white, oblong, obtuse. Stamens 8.

Occasional in evergreen forests. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** KCJ 81510 (MH).

CHLOROXYLON DC., Prodr. 1: 625. 1824.

Chloroxylon swietenia DC., Prodr. Syst. Nat. 1: 625. 1824; FBI 1: 569. 1875; FPM 1: 109. 1957; FTN 1: 69. 1983; FTC 3(1): 201. 1983; FEG 1: 211. 2002.

Deciduous unarmed trees, bark fissured. Leaves paripinnate with up to 20 pairs of leaflets. Leaflets oblique, ovate-oblong. Flowers creamy white, in terminal and axillary racemose panicle. Sepals 5, deltoid. Petals 5, spatulate, unguiculate. Stamens 10, unequal. Ovary 3-loculed.

Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Mar.-Oct. **Sp.Ex.:** KCJ 8100, 8101, 81188 (MH); CECF 8272 (FRC); KNS 6878 (FRC); VS 18756 (FRC); PSAT 186595, 186596, 186906, 187104, 187122, 187136, 187245 (MH).

CITRUS L., Sp. Pl. 2: 782. 1753.

Key to the species

- 1a. Fruits oblong; petals outside pinkish or reddish.....*C. limon*
- 1b. Fruits globose or pyriform; petals outside white or purplish.....*C. aurantium*

Citrus X aurantium L., Sp. Pl. 783. 1753; FBI 1: 515. 1875; FPM 1: 115. 1957; FTN 1: 58. 1983; FEG 1: 213. 2002.

Trees, spines axillary, straight. Leaves unifoliolately compound. Leaflets elliptic or obovate. Inflorescences solitary or in axillary racemes. Flowers white, bisexual. Calyx cupulate, 4 or 5-lobed, glandular. Petals 5, white. Stamens 20-28. Fruits oblong, smooth, pitted, glandular. Seeds ovoid.

Planted. **Fl. & Fr.:** Mar.-Oct. **Sp.Ex.:** LP 1368 (SACONH).

Citrus limon (L.) Osbeck Reise Ostindien 250. 1765; FTN 1: 58. 1983; FEG 1: 213. *C. medica* L. var. *limonum* (Rissa) Hook. f., Fl. Brit. India 1: 515. 1875; FPM 1: 115. 1957.

Evergreen small trees, axillary spines. Leaves simple, alternate, elliptic-oblong, gland-dotted beneath. Petioles winged. Flowers axillary, solitary or in 2-3 flowered racemes, white. Petals 5, oblong. Berries globose, bright yellow when ripe. Seeds many, ellipsoid, white. Commonly cultivated for its fruits. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KNS 6876 (FRC); VS 18262 (FRC); PSAT 186597, 186598 (MH).

CLAUSENA Burm. f., Fl. Indica. 87, 243. 1768.

Key to the species

- 1a. Flowers in axillary compound racemes, tetramerous.....2
- 1b. Flowers in terminal corymbs or panicles, pentamerous.....3
- 2a. Flowers yellowish-green.....*C. heptaphylla*
- 2b. Flowers white.....*C. anisata*
- 3a. Ovary with conspicuous glands.....*C. indica*
- 3b. Ovary with obscure glands.....*C. dentata*

Clausena anisata (Willd.) Hook. f., Niger. Fl. 256. 1849; FEG 1: 215. 2002. *C. willdonii* Wight & Arn., Prodr. Fl. Ind. Orient. 96. 1834; FBI 1: 506. 1875; FPM 1: 110. 1957.

Small trees. Leaflets 7-9 pairs, sub-opposite, ovate, acute, membranous, base oblique, serrulate. Panicles axillary. Flowers greenish white. Sepals 4, oblong, obtuse. Petals obovate, concave. Stamens 8. Ovary 4 grooved. Berry globose, glandular. Seeds few.

Rare in evergreen riparian forests. **Fl. & Fr.:** Mar.-June. **Sp.Ex.:** LP 1277 (SACONH); CECF 8269, 8270 (MH).

Clausena dentata (Willd.) M. Roem., Fam. Nat. Syn. Monogr. 40 1840; FTC 3(1): 203. 1983; FTN 1: 59. 1983. *C. willdenovii* Wight & Arn., Prodr. Fl. Ind. Orient. 96. 1834; FBI 1: 506. 1875; FPM 1: 110. 1957.

Shrub. Leaves odd-pinnate. Leaflets 4-6 pairs, opposite, oblong, elliptic-lanceolate. Flowers 4-merous. Calyx lobes 4. Petals 4, white. Stamens 8, free. Ovary stipitate, 4-angled. Berry globose.

Common in foot hills and scrub jungles. **Fl. & Fr.:** April-July. **Sp.Ex.:** LP 1424, 1502 (SACONH).

Clausena heptaphylla Wight & Arn., Prodr. Fl. Ind. Orient. 95. 1834; FBI 1: 504. 1875; FPM 1: 110. 1957; FTN 1: 59. 1983; FEG 1: 216. 2002.

Small trees. Leaves compound, alternate. Leaflets ovate to oblong-lanceolate, asymmetric. Inflorescences in terminal paniculate cymes. Sepals 5, deltate. Petals greenish-yellow, imbricate. Stamens 8. Ovary cylindric. Berries yellowish or red, oblong. Seeds 1 or 2, strongly aromatic.

Occasional in evergreen forest. **Fl. & Fr.:** Mar.-Aug. **Sp.Ex.:** LP 1369 (SACONH).

Clausena indica (Dalzell) Oliv., J. Proc. Linn. Soc., Bot. 5 (Suppl. 2): 36 1861; FBI 1: 505. 1875; FPM 1: 110. 1957; FTN 1: 59. 1983.

Small trees. Leaves alternate. Petiole and rachis slightly zig-zag. Leaflets 7-13, alternate and opposite. Inflorescence terminal, paniculate corymbose cymes. Flowers globose in buds. Sepals deltate. Petals oblong, white. Stamens 10. Stigma capitate. Berries globose yellowish when ripe.

Occasional in evergreen forest. **Fl. & Fr.:** Feb.-June. **Sp.Ex.:** KA & PB 1701 (SACONH).

MURRAYA J. Koenig ex L., Mant. Pl. 2: 554, 563. 1771.

Key to the species

- 1a. Leaves with 15 - 27 leaflets; ripen fruits purplish to black.....*M. koenigii*
 1b. Leaves with 7 leaflets; reddish when ripe.....*M. paniculata*

Murraya koenigii (L.) Spreng. in L., Syst. Veg. ed. 16 (2): 315. 1826; FBI 1: 503. 1875; FPM 1: 111. 1957; FTN 1: 61. 1983; FTC 3(1): 209. 1983; FEG 1: 220. 2002.

Large shrub. Leaves pinnate, scented. Leaflets 10-25, elliptic-lanceolate, acuminate at apex, cuneate at base, unequal. Flowers in terminal corymbose cymes. Calyx pubescent, lobes 5, triangular. Petals 5, linear-oblong. Stamens 10. Berries subglobose, black when ripe.

Commonly planted villages and escaped, naturalized. **Fl. & Fr.:** Throughout the year. **VN:** *Kariveppilai*. **Sp.Ex.:** LP 2942 (SACONH); VS 18469 (FRC).

Murraya paniculata (L.) Jack, Malayan Misc. 1: 31. 1820; FTC 3(1): 210. 1983; FTN 1: 61. 1983; FEG 1: 221. 2002. *M. exotica* L., Mant. Pl. 563. 1771, '*Murraea*'; FBI 1: 502. 1875; FSIHS 1: 102. 1932; FPM 1: 111. 1957.

Shrubs. Leaves odd-pinnately 5-7 foliolate, obtusely acuminate, crenulate, terminal the largest. Flowers 3-7 together in axillary cymes. Sepals 5, ovate, acute. Petals white, oblanceolate, clawed, imbricate. Stamens 10. Ovary 2-celled, oblong, glabrous. Stigma capitate. Berry, oblong, reddish.

Common in moist deciduous forest along riverside. **Fl. & Fr.:** May-Oct. **VN:** *Kattu-kariveppilai*. **Sp.Ex.:** LP 2265, 1515 (SACONH); VS 18260, 18261, 18467, 18858 (FRC); VN 78941 (MH); PSAT 186731, 186732, 186830, 186831 (MH).

NARINGI Adens., Fam. Pl. 2: 341. 1789.

Naringi crenulata (Roxb.) Nicolson in C.J. Saldanha & Nicolson, Fl. Hassan Dist. 387. 1976; FTN 1: 61. 1983; FTC 3(1): 211. 1983; FEG 1: 222. 2002. *Limonia crenulata* Roxb., Pl. Coromandel 1(4): 60, t. 86. 1798; FPM 1: 112. 1957.

Armed small tree, spines solitary or in pairs, bark pale brown. Leaves 5-7 foliolate. Leaflets obovate. Petiole and rachis winged. Flowers white, in axillary subumbellate racemes. Sepals 4, free. Petals 4. Stamens 8. Ovary glandular, 4-locular. Berries globose, black when ripe. Seeds 1-3, ovoid.

Common in deciduous forests. **Fl. & Fr.:** May-Aug. **VN:** *Mukkanivel*, *Thirimugavel*, *Magavilvam*. **Sp.Ex.:** LP 2852 (SACONH); CECF 8379, 8380 (MH); VN 79022 (MH); EV 142044, 142045 (MH); PSAT 186946 (MH).

PLEIOSPERMIUM Swingle, J. Wash. Acad. Sci. 6: 428, 1916.

Pleiospermium alatum Swingle, J. Wash. Acad. Sci. 6: 428. 1916; FTC 3(1): 212. 1983; FTN 1: 62. 1983. *Limonia alata* Wall. ex Wight & Arn., Prodr. Fl. Ind. Orient. 92. 1834; FBI 1: 508. 1875; FPM 1: 112. 1957. *Naringi alata* (Wall. ex Wight & Arn.) J.L. Ellis, Bull. Bot. Surv. Ind. 22: 193. 1980; FEG 1: 221. 2002.

Armed small tree, spine single or paired, axillary. Leaves 3-foliate. Leaflets elliptic-obovate, base acuminate-attenuate, margin entire, apex retuse. Flowers white, in axillary or terminal panicles. Sepals 4 or 5, ovate. Petals ovate-oblong. Stamens 8. Berry spherical, pitted.

Common in dry mixed and moist deciduous forest along river and stream side. **Fl. & Fr.:** Feb.-Aug. **VN:** *Kattu-elumichai*. **Sp.Ex.:** KCJ 81193 (MH); PSAT 187085, 187593, 187594 (MH).

TODDALIA Juss., Gen. Pl. 371. 1789.

Toddalia asiatica (L.) Lam., Tabl. Encycl. 2: 116. 1797; FSIHS 1: 100. t. 78. 1932; FPM 1: 107. 1957, incl. vars.; FTC 3(1): 213. 1983; FTN 1: 62. 1983; FEG 1: 224. 2002.

Armed straggler, prickles scattered, recurved. Leaves 3-foliolate. Leaflets elliptic-ovate, obtusely acute at apex. Flowers unisexual, in axillary or terminal panicles. Calyx lobes 5, minute. Petals 5, oblong, white. Stamens 5 in male flowers. Ovary oblong. Stigma capitate. Berries globose, orange or reddish when ripe, 4-5 mm across, distinctly lobed. Seeds 3, subreniform. Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Sept.-Feb. **VN:** *Kattu-milagu, Sirusoori*. **Sp.Ex.:** LP 2124 (SACONH); KA & PB 1638 (SACONH); KNS 6879, 6880, 6912, 12091, 12092 (FRC); CAB 8000, 8001 (MH); CECF 8013, 8026 (MH); VS 18249, 18285, 18357, 18466 (FRC); KCJ & JD 81216 (MH); PSAT 186541, 186542, 186900, 186961, 186968, 187159, 187402, 187403 (MH).

BALANITACEAE M. Roem., Fam. Nat. Syn. Monogr. 1: 26. 1846.**BALANITES** Delile, Fl. Egypte, 77. 1813.

Balanites roxburghii Planch., Ann. Sci. Nat. Bot. 2: 258. 1854; FBI 1: 522. 1875; FPM 1: 117. 1957; FTC 3(1): 218. 1983; FEG 1: 230. 2002. *B. aegyptiaca* auct. non (L.) Del. Wall., Cat. 6855. 1832; FTN 1: 63. 1983.

Armed tree, bark whitish, spinuous, straight. Leaves 2-foliolate. Leaflets elliptic-oblongate, margin entire. Cymes axillary. Sepals 5, lanceolate. Petals 5, greenish yellow. Disc thick, 10-grooved. Stamens 10, unequal. Drupe ovoid-oblong, woody. Seed 1, pendulous. Common in foothills, thorn forest and scrub jungles. **Fl. & Fr.:** Mar.-June. **VN:** *Nanjunda maram*. **Sp.Ex.:** LP 1371 (SACONH); KA & PB 1621 (SACONH); KNS 1717, 6874, 6875 (FRC); VS 18359, 18360, 18472, 19375 (FRC); PSAT 186477, 186478, 187072 (MH); CECF 8647, 8648 (MH); KCJ 81265 (MH).

SIMAROUBACEAE DC., Nouv. Bull. Sci. Soc. Philom. Paris 2: 209. 1811.**Key to the genera**

- 1a. Leaves margin coarsely toothed; fruit samara.....*Ailanthus*
1b. Leaves margin entire; fruit drupe.....*Simarouba*

AILANTHUS Desf., Hist. Acad. Roy. Sci. Math. Phys. 265. t. 8. 1786 (1789).

Ailanthus excelsa Roxb., Pl. Coromandel 24. t. 23. 1795; FBI 1: 518. 1875; FPM 1: 116. 1957; FTN 1: 63. 1983; FTC 3(1): 217. 1983; FEG 1: 229. 2002.

Large tree. Leaves imparipinnate, crowded at the ends of branchlets. Leaflets 7-12 pairs, oblong-lanceolate, coarsely toothed at margins. Flowers in axillary or terminal panicles, polygamous. Calyx-tube short, lobes 5. Petals 5, ovate, pale yellow. *Male flowers:* Disc 10-lobed; stamens 10. *Female flowers:* ovary 5-partite, free. Samara spindle shaped. Seed 1. Common in foothills also planted in along the roadsides. **Fl. & Fr.:** Jan.-Aug. **VN:** *Peemaram & Theekutchi maram*. **Sp.Ex.:** PSAT 187321, 187322 (MH).

SIMAROUBA Aubl., Hist. Pl. Guiane 860. 1775.

Simarouba amara Aubl., Hist. Pl. Guiane 860. 1775. *S. glauca* DC., Ann. Mus. Hist. Nat. 17: 424. 1811.

Medium sized deciduous tree. Leaves imparipinnate. Leaflets ovate-oblong, leathery, margin entire. Flowers small, inconspicuous, in terminal panicle, yellowish. Fruits ellipsoid drupe, dark purple when ripen.

Common planted along the roadsides. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 1372 (SACONH).

OCHNACEAE DC., Nouv. Bull. Sci. Soc. Philom. Paris 2: 208. 1811.

OCHNA L., Sp. Pl. 1: 513. 1753.

Ochna lanceolata Spreng., Syst. Veg. 2: 597. 1825; FTC 3(1): 220. 1983; FTN 1: 64. 1983; FEG 1: 232. 2002. *O. wightiana* Wall. ex Wight & Arn., Prodr. Fl. Ind. Orient. 152. 1834; FBI 1: 524. 1875; FPM 1: 119. 1957.

Shrubs. Leaves elliptic to ovate, obtuse at base, serrate along margins, thin, coriaceous. Flowers in axillary, 2-3-flowered cymes, rarely solitary. Sepals 5, ovate-oblong. Petals 5, deciduous, yellow, ovate-oblong. Stamens numerous. Drupes ovoid, 1-3-lobed, reddish orange when ripe.

Rare in dry deciduous forests. **Fl. & Fr.:** Mar.-Aug. **Sp.Ex.:** PSAT 186530, 186531 (MH).

BURSERACEAE Kunth, Ann. Sci. Nat. (Paris) 2: 346. 1824.

Key to the genera

- 1a. Branchlets velvety tomentose; stamens connate into a tube.....*Canarium*
- 1b. Branchlets glabrous; stamens free.....2
- 2a. Fruits trigonous; flowers bisexual.....*Boswellia*
- 2b. Fruits not trigonous; flowers polygamous.....3
- 3a. Leaflets 2-7, entire, apex caudate; flowers 4-merous.....*Commiphora*
- 3b. Leaflets 5-15, crenate, apex acuminate; flowers 5-merous.....*Garuga*

BOSWELLIA Roxb., Asiat. Res. 9: 379. 1807.

Boswellia serrata Roxb. ex Colebr., Asiat. Res. 9: 379. t. 5. 1807; FBI 1: 528. 1875; FPM 1: 120. 1957; FTN 1: 65. 1983; FTC 3(1): 223. 1983; FEG 1: 234. 2002. *B. serrata* Roxb. ex Colebr. var. *glabra* (Roxb.) Hook. f., Fl. Brit. India 1: 528. 1875; FPM 1: 120. 1957.

Deciduous trees. Leaves imparipinnate, alternate. Leaflets 15-31, sessile or subsessile, opposite, elliptic-oblong. Flowers in axillary or subterminal fascicled racemes. Petals white, ovate-oblong. Disc annular. Stamens 10, free. Stigma 3-lobed. Fruit a drupe, ovoid, trigonous. Occasional in dry deciduous forest. **Fl. & Fr.:** Feb.-July. **VN:** Kungiliyam & Sambirani. **Sp.Ex.:** VS 18361 (FRC).

CANARIUM L., Amoen. Acad. 4: 121. 1759.

Canarium strictum Roxb., Hort. Bengal. 49 & Fl. Ind. 3: 138. 1832; FBI 1: 534. 1875; FPM 1: 123. 1957; FTN 1: 65. 1983; FTC 3(1): 225. 1983; FEG 1: 235. 2002.

Large trees, buttressed. Leaves imparipinnate. Leaflets 7-11, opposite, ovate-lanceolate. Flowers polygamous, bright yellow, axillary panicles. *Male flowers:* calyx tube campanulate; sepals 3; petals 3. *Bisexual flowers:* sepals 3, valvate; petals 3, white; Stigma capitate. Fruit a drupe.

Rare in evergreen forest. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** VN 79840 (MH).

COMMIPHORA Jacq., Hort. Schoenbr. 2.66.t.249. 1797.

Key to the species

- 1a. Plants armed; leaves 3-foliolate; flowers in fascicles, apex obtuse.....*C. berryi*
- 1b. Plants unarmed; leaves imparipinnate; flowers in long panicles, apex caudate.....*C. caudata*

Commiphora berryi (Arn.) Engl. in A. & C. DC., Monogr. Phan. 4: 17. 1883; FPM 1: 122. 1957; FTN 1: 65. 1983; FTC 3(1): 226. 1983; FEG 1: 235. 2002.

Trees. Leaves 3-foliate, alternate, clustered. Leaflets opposite, ovate-obovate. Flowers small, polygamous, deep red, pink or cream coloured. Sepals 4. Petals 4, oblanceolate. Stamens 8, free. Stigma 3-4 lobed. Fruit a drupe, oblong.

Common in foot hills and scrub jungles. **Fl. & Fr.:** Mar.-May. **VN:** *Mullu kiluvai*. **Sp.Ex.:** VS 18364, 19392 (FRC).

Commiphora caudata Engler in A. DC. & C. DC., Monogr. Phan. 4: 27. 1883; FPM 1: 122. 1957; FTN 1: 65. 1983; FTC 3(1): 227. 1983; FEG 1: 235. 2002. *Protium caudatum* Wight & Arn., Prodr. Fl. Ind. Orient. 176. 1834; FBI 1: 530. 1875.

Key to the varieties

1a. Leaflets glabrous, terminal one long petioluled.....var. *caudata*

1b. Leaflets pubescent, terminal one subsessile.....var. *pubescens*
var. *caudata*

Unarmed trees. Leaves imparipinnate, alternate. Leaflets 3-7, opposite, terminal large. Flowers polygamous, greenish-yellow, in lax dichotomous axillary panicles. Calyx tube narrowly campanulate, fused with disc, glandular-hairy. Sepals 4, deltoid. Petals 4, broadly linear. Disc copular. Stamens 8, free. Stigma 2-lobed. Fruit a drupe, globose or ellipsoid, red when ripe.

Common in dry deciduous forest, scrub jungles and hill slopes. **Fl. & Fr.:** Mar.-May. **VN:** *Mangiluvai*. **Sp.Ex.:** KNS 2046(FRC); JS 8826 (MH).

var. *pubescens* (Wight & Arn.) K.M. Matthew, Kew Bull. 46: 540. 1991. *C. pubescens* (Wight & Arn.) Engl. Monogr. Phan. 4: 21. 1883; FPM 1: 122. 1957.

Trees. Leaves imparipinnate, alternate. Leaflets 3-9, ovate-obovate. Flowers polygamous, yellowish-red, axillary cymose panicles. Calyx campanulate. Sepals 4, ovate. Petals 4, oblong to oblanceolate. Stamens 8, free. Stigma lobed. Fruit a drupe, ovoid to obovoid.

Occasional in dry deciduous forest and hill slopes. **Fl. & Fr.:** April-Dec. **VN:** *Kiluvam*, *Pachaikiluvai*. **Sp.Ex.:** PSAT 186800, 186801, 186853 (MH).

GARUGA Roxb., Pl. Coromandel 3: 3. t. 208. 1811.

Garuga pinnata Roxb., Pl. Coromandel 3: 5. t. 208. 1811; FBI 1: 528. 1875; FPM 1: 121. 1957; FTC 3(1): 229. 1983; FTN 1: 65. 1983; FEG 1: 237. 2002.

Deciduous trees. Leaves imparipinnate, alternate, crowded at the tips of branchlets. Leaflets 11-21, opposite, oblong-lanceolate. Leaf galls copious. Flowers polygamous, yellow, in axillary panicles. Calyx campanulate, tomentose. Sepals 5, ovate. Petals 5, oblong-lanceolate, tomentose, yellow. Stamens 10. Stigma 5-lobed. Fruit a drupe, greenish-yellow, oblong, horned.

Occasional in dry deciduous and hill slopes. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** PSAT 187233, 186766, 186767 (MH).

MELIACEAE Juss., Gen. Pl. 263. 1789.

Key to the genera

1a. Seeds winged; cells many ovuled.....2

1b. Seeds not winged; cells one or two ovuled.....4

2a. Young shoots glabrous; filaments free.....*Toona*

2b. Young shoots tomentose; filaments united.....3

3a. Staminal tube cylindric; disk absent; ovary 4-celled.....*Chukrasia*

3b. Staminal tube cupshaped or urceolate; disk present; ovary 5-celled.....*Swietenia*

4a. Leaflets entire.....	5
4b. Leaflets toothed.....	8
5a. Peduncle to 25 cm long; staminal tube with bilobed appendages.....	6
5b. Peduncle to 10 cm long; staminal tube without bilobed appendages.....	7
6a. Buds globose; female flowers in spikes.....	<i>Aphanamixis</i>
6b. Buds oblong; female flowers in panicles.....	<i>Heynea</i>
7a. Stamens 5, disc obscure.....	<i>Aglaia</i>
7b. Stamens 10, disc prominent.....	<i>Walsura</i>
8a. Leaves bipinnate.....	<i>Melia</i>
8b. Leaves simple pinnate.....	9
9a. Branchlets tomentose; ovary 5-celled.....	<i>Cipadessa</i>
9b. Branchlets glabrous; ovary 3-celled.....	<i>Azadirachta</i>

AGLAIA Lour., Fl. Cochinch. 1: 98, 173. 1790.

Aglaia elaeagnoidea Benth., Fl. Austral. 1: 383. 1863, var. *elaeanoidea*; FTN 1: 65. 1983. *A. roxburghiana* Miq., Ann. Mus. Ludg.-Bat. 4: 41. 1868; FBI 1: 555. 1875; FPM 1: 128. 1957.

Medium size trees, bark red, branchlets stellate-tomentose. Leaves imparipinnate. Leaflets 5 pairs, opposite, elliptic-obovate, apex acuminate, base crenate. Panicles axillary. Flowers polygamo-dioecious, yellow. Calyx campanulate, scaly. Petals 5, yellow. Berry globose. Rare in semi evergreen forest. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** LP 1583 (SACONH); CECF 78937 (MH).

APHANAMIXIS Blume, Bijdr. Fl. Ned. Ind. 4: 165. 1825.

Aphanamixis polystachya (Wall.) R. Parker, Indian Forester 57: 486 1931; FTN 1: 67. 1983; FTC 3(1): 233. 1983; FEG 1: 237. 2002. *Amoora rohituka* (Roxb.) Wight & Arn., Prodr. Fl. Ind. Orient. 199. 1834; FBI 1: 559. 1875; FPM 1: 130. 1957.

Trees, branchlets sericeous. Leaves odd-pinnate. Leaflets 4 or 5 pairs, opposite, ovate-oblong, thick-coriaceous. Flowers 3 or 5 merous, polygamo-dioecious. Calyx tube cupular, lobes 5. Petals 3, white, orbicular. Stamens 6. Ovary ovoid, 3-celled. Stigma 3-lobed. Capsule globose. Occasional in evergreen forest. **Fl. & Fr.:** Sept.-April. **Sp.Ex.:** KA & PB 1424 (SACONH).

AZADIRACHTA A. Juss., Mem. Mus. Hist. Nat. 19: 220. 1830.

Azadirachta indica A. Juss., Mem. Mus. Natl. Hist. Nat. 19: 221. t. 2. f. 5. 1830; FPM 1: 127. 1957; FTC 3(1): 234. 1983; FTN 1: 67. 1983; FEG 1: 243. 2002. *Melia azadirachta* L., Sp. Pl. 385. 1753; FBI 1: 544. 1875.

Trees. Leaflets 6-7 pairs, obliquely lanceolate, falcate, deeply serrate, glaucous. Flowers in branched axillary panicles. Sepals 5, ovate. Petals 5, obovate-oblong. Stamens 10 in staminal tube. Drupes oblong, green with white latex when immature, yellow when ripe. Seed 1, ellipsoid. Common in dry deciduous forest and planted in along the road sides. **Fl. & Fr.:** May-Sept. **VN:** *Vaepmamaram & Vembu*. **Sp.Ex.:** KNS 732, 6881 (FRC); VS 18753 (FRC); PSAT 186649, 186650 (MH).

CHUKRASIA A. Juss., Bull. Sci. Nat. Géol. 23: 239. 1830.

Chukrasia tabularis A. Juss., Mem. Mus. Natl. Hist. Nat. 19: 251. t. 22. 1830; FBI 1: 568. 1875, "*chikrassia*"; FPM 1: 133. 1957; FTC 3(1): 235. 1983; FTN 1: 67. 1983; FEG 1: 243. 2002.

Deciduous trees. Leaves imparipinnate. Leaflets alternate, oblong-lanceolate, oblique. Panicles terminal pubescent. Sepals 4 or 5. Petals 5, cream coloured, oblong. Staminal tube cylindrical, dark purple, stamens 10. Stigma capitate. Capsules globose. Seeds many, winged. Rare in moist deciduous forest. **Fl. & Fr.:** Jan.-April. **VN:** *Malai vembu*. **Sp.Ex.:** KNS 6882 (FRC); VN 78395 (MH).

CIPADESSA Blume, Bijdr. Fl. Ned. Ind. 162. 1825.

Cipadessa baccifera (Roth) Miq., Ann. Mus. Bot. Lugduno-Batavum 4: 6. 1868; FSIHS 1: 103. 1932; FPM 1: 126. 1957; FTC 3(1): 235. 1983; FTN 1: 67. 1983; FEG 1: 245. 2002.

Shrubs, branchlets tomentose. Leaves 7-13-foliolate, imparipinnate. Leaflets oblong or ovate-lanceolate acute. Panicles axillary. Sepals 5, deltoid. Petals 5, white or cream-coloured, lanceolate. Stamens 10. Ovary globose. Drupes red or orange-yellow, glabrous.

Common in moist deciduous forests. **Fl. & Fr.:** May-July. **VN:** *Pulippan chedi*. **Sp.Ex.:** LP 2620 (SACONH); KA & PB 1608 (SACONH); KNS 1727, 11842, 11843, 13395, 13396 (FRC); CAB 8948, 8949 (MH); VS 18248 (FRC); VN 79715 (MH); KCJ 81229 (MH); SRR 83210 (MH); PSAT 186760, 186761, 186945, 187160, 187389, 187479, 187480 (MH).

HEYNEA Roxb., Bot. Mag. 42: t. 1738. 1815.

Heynea trijuga Roxb., Bot. Mag. 42: t. 1738. 1815, non *Trichilia trijuga* Vell. 1825; FBI 1: 565. 1875; FSIHS 1: 104. t. 80. 1932; FPM 1: 131. 1957. *T. connaroides* (Wight & Arn.) Benth., Acta Bot. Neerl. 11: 13. 1962; FTN 1: 69. 1983; FTC 3(1): 241. 1983; FEG 1: 245. 2002.

Small trees. Leaves alternate, imparipinnate. Leaflets 7-9, opposite, ovate-lanceolate. Flowers in terminal and axillary, corymbose panicles. Flowers many. Calyx gamosepalous, 5-toothed. Petals oblong, greenish white. Stigma 2-toothed. Capsule globose, pinkish red. Seeds 1-3, arillate.

Rare in moist deciduous forests and hill slopes. **Fl. & Fr.:** Feb.-Oct. **Sp.Ex.:** KA & PB 1700 (SACONH); CECF 9288, 9289 (MH); VS 18258 (FRC); KCJ 81488 (MH); PSAT 186768, 186769 (MH).

MELIA L., Sp. Pl. 1: 384. 1753.

Key to the species

- 1a. Petals lilac; staminal tube purple, puberulous.....*M. azedarach*
- 1b. Petals greenish white; staminal tube white, densely scabrid.....*M. dubia*

Melia azedarach L., Sp. Pl. 384. 1753; FBI 1: 544. 1875; FPM 1: 126. 1957; FTC 3(1): 237. 1983; FTN 1: 67. 1983; FEG 1: 247. 2002.

Medium sized tree, bark brownish, grey. Leaflets ovate-obovate or lanceolate, oblique at base, serrate at margin. Flowers in axillary panicles. Calyx-lobes 5, ovate. Petals 5, lilac-coloured, lanceolate-obovate. Stamens 10-12. Ovary ovoid. Stigma capitate. Drupe oblong. Seed ellipsoid.

Rare in foothills and near streams and riverside. **Fl. & Fr.:** Jan.-Mar. **VN:** *Malai vembu*. **Sp.Ex.:** VS 18229 (FRC); PSAT 187163, 187345, 187346 (MH).

Melia dubia Cav., Diss. 7: 364. 1789; FBI 1: 545. 1875; FTN 1: 68. 1983; FTC 3(1): 237. 1983. *M. composita* Willd., Sp. Pl. 2: 559. 1799; FPM 1: 126. 1957; FEG 1: 247. 2002.

Trees. Leaves 3 pinnate. Leaflets 2-5 pairs, opposite, ovate-lanceolate, oblique, obtuse or subacute, serrulate-crenulate, acuminate-caudate, serrate. Panicles axillary. Sepals 5, ovate. Petals 5, obovate, greenish white. Stamens 10. Ovary oblong. Stigma capitate. Drupe ellipsoid.

Common in moist deciduous forests along river and stream sides. **Fl. & Fr.:** Oct.-April. **VN:** *Malai vembu*. **Sp.Ex.:** CECF 3369 (FRC).

SWIETENIA Jacq., Enum. Syst. Pl. 4. 1760.

Swietenia mahagoni (L.) Jacq., Enum Pl. Carib. 20. 1760; FPM 1: 134. 1957; FTC 3(1): 240. 1983; FTN 1: 68. 1983; FEG 1: 251. 2002.

Trees, bark deeply fissured, peeling off into scales, ash-coloured. Leaflets 8-10, oblong-lanceolate, falcate, acuminate at apex, oblique at base, glabrous. Flowers in axillary panicles, green or cream-coloured. Capsules oblong, woody. Seeds winged.

Rare in dry deciduous forest. **Fl. & Fr.:** April-Aug. **VN:** *Mahagoni*. **Sp.Ex.:** PST 2676 (FRC).

TOONA (Endl.) M. Roem., Fam. Nat. Syn. Monogr. 1: 131. 1846.

Toona ciliata M. Roem., Fam. Nat. Syn. Monogr. 1: 139. 1846, var. *ciliata*; FTN 1: 68. 1983; FTC 3(1): 240. 1983; FEG 1: 251. 2002. *Cedrela toona* Roxb. ex Rottler. & Willd., Neue Schriften Ges. Naturf. Freunde Berlin 2: 198. 1803; FBI 1: 568. 1875; FSIHS 1: 105. 1932; FPM 1: 133. 1957.

Tall trees. Leaves imparipinnate, 12-16-foliolate. Leaflets oblong-lanceolate, alternate, oblique. Panicles axillary or terminal. Sepals 5, ovate. Petals 5, dull yellow, oblong. Stamens 5, free. Disc 5-lobed. Ovary globose. Stigma discoid. Capsules septifragal. Seeds many, winged at both ends.

Occasional in rocky areas in moist deciduous forests. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** CECF 8274, 3399 (FRC), 9396 (MH); KCJ 81418 (MH); KNS 8048, 2100, 6883, 6884, 8047 (FRC).

WALSURA Roxb., Fl. Ind., ed. 1832. 2: 386. 1832.

Walsura trifolia (A. Juss.) Harms in Engler & Prantl, Pflanzenf. (ed. 2) 19b: 119, 177. 1940; FTC 3(1): 242. 1983; FTN 1: 69. 1983; FEG 1: 253. 2002. *W. piscidia* Roxb., Fl. Ind. 2: 387. 1832; FBI 1: 564. 1875; FPM 1: 131. 1957.

Small tree, bark brown. Leaves 3-foliolate. Leaflets oblong to elliptic, base acute, margin revolute, apex retuse, glabrous above, appressed rusty pubescent below. Flowers white-yellow in terminal cymes. Calyx lobes 5, ciliate. Petals 5, free. Berry obovoid, brown tomentose.

Common in dry deciduous forest and lower hill slopes. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** LP 1828 (SACONH); KNS 1857 (FRC).

OLACACEAE Juss. ex R. Br., Narr. Exped. Zaire, 452. 1818.

OLAX L., Sp. Pl. 34. 1753.

Olex scandens Roxb., Pl. Coromandel 2: 2. t. 102. 1799 & Fl. Ind. 1: 163. 1820; FBI 1: 575. 1875; FPM 1: 136. 1957; FTN 1: 70. 1983; FTC 3(1): 246. 1983; FEG 1: 254. 2002.

Armed straggler. Leaves alternate, oblong, ovate-lanceolate. Racemes axillary. Calyx-tube cupular, lobes minute, ciliate. Petals 6, cream, connate, linear. Fertile stamens 3 or 4. Staminodes 6. Ovary glabrous. Stigma 3-fid. Drupe globose-oblong, basal half enclosed by calyx. Seed 1.

Along forest edges and near streams of scrub jungles and dry deciduous. **Fl. & Fr.:** Oct.-May. **Sp.Ex.:** CECF 3405 (FRC), 9493, 9494(MH); VN 79651 (MH).

OPILIACEAE Valetton, Crit. Overz. Olacin. 136. 1886.

Key to the genera

- 1a. Twining shrubs, armed; flowers in spikes; petals 4, connate.....*Cansjera*
- 1b. Shrub, unarmed; flowers in raceme; petals 5, free.....*Opllia*

CANSJERA Juss, Gen. Pl. 448. 1789.

Cansjera rheedii J.F. Gmelin, Syst. Nat. ed. 13, 2(1): 280. 1791; FBI 1: 582. 1875; FPM 1: 138. 1957; FTC 3(1): 248. 1983; FTN 1: 70. 1983; FEG 1: 256. 2002.

Climbing shrubs, branchlets glabrous with scattered stout spines. Leaves elliptic-oblong, ovate-lanceolate, alternate. Flowers in axillary spikes, flowers greenish white or yellow. Calyx minute, 4-toothed. Petals 4, united. Stamens free. Stigma capitate. Drupes ellipsoid, red when ripe.

Occasional in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** KCJ 9569, 9570, 9571, 9572 (MH); PSAT 187244, 187371 (MH).

OPILIA Roxb., Pl. Coromandel 2: 31. 1802.

Opilia amentacea Roxb., Pl. Coromandel 2: 31. t. 158. 1802; FBI 1: 583. 1875; FPM 1: 138. 1957; FTC 3(1): 249. 1983; FTN 1: 70. 1983; FEG 1: 259. 2002.

Climbing shrubs. Leaves ovate, apex acute, base obtuse or acute, coriaceous. Flowers in racemes axillary. Flowers in groups of 2 or 3. Sepals 5, minute. Petals oblong, recurved. Stamens opposite to petals, glands 5, fleshy, club shaped, alternating with stamens. Ovary 1-celled, oblong.

Occasional in dry deciduous forest. **Fl. & Fr.:** Feb-July. **Sp.Ex.:** CECF 3434 (FRC); VN 78314, 79677 (MH); VS 18754, 19341, 23973, 23974 (FRC); PSAT 186866, 187180, 187189 (MH).

ICACINACEAE Miers, Ann. Mag. Nat. Hist., ser. 2. 8: 174. 1851.**NOTHAPODYTES** Blume, Mus. Bot. Lugd.-Bat. 1: 248. 1850.

Nothapodytes nimmoniana (J.Graham) Mabb., Bot. Hist. Hortus Malab. 189. 1980; FTN 1: 71. 1983. *Mappia foetida* (Wight) Miers, Ann. Mag. Nat. Hist. Ser. 2. 9: 395. 1852 & Contr. Bot. 1: 64. 1852; FBI 1: 589. 1875; FSIHS 1: t. 81. 1932; FPM 1: 141. 1957.

Small trees. Leaves ovate-oblong, broadly ovate or elliptic. Cymes corymbose. Flowers pale green with an unpleasant smell. Calyx small, 5-toothed. Petals 5, lanceolate. Stamens 5. Disc cupular. Ovary 1-celled. Drupe ellipsoid. Seeds pendulous, pinkish green.

Common in semi-evergreen forest margins. **Fl. & Fr.:** April -July. **Sp.Ex.:** KA & PB 1420, 1676 (SACONH); CECF 9712, 9713 (MH); VN 79732 (MH); KCJ 79732 (MH).

HIPPOCRATEACEAE Juss., Ann. Mus. Natl. Hist. Nat. 18: 486. 1811.**LOESENERIELLA** A.C.Sm., Amer. J. Bot. 28: 438. 1941.**Key to the species**

- 1a. Petals clawed, orbicular or rotund ***L. arnottiana***
 1b. Petals not clawed, triangular-lanceolate..... ***L. obtusifolia***

Loeseneriella arnottiana (Wight) A.C. Sm., J. Arnold Arbor. 26(2): 174. 1945. *Hippocratea arnottiana* Wight, Illu. Ind. Bot. 1: 133. t. 46. 47A. 1839; FBI 1: 624. 1875; FPM 1: 153. 1957.

Stragglers. Leaves elliptic, ovate, acuminate, coarsely coriaceous, stipules small. Panicles of cymes axillary or terminal. Sepals ovate. Petals clawed, obovate. Stamens inserted on disc. Ovary enclosed in the disc, 3-celled. Fruits oblong, 3 winged.

Rare in semi-evergreen forests. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** PSAT 187569, 187570 (MH).

Loeseneriella obtusifolia (Roxb.) A.C. Sm., Amer. J. Bot. 28: 440 1941; FTN 1: 73. 1983; FTC 3(1): 262. 1983. *Hippocratea obtusifolia* Roxb., Fl. Ind. 1: 166. 1820; FBI 1: 623. 1875; FPM 1: 153. 1957; FEG 1: 264. 2002.

Climbing shrubs, branchlets stout looped, sometimes quadrangular. Leaves elliptic to ovate, margin entire or crenate-serrate, greenish when dry. Panicles puberulous. Flowers many, pale green. Sepals ovate, hairy outside. Petals ovate, acute, hairy outside. Seeds with membranous wings.

Rare in deciduous forests. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** PSAT 187240 (MH).

CELASTRACEAE R. Br., Voy. Terra Austral. 2: 554. 1814.

Key to the genera

- 1a. Plants climbing; flowers unisexual.....*Celastrus*
- 1b. Plants erect, not climbing; flowers bisexual.....2
- 2a. Armed erect shrub; leaves alternate.....*Gymnosporia*
- 2b. Unarmed trees; leaves opposite.....3
- 3a. Fruit capsular.....*Euonymus*
- 3b. Fruit drupaceous.....4
- 4a. Leaves petioled, crenate-serrate; cyme dense.....*Cassine*
- 4b. Leaves sessile, entire; cymes lax.....*Pleurostylia*

CASSINE L., Sp. Pl. 268. 1753.

Cassine glauca (Rottb.) Kuntze, Rev. Gen. Pl. 1: 114. 1891; FTN 1: 72. 1983; FTC 3(1): 254. 1983; FEG 1: 261. 2002. *Elaeodendron glaucum* (Vahl) Persoon Syn. 1: 241. 1806; FBI 1: 623. 1875; FPM 1: 152. 1957.

Trees. Leaves opposite, ovate or orbicular-elliptic, serrate-crenate along margins, coriaceous, glabrous, shiny. Flowers in extra-axillary dichotomous cymes, greenish white. Calyx lobes 5. Petals reflexed. Disc cushion-like, sinuate. Stamens 5. Drupes oblong, glabrous, 1-seeded.

Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Mar.-Sept. **Sp.Ex.:** LP 1833, 1528 (SACONH); CECF 10190, 10190 (MH); KNS 2047 (FRC); KCJ 10214, 10215, 81512 (MH); VS 18362 (FRC); VN 19644, 79644, 79793 (MH).

CELASTRUS L., Sp. Pl. 196. 1753.

Celastrus paniculatus Willd., Sp. Pl. 1: 1125. 1798; FBI 1: 617. 1875; FSIHS 1: 114. t. 88. 1932; FPM 1: 150. 1957; FTN 1: 73. 1983; FTC 3(1): 255. 1983; FEG 1: 262. 2002.

Straggler. Leaves alternate, broadly ovate or elliptic. Inflorescence of condensed panicles in terminal or axillary. Flowers polygamous. Sepals 5. Petals white, ovate. Stamens 5, erect. Disc concave. Ovary 3-celled. Stigmas 3, recurved. Capsule loculicidal, 3-celled. Seeds 3, aril reddish. Occasional in deciduous forest along river side. **Fl. & Fr.:** July-Aug. **Sp.Ex.:** VS 18283, 18481, 19377 (FRC); CECF 3466, 3467 (FRC); CECF 72869, 72870, 84995 (MH); VN 79615, 79741 (MH); KCJ 81290 (MH); PSAT 186845 (MH).

EUONYMUS L., Sp. Pl. 197. 1753.

Euonymus dichotomus Heyne ex Roxb., Fl. Ind. 2: 410. 1824; FBI 1: 609. 1875; FPM 1: 146. 1957; FTN 1: 73. 1983. *E. thwaitesii* M.A. Lawson in Hook. f., Fl. Brit. India 1: 608. 1875.

Small trees. Leaves elliptic, ovate, apex obtuse, base cuneate. Cymes dichasial cymes, axillary. Flowers red. Bracts minute, ovate. Sepals connate at base, orbicular. Petals orbicular. Stamens inserted on disc. Ovary 3-5-celled, 2-ovuled each. Capsule obcordate. Seeds 5, red. Rare in evergreen forests. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** KCJ 81509 (MH).

GYMNOSPORIA (Wight & Arn.) Benth. & Hook. f., Gen. Pl. 1: 359, 365, 1862.

Key to the species

- 1a. Spines bearing leaves and flowers; fruits turbinate.....2
- 1b. Spines not bearing leaves and flowers; fruits obovate or obcordate.....3
- 2a. Leaves crenate; inflorescence 2.5 cm long.....*G. wallichiana*
- 2b. Leaves entire; inflorescence 1 cm long.....*G. emarginata*
- 3a. Flowers in cymes only; petals yellowish.....*G. heyneana*
- 3b. Flowers in cymes or in fascicles; petals white.....*G. ovata*

Gymnosporia emarginata (Willd.) Thwaites, Enum. Pl. Zeyl. 409. 1864; FBI 1: 621. 1875; FPM 1: 151. 1957. *Maytenus emarginata* (Willd.) Ding Hou in Steenis, Fl. Males. 1. 6(2): 241. 1962; FTN 1: 74. 1983; FTC 3(1): 258. 1983; FEG 1: 266. 2002. *G. montana* Benth., Fl. Austral. 1: 400. 1863; FBI 1: 621. 1875; FPM 1: 151. 1957.

Armed shrub or small tree. Leaves obovate, oblanceolate or spatulate. Flowers white or pale green, in axillary cymes. Sepals 4-lobed. Petals 4, oblong. Stamens 4. Ovary partially immersed, 3-loculed, 2 ovules per locule. Stigmas 3. Capsule globose. Seeds 2 per cell.

Common in scrub forests, foothills and in open dry localities. **Fl. & Fr.:** Sept.-Nov. **Sp.Ex.:** LP 2941, 2292, 2811 (SACONH).

Gymnosporia heyneana (Roth) M.A. Lawson in Hook. f., Fl. Brit. India 1: 620. 1875; FSIHS 1: 115. 1932; FPM 1: 151. 1957. *Maytenus heyneana* (Roth) D.C.S. Raju & Babu, Bull. Bot. Surv. India 10 (3 & 4): 348. 1968; FTN 1: 74. 1983; FTC 3(1): 259. 1983; FEG 1: 262. 2002.

Armed large shrub or small tree, young branchlets pinkish. Leaves obovate or oblong-lanceolate, obtuse-acute at base, serrate, acute, coriaceous. Cymes in axillary or extra-axillary. Flowers yellow. Calyx lobes 5, ovate. Petals 5, oblong-ovate. Stamens 5. Ovary immersed in disc. Stigma 3-fid. Capsule with 6 seeds, aril fleshy, red.

Occasional in deciduous forests. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** LP 3016, 1682 (SACONH); CECF 10081, 10088 (MH); KCJ 812168 (MH); PSAT 187009, 187010, 187404, 187405 (MH).

Gymnosporia ovata Wall. ex M.A. Lawson in Hook. f., Fl. Brit. India 1: 619. 1875; FSIHS 1: 115. 1. 89. 1932; FPM 1: 151. 1957. *Maytenus ovata* (Wall. ex Wight & Arn.) Loes. in Engl. & Prantl., Nat. Pflanzenfam. 2. 20b: 140. 1942; FTN 1: 74. 1983; FTC 3(1): 260. 1983.

Spinescent small trees. Leaves obtuse or subacute, crenate or crenulate, obtuse. Calyx lobes 5, ovate. Petals 5, pale yellow, oblong. Stamens 5. Capsules obovoid. Seeds 5, arillate, reddish.

Occasional in dry localities. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** LP 1298 (SACONH); KNS 1916, 1917, 13041, 13042 (FRC); VS 18363, 19374 (FRC); PSAT 186578, 186579, 186651, 186651, 86652, 186705, 186706, 187117, 187165, 187176 (MH).

Gymnosporia wallichiana M.A. Lawson in Hook. f., Fl. Brit. India 1: 621. 1875; FPM 1: 151. 1957. *Maytenus wallichiana* (Spreng.) D.C.S. Raju & Babu, Bull. Bot. Surv. India 10: 348. 1968; FTN 1: 74. 1983. *Celastrus wallichianus* Spreng., Syst. veg. 5: Index 150. 1828; FBI 1: 621. 1875; FPM 1: 151. 1957.

Shrub. Branches zig-zagged, thorny, spines rigid, bearing leaves and flowers. Leaves alternate, obovate. Flowers in compact, axillary or on spines, cymose clusters. Sepals 5, 3-angled. Petals 5, oblong. Stamens 5, interpetaloid. Disc rounded and fleshy. Capsule inflated, turbinate, trivalved, yellowish-brown. Seeds partially enclosed in red fleshy aril.

Rare in scrub jungles. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KNS 6868 (FRC).

PLEUROSTYLIA Wight & Arn., Prodr. Fl. Ind. Orient. 157. 1834.

Pleurostylia opposita (Wall. ex Carey) Alston in Trimen, Hand-Book Fl. Ceylon 6 (Suppl.): 48. 1931; FTN 1: 75. 1983; FTC 3(1): 261. 1983; FEG 1: 269. 2002. *P. wightii* Wight & Arn., Prodr. Fl. Ind. Orient. 157. 1834; FBI 1: 617. 1875. FPM 1: 152. 1957.

Trees. Leaves opposite, elliptic-oblongate. Flowers in axillary short panicle cymes. Sepals 5, rounded. Petals 5, ovate, obtuse, pale green. Disc thick, crenulate. Stamens 5, shorter than petals. Ovary immersed in the disc. Drupes ovoid, with persistent calyx. Seed 1, ovoid.

Rare on dry slopes and along river sides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18233 (FRC); VN 78251, 78751 (MH); KCJ & JD 81181 (MH); PSAT 186851 (MH).

RHAMNACEAE Juss., Gen. Pl. 376. 1789.**Key to the genera**

- 1a. Plants unarmed; fruit a samara.....*Ventilago*
- 1b. Plants armed; fruit a drupe.....2
- 2a. Leaves palmi-nerved.....*Ziziphus*
- 2b. Leaves penni-nerved.....3
- 3a. Flowers in panicles; leaves serrate.....*Sageretia*
- 3b. Flowers in fascicles; leaves entire.....*Scutia*

SAGERETIA Brongn., Mém. Fam. Rhamnées. 52. 1826.

Sageretia filiformis G. Don, Gen. Hist. 2: 29. 1832; FTC 3(1): 267. 1983. *S. parviflora* G. Don, Gen. Syst. 2: 29. 1832; FPM 1: 160. 1957; FTN 1: 77. 1983; FEG 1: 269. 2002.

Straggler, branches tomentose when young. Leaves alternate or subopposite, lanceolate or ovate, obtuse, serrulate, shortly acuminate. Panicles axillary and terminal, tomentose. Sepals 5, ovate. Petals 5, greenish yellow. Stamens 5. Stigma capitate. Drupes obovoid. Seeds 2 ovoid.

Common in moist deciduous forest. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** LP 3124 (SACONH); CECF 10721, 10722 (MH); KCJ 81279, 81369, 81369 (MH); PSAT 18748, 187488, 187016, 187017 (MH); KNS 2050 (FRC).

SCUTIA (Comm. ex DC.) Brongn., Mém. Fam. Rhamnées. 55. 1826.

Scutia myrtina (Burm. f.) Kuntze, J. Asiat. Soc. Bengal. 2. Nat. Hist. 44: 168. 1875; FSIHS 1: 121. t. 93. 1932; FPM 1: 160. 1957; FTC 3(1): 268. 1983; FTN 1: 77. 1983; FEG 1: 275. 2002.

Armed straggler, spines recurved. Leaves obovate-suborbicular. Flowers in umbels in axillary, 5-20-flowered. Calyx cupular, lobes 5, ovate. Petals 5, orbicular, pale greenish or greenish yellow. Disk angular. Stamens 5. Drupe globose or obovoid, dark blue when ripe. Seeds 2-4.

Common along the bushes in scrub jungles. **Fl. & Fr.:** Mar.-July. **Sp.Ex.:** LP 1886, 1989, 1511, 2128 (SACONH); KA & PB 1472, 1602 (SACONH); CECF 10707, 10708 (MH); KCJ 81178 (MH); KNS 6924, 13417, 13418, 13419 (FRC); PSAT 187167, 187392, 187393, 187011, 187012, 186635, 186636, 186699, 186700, 186814, 186715, 186716, 187000 (MH); VS 18251, 18269, 18270, 18366, 18378 (FRC); VN 79090, 79099, 79657, (MH); SRR 83198 (MH); EV 142020, 142021 (MH).

VENTILAGO Gaertn., Fruct. Sem. Pl. 1: 223. 1788.**Key to the species**

- 1a. Calyx tube saucer-like, adnate only to the base of the fruit.....2
- 1b. Calyx tube cup-like, adnate to the lower part of the fruit.....3

- 2a. Branches slender, pale; panicles minutely grey pubescent.....*V. maderaspatana*
 2b. Branches stout, dark; panicles golden vilous.....*V. gamblei*
 3a. Leaves ovate to ovate-elliptic, unequally rounded at base; disc villous.....*V. denticulata*
 3b. Leaves oblong-lanceolate, attenuate at base; disc glabrous.....*V. goughii*

Ventilago denticulata Willd., Ges. Naturf. Freunde Berlin Neue Schriften 3: 417. 1801; FTN 1: 77. 1983; FEG 1: 276. 2002. *V. calyculata* Tul., Ann. Sci. Nat. Bot., Ser. 4. 8: 124. 1857; FBI 1: 631. 1875; FPM 1: 156. 1957.

Climbing shrubs. Leaves elliptic-ovate to oblong, base obtuse, rounded, irregularly crenate-serrate or denticulate. Panicles axillary and terminal, flowers pale yellow. Calyx lobes 5, deltoid. Petals spatulate. Disc 5-lobed, pubescent. Samaras greenish-yellow, globose, wing obtuse.

Occasional in moist deciduous forest. **Fl. & Fr.:** Sept.-June. **Sp.Ex.:** VS 18365 (FRC); SRR 83208 (MH).

Ventilago gamblei Suess. in Engler & Prantl, Pflanzenf. ed. 2. 20d: 152. 1953; FTN 1: 77. 1983; FEG 1: 276. 2002.

Climbing shrubs. Leaves alternate, elliptic or oblong-lanceolate, oblique. Panicles axillary and terminal. Bracts caduceous and bracteoles linear. Calyx lobes 5, deltoid. Petals 5, cream-coloured. Stamens 5, enclosed by petals. Fruit samaroid, oblong. Seed globose, blackish grey.

Rare in semi-evergreen forests. **Fl. & Fr.:** Jan.-Feb. **Sp.Ex.:** PSAT 186727 (MH).

Ventilago goughii Gamble, Kew Bull. 134. 1916; & FPM 1: 156. 1957; FTN 1: 77. 1983.

Straggler. Leaves abruptly acute or obtuse at apex, obscurely serrate at margin, oblique at base. Panicles axillary and terminal. Calyx lobes 5, persistent, triangular. Petals 5, greenish, obcordate, cucullate. Stamens 5, opposite to the petals. Capsule samaroid. wings oblong.

Rare along forest border near streams. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VS 18198 (FRC).

Ventilago maderaspatana Roxb., Pl. Coromandel 1(3): 55, t. 76. 1796; FBI 1: 631. 1875; FPM 1: 156. 1957, "*maderaspatana*"; FTN 1: 77. 1983; FTC 3(1): 269. 1983; FEG 1: 277. 2002.

Straggler, branchlets pinkish. Leaves elliptic, ovate or lanceolate, glabrous, shiny. Panicles in axillary or terminal. Calyx tube obconical, lobes 5. Petals 5, yellowish, ovate. Disc 5-angled. Stamens 5. Fruits samaroid, wings oblong, coriaceous, pink.

Common in moist deciduous forests and open grasslands. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** CECF 10388, 10389 (MH), 3503 (FRC); CAB 10358, 10359, 10383; KCJ & JD 81241(MH).

ZIZIPHUS Mill., Gard. Dict. Abr., ed. 4. 1754.

Key to the species

- 1a. Plant a straggler.....2
 1b. Plant a shrub or a tree.....3
 2a. Leaves entire, acute, 5-nerved; petals present.....*Z. oenoplia*
 2b. Leaves serrulate, obtuse, 3-nerved; petals absent.....*Z. rugosa*
 3a. Plant armed; leaves 3-5-nerved.....4
 3b. Plant unarmed; leaves 3-nerved.....*Z. glabrata*
 4a. Drupes >2 cm across.....5
 4b. Drupes >2 cm across.....*Z. jujuba*
 5a. Leaves and fruits tomentose.....*Z. xylopyrus*
 5b. Leaves glabrous, except on nerves beneath, fruits glabrous.....*Z. horrida*

Ziziphus glabrata Heyne ex Roth, Nov. Pl. Sp. 159. 1821; FBI 1: 633. 1875; FTC 3(1): 271. 1983; FTN 1: 77. 1983; FEG 1: 278. 2002. *Z. trinervia* Roxb., Fl. Ind. 1: 606. 1832; FPM 1: 158. 1957.

Small unarmed trees, branchlets tomentose, bark brown. Leaves elliptic or ovate-oblong, asymmetrical, obtuse to subcordate at base, obtuse at apex, crenate along margins. Flowers in axillary clusters. Calyx 5-lobed. Petals greenish yellow. Stamens 5. Drupes globose, smooth, yellow.

Common in dry deciduous forests. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** LP 1328 (SACONH); VS 19327 (FRC); VN 79038 (FRC); PSAT 187076, 187086, 186473, 186474 (MH).

Ziziphus horrida Roth., Nov. Pl. Sp. 159. 1821; FBI 1: 636. 1875; FPM 1: 158. 1957; FTN 1: 77. 1983; FEG 1: 279. 2002.

Small trees, thorns paired, one straight, other recurved. Leaves alternate, broadly elliptic or suborbicular. Calyx lobes deltoid. Petals broadly obovate. Stamens equal to petals. Disc 5-angled, not pitted. Ovary tricarpeal, trilocular. Drupes globose, woody. Seeds-3, black, compressed.

Occasional in dry deciduous forest. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** PSAT 186685, 186686 (MH).

Ziziphus jujuba Mill., Gard. Dict. ed. 8. 1. 1768; FBI 1: 632. 1875; FSIHS 1: 117. t. 90. 1932; FPM 1: 157. 1957; FEG 1: 279. 2002. *Z. mauritiana* Lam., Encycl. 3: 319. 1789, var. *mauritiana*; FTN 1: 78. 1983; FTC 3(1): 271. 1983.

Medium sized armed tree. Leaves orbicular-rotund, obtuse-oblique at base, dentate. Flowers in axillary fascicles. Calyx lobes 5. Petals 5, pale greenish white, spatulate. Stamens equal to petals. Disc 10-grooved. Stamens 5. Drupe globose, red when mature. Seeds 1-2.

Common in foothills, roadsides and deciduous forest. **Fl. & Fr.:** Sept.-Mar. **VN:** *Ilanthai*. **Sp.Ex.:** LP 1427 (SACONH); KA & PB 1617 (SACONH); CECF 10424, 10425 (MH); KCJ & JD 81227 (MH); PSAT 187507, 18758, 186919 (MH).

Ziziphus oenopolia (L.) Mill., Gard. Dict. (ed. 8) no. 3. 1768; FBI 1: 634. 1875; FPM 1: 158. 1957; FTN 1: 78. 1983; FTC 3(1): 272. 1983; FEG 1: 280. 2002.

Armed shrubs, straggling, thorns many, recurved. Leaves ovate-lanceolate, oblique at base, faintly denticulate at margins. Flowers in axillary umbellate clusters. Calyx 5-lobed. Petals 5, cream-coloured. Stamens 5. Drupe obovoid-globose, purplish brown when ripe. Seed solitary, ovoid.

Common in scrub forests and in foothills. **Fl. & Fr.:** Nov.-Jan. **VN:** *Soori pazham*. **Sp.Ex.:** LP 3098, 2588 (SACONH); KA & PB 1619 (SACONH); PSAT 187458, 187459, 186947, 187369, 187434, 187435 (MH); CECF 3515 (FRC), 10531, 10532 (MH); CAB 10506, 10507, 10517 (MH); KNS 12093, 12094, 13394, 18393 (FRC); VS 18586 (FRC); VN 78308 (MH); KCJ 81100 (MH).

Ziziphus rugosa Lam., Encycl. 3(1): 319. 1789; FBI 1: 636. 1875; FSIHS 117. t. 90. 1932; FPM 1: 158. 1957; FTC 3(1): 273. 1983; FTN 1: 78. 1983; FEG 1: 281. 2002.

Large straggler, branchlets rusty tomentose, thorns stout, recurved. Leaves ovate-oblong. Panicles cymose, axillary and terminal, yellow rusty tomentose, with recurved hooks. Calyx lobes 5, ovate. Disk flat. Stamens 5. Drupe obovoid. Seed solitary, ovoid.

Common in deciduous forest. **Fl. & Fr.:** Mar.-June. **VN:** *Gottimara*. **Sp.Ex.:** KA & PB 1615 (SACONH); KCJ 81370 (MH); VS 18268 (FRC); PSAT 186786, 186787, 186711, 186712 (MH).

Ziziphus xylopyrus (Retz.) Willd., Sp. Pl. 1: 1104. 1798; FBI 1: 634. 1875; FPM 1: 158. 1957; FTN 1: 78. 1983; FTC 3(1): 273. 1983; FEG 1: 282. 2002, "*xylopyra*".

Armed straggling tree, spines in pairs one straight, another recurved. Leaves alternate, ovate, oblong-suborbicular, obtuse-oblique at base, serrate. Cymes axillary. Calyx 5-lobed. Petals 5, spatulate, pale yellow. Stamens 5, style clefted. Stigma 3-fid. Drupe globose. Seeds 1-3, oblong.

Common in scrub jungles and in deciduous forests. **Fl. & Fr.:** April-Nov. **VN:** Kottai Illanthai. **Sp.Ex.:** LP 3163, 1829, 1537, 1331 (SACONH); CECF 10561, 10562, 10563, 10570 (MH); CAB 10596 (MH); KNS 1869, 6923, 13407, 13408 (FRC); VS 18587, 18752, 19326 (FRC); KCJ & JD 81180 (MH); VN 79187, 79636 (MH); PSAT 187186, 187120, 187018 (MH).

VITACEAE Juss., Gen. Pl. 267. 1789.

Key to the genera

- 1a. Tendrils on peduncle; leaves simple.....*Ampelocissus*
- 1b. Tendrils on stem; leaves simple or compound.....2
- 2a. Leaves simple; fruit 1-seeded.....*Cissus*
- 2b. Leaves pedately lobed or 3-7-foliolate; fruits 2-4-seeded.....3
- 3a. Leaves glabrous; stigma distinct; seeds furrowed.....*Tetrastigma*
- 3b. Leaves pubescent; stigma obscure; seeds pitted.....*Cayratia*

AMPELOCISSUS Planch., Vigne Amér. Vitic. Eur. 8: 371. 1884.

Key to the species

- 1a. Leaves simple, shallowly 3-5 lobed or deeply partite.....*A. tomentosa*
- 1b. Leaves pedately 3-foliolate, not lobed.....*A. araneosa*

Ampelocissus araneosa (Dalzell) Gamble, Fl. Madras 1: 230. 1918; FSIHS 1: 124. 1932; FPM 1: 165. 1957; FTN 1: 78. 1983; FTC 3(1): 276. 1983; FEG 1: 283. 2002.

Vine with floccose branchlets. Leaves 3-foliolate. Leaflets ovate-oblong. Cymes leaf opposed, woolly, peduncles with tendrils. Calyx 5-lobed, red. Petals 5, oblong. Stamens 5. Disc short. Ovary conical. Berry globose, 1-4 seeded, ellipsoid to obovoid.

Occasional in foothills and scrub jungles. **Fl. & Fr.:** April-July. **Sp.Ex.:** EV 142100, 142101 (MH).

Ampelocissus tomentosa (Heyne ex Roth) Planch. in Vigne Amer. Vitic. Europe. 8: 375. 1884; FPM 1: 165. 1957; FTC 3(1): 277. 1983; FTN 1: 79. 1983; FEG 1: 285. 2002.

Vine with floccose-woolly. Leaves simple, palmately 3-5-lobed, orbicular. Flowers in leaf-opposed, dichotomous umbellate cyme, reddish brown, tendrils branched. Calyx cupular, 4-5-lobed. Petals oblong-ovate. Stamens 5. Berries ovoid, black when ripe. Seeds obovate to oblong, crenate.

Rare in moist deciduous forests. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** VN 79688, 79697 (MH).

CAYRATIA Juss., Dict. Sci. Nat. 10: 103. 1818.

Key to the species

- 1a. Calyx cupular, truncate; anthers oblong.....*C. pedata*
- 1b. Calyx saucer-shaped, pubescent; anthers ellipsoid.....*C. japonica*

Cayratia japonica Gagnep. in Lecomte, Notul. Syst. (Paris) 1: 349. 1911; FPM 1: 169. 1957; FTN 1: 79. 1983.

Vine, branches subterete, pubescent. Leaves 5-foliolate, pedate, glabrous to pubescent, terminal leaflet ovate to elliptic, lateral leaflets slightly oblique at base, serrate at margin. Flower bud ovoid. Calyx saucer-like. Petals oblong. Disc covering ovary. Berries 3-4 seeded. Seeds obovoid.

Occasional in moist deciduous forests and riparian zones. **Fl. & Fr.:** Mar.-June. **Sp.Ex.:** VN 79729 (MH); EV 142102, 141103 (MH).

Cayratia pedata (Lam.) Juss. ex Gagnep. in Lecomte, Notul. Syst. (Paris) 1: 346. 1911 var. *pedata*; FSIHS 1: 125. t. 97. 1932; FPM 1: 169. 1957; FTC 3(1): 279. 1983; FTN 1: 80. 1983; FEG 1: 286. 2002.

Vine, tendrils forked. Leaves pedately 5-7-foliolate, asymmetrical. Flowers in axillary corymbose cymes. Cymes axillary, divaricate. Calyx-tube 4-lobed. Petals 4, green, ovate. Disc 4-lobed. Stamens 4. Ovary 4-celled. Berry subglobose, 2-4-seeded. Occasional in moist localities. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** VS 18404, 18488 (FRC); PSAT 187215 (MH).

CISSUS L., Sp. Pl. 1: 117. 1753.

Key to the species

- 1a. Stem succulent, quadrangular or 4-winged.....*C. quadrangularis*
- 1b. Stem not succulent terete or obscurely angled.....2
- 2a. Erect Shrubs.....3
- 2b. Climbers or vines.....5
- 3a. Seeds with angular facets; plants pubescent.....*C. vitiginia*
- 3b. Seeds smooth except for the ridged raphe; plants glabrous or sparingly pubescent.....4
- 4a. Tendrils absent; leaves 20-30 x 20-25 cm; petioles 15-25 cm long.....*C. woodrowii*
- 4b. Tendrils present or absent; leaves 7-18 x 7-18 cm; petioles 15-25 cm long.....*C. pallida*
- 5a. Leaves glabrous or pubescent along nerves below, acuminate-caudate at apex.....*C. repens*
- 5b. Leaves tomentose, acute to obtuse at apex.....*C. vitiginia*

Cissus pallida Planch. in DC., Monog. Phan. 5. 477. 1887; FPM 1: 167. 1957; FTC 3(1): 281. 1983; FTN 1: 81. 1983. *C. arnottiana* B.V. Shetty & P. Singh, Kew Bull. 44: 473. 1989; FEG 1: 287. 2002.

Shrub, tendrils simple, leaf opposed, stem faintly tetragonous. Leaves cordiform, cordate-subreniform. Flowers in cymose panicles, leaf-opposed. Calyx 4-lobed. Petals 4, greenish, reddish within. Stamens 4. Berry globose, pyriform, violet when ripe. Seeds smooth. Common in dry, open gravelly localities. **Fl. & Fr.:** April-June. **Sp.Ex.:** VN 78394, 79648 (MH). **Cissus quadrangularis** L., Syst. Nat. ed. 12 2: 124. 1767 & Mant. Pl. 39. 1767; FBI 1: 645. 1875; FPM 1: 167. 1957; FTN 1: 81. 1983; FTC 3(1): 282. 1983; FEG 1: 287. 2002.

Ramblers, stem fleshy, branches quadrangular with angles usually winged, succulent, much constricted at nodes. Tendrils simple, leaf opposed. Leaves whorled, broadly ovate to reniform. Flowers in leaf opposed umbellate cymes. Calyx cup-shaped. Petals 4, ovate-oblong, greenish-yellow. Stamens 4. Berries globose, red when ripe. Seed 1, ellipsoid, smooth. Common among bushes. **Fl. & Fr.:** June-Jan. VN: *Pirandai*. **Sp.Ex.:** LP 1571 (SACONH); VS 18367, 18485 (FRC); PSAT 186675, 186676, 187246, 187335, 187336 (MH). **Cissus repens** Lam., Encycl. 1: 31. 1783; FPM 1: 167. 1957; FTC 3(1): 282. 1983; FTN 1: 81. 1983; FEG 1: 290. 2002.

Creepers, stem glaucous, terete, tendrils branched. Leaves ovate-oblong, deeply cordate at base. Flowers in leaf-opposed compound umbellate cymes, glabrous. Flowers many. Calyx obtusely lobed, ciliate. Petals reddish, disk glabrous. Berries globose, glabrous. Seeds smooth. Occasional in moist deciduous forests. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** VS 19407 (FRC). **Cissus vitiginea** L., Sp. Pl. 117. 1753; FPM 1: 167. 1957; FTC 3(1): 229. 1983; FTN 1: 81. 1983; FEG 1: 290. 2002.

Vine, stem fulvous-pubescent. Leaves alternate, broadly cordate or suborbicular, pale green. Inflorescence in umbellate cymes, pale yellow. Calyx cupular, 4-lobed pubescent. Petals 4, oblong-ovate. Disc 4-lobed. Stamens 4. Berries pyriform, purple when ripe. Seed tessellate. Occasional in dry areas of wasteland hedges and in foothills. **Fl. & Fr.:** Aug.- Dec. **Sp.Ex.:** VS 18588 (FRC).

Cissus woodrowii (Cooke) Santapau, Kew. Bull. 3: 276. 1948. *Vitis woodrowii* Stapf ex T. Cooke, Fl. Bombay 1: 248. 1902.

Erect woody shrubs, tendrils absent. Leaves 3-lobed, ovate to rotund, usually, cordate with a broad sinus, crenate at margins with crenatures incurved. Inflorescences compound umbels. Calyx cupular. Petals hooded. Disc 4-lobed. Berries obovoid-globose, 1-seeded.

Rare in hill slopes. **Fl. & Fr.:** May-Sept. **Sp.Ex.:** CECF 3538 (FRC).

TETRASTIGMA Planch., Monogr. Phan. 5: 320, 423. 1887.

Tetrastigma leucostaphylum (Dennst.) Alston, Taxon 26: 539. 1977; FTC 3(1): 285. 1983; FTN 1: 82. 1983; FEG 1: 294. 2002. *T. lanceolarium* Planch. in A. & DC., Monogr. Phan. 5: 423. 1887 p.p., exel. syn. nom. illeg.; FPM 1: 164. 1957; FTC 3(1): 285. 1983; FTN 1: 82. 1983.

Large climber, dioecious. Stems woody, glabrous, tendrils simple. Leaves 3-5-foliolate, oblong-obovate to oblanceolate. Panicles axillary. Calyx 4-lobed. Petals 4, ovate, greenish. Stamens 4. Berry 2-5-lobed, globose, glabrous. Seeds oblong.

Occasional in moist deciduous along the riversides. **Fl. & Fr.:** May-July. **Sp.Ex.:** CECF 10796, 10798 (MH).

SAPINDACEAE Juss., Gen. Pl. 246. 1789.

Key to the genera

- 1a. Herbaceous climbers; leaves biternate; tendrils present.....*Cardiospermum*
- 1b. Shrubs or trees; leaves simple pinnate; tendrils absent.....2
- 2a. Shrubs; leaves simple, shiny.....*Dodonaea*
- 2b. Trees; leaves compound, not shiny.....3
- 3a. Leaves digitate, margins serrate.....*Allophylus*
- 3b. Leaves pinnate, margins entire.....4
- 4a. Leaf rachis broadly winged.....*Filicium*
- 4b. Leaf rachis not winged.....5
- 5a. Petals absent; fruit sparsely muricate.....*Schleichera*
- 5b. Petals present; fruit smooth.....6
- 6a. Drupe united at sides; petals not clawed without scales.....*Sapindus*
- 6b. Drupe united at base but diverging; petals clawed with 1 or 2 scales.....*Lepisanthes*

ALLOPHYLUS L., Sp. Pl. 1: 348. 1753.

Key to the species

- 1a. Thyrses shorter than leaves, simple.....*A. serratus*
- 1b. Thyrses equal or longer than leaves, branched.....*A. cobbe*

Allophylus cobbe (L.) Raeusch., Nomencl. Bot. (ed. 3) 108. 1797; FBI 1: 673. 1875; FTN 1: 83. 1999; FEG 1: 299. 2002. *A. rheedii* Radlk. in Engl. & Prantl, Naturl. Pflanzenfam. 3(5): 313. 1895; FPM 1: 176. 1957.

Erect shrubs, bark brown. Leaves pinnately trifoliolate, alternate. Leaflets obovate, abruptly acuminate. Thyrses axillary, branched, longer than the leaves. Sepals 4, orbicular. Petals 4, white or pale yellow, ciliate, clawed. Stamens 8. Ovary densely hairy. Drupe densely hairy, seed solitary.

Occasional in moist deciduous forest floor. **Fl. & Fr.:** June-Sept. **Sp.Ex.:** KA & PB 1432, 1694 (SACONH); KNS 13415, 13416 (FRC); VS 18403 (FRC); PSAT 187002 (MH).

Allophylus serratus Kurz, J. Asiat. Soc. Bengal, Pt. 2. Nat. Hist. 44(2): 185. 1876; FSIHS 1: 128. t. 99. 1932; FPM 1: 175. 1957; FTC 3(1): 290. 1983; FTN 1: 83. 1983; FEG 1: 299. 2002.

Trees. Leaves alternate, trifoliate. Leaflets varied, elliptic to oblong. Thyrsus unbranched, flowers polygamos, pilose. Sepals 2+2, obovate or orbicular, concave. Petals 4, oblong-obovate or orbicular, concave. Disc unilateral, with 4 unequal glands. *Male flowers*: stamens 8, unequal. *Bisexual flowers*: ovary 2-lobed; stigma 2-fid. Schizocarps subglobose. Seeds erect, arillate. Occasional in deciduous forest floor. **Fl. & Fr.**: Sept.-Jan. **Sp.Ex.**: LP 1469 (SACONH); CECF 11513, 11539, 11540 (MH); VS 18526, 18750, 18801 (FRC); VN 79714 (MH); SRR 81055 (MH); KCJ 81360 (MH).

CARDIOSPERMUM L., Sp. Pl. 1: 366. 1753.

Key to the species

- 1a. Leaves densely tomentose below; fruit obscurely 3-lobed.....*C. corindum*
1b. Leaves sub-glabrous; fruit distinctly 3-lobed.....*C. halicacabum*

Cardiospermum corindum L., Sp. Pl. 526. 1753. *C. canescens* Wall., Pl. Asiat. Rar. 1: 14. t. 14. 1829; FBI 1: 670. 1875; FPM 1: 175. 1957; FTN 1: 83. 1983; FEG 1: 299. 2002. *C. halicacabum* L. var. *luridum* (Blume) Adelb., Blumca 6: 322. 1948; FTC 3(1): 292. 1983.

Tendrillar climber, branchlets pubescent, 5-furrowed, wiry. Leaves biternate. Leaflets lobed, oblong. Racemes axillary. Flowers white, polygamous. Sepals 2 + 2, obovate. Petals 2 + 2, white with yellow base. Stamens 8. Capsule ellipsoid, not winged, tomentose. Seeds 3, globose. Common in hedges of dry deciduous forests and bushes along the road sides. **Fl. & Fr.**: Sept.-Nov. **Sp.Ex.**: CECF 11430, 11431 (MH); VS 18368, 18489 (FRC); VN 79208 (MH); PSAT 187224 (MH).

Cardiospermum halicacabum L., Sp. Pl. 366. 1753; FBI 1: 670. 1875; FPM 1: 175. 1957; FTN 1: 83. 1983; FTC 3(1): 292. 1983; FEG 1: 300. 2002. *C. halicacabum* L. var. *microcarpum* (Kunth) Blume, Rumphia 3: 185. 1847; FTC 3(1): 292. 1983.

Tendrillar climbers. Leaves bipinnate, alternate, 3-7-foliolate. Leaflets pinnatifid, ovate-lanceolate, dentate. Tendril trichotomous, middle one forms the umbels. Flowers 3-7 together, polygamous. Sepals 4, ovate, acute, free. Petals 4, white. Stamens 8. Disk one-sided, lobed. Style 3-fid. Capsule membranous, saccate, obcordate, sharply 3-lobed, winged. Seeds 3, globose, shining. Common in moist deciduous forests and degraded forest areas. **Fl. & Fr.**: July-Sept. **VN**: *Mudakkathan*. **Sp.Ex.**: VS 18276, 18369 (FRC); VN 79002 (MH); KCJ & JD 81157 (MH); PSAT 187147 (MH).

DODONAEA Mill., Gard. Dict. Abr., ed. 4. 1754.

Dodonaea viscosa Jacq., Enum. Syst. Pl. 19. 1760; FBI 1: 697. 1875; FSIHS 1: 128. t. 100. 1932; FPM 1: 181. 1957; FTN 1: 84. 1983; FEG 1: 301. 2002. *D. angustifolia* L. f., Suppl. Pl. 218. 1782; FTC 3(1): 294. 1983.

Shrub. Leaves coriaceous, elliptic-lanceolate. Racemes axillary and terminal, dioecious. Flowers greenish yellow. Sepals 4(5), oblong, ciliate. Petals 0. Disk rudimentary. Stamens 4-10. Ovary globose, 2-4-celled. Stigma 2-or 3-fid. Capsule winged, viscid. Seeds globose, compressed. Common in foothills, scrub jungles and open rocky places. **Fl. & Fr.**: Sept.-Nov. **VN**: *Virali*. **Sp.Ex.**: LP 1572 (SACONH); CECF 3569 (FRC); CECF 11811, 11820 (MH); VS 18275 (FRC); KCJ 81140 (MH); PSAT 186556, 186557, 186832, 186833, 186885, 186966 (MH).

FILICIUM Thwaites Enum. Pl. Zeyl. 408. 1864.

Filicium decipiens (Wight & Arn.) Thwaites, Enum. Pl. Zeyl. 408. 1864; FBI 1: 539. 1875; FPM 1: 178. 1957; FTC 3(1): 295. 1983; FTN 1: 84. 1983; FEG 1: 301. 2002.

Large trees, branchlets angular, scaly, bark ash-coloured. Leaves imparipinnate. Leaflets opposite, 6-12 pairs, elliptic-oblong, rachis winged. Panicle axillary and terminal. Flowers polygamous. Calyx lobes 5, ovate. Petals 5, white. Stamens 5. Drupe obovoid, purple when ripe. Occasional in along the river sides in moist deciduous forest also planted as avenue tree. **Fl. & Fr.:** Aug.-Jan. **Sp.Ex.:** LP 2954 (SACONH); KNS 11838, 11839, 13389, 13390 (FRC); VS 18749, 23977, 23978, 23979 (FRC).

LEPISANTHES Blume, Bijdr. Fl. Ned. Ind. 5: 237. 1825.

Lepisanthes tetraphylla Radlk., Sitzungsber. Math.-Phys. Cl. Koenigl. Bayer. Akad. Wiss. Muenchen 8: 276. 1878; FPM 1: 176. 1957; FTC 3(1): 296. 1983; FTN 1: 85. 1983; FEG 1: 302. 2002.

Medium sized trees. Leaves paripinnate. Leaflets 2-4 pairs, sub-opposite, oblong-elliptic. Paniculate raceme, flowers unisexual, white or pale yellow. Sepals 5. Petals 4, longer than sepals, tomentose. Disc 4-5 lobed. Stamens 8 -18, didynamous. Drupes trigonous, yellow velvety, 1-seeded.

Common in along the slopes and stream areas of moist deciduous forests. **Fl. & Fr.:** Mar.-May, **Sp.Ex.:** LP 1838, 1551 (SACONH); PSAT 187377 (MH).

SAPINDUS L., Sp. Pl. 1: 367. 1753.

Sapindus emarginatus Vahl, Symb. Bot. 3: 54. 1794; FPM 1: 178. 1957; FTC 3(1): 299. 1983; FTN 1: 85. 1983; FEG 1: 303. 2002.

Trees. Leaves paripinnate 3-pairs. Leaflets obovate-oblongate, emarginate. Panicles spreading, tomentose. Panicles, polygamous. Sepals obovate, tomentose. Petals greenish white. *Male flowers:* stamens 8. *Female flowers:* pistillode small. Disk annular, 5-lobed. Drupe ovoid, smooth.

Common in dry deciduous forests. **Fl. & Fr.:** Oct.-May. **VN:** *Soppukaimaram*. **Sp.Ex.:** LP 2587 (SACONH); KR 827 (FRC); KNS 1716 (FRC); CECF 11714, 11715 (MH); VS 18370, 19391 (FRC); VN 79191 (MH); PSAT 186840, 186841, 187248 (MH).

SCHLEICHERA Willd. Sp. Pl. 4: 1096. 1809,

Schleichera oleosa Merr., Interpr. Herb. Amboin. 337. 1917; FTC 3(1): 299. 1983; FTN 1: 85. 1983; FEG 1: 303. 2002. *S. trijuga* Willd., Sp. Pl. 4: 1096. 1805; FBI 1: 681. 1875; FPM 1: 177. 1957.

Large trees, branchlets puberulous, bark smooth, grey. Leaves paripinnate, alternate. Leaflets 3-5 pairs, sessile, oblong. Flowers polygamous, in terminal or axillary panicles, greenish yellow. Sepals 5, ovate. Petals absent. Stamens 8, free. Fruit drupe, globose. Seeds 3, hemispheric, smooth.

Common in wet localities of moist deciduous forests and riparian forest. **Fl. & Fr.:** Jan-April. **Sp.Ex.:** LP 1618, 2219 (SACONH); VS 18490, 18751 (FRC); VN 78370, 78398, 78938 (MH); KCJ 81304 (MH); PSAT 186838, 186839, 187171 (MH).

SABIACEAE Blume, Mus. Bot. 1: 368. 1851.

MELIOSMA Blume, Cat. Buitenzorg 10. 1823.

Key to the species

- 1a. Leaves simple.....*M. simplicifolia*
1b. Leaves imparipinnate.....*M. pinnata*

Meliosma pinnata (Roxb.) Maxim., Bull. Acad. Imp. Sci. Saint-Petersbourg (ser.3) 12: 64. 1867, ssp. **arnottiana** (Wight) Beus., Blumea 19: 499. 1971; FTC 3(1): 300. 1983; FTN 1: 86. 1983, “*barbulata*”; FEG 1: 306. 2002. *M. arnottiana* (Wight) Walp., Rep. 1: 423. 1842; FBI 2: 6. 1876; FSIHS 1: 131. t. 102. 1932; FPM 1: 182. 1957.

Medium sized trees. Leaves odd-pinnate, 10-16-foliolate. Leaflets opposite, elliptic, acuminate, rachis bulged at base. Inflorescence panicles in terminal. Flowers sessile. Sepals 3, basally connate, ovate, hairy. Petals 3+2 orbicular, pale yellow. Ovary densely hairy. Drupe globose.

Occasional in semi-evergreen forests. **Fl. & Fr.:** May-Aug. **Sp.Ex.:** KA & PB 1677 (SACONH); KCJ 81465 (MH).

Meliosma simplicifolia Walp. Rep. 1: 423. 1842, ssp. *simplicifolia*; FBI 2: 5. 1876; FPM 1: 182. 1957; FTN 1: 86. 1983; FEG 1: 306. 2002.

Small trees, branchlets glabrous. Leaves simple alternate, estipulate, oblanceolate, glabrous. Flowers aggregated in large axillary panicles. Sepals 5, free, ovate, ciliate. Petals 3+2, white / yellow, inner petals bifid, imbricate, glabrous. Fruit a drupe, globose, ampulliform, glabrous, purple black.

Rare in moist deciduous, evergreen and semi-evergreen forests. **Fl. & Fr.:** Mar.-Oct. **Sp.Ex.:** VS 18809 (FRC); KNS 6869, 6870 (FRC).

ANACARDIACEAE R. Br., Narr. Exped. Zaire: 431. 1818.

Key to the genera

- 1a. Plants armed; leaves compound.....*Rhus*
- 1b. Plants unarmed; leaves simple.....2
- 2a. Flowers 4-merous; inflorescence raceme.....*Nothopegia*
- 2b. Flowers 5-merous; inflorescence panicle.....3
- 3a. Fertile stamens 1 or 2.....*Mangifera*
- 3b. Fertile stamens 10.....4
- 4a. Flowers unisexual; style 3; drupe on fleshy hypocarp.....*Semecarpus*
- 4b. Flowers bisexual; style 5 or 6; drupe not on fleshy hypocarp.....*Buchanania*

BUCHANANIA Spreng. in Schrad, Journ. 2: 234. 1802.

Key to the species

- 1a. Leaves oblong-lanceolate or elliptic, glabrous below; flowers glabrous.....*B. axillaris*
- 1b. Leaves broadly ovate, tomentose below; flowers villose or pubescent.....*B. cochinchinensis*

Buchanania axillaris (Desr.) T.P. Ramamoorthy in C.J. Saldanha & Nicolson, Fl. Hassan Dist. 374. 1976; FTC 3(1): 306. 1983; FTN 1: 87. 1983; FEG 1: 309. 2002; FPI 1: 77. 2009. *B. angustifolia* Roxb., Pl Coromandel 3: t. 262. 1820; FBI 2: 23. 1876; FPM 1: 184. 1957.

Trees. Leaves linear-oblong, oblong-elliptic, oblong-lanceolate to oblanceolate, obtuse or acute, entire. Panicles axillary and terminal. Sepals 5, deltoid. Petals 5, greenish white, oblong-ovate, reflexed. Stamens 10. Carpels 5 or 6, one fertile. Drupes lenticular. Seed 1, obliquely spherical.

Occasional in moist deciduous forests along the hill slopes. **Fl. & Fr.:** July-Dec. **VN:** *Kattumaa*. **Sp.Ex.:** CECF 11982 (MH); KNS 13403 (FRC); PSAT 186770, 186818, 186929, 187157 (MH).

Buchanania cochinchinensis (Lour.) M.R. Almeida, Fl. Maharashtra 1: 287. 1996. *B. lanzan* Spreng. in Schrad., Journ. 2: 234. 1800; FBI 2: 234. 1876; FPM 1: 184. 1957; FTN 1: 87. 1983; FTC 3(1): 306. 1983; FEG 1: 310. 2002; FPI 1: 77. 2009.

Trees. Leaves simple, alternate, broadly oblong. Panicles terminal, tomentose. Flowers bisexual, greenish-white, sessile. Calyx lobes 5, free. Petals 5, oblong. Stamens 5, one fertile. Disc cupular, 5 lobed. Carpels 5-6, free, one fertile. Fruit a drupe, oblong, laterally compressed. Occasional in moist deciduous forests along the rocky hill slopes. **Fl. & Fr.:** Jan.-April. **VN:** *Kulumavu*. **Sp.Ex.:** LP 2995 (SACONH); CECF 3607 (FRC); KNS 1722, 6872, 6873 (FRC); VS 18239, 18748, 19390 (FRC); VN 78373 (MH); KCJ 81266, 81268 (MH); EV 142030, 142031 (MH); PSAT 186737, 186738, 187053 (MH).

MANGIFERA L., Sp. Pl. 200. 1753.

Mangifera indica L., Sp. Pl. 200. 1753; FBI 2: 13. 1876; FPM 1: 185. 1957; FTC 3(1): 308. 1983; FTN 1: 88. 1983; FEG 1: 311. 2002; FPI 1: 80. 2009.

Evergreen trees. Leaves simple, alternate, estipulate, elliptic, linear-oblong. Panicle terminal. Flowers polygamous, yellowish-green, in terminal panicles. Calyx 4-5 partite, ovate. Petals 4-5. Fertile stamens 1 or 2. Stigma simple. Fruit a drupe, yellowish-red when ripe. Seed subreniform.

Common along river side. **Fl. & Fr.:** Mar.-July. **VN:** *Maamaram, Kattumaangaai*. **Sp.Ex.:** KCJ 81118 (MH); VS 18372 (FRC); PSAT 186725, 186726 (MH).

NOTHOPEGIA Blume, Mus. Bot. 1: 203. 1850.

Nothopegia beddomei Gamble, Fl. Madras, 265. 1918 & 1: 189. 1957; FTC 3(1): 309. 1983; FTN 1: 88. 1983; FPI 1: 80. 2009. *N. colebrookiana* (Wight) Blume, Mus. Bot. 1: 203. 1850; FBI 2: 40. 1876.

Trees, branchlets dark, lenticellate. Leaves caudate-acuminate at apex, glabrous. Flowers in axillary racemes, greenish yellow. Filaments villous at base. Drupes depressed-globose, striate, apiculate, purplish brown when ripe.

Rare in along streamlets. **Fl. & Fr.:** Mar.-July. **Sp.Ex.:** KA & PB 1627 (SACONH); PSAT 186745, 186746 (MH).

RHUS L., Sp. Pl. 265. 1753.

Rhus mysorensis G. Don, Gen. Hist. 2: 74. 1832; FBI 2: 9. 1876; FPM 1: 188. 1957; FTC 3(1): 310. 1983; FTN 1: 88. 1983; FPI 1: 82. 2009. *R. sinuata* Thunb. Prodr. Pl. Cap. 52. 1794; FEG 1: 311. 2002.

Spinescent small tree. Leaves 3-foliolate. Leaflets terminal larger, oblanceolate; laterals smaller, lateral ones obovate. Panicles pendulous, terminal and axillary. Flowers polygamous. Calyx lobes 5, hairy. Petals 5, elliptic, yellow to pale green. Stamens 5. Drupe globose, stony.

Common in rocky slopes of dry deciduous forests and foothills. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 1548 (SACONH); KCJ 12147, 12148, 12149, 12150 (MH); KNS 2048 (FRC); VS 18373, 18415 (FRC); VN 79202 (MH); PSAT 186637, 186638, 187382 (MH).

SEMECARPUS L. f., Suppl. Pl. 285. 1782.

Semecarpus anacardium L. f., Suppl. Pl. 182. 1782; FBI 2: 30. 1876; FPM 1: 190. 1957; FTN 1: 89. 1983; FTC 3(1): 310. 1983; FEG 1: 313. 2002; FPI 1: 83. 2009.

Medium sized deciduous tree, bark greyish-brown. Leaves obovate, truncate at base, obtuse-rounded, glaucous, rusty villous beneath. Panicles terminal. Flowers polygamous. Sepals 5, deltoid. Petals 5, ovate, greenish. Disk villose, Stamens 10. Drupe ovoid-obovoid, reddish when ripe.

Rare in dry areas of moist deciduous forests. **Fl. & Fr.:** Sept.-Dec. **VN:** *Kattu mundhiri*. **Sp.Ex.:** LP 1830 (SACONH); CECF 12241, 12242 (MH); VS 18277, 18898 (FRC); VN 78387 (MH).

MORINGACEAE Martinov, Tekhno-Bot. Slovar 404. 1820, *nom. cons.*

MORINGA Adens., Fam. Pl. 2: 318. 1763.

Key to the species

- 1a. Leaves usually bipinnate; petals yellow with red or pink streaks.....*M. concanensis*
1b. Leaves usually tripinnate; petals white.....*M. oleifera*

Moringa concanensis Nimmo ex Dalzell & A. Gibson, Bombay Fl. in Graham, Bombay Fl. 311. 1861; FBI 2: 45. 1876; FPM 1: 192. 1957; FTN 1: 90. 1983; FTC 3(1): 313. 1983; FEG 1: 313. 2002.

Large trees. Leaves 2-pinnate. Leaflets imparipinnate, oblong-broadly obovate. Panicles axillary. Flowers bisexual. Calyx 5. Petals 5, yellowish white with red or pink streaks, oblong-obovate. Fertile stamens 5. Ovary 1-celled. Capsule elongate, 3- valvate. Seeds numerous, winged.

Common in scrub jungles, dry deciduous forest and hill slopes. **Fl. & Fr.:** Oct.-June. **VN:** *Kattu murungai*. **Sp.Ex.:** LP 2130 (SACONH).

Moringa oleifera Lam., Encycl. Meth. Bot. 1: 398. 1785; FPM 1: 192. 1957; FTC 3(1): 314. 1983; FEG 1: 313. 2002. *M. pterygosperma* Gaertn., Fruct. Sem. Pl. 2: 314. t. 147. f. 2. 1791; FBI 2: 45. 1876; FTN 1: 90. 1983.

Trees. Leaves 3-pinnate. Leaflets terminal larger than laterals, oblong-elliptic. Flowers in axillary panicles. Calyx tube hairy, lobes unequal. Petals white, unequal. Stamens 5. Capsules linear, 8-9-ribbed. Seeds triangular, winged.

Commonly planted in kitchen gardens and road sides. **Fl. & Fr.:** Mar.-Sept. **VN:** *Murungai*. **Sp.Ex.:** LP 1549 (SACONH).

FABACEAE Lindl., Intr. Nat. Syst. Bot., ed. 2. 148. 1836, *nom. cons.*

Key to the genera

- 1a. Trees or lianas.....2
1b. Herbs, shrubs or herbaceous climbers.....12
2a. Pods orbicular, 1-seeded.....*Pterocarpus*
2b. Pods oblong or linear many seeded.....3
3a. Leaves trifoliate.....4
3b. Leaves many foliate.....5
4a. Keel petals much shorter than the standard.....*Erythrina*
4b. Keel petals longer than or equal to the standard.....6
5a. Corolla scarlet-orange; pods oblong, 2-seeded.....*Butea*
5b. Corolla pale pink; pods linear, many-seeded.....*Ougeinia*
6a. Pod winged.....*Derris*
6b. Pods not winged.....7
7a. Leaflets alternate.....*Dalbergia*
7b. Leaflets opposite.....8
8a. Leaflets > 20 pairs.....*Sesbania*
8a. Leaflets < 10 pairs.....9
9a. Plants covered with silky-tomentose; bark deeply fissured.....*Mundulea*
9b. Plants not covere with silky-tomentose.....10
10a. Lianas/woody climber.....*Milllettia*

10b. Trees.....	11
11a. Branchlets glabrescent.....	<i>Pongamia</i>
11b. Branchlets glandular-pubescent.....	<i>Gliricidia</i>
12a. Herbaceous climbers.....	13
12b. Erect herbs or shrubs.....	27
13a. Leaflets 3-15 pairs.....	14
13b. Leaflets 3.....	15
14a. Terminal leaflets even; stamens 9.....	<i>Abrus</i>
14b. Terminal leaflet odd; stamens 10.....	<i>Clitoria</i>
15a. Stamen monadelphous.....	16
15b. Stamens diadelphous.....	18
16a. Inflorescence rachis swollen at nodes.....	<i>Canavalia</i>
16b. Inflorescence rachis not swollen at nodes.....	17
17a. Flowers white; pods without hooked horn.....	<i>Neonotonia</i>
17b. Flowers red; pods with hooked horn at apex.....	<i>Teramnus</i>
18a. Pods 1 or 2 seeded.....	19
18b. Pods more than 4 seeded.....	20
19a. Calyx lobes enlarged and membranous, scarious after flowering.....	<i>Paracalyx</i>
19b. Calyx lobes not enlarged after flowering.....	<i>Rhynchosia</i>
20a. Calyx lobes obscure.....	<i>Dumasia</i>
20b. Calyx lobes distinct.....	21
21a. Keel petal twisted; stigma oblique or capitate.....	22
21b. Keel petal not twisted; stigma strait.....	24
22a. Style divided into a thin basal part and thick upper part.....	<i>Vigna</i>
22b. Style uniformly thick or thin or tapering, not divided into two distinct parts.....	23
23a. Corolla yellow.....	<i>Dunbaria</i>
23b. Corolla violetish or pinkish.....	<i>Dolichos</i>
24a. Anthers uniform.....	<i>Shuteria</i>
24b. Anthers dimorphic.....	25
25a. Style terete and glabrous.....	<i>Galactia</i>
25b. Style flattened or coiled and bearded.....	26
26a. Pod covered with bristly hairs.....	<i>Mucuna</i>
26b. Pod not covered with bristly hairs.....	<i>Pycnospora</i>
27a. Stamens free or nearly so, from the base to apex.....	28
27b. Stamens jointed partly or wholly, either monadelphous or diadelphous.....	29
28a. Pods moniliform, thick or pulpy.....	<i>Sophora</i>
28b. Pods flat, membranous, indehiscent.....	<i>Calpurnia</i>
29a. Anthers dimorphic.....	30
29b. Anthers uniform.....	33
30a. Leaves bifoliate.....	<i>Zornia</i>
30b. Leaves 1 or 3 foliate.....	31
31a. Corolla pinkish.....	<i>Codariocalyx</i>
31b. Corolla generally yellow rarely light blue or white.....	32
32a. Pods flat, jointed.....	<i>Stylosanthes</i>
32b. Pod turgid not jointed.....	<i>Crotalaria</i>
33a. Pods breaking into one seeded articles.....	34
33b. Pod not breaking into one seeded articles.....	39
34a. Leaves even-pinnate.....	35
34b. Leaves odd-pinnate.....	36
35a. Branchlets glabrescent; leaflets above 25.....	<i>Aeschynomene</i>
35b. Branchlets hirsute; leaflets below 20.....	<i>Smithia</i>
36a. Pods twisted and encased in the calyx tube.....	<i>Uraria</i>

36b. Pods strait not enclosed in the calyx tube.....	37
37a. Calyx scarious; joints of pods turgid.....	<i>Alysicarpus</i>
37b. Calyx herbaceous; joint of pods not turgid.....	38
38a. Stamens diadelphous.....	<i>Desmodium</i>
38b. Stamens monadelphous.....	<i>Hylodesmum</i>
39a. Pod 1 or 2 seeded.....	40
39b. Pod 3 or more seeded.....	41
40a. Leaflet pinnately 3-foliate, margin entire.....	<i>Flemingia</i>
40b. Leaflet palmately 3-foliate, margin serrulate.....	<i>Trifolium</i>
41a. Pods viscid glandular hairy.....	<i>Pseudarthria</i>
41b. Pods not viscid glandular hairy.....	42
42a. Plants covered with laterally adnate hairs.....	<i>Indigofera</i>
42b. Plants not covered with laterally adnate hairs.....	43
43a. Leaves more than 3-foliate.....	<i>Tephrosia</i>
43b. Leaves 3-foliate.....	44
44a. Flowers axillary solitary or in 3 flowered fascicles.....	<i>Rothia</i>
44b. Flowers in axillary or terminal racemes or panicles.....	<i>Cajanus</i>

ABRUS Adens., Fam. Pl. 2: 327, 522. 1763.

Abrus precatorius L., Syst. Nat. ed. 12. 2: 472. 1767; FBI 2: 175. 1876; FPM 1: 247. 1957; FTN 1: 90. 1983; FTC 3(1): 333. 1983; LOI 74. 1992; FEG 2: 123. 2000.

Straggler. Leaves even pinnate. Leaflets 10-13 pairs, opposite, oblong. Pseudoracemes terminal and or axillary. Calyx-tube narrowly campanulate. Petals 5, clawed, rose to pink. Stamens 9. Pod oblong, pilose, wrinkled. Seeds many, sub-globose, scarlet red with black eyes. Common in dry deciduous and scrub jungles. **Fl. & Fr.:** Throughout the year. **VN:** *Kundumani*. **Sp.Ex.:** VS 18319 (FRC); PSAT 186545, 187376 (MH).

AESCHYNOMENE L., Sp. Pl. 713. 1753.

Key to the species

1a. Flowers > 1.5 cm across; leaflets 15-25 pairs.....	<i>A. indica</i>
1b. Flowers > 1.5 cm across; leaflets 30-35 pairs.....	<i>A. aspera</i>

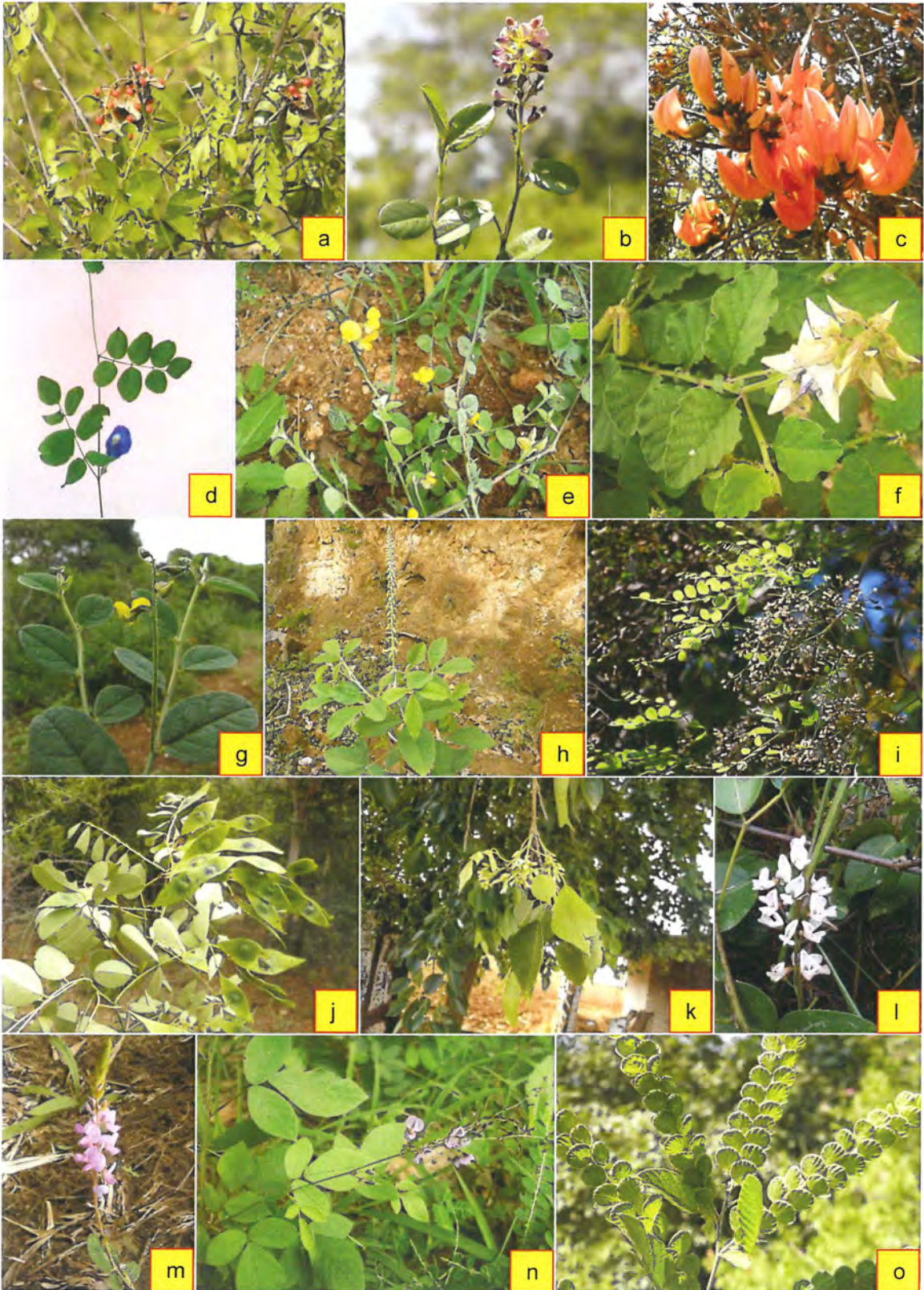
Aeschynomene aspera L., Sp. Pl. 713. 1753; FBI 2: 152. 1876; FPM 1: 234. 1957; FTN 1: 91. 1983; FTC 3(1): 334. 1983; LOI 75. 1992; FEG 2: 125. 2000.

Subshrub. Branchlets glabrescent. Leaflet 30-35 pairs, oblong, margin entire, apex rounded-obtuse, mucronulate. Flowers aggregated in racemes. Calyx-tube hispid. Petals 5, yellow. Pod glabrous, echinate ovate seeds, indented along both margins. Occasional in marshy localities and along banks of ponds. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** EV 142078, 142079 (MH).

Aeschynomene indica L., Sp. Pl. 713. 1753; FBI 2: 151. 1876; FPM 1: 234. 1957; FTN 1: 91. 1983; FTC 3(1): 335. 1983; LOI 75. 1992; FEG 2: 126. 2000.

Herb. Branchlets glabrous. Leaflets 15-25 pairs, oblong, base obtuse, oblique, margin entire, apex obtuse, apiculate. Flowers solitary glabrous. Calyx-tube glabrous. Petals 5, yellow to flame coloured. Pod glabrous smooth, upper margin entire, lower indented. Occasional in moist localities, fallow lands and banks of ponds. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** VN 79240 (MH); KCJ 81320 (MH).

PLATE 7 - FABACEAE



a) *Abrus precatorius*, b) *Alysicarpus monilifer*, c) *Butea monosperma*, d) *Clitoria ternatea*, e) *Crotalaria evolvuloides*, f) *Crotalaria verrucosa*, g) *Crotalaria fysonii*, h) *Crotalaria pallida*, i) *Dalbergia lanceolaria*, j) *Dalbergia paniculata*, k) *Dalbergia sissoo*, l) *Derris scandens*, m) *Desmodium gangeticum*, n) *Desmodium laxiflorum*, o) *Desmodium pulchellum*.

ALYSICARPUS Neck. ex Desv., J. Bot. Agric. 1: 120. 1813.**Key to the species**

- 1a. Calyx shorter or slightly longer than first joint of pod.....2
- 1b. Calyx much longer than first joint of pod.....3
- 2a. Pod not veined, distinctly moniliform.....*A. monilifer*
- 2b. Pod veined, at most slightly moniliform.....*A. vaginalis*
- 3a. Pod transversely ribbed.....4
- 3b. Pod reticulately veined or rugose.....5
- 4a. Stem with a decurrent line of hairs.....*A. rugosus*
- 4b. Stem finely pubescent.....*A. scariosus*
- 5a. Racemes 15-25 cm long; pod minutely pubescent.....*A. longifolius*
- 5b. Racemes 3-10 cm long; pod glabrous.....*A. bupleurifolius* var. *gracilis*

Alysicarpus bupleurifolius (L.) DC., Prodr. 2: 352. 1825, var. *gracilis* (Edgew.) Baker in Hook. f., Fl. Brit. India 2: 158. 1876; FPM 1: 239. 1957; FTN 1: 91. 1983; FEG 2: 128. 2000.

Prostrate herb. Leaves elliptic to oblong, glabrous or shortly puberulous below, base and apex acute, margin entire, apex apiculate. Flowers aggregated in racemes. Calyx tube campanulate, lobes apically ciliate. Petals pink or violetish. Pod stipitate, subterete, glabrous, 4-gonus, apex apiculate. Occasional in moist deciduous near stream sides. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** LP 2934 (SACONH).

Alysicarpus longifolius (Rottler ex Spreng.) Wight & Arn., Prodr. Fl. Ind. Orient. 233. 1834; FBI 2: 159. 1876; FPM 1: 239. 1957; FTN 1: 91. 1983; LOI 79. 1992; FEG 2: 133. 2000.

Erect herb. Stems woody at base. Leaves linear-lanceolate to oblanceolate, subacute at apex, subcordate at base, entire at margins, glabrous above, pubescent beneath. Flowers purplish pink. Pods puberulous, terete, compressed, apiculate, slightly moniliform. Common weed in cultivated areas and near wetlands. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** LP 3116 (SACONH).

Alysicarpus monilifer (L.) DC., Prodr. 2: 353. 1825; FBI 2: 157. 1876; FPM 1: 238. 1957; FTN 1: 91. 1983; FTC 3(1): 336. 1983; FEG 2: 134. 2000.

Prostrate herb. Leaves ovate or oblong, chartaceous, pubescent. Flowers arranged in axillary racemes. Calyx-tube pilose. Petals pink to violet. Pod moniliform, hairs downy and hooked, apex apiculate, articles subglobose, 5-7, turgid.

Common in foothills and scrub jungles. **Fl. & Fr.:** Nov.-May. **Sp.Ex.:** LP 3110 (SACONH); KA & PB 1541 (SACONH); VS 18543 (MH); VN 78993, 79193 (MH).

Alysicarpus rugosus (Willd.) DC., Prodr. 2: 353. 1825; FBI 2: 159. 1876; FPM 1: 239. 1957; FTC 3(1): 338. 1983; FTN 1: 92. 1983.

Decumbent or prostrate herb. Leaves 1-3 foliate, lower leaves elliptic-oblong, upper one linear-oblong, puberulous, base obtuse-subcordate, margin entire, apex obtuse. Flowers in racemes. Calyx lobes 5. Corolla purple-pink. Pod usually in calyx, moniliform, apical mucro stout.

Occasional in moist shady places. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** KA & PB 1562 (SACONH); CECF 3801 (FRC); VN 879193 (MH).

Alysicarpus scariosus Graham in Wall., Numer. List. n. 5766. 1831; FTN 1: 92. 1983; FEG 2: 137. 2000. *A. rugosus* (Willd.) DC. var. *styracifolius* (DC.) FBI 2: 159. 1876; FPM 1: 239. 1957; FTN 1: 92. 1983.

Key to the varieties

- 1a. Leaves linear-oblong; racemes > 2.5 cm long.....var. *pilifer*
- 1b. Leaves elliptic-ovate; racemes ≤ 2 cm long.....var. *scariosus*

var. **scariosus**

A dwarf diffuse herb. Bracts covered with spreading hairs. Stipules papery, yellowish, hairy. Leaves simple, lower small, elliptic to ovate. Racemes in terminal or axillary, pubescent. Flowers pinkish. Calyx lobes 5, imbricate. Pods enclosed in calyx lobes, moniliform, 3-5 jointed. Occasional in open forest. **Fl. & Fr.:** Aug.-Jan. **Sp.Ex.:** CECF 15006 (MH).

var. **pilifer** (Prain) A. Pramanik & Thoth., Bull. Bot. Surv. India 24: 113. 1982. *A. rugosus* var. *pilifer* Prain, J. As. Soc. Bengal. 66: 384. 1898; FPM 1: 239. 1957; FTN 1: 92. 1983; FEG 2: 139. 2000.

Erect herb. Branches with free spreading hairs. Leaves linear-oblong, obtuse, glabrous above, appressly hairy below, base cordate, apex acute, apiculate. Simple or branched racemes, pubescent. Calyx lobes lanceolate, imbricate, minutely ciliate. Pod moniliform with persistent calyx, glabrous.

Rare in moist localities. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** KCJ & JD 81156 (MH).

Alysicarpus vaginalis (L.) DC., Prodr. 2: 353. 1825, var. *vaginalis*; FBI 2: 158. 1876; FPM 1: 239. 1957; FTC 3(1): 339. 1983; FTN 1: 92. 1983; FEG 2: 139. 2000. *A. vaginalis* (L.) DC. var. *nummularifolius* (L.) Miq. Fl. Ind. Bat. 1: 232. 1855; FBI 2: 158. 1876; FPM 1: 238. 1957.

Prostrate herb. Leaves obovate-oblong, pubescent beneath, base obtuse-cordate, apex obtuse. Flowers in racemes. Calyx lobes 5. Petals purple to scarlet. Pod terete, dwany pubescent. Common in moist localities. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2567 (SACONH).

BUTEA Roxb., Asiat. Res. 3: 469. 1792 (nom. inval.).

Butea monosperma (Lam.) Taub. in Engler & Prantl, Nat. Pflanzenfam. 3(3): 366. 1894; FTN 1: 93. 1983; FTC 3(1): 344. 1983; FEG 2: 141. 2000. *B. frondosa* Roxb. ex Willd., Sp. Pl. 3: 917. 1802, non. illeg.; FBI 2: 194. 1876; FPM 1: 252. 1957.

Small deciduous tree. Branchlets densely tomentose. Leaflets coriaceous, glabrous above, sericeous below, base cuneate, margin entire, apex obtuse, retuse. Racemes, flowers clustered at the nodes of rachis. Calyx-tube velvety. Corolla flame coloured.

Common in deciduous forest. **Fl. & Fr.:** Feb.-April. **VN:** *Porasu*. **Sp.Ex.:** LP 2908, 2917 (SACONH); CECF 3857 (FRC); KNS 11891, 11892 (FRC); VN 78281 (MH); KCJ 81262 (MH); SRR 83195 (MH); PSAT 187192, 187375 (MH).

CAJANUS Adans., Fam. Pl. 2: 326, 529. 1763.

Key to the species

- 1a. Leaves elliptic or elliptic-oblong; pod with golden-brown spreading hairs. *C. scarabaeoides*
 - 1b. Leaves obovate; pod grey-canescens.....2
 - 2a. Calyx lobes longer than tube; pod 2-4 seeded..... *C. rugosa*
 - 2b. calyx lobes shorter than tube; pod 5-7 seeded..... *C. albicans*
- Cajanus albicans** (Wight & Arn.) Maesen, Agric. Univ. Wageningen Pap. 85(4): 55. 1986; FEG 2: 143. 2000. *Atylosia albicans* Benth. in Miq., Pl. Jungh. 243. 1852; FBI 2: 215. 1876; FPM 1: 260. 1957; FTC 3(1): 341. 1983; FTN 1: 92. 1983; LOI 99. 1992.

Climbing shrub. Branchlets white-canescens. Leaflet obovate, pubescent above, glaucous and appressed-tomentose below, base oblique, cuneate, margin entire, apex round-obtuse. Raceme lax. Calyx-tube pubescent. Petals golden yellow, glabrous. Pod grey-canescens, with oblique depressions.

Occasional in moist deciduous forest. **Fl. & Fr.:** Sept.-April. **Sp.Ex.:** LP 2928 (SACONH); VS 18238 (FRC); CAB 74050, 74054, 74055 (MH); TRN 78662 (MH); KCJ 81228 (MH); PSAT 186972, 187129, 187416, 187417, 187529, 187530 (MH).

Cajanus rugosus (Wight & Arn.) Maesen, Agric. Univ. Wageningen Pap. 85(4): 179. 1985; FEG 2: 146. 2000. *Atylosia rugosa* Wight & Arn., Prodr. Fl. Ind. Orient. 257. 1834; FBI 2: 215. 1876; FPM 1: 260. 1957; FTC 3(1): 341. 1983; FTN 1: 92. 1983.

Vine. Branchlets tomentose. Leaflets broadly obovate, coriaceous, tomentose, base cuneate or subulate to subacute to obtuse, margin entire, apex rounded-subscute, apiculate. Racemes axillary, 2-5 flowered. Calyx-tube tomentose. Petals yellowish. Pod oblong with oblique depressions.

Occasional in moist deciduous forest. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** VS 18414 (FRC).

Cajanus scarabaeoides (L.) Thouars, F. Cuvier, Dict. Sci. Nat. 6: 167. 1817; FEG 2: 149. 2000. *Atylosia scarabaeoides* (L.) Benth. in Miq., Pl. Jungh. 242. 1852; FBI 2: 215. 1876; FPM 1: 261. 1957; FTC 3(1): 342. 1983; FTN 1: 93. 1983.

Twiner. Branchlets densely pubescent. Leaflets oblong-ovate, narrow, velvety-pubescent, base cuneate, margin entire, apex obtuse. Inflorescences axillary clusters of 2-6 flowers. Calyx-tube pubescent, lobes lanceolate. Petals yellow. Pods densely pubescent, with transverse depressions.

Common in dry and moist deciduous forest. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** LP 3118 (SACONH); CECF 16546, 16547 (MH); PSAT 187513, 187514 (MH).

CALPURNIA E. Mey., Comm. Pl. Afr. Austr. 2. 1836.

Calpurnia aurea (Aiton) Benth., Commentat. Legum. Gen. 26. 1837; FBI 2: 251. 1876; FPM 1: 275. 1957; FTC 3(1): 346. 1983; FTN 1: 93. 1983. *Sophora aurea* Aiton, Hort. Kew. 2: 44. 1789.

Shrub. Branchlets tomentose. Leaves odd-pinnate. Leaflet ca. 12 pairs, opposite, oblong-elliptic. Racemes axillary and or terminal. Calyx-tube broadly campanulate, lobes ovate. Corolla exserted, yellow, petals clawed. Stamens 10, free. Pod linear-oblong, flat membranous, compressed.

Planted. **Fl. & Fr.:** Mar.-Aug. **Sp.Ex.:** CECF 3957, 3958 (FRC).

CANAVALIA Adans., Fam. Pl., 325, 531. 1763.

Canavalia gladiata (Jacq.) DC., Prodr. 2: 404. 1825; FTN 1: 94. 1983; LOI 107. 1992; FEG 2: 152. 2000. *C. ensiformis* sensu Hook. f., Fl. Brit. India 2: 195. 1876, non DC. 1825; FPM 1: 253. 1957.

Climbing shrub. Leaves 3-foliate, ovate, glabrous, base acute-truncate, margin entire, apex acute-apiculate, articulated. Racemes in axillary and leaf opposed, elongate. Flowers pinkish. Calyx bi-lipped, 5-lobed, lobes ciliate at margin. Stamens 10, monodelphous. Pods oblong, glabrous.

Occasional in deciduous forest. **Fl. & Fr.:** Dec.-June. **Sp.Ex.:** VN 79184 (MH).

CLITORIA L., Sp. Pl. 2: 753. 1753.

Clitoria ternatea L., Sp. Pl. 2: 753. 1753; FBI 2: 208. 1876; FPM 1: 258. 1957; FTC 3(1): 350. 1983; FTN 1: 95. 1983; FEG 2: 154. 2000.

Vine. Leaves odd-pinnate. Leaflets 2 or 3 pairs, opposite, ovate. Flowers in axillary, resupinate, solitary or in cluster. Calyx lobes 5, lobes membranous. Corolla exserted, deep blue. Petals clawed. Stamens 9+1. Pod linear, oblong, compressed, apically beaked.

Common in dry deciduous forest and scrub jungles. **Fl. & Fr.:** Throughout the year. **VN:** Sangupoo. **Sp.Ex.:** LP 930, 1000 (SACONH); KNS 6906 (FRC); VS 18317, 18550 (FRC); PSAT 186502, 186503 (MH); SRR 810925 (MH).

CODARIOCALYX Hassk., Flora 25 (2) (Beibl.) : 48. 1842.

Codariocalyx motorius H. Ohashi, J. Jap. Bot. 40(12): 367. 1965; FTC 3(1): 351. 1983. *Desmodium motorium* (Houtt.) Merr., J. Arnold Arbor. 19: 345. 1938; FTN 1: 106. 1983. *Hedysarum motorium* Houtt, Nat. Hist. ed. 2. 10: 246. 1779; FEG 2: 222. 2000. *D. gyrans* DC., Prodr. 2: 326. 1825; FBI 2: 174. 1876; FPM 1: 245. 1957.

Shrub. Branchlets glabrescent. Leaves 3-foliate, terminal leaflet oblong-elliptic, chartaceous, glabrous above, pubescent below, base and apex obtuse, margin entire. Flowers aggregated in racemes. Calyx lobes 5. Corolla pinkish. Stamens 9 + 1. Pod not jointed.

Occasional in stream banks in shades. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** CECF 3838 (FRC); VS 20675, 20792 (FRC).

CROTALARIA L., Sp. Pl. 714. 1753.

Key to the species

1a. Leaves 3-foliate.....	2
1b. Leaves simple.....	3
2a. Diffuse herb.....	<i>C. orixensis</i>
2b. Erect undershrub or shrub.....	<i>C. pallida</i>
3a. Prostrate, procumbent or diffuse herb.....	4
3b. Erect herb or shrubs.....	9
4a. Branchlets hairy.....	5
4b. Branchlets silky; pod glabrous.....	7
5a. Leaves linear-lanceolate to oblong; pods glabrous.....	<i>C. linifolia</i>
5b. Leaves orbicular to obovate; pod hirsute.....	6
6a. Leaves glabrous below; flowers below 1 cm long.....	<i>C. evolvuloides</i>
6b. Leaves densely grey-hairy below; flowers above 1.5 cm long.....	<i>C. fysonii</i>
7a. Leaves cordate; seeds 1-2.....	<i>C. hebecarpa</i>
7b. Leaves other than cordate; seeds > 2.....	8
8a. Leaves elliptic-oblong.....	<i>C. prostrata</i>
8b. Leaves obove-suborbicular.....	<i>C. humifusca</i>
9a. Stipules foliaceous; flowers pale blue or whitish.....	<i>C. verrucosa</i>
9b. Stipules not foliaceous; flowers yellow.....	10
10a. Branchlets hairy.....	11
10b. Branchlets pubescent/glabrous.....	15
11a. Plants glandular-hairy; flowers in panicles.....	<i>C. paniculata</i>
11b. Plants eglandular-hairy; flowers in racemes.....	12
12a. Racemes 15 cm long.....	13
12b. Racemes 30 cm long.....	<i>C. juncea</i>
13a. Leaves glabrous above; pods shorter than calyx or equal.....	14
13b. Leaves pubescent above; pods longer than calyx.....	<i>C. mysorensis</i>
14a. Pod very much exceeding the hispid calyx.....	<i>C. calycina</i>
14b. Pod as long as the long, brown silky hairy calyx.....	<i>C. ferruginea</i>
15a. Stem with stipular wings.....	16
15b. Stem without stipular wings.....	17
16a. Plant a shrub, stem erect, up to 2.5 m long.....	<i>C. wightiana</i>
16b. Plant a herb, stems trailing, decumbent or erect, up to 1m long.....	<i>C. ovalifolia</i>
17a. Pods glabrous.....	18

17b. Pods hairy.....	20
18a. Bracts large, foliaceous.....	<i>C. salicifolia</i>
18b. Bracts minute; lanceolate or subulate.....	19
19a. Stipule linear-subulate.....	<i>C. retusa</i>
19b. Stipules absent.....	<i>C. albida</i>
20a. Calyx lobes hispid; pod subglobose.....	<i>C. angulata</i>
20b. Calyx lobes pubescent; pod ellipsoid.....	<i>C. peduncularis</i>

Crotalaria albida B. Heyne ex Roth., Nov. Pl. Sp. 333. 1821; FBI 2: 71. 1876; FSIHS 1: 145. t. 109. 1932; FPM 1: 208. 1957; FTN 1: 95. 1983; FTC 3(1): 369. 1983; FEG 2: 158. 2000.

Erect herb. Branchlets appressed-pubescent. Leaves simple, oblanceolate or oblong-elliptic, chartaceous. Racemes terminal. Calyx-tube appressed-pubescent, lobes elongate. Petals yellow. Staminal sheath 2 mm. Pod oblong, glabrous, twice as long as calyx, apiculate.

Occasional in rocky regions. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** CECF 12884, 12886, 12887 (MH); VS 18412 (FRC); KCJ 81376 (MH).

Crotalaria angulata Mill., Gard. Diet. ed. 8. *Crotalaria* n. 9. 1768; FTN 1: 95. 1983; FTC 3(1): 361. 1983; FEG 2: 159. 2000. *C. biflora* (L.) L., Mant. Pl. Altera. 570. 1771; FBI 2: 66. 1876; FPM 1: 206. 1957.

Erect herb. Branchlets hispid. Leaves simple, ovate, chartaceous, appressed-hispid, base and apex obtuse, margin entire. Racemes lateral. Calyx tube hispid, lobes lanceolate. Corolla exserted, yellow. Pod subglobose, stiff-hispid, twice as long as calyx.

Occasional in foot hills and scrub jungles. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18527 (FRC).

Crotalaria calycina Schrank, Pl. Rar. Hort. Monac. t. 12. 1817; FBI 2: 72. 1876; FSIHS 1: 146. t. 110. 1932; FPM 1: 209. 1957; FTC 3(1): 370. 1983; FTN 1: 96. 1983; FEG 2: 163. 2000.

Erect herb. Branchlets appressed-velvety. Leaves simple, linear or elliptic-oblong. Racemes terminal or lateral, elongated. Calyx-tube densely scattered-sericeous, lobes free. Corolla slightly exserted, yellow. Pod oblong, black when ripe, glabrous, equal to calyx.

Occasional in open grasslands among grasses. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** KA & PB 1426 (SACONH); KNS 2015 (FRC); CAB 12953, 12954 (MH); VS 18274, 18413, 19261, 20683 (FRC); KCJ 81379 (MH).

Crotalaria evolvuloides Wight ex Wight & Arn., Prodr. Fl. Ind. Orient. 188. 1834; (excl. syn); FBI 2: 68. 1876; FPM 1: 206. 1957; FTN 1: 96. 1983; FTC 3(1): 364. 1983; FEG 2: 167. 2000.

Prostrate herb. Branchlets shortly hispid. Leaves simple, ovate, sometimes oblong-lanceolate. Racemes terminal and lateral, 3-8 flowered. Calyx-tube 2 mm, pubescent. Corolla yellow, exserted. Staminal sheath 2 mm. Pod oblong, softly pubescent, thrice as long as calyx.

Rare in foothills and dry deciduous forest. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** VS 18316 (FRC).

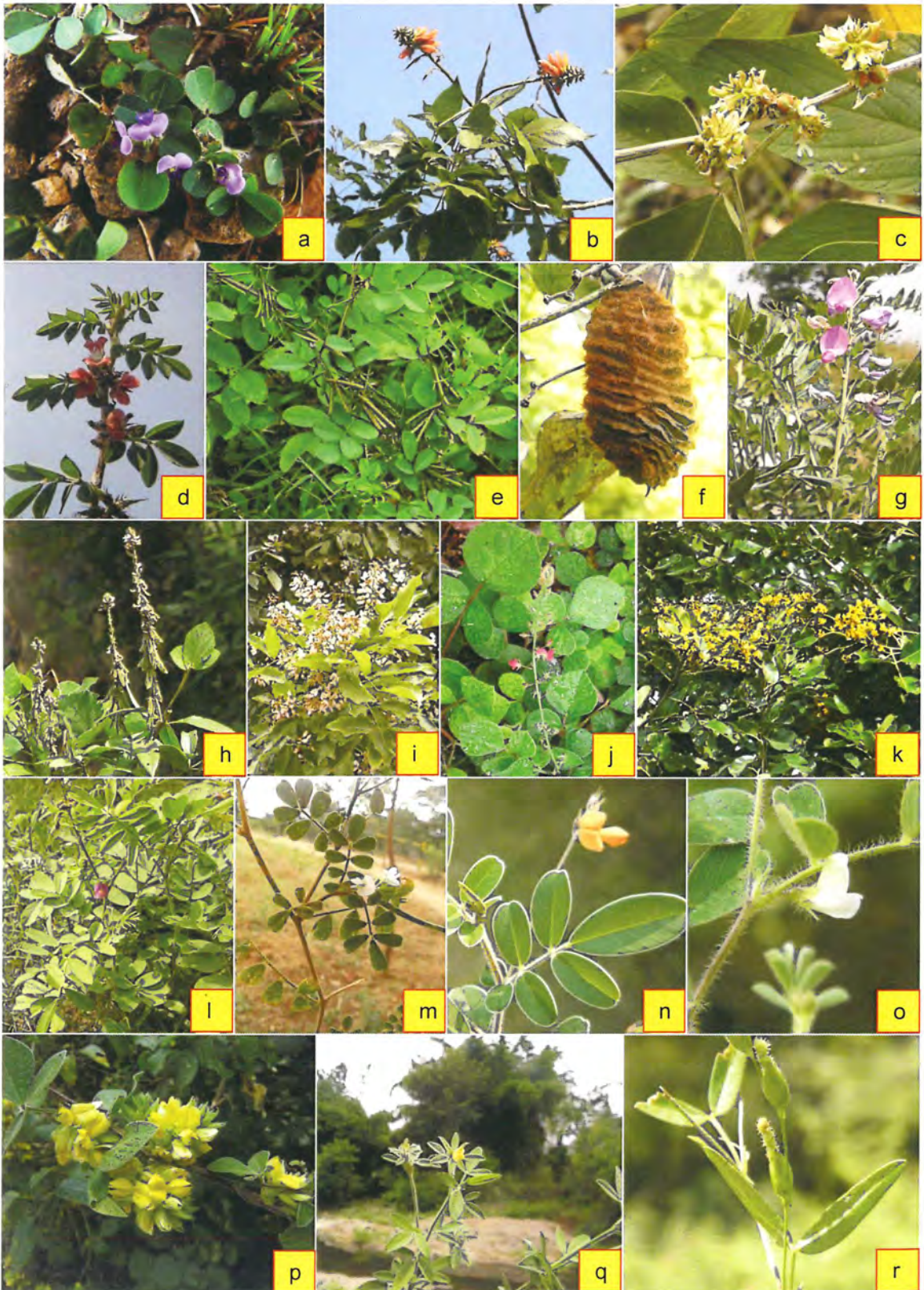
Crotalaria ferruginea Graham ex Benth., London J. Bot. 2: 476. 1843; FBI 2: 68. 1876; FPM 1: 206. 1957; LOI 119. 1992; FEG 2: 167. 2000.

Erect branched herbs, silky pubescent. Leaves oblong, obovate, pubescent. Racemes lax, 6-8 flowered. Flowers yellow. Sepals connate at the base, lanceolate, tomentose. Petals yellow. Anthers dimorphic. Ovary oblong. Stigma oblique. Pods oblong, glabrous, shining.

Rare in Moist deciduous forest. **Fl. & Fr.:** December-February. **Sp.Ex.:** VS 18529 (FRC).

Crotalaria fysonii Dunn, Bull. Misc. Inform. Kew. 1914(1): 26. 1914, var. *fysonii*; FSIHS 1: 144. t. 108. 1932; FPM 1: 206. 1957; FTN 1: 97. 1983; LOI 120. 1992; FEG 2: 168. 2000.

PLATE 8 - FABACEAE



a) *Desmodium triflorum*, b) *Erythrina variegata*, c) *Flemingia wightiana*, d) *Indigofera linnaei*, e) *Indigofera astragalina*, f) *Mucuna atropurpurea*, g) *Mundulea sericea*, h) *Neonotonia wightii*, i) *Pongamia pinnata*, j) *Pseudarthria viscida*, k) *Pterocarpus marsupium*, l) *Tephrosia purpurea*, m) *Tephrosia pumila*, n) *Tephrosia tinctoria*, o) *Tephrosia villosa*, p) *Rhynchosia densiflora*, q) *Stylosanthes fruticosa*, r) *Zornia gibbosa*

Diffuse herb. Leaves ovate, entire, obtuse or retuse, pubescent. Racemes terminate, 10-flowered. Flowers yellow. Calyx velutinous, lobes 5, lanceolate. Corolla bright yellow. Stamens 10. Ovary sessile, oblong. Pods elliptic-oblong.

Common in grassy hill slopes. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** LP 3114 (SACONH).

Crotalaria hebecarpa (DC.) Rudd, *Phytologia* 54: 28. 1983; LOI 121. 1992; FEG 2: 168. 2000. *Hallia hirta* Willd., *Sp. Pl* 3: 1169. 1802. non *Crotalaria hirta* Willd. 1803, nec Leg. 1816, nec Roth, 1821; FPM 1: 208. 1957; FTN 1: 97. 1983.

Prostrate annual herbs. Leaves simple, sessile, ovate. Flowers yellow, axillary, solitary. Calyx lobes 4, greenish-hyaline. Corolla much exserted. Petals yellow. Stamens monadelphous, 10. Ovary villous. Style geniculate. Stigma simple. Pods flat, oblong, compressed. Seeds solitary, reniform.

Rare in deciduous forest. **Fl. & Fr.:** Sept.-Mar. **Sp.Ex.:** SRN 80577 (MH).

Crotalaria humifusa Graham in Wall., *Numer. List.* n. 5421. 1830; FBI 2: 67. 1876; FPM 1: 206. 1957; FTN 1: 97. 1983; LOI 121. 1992; FEG 2: 172. 2000; A.A. Ansari, *Crotalaria India* 188. 2008.

Prostrate herb. Stem villous. Leaves simple, elliptic-ovate, obtuse, pubescent, silky pilose, base broadly cuneate to rounded, apex rounded. Racemes leaf-opposed or terminal. Flowers 5-10. Calyx lobes equal, densely fulvous hairy. Corolla yellow. Pod oblong, glabrous.

Occasional in sandy river regions. **Fl. & Fr.:** Oct.-May. **Sp.Ex.:** LP 3070 (SACONH).

Crotalaria juncea L., *Sp. Pl.* 714. 1753; FBI 2: 79. 1876; FPM 1: 210. 1957; FTC 3(1): 373. 1983; FTN 1: 97. 1983; FEG 2: 172. 2000.

Silky pubescent shrub. Leaves simple, oblong-elliptic, chartaceous. Racemes terminal. Calyx lobes lanceolate. Corolla twice as long as calyx, yellow. Pod sessile, oblong-terete, pubescent.

Occasional in degraded forest areas. **Fl. & Fr.:** Jan.-Mar. VN: *Sanappai*. **Sp.Ex.:** SRN 80526 (MH); KCJ 81381 (MH); EV 142112, 142113 (MH).

Crotalaria linifolia L. f., *Suppl. Pl.* 322. 1781; FBI 2: 72. 1876; FPM 1: 208. 1957; FTN 1: 98. 1983; LOI 123.1992.

Annual herb. Leaves simple, linear-oblong. Racemes terminal, many flowered. Flowers yellow. Calyx 2-lipped. Corolla yellow with darker veins. Pods rhomboid to ovoid.

Occasional in moist open places and wetlands. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** EV 142062, 142063 (MH); PSAT 187501, 187502 (MH).

Crotalaria mysorensis Roth, *Nov. Pl. Sp.* 338. 1821; FBI 2: 70. 1876; FPM 1: 208. 1957; FTC 3(1): 370. 1983; FTN 1: 98. 1983; LOI 124. 1992; FEG 2: 172. 2000.

Erect herb. Branchlets greyish-tomentose. Leaves simple, oblong-elliptic. Racemes terminal, elongate. Calyx-tube sericeous, lobes lanceolate. Corolla slightly exserted, yellow. Pod oblong, terete, glabrous, twice as long as calyx.

Common in dry deciduous forest. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** LP 3091 (SACONH); CECF 12829, 86222 (MH); VS 18314 (FRC).

Crotalaria orixensis Rottler ex Willd., *Neue Schriften Ges. Naturf. Freunde Berlin* 4: 217. 1803, var. *orixensis*; FBI 2: 83. 1876; FPM 1: 212. 1957; FTC 3(1): 357. 1983; FTN 1: 99. 1983; FEG 2: 182. 2000.

Diffuse herb. Branchlets pubescent. Leaves 3-foliate. Leaflets oblong-obovate, glabrous. Racemes lateral, 3-5 flowered. Calyx-tube campanulate. Corolla hardly exserted, yellow. Pod with a stipe, oblong, glabrous.

Rare in grasslands. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** LP 2876 (SACONH); PSAT 186687, 186688, 187004, 187377 (MH).

Crotalaria ovalifolia Wall. ex Fyson, Bull. Misc. Inform. Kew 1914 (5): 184. 1914; FSIHS 1: 142. t. 106. 1932; FPM 1: 206. 1957; FTN 1: 99. 1983; LOI 126. 1992; FEG 2: 182. 2000.

Grey pubescent herbs. Leaves simple, obovate, coriaceous. Racemes lateral 5-flowered. Calyx-tube 4mm, sericeous. Corolla as long as calyx, slightly exserted. Ovary shortly stipitate. Pod oblong.

Rare along grassy slopes. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** VS 18193 (FRC).

Crotalaria pallida Dryander in Aiton., Hort. Kew ad. 1. 3: 20. 1789; FTN 1: 99. 1983; FTC 3(1): 358. 1983; FEG 2: 182. 2000. *C. striata* DC., Prodr. 2: 131. 1825; FBI 2: 84. 1876; FSIHS 1: 153. 1932; FPM 1: 212. 1957. *C. obovata* G. Don, Gen. Hist. 2: 138. 1832; LOI 126. 1992; Ansari, *Crotalaria* India 341. 2008.

Erect undershrub. Branches puberulous. Leaves 3-foliolate. Leaflets subequal, obovate or elliptic-ovate. Flowers in terminal many-flowered racemes. Calyx lobes 5, upper 2-lobes united, other lobes lanceolate. Petals yellow with prominent reddish veins. Stamens 10, monadelphous. Style abruptly incurved at the base. Stigma oblique. Pods, oblong-cylindrical.

Common in moist shady places of moist deciduous forest. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** KA & PB 1403 (SACONH); VS 18228, 18315 (FRC); KR 138929, 138930 (MH); EV 142114, 142115 (MH); PSAT 186942, 187493, 187494 (MH).

Crotalaria paniculata Willd., Sp. Pl. 3: 982. 1802; FBI 2: 81. 1876; FPM 1: 211. 1957; FTN 1: 99. 1983; FTC 3(1): 378. 1983; LOI 126. 1992; FEG 2: 185. 2000.

Subshrub. Branchlets viscid, glandular-pubescent. Leaves simple, oblong, chartaceous, pubescent, base and apex obtuse, apiculate, margin entire. Calyx-tube pubescent, lobes elongate. Pod ellipsoid, sparsely pubescent, hardly exceeding calyx.

Rare in riverbanks and near wetlands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VN 79003 (MH); KCJ 81142 (MH); PSAT 187331, 187332 (MH).

Crotalaria peduncularis Graham ex Wight & Arn., Prodr. Fl. Ind. Orient. 186. 1834; FBI 2: 74. 1876; FPM 1: 207. 1957; FTN 1: 99. 1983; LOI 127. 1992; A.A. Ansari, *Crotalaria* India 274. 2008.

Erect glabrous undershrub. Stem striate. Leaves glabrous, narrow-linear, mucronate, membranous. Stipule absent. Racemes terminal, 12-20-flowered. Flowers distant. Calyx lobes lanceolate, acute. Corolla exserted. Pod glabrous, exserted, stalked.

Rare in Semi-evergreen forest and grasslands. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** CECF 11716 (FRC).

Crotalaria prostrata Rottl. in Willd., Enum. Pl. 2: 747. 1809; FBI 2: 67. 1876; FPM 1: 206. 1957; FTC 3(1): 361. 1983; FTN 1: 99. 1983; FEG 2: 187. 2000.

Prostrate herb. Branchlets hispid. Leaves simple, oblong-elliptic, inequilateral, chartaceous. Racemes lateral or leaf opposed. Calyx-tube softly pubescent, lobes lanceolate, ciliate. Corolla slightly or hardly exserted, yellow. Pod oblong-terete, glabrous, much exceeding calyx.

Rare in forest slopes. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** LP 2886 (SACONH); VS 18528 (FRC).

Crotalaria retusa L., Sp. Pl. 715. 1753; FBI 2: 75. 1876; FPM 1: 207. 1957; FTN 1: 100. 1983; FTC 3(1): 365. 1983; LOI 128. 1992; FEG 2: 192. 2000.

Subshrub. Branchlets dense-pubescent. Leaves simple, oblanceolate, chartaceous. Racemes terminal. Calyx-tube appressed-puberulous, lobes lanceolate. Corolla slightly exceeding calyx, golden yellow. Pod shortly stipitate, oblong-terete, glabrous.

Common in river banks. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** KA & PB 1671 (SACONH); KCJ 81292 (MH); PSAT 187181 (MH).

Crotalaria salicifolia B. Heyne ex Wight & Arn., Prodr. Fl. Ind. Orient. 182. 1834; FBI 2: 77. 1876; FPM 1: 208. 1957; FTN 1: 100. 1983; LOI 128. 1992.

Subshrub with appressed silky hairs. Leaves elliptic-lanceolate, golden hairy, obtuse at apex, acute at base, membranous. Racemes terminal, 2-6 flowered. Calyx lobes falcate, densely hairy. Corolla yellow, exserted, glabrous. Pod oblong, exserted, glabrous, tomentose when young. Rare in dry deciduous forest. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** LP 3096 (SACONH).

Crotalaria verrucosa L., Sp. Pl. 715. 1753; FBI 2: 77. 1876; FPM 1: 210. 1957; FTN 1: 101. 1983; FTC 3(1): 374. 1983; FEG 2: 199. 2000.

Subshrub. Branchlets appressed-pubescent. Leaves simple, ovate or rhomboid-deltoid, chartaceous, pubescent. Racemes terminal and/or lateral. Calyx-tube pubescent, lobes elongate, lanceolate. Corolla twice as long as calyx, blue. Pod oblong-terete, sparsely pubescent. Common in riverbanks and moist localities of dry and moist deciduous forests. **Fl. & Fr.:** Throughout the year. **VN:** *Salangaichedi*. **Sp.Ex.:** LP 2138 (SACONH).

Crotalaria wightiana Graham ex Wight & Arn., Prodr. Fl. Ind. Orient. 181. 1834; FSIHS 1: 141. 1932; FPM 1: 205. 1957; FTN 1: 101. 1983.

Shrub. Stem terete with densely hairy. Leaves obovate, obtuse to retuse at apex, acute at base, densely fulvous hairy. Raceme 3-5-flowered, axillary. Calyx-lobes lanceolate, unequal, hairy. Corolla slightly exserted, yellow. Pods oblong-terete, glabrous.

Rare along margins of the semi-evergreen forest. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** SRN 80554 (MH).

DALBERGIA L. f., Suppl. 52, 316. 1782.

Key to the species

- 1a. Lianas/ Stragglers.....*D. rubiginosa*
- 1b. Trees.....2
- 2a. Stamens 5+5.....3
- 2b. Stamens 9.....4
- 3a. Flowers pink; branchlets glabrous; calyx puberulous.....*D. lanceolaria*
- 3b. Flowers white; branchlets densely pubescent; calyx rusty-tomentose.....*D. paniculata*
- 4a. Flowers in axillary corymbose panicles.....*D. latifolia*
- 4b. Flowers in terminal panicles on new shoots.....5
- 5a. Leaflets 4 or 5, suborbicular.....*D. sissoo*
- 5b. Leaflets 10, obovate.....*D. sissooides*

Dalbergia lanceolaria L. f., Suppl. Pl. 316. 1781; FBI 2: 235. 1876; FPM 1: 270. 1957; FTC 3(1): 384. 1983; FTN 1: 103. 1983; FEG 2: 202. 2000.

Deciduous tree. Branchlets glabrous. Leaflets 5-7 pairs, alternate, obovate, chartaceous, sericeous when young, glabrous later. Panicles axillary. Calyx-tube puberulous. Corolla pale rose to pink. Stamens 5+5, isodiadelphous. Pod with a stipe, lanceolate, base attenuate, apex obtuse. Common in dry deciduous and moist deciduous forest. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** CECF 17104, 17105 (MH); VS 18306, 18307 (FRC).

Dalbergia latifolia Roxb., Pl. Coromandel 2: 7. t. 113. 1799 & Fl. Ind. 3: 221. 1832; FBI 2: 231. 1876; FPM 1: 270. 1957; FTN 1: 103. 1983; FTC 3(1): 384. 1983; FEG 2: 202. 2000.

Semi-evergreen tree. Branchlets glabrous. Leaflets 3 or 4 pairs, alternate, obovate-orbicular, coriaceous, margin entire, apex rounded, retuse. Panicles axillary. Calyx lobes

subequal. Corolla white, petals clawed. Stamens 9, monadelphous. Pod oblong, lanceolate, base & apex obtuse.

Occasional in moist deciduous and evergreen forest. **Fl. & Fr.:** Aug.-Sept. **VN:** *Etti*. **Sp.Ex.:** CECF 17065, 17066 (MH); VN 78383, 79112 (MH); EV 142098 (MH).

Dalbergia paniculata Roxb., Pl. Coromandel t. 114. 1799 & Fl. Ind. 3: 227. 1832; FBI 2: 236. 1876; FPM 1: 270. 1957; FTN 1: 103. 1983; FTC 3(1): 385. 1983; FEG 2: 204. 2000.

Deciduous Tree. Leaflets 5-6 pairs, alternate, oblong-ovate, chartaceous. Panicles axillary and/or terminal. Calyx-tube rusty-tomentose, lobes ciliate. Corolla white, tinged with pink. Stamens 5+5. Pods shortly stipitate, lanceolate, base attenuate, apex acute.

Common in dry deciduous forest. **Fl. & Fr.:** April-June. **VN:** *Panivaagai*. **Sp.Ex.:** LP 2129 (SACONH); CECF 3925 (FRC); VN 78947, 79199 (MH); PSAT 186582, 186583, 186729, 186730, 187583, 187584 (MH).

Dalbergia rubiginosa Roxb., Pl. Coromandel t. 115. 1799 & Fl. Ind. 3: 231. 1832; FBI 2: 232. 1870; FPM 1: 269. 1957; FTC 3(1): 386. 1983; FTN 1: 103. 1983; FEG 2: 206. 2000.

Liane. Branchlets pubescent. Leaflets 2 pairs, alternate, obovate, coriaceous, glabrescent, base cuneate, margin entire, apex obtuse. Panicles axillary. Calyx-tube pubescent. Corolla cream, standard oblong-obovate. Stamens 9, monadelphous. Pod oblong-lanceolate, base and apex obtuse.

Occasional in moist deciduous forest. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** KCJ 81273, 81406 (MH).

Dalbergia sissoides Graham ex Wight & Arn., Prodr. Fl. Ind. Orient. 1: 265. 1834; FBI 2: 231. 1870; FPM 1: 270. 1957; FTN 1: 103. 1983.

Tall tree. Leaflets 6-9 pairs, elliptic-oblong, acute at apex, cuneate at base. Panicles terminal, and/or axillary, glabrous. Calyx tube campanulate, lobes 5. Corolla greenish yellow. Ovary sparsely hairy. Pod elliptic-oblong, acute at apex. Seeds 2-3.

Occasional in dry mixed deciduous forest. **Fl. & Fr.:** Mar.-July. **Sp.Ex.:** KNS 12998, 20997 (FRC); CECF 17062, 17064 (MH); KCJ 81513 (MH); PSAT 186802, 186803 (MH).

Dalbergia sissoo Roxb., Fl. Ind. 3: 223. 1832; FBI 2: 237. 1876; FPM 1: 270. 1957; FTN 1: 103. 1983; FTC 3(1): 386. 1983.

Semi-evergreen tree. Branchlets pilose. Leaflets 2-pairs, alternate, obovate, chartaceous, base cuneate, margin entire, apex obtuse-rotund. Panicles terminal and/or axillary. Calyx-tube campanulate, lobes 5. Corolla cream. Stamens 9, monadelphous. Pod oblong, apex acute, apiculate.

Planted along the road sides. **Fl. & Fr.:** Jan.-Mar. **VN:** *Sissoo*. **Sp.Ex.:** LP 1360 (SACONH).

DERRIS Lour., Fl. Cochinch. 432. 1790.

Derris scandens Benth., J. Proc. Linn. Soc. Bot. 4 (Suppl.) 103. 1860; FBI 2: 240. 1876; FPM 1: 273. 1957; FTC 3(1): 388. 1983; FTN 1: 104. 1983; LOI 148. 1992; FEG 2: 210. 2000.

Straggler. Leaflets 5-6 pairs, subopposite, oblong-obovate, base cuneate-acute, margin entire, apex obtuse, retuse. Panicle in Terminal and/or axillary with clustered on rachis. Calyx-tube tomentose. Corolla cream. Pod oblong, glabrous, base and apex acute. Seeds winged.

Scrub jungle and moist deciduous forest along river banks. **Fl. & Fr.:** July-Aug. **Sp.Ex.:** VN 79756 (MH).

DESMODIUM Desv., J. Bot. Agric. 1: 122. 1813.

Key to the species

- 1a. Leaflets < 1 cm long.....*D. triflorum*
- 1b. Leaflets > 2 cm long.....2
- 2a. Leaves 1-foliate; pods moniliform.....*D. ganeticum*

- 2b. Leaves 3-foliolate; pods not moniliform.....3
 3a. Flowers hidden in orbicular bracts.....*D. pulchellum*
 3b. Flowers not hidden.....4
 4a. Upper calyx-lobes shallowly connate at base.....*D. alysicarpoides*
 4b. Upper calyx-lobes entirely connate.....*D. laxiflorum*

Desmodium alysicarpoides Meeuwen, Reinwardtia 6: 246. 1961; FTC 3(1): 392. 1983; FTM 1: 105. 1983; FEG 2: 215. 2000. *Alysicarpus parviflorus* Dalzell., Hooker's J. Bot. Kew Gard. Misc. 3: 211. 1851; FPM 1: 240. 1957.

Erect herb. Branchlets glabrescent. Leaves 1-3 foliolate, ovate-elliptic, laterals much reduced, margin entire, apex obtuse-round. Flowers arranged in racemes. Flowers in pairs on rachis. Calyx-tube subequally 5-lobed. Corolla violet to pink. Stamens 9+1. Pod margins indented.

Occasional in hill slopes near stream banks. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** VS 18411 (FRC).

Desmodium gangeticum (L.) DC., Prodr. 2: 327. 1825; FBI 2: 168. 1876, incl. var. *maculatum*; FPM 1: 244. 1957; FTM 1: 106. 1983; FTC 3(1): 394. 1983; LOI 153. 1992; FEG 2: 218. 2000.

Subshrub. Branchlets sericeous. Leaves 1-foliolate, oblong-obovate or lanceolate, chartaceous. Flowers 3-5 in a cluster, aggregated to racemes. Calyx-tube 4-lobed, lobes connate. Corolla white to lilac. Stamens 9+1. Pod moniliform, lower margin deeply undulate, upper straight.

Common in forest floor in moist deciduous forest and riparian zone. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2672, 2963, 3044 (SACONH); KA & PB 1529, 1710 (SACONH); VS 18548 (FRC).

Desmodium laxiflorum DC., Ann. Sci. Nat. (Paris) 4: 100. 1825; FBI 2: 164. 1876; FPM 1: 243. 1957; FTM 1: 106. 1983; FTC 3(1): 396. 1983; LOI 156. 1992; FEG 2: 220. 2000.

Subshrub. Leaves 3-foliolate. Leaflets ovate-elliptic or deltoid rhomboid, laterals half as long, or nearly as long as the terminal, inequilateral. Flowers 2-7 in a cluster, aggregated as racemes. Calyx-tube 4 lobed. Corolla bluish. Stamens 9+1. Pod stipitate, margins indented.

Occasional in moist deciduous forest along river banks. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** LP 2571 (SACONH); VS 18408 (FRC).

Desmodium pulchellum (L.) Benth., Fl. Hongk. 83. 1861; FBI 2: 162. 1876; FPM 1: 243. 1957; FTM 1: 107. 1983; LOI 160. 1992; FEG 2: 224. 2000. *Phyllodium pulchellum* (L.) Desv., J. Bot. (ser. 2) 1: 124. 1813; FTC 3(1): 440. 1983.

Subshrub. Branchlets downy-pubescent to tomentose. Leaves 3-foliolate. Leaflets ovate or elliptic-oblong. Flowers aggregated in to racemes. Calyx-tube densely pilose. Corolla yellowish. Stamens monadelphous. Pod sessile, glabrous. Seeds ellipsoid or orbicular.

Occasional in undergrowth in stream banks. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** LP 2622 (SACONH); KA & PB 1635 (SACONH); SBB 841 (FRC); VS 18547 (FRC); KCJ 81245 (MH); PSAT 186960 (MH).

Desmodium triflorum (L.) DC., Prodr. 2: 334. 1825; FBI 2: 173. 1876; FPM 1: 245. 1957; FTM 1: 107. 1983; FTC 3(1): 399. 1983; LOI 163. 1992; FEG 2: 228. 2000.

Prostrate herb. Branchlets elongate, pilose. Leaves 3-foliolate. Leaflets obovate, laterals equilateral, chartaceous. Flowers 3-5 in a cluster. Calyx-tube subequally 5-lobed. Corolla pink to violet. Stamens 9+1. Pod to 1 cm, lower margin deeply indented, upper entire. Seeds broadly oblong.

Very common in forest floor spreading almost all forest types. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 20766 (FRC).

DOLICHOS L., Sp. Pl. 725. 1753.

Dolichos trilobus L., Sp. Pl. 726. 1853; FTC 3(1): 401. 1983; FTN 1: 108. 1983; FEG 2: 230. 2000. *D. falcatus* J.G. Klein ex Willd., Sp. Pl. 3: 1047. 1802; FBI 2: 211. 1876; FSIHS 1: 169. 1932; FPM 1: 259. 1957.

Twiner. Branchlets glabrescent. Leaves 3-foliolate, terminal one ovate-rhomboid or deltoid. Racemes 3-5 flowered. Calyx-tube campanulate. Corolla exserted, violetish to rose. Stamens 9+1. Pod linear, compressed, falcate, apically horned. Occasional in foothills and scrub jungles. **Fl. & Fr.:** Sept.-Mar. **Sp.Ex.:** SRN 80542 (MH).

DUMASIA DC., Ann. Sci. Nat. (Paris) 4: 96. 1825.

Dumasia villosa DC., Ann. Sci. Nat. (Pairs) 4: 96. 1825; FBI 2: 183. 1876; FSIHS 1: 165. t. 128. 1932; FPM 1: 247. 1957; FTC 3(1): 402. 1983; FTN 1: 108. 1983; FEG 2: 232. 2000.

Slender twiner. Branchlets densely villous. Leaves 3-foliolate. Leaflets ovate-deltoid, chartaceous. Racemes axillary, 3-12 flowered. Calyx-tube urceolate, golden yellow. Petals long clawed. Stamens 9+1. Pod linear, densely villous, shortly beaked. Seeds subglobos, estrophiolate. Occasional in borders of the moist deciduous and semi-evergreen forests. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** LP 2034 (SACONH); KA & PB 1414 (SACONH).

DUNBARIA Wight & Arn., Prodr. Fl. Ind. Orient. 258. 1834.

Dunbaria ferruginea Wight & Arn., Prodr. Fl. Ind. Orient. 258. 1834; FBI 2: 217. 1876; FPM 1: 261. 1957; FTC 3(1): 403. 1983; FTN 1: 108. 1983; FEG 2: 233. 2000.

Vine. Branchlets appressed-tomentose. Leaves 3-foliolate. Terminal leaflet ovate-rhomboid, laterals ovate. Inflorescence of racemes or panicles. Calyx-tube campanulate, tomentose. Corolla exserted, yellow, petals clawed. Stamens 9+1. Pod oblong, compressed, apically beaked, subseptate. Occasional in moist deciduous forest. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** CAB 16592, 16593, 16604 (MH); VS 18312, 18313 (FRC); KCJ 81250 (MH); PSAT 187223 (MH).

ERYTHRINA L., Sp. Pl. 706. 1753.

Key to the species

- 1a. Armed; keel petals connate.....*E. suberosa*
1b. Unarmed; keel petals free.....*E. cariegata*

Erythrina suberosa Roxb., Fl. Ind. 3: 253. 1832; FPM 1: 250. 1957; FTC 3(1): 406. 1983; FTN 1: 108. 1983; FEG 2: 237. 2000.

Deciduous tree. Branchlets tomentose, sparsely prickled. Leaves 3-foliolate. Leaflets rhomboid-ovate, thin coriaceous, glabrous above, densely matty-woolly below, base deltoid or truncate, margin entire or sinuate-lobed, apex acute. Flowers aggregated in to racemes. Calyx campanulate, 2-lipped. Corolla exserted. Pod stipitate, subterete.

Occasional in moist slopes. **Fl. & Fr.:** Mar.-June. **VN:** *Mulmurukku*. **Sp.Ex.:** VN 78285 (MH).

Erythrina variegata L., Herb. Amboin. 10. 1754; FTN 1: 109. 1983; FTC 3(1): 406. 1983; LOI 173. 1992; FEG 2: 238. 2000. *E. indica* Lam., Encycl. 2: 391. 1786; FBI 2: 188. 1876; FPM 1: 249. 1957.

Unarmed tree. Branchlets apically stellate-pubescent, basally glabrescent. Leaflets rhomboid-ovate, thin coriaceous, stellate-pubescent, base deltoid or truncate-obtuse, margin

entire, apex acuminate. Flowers aggregated in to racemes. Calyx spatheous, recurved, apically 5-toothed. Corolla bright red, sessile.

Planted along the forest margins. **Fl. & Fr.:** Mar.-June. **VN:** *Kalyanamurungai*. **Sp.Ex.:** VN 79015 (MH).

FLEMINGIA Roxb. ex W.T. Aiton in W.T. Aiton, Hortus Kew. Ed. 2. 4: 349. 1812.

Key to the species

- 1a. Leaves simple.....*F. strobilifera*
- 1b. Leaves 3-foliate.....2
- 2a. Leaves acute at apex; calyx lobes longer than the corolla.....*F. wallichii*
- 2b. Leaves acuminate at apex; calyx lobes shorter than the corolla.....3
- 3a. leaves glabrescent beneath.....*F. macrophylla*
- 3b. Leaves densely villous or tomentose beneath.....4
- 4a. Leaflets obovate, obtuse or acute at apex; calyx brown puberulous.....*F. grahamiana*
- 4b. Leaflets oblanceolate, acuminate at apex; calyx silky velutinous.....*F. wightiana*

Flemingia grahamiana Wight & Arn., Prodr. Fl. Ind. Orient. 242. 1834; FBI 2: 228. 1876; FSIHS 1: 173. t. 133. 1932; FPM 1: 267. 1957; FTN 1: 109. 1983; LOI 175. 1992.

Shrub. Branchlets with sticky glands. Leaflets obovate to elliptic-lanceolate, laterals oblique, obtusely acute, grey-tomentose beneath. Racemes in axillary. Flowers densely arranged, subsessile. Calyx gland-dotted, lobes 5, lanceolate. Corolla cream or pink. Pod ovoid. Seeds 2.

Rare in grassy hill slopes. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VS 19263 (FRC); KCJ 81450 (MH).

Flemingia macrophylla (Willd.) Kuntze ex Merr., Philipp. J. Sci. 5: 130. 1910; FTC 3(1): 408. 1983; FTN 1: 109. 1983; FEG 2: 241. 2000. *F. congesta* Roxb. ex Ait., Hort. Kew (ed.2) 4. 349. 1812; FBI 2. 4: 228. 1876; FPM 1: 267. 1957.

Subshrub. Branchlets appressed-pubescent. Leaves 3-foliate. Leaflet oblanceolate-elliptic, chartaceous, velvety below, terminal one basally cuneate, laterals basally obtuse-rotund, margin entire, apex acuminate. Racemes congested. Flowers clustered at base, lax at tip. Calyx-tube campanulate. Corolla purplish-yellow. Pod oblong, turgid.

Occasional in hill slopes. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** PSAT 187473, 187474 (MH).

Flemingia strobilifera (L.) R. Br. ex W.T. Aiton, Hort. Kew (ed. 2) 4: 350. 1812; FBI 2: 227. 1876; FPM 1: 266. 1957; FTN 1: 109. 1983; FTC 3(1): 408. 1983; LOI 178. 1992; FEG 2: 244. 2000. *F. bracteata* (Roxb.) Wight, Icon. Pl. Ind. Orient. t. 268. 1840; FPM 1: 266. 1957; FTN 1: 109. 1983.

Shrub. Branchlets tomentose. Leaves 1-foliate, oblong-lanceolate, thin-coriaceous, gland-dotted below, base rotund-subacute, margin entire, apex acuminate. Racemes simple or branched. Calyx-tube campanulate, lobes setaceous. Petals 5, white. Pod oblong, enclosed by bract.

Occasional in dry and moist deciduous forest. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** VS 18320 (FRC).

Flemingia wallichii Wight & Arn., Prodr. Fl. Ind. Orient. 242. 1834; FBI 2: 229. 1876; FPM 1: 267. 1957; FTN 1: 110. 1983; FEG 2: 245. 2000.

Erect shrub. Leaves tri-foliate. Leaflets elliptic-obovate, ovate-oblong, cuneate at base and acute. Racemes terminal and axillary. Calyx lobes linear with yellowish glands. Petals 5, pink. Stamens 10. Pods turgid. Seeds 2.

Rare in along the riversides. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KCJ 81450 (MH).

Flemingia wightiana Graham ex Wight & Arn., Prodr. Fl. Ind. Orient. 242. 1834; FPM 1: 267. 1957; FTN 1: 110. 1983; FEG 2: 246. 2000.

Erect shrub. Branchlets white pubescent. Leaves 3-foliolate. Leaflets elliptic, oblanceolate to rhomboid, base acute, attenuate, obtuse, margin entire, apex acute, apiculate, pubescent above. Flowers greenish white, in congested axillary racemes. Calyx lobes 5, pubescent. Petals 5, pink. Stamens 10, diadelphous. Pod oblong, hairy. Seeds 2.
Occasional in moist places. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VS 18254, 18417, 20673, 20674, 20791 (FRC); KCJ 81431 (MH).

GALACTIA P. Browne, Civ. Nat. Hist. Jamaica 298. 1756.

Galactia longifolia (DC.) Benth., Commentat. Legum. Gen. 63. 1837; FPM 1: 252. 1957; FTN 1: 110. 1983; FEG 2: 246. 2000.

Slender climber. Leaves alternate, trifoliolate. Leaflets linear-oblong, subcoriaceous, glabrous on both surfaces, apex obtuse or acute, mucronate, base rounded, margin entire. Inflorescence of reduced, axillary pseudoracemes, usually single flowers. Calyx campanulate, lobes 4, elongate, lanceolate. Corolla pink to pale violet. Pod oblong-linear, flattened, slightly curved, appressed-pubescent.
Occasional in dry deciduous forest. **Fl. & Fr.:** Mar.-Sept. **Sp.Ex.:** VN 79665 (MH).

GLIRICIDIA Kunth, Nova. Gen. Sp. 6: ed. fol. 309. 1824.

Gliricidia sepium (Jacq.) Kunth. in Walp., Repert. Bot. Syst. 1: 679. 1842; FTN 1: 110. 1983; FTC 3(1): 411. 1983; LOI 181. 1992.

Small tree. Branchlets glandular-pubescent. Leaves odd-pinnate. Leaflets 6-8 pairs, opposite, lanceolate-elliptic, thin coriaceous, glabrous, inequilateral, base obtuse, margin entire, apex acuminate. Flowers aggregated in to racemes. Calyx tube campanulate. Corolla exerted, rose-pin, petals clawed. Stamens 9+1. Pod oblong.
Planted. Run also in wild. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** VS 18322 (FRC).

HYLODESMUM H. Ohashi & R. R. Mill, Edinburgh J. Bot. 57: 173. 2000.

Hylodesmum repandum (Vahl) H.Ohashi & R.R.Mill, Edinburgh J. Bot. 57(2): 185. 2000. *Desmodium scalpe* DC., Prodr. 2: 334. 1825; FBI 2: 165. 1876; FSIHS 2: t. 124. 1932; FPM 1: 243. 1957. *D. repandum* (Vahl) DC., Prodr. 2: 334. 1825; FTC 3(1): 398. 1983; FTN 1: 107. 1983; FEG 2: 225. 2000.

Herb. Branchlets downy pubescent. Leaves 3-foliolate. Leaflets ovate or deltoid-rhomboid, chartaceous, appressed-pubescent, below. Base cuneate, margin wavy, apex obtuse-acute. Racemes, flowers 2-4 in clusters. Calyx-tube campanulate. Corolla orange, brick-red or flame coloured. Stamens monadelphous. Pod stalked, lower margin indented, upper entire. Hooked-pubescent.
Occasional in evergreen forest along forest boundaries. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** CECF 3815 (FRC).

INDIGOFERA L., Sp. Pl. 751. 1753.

Key to the species

- 1a. Leaves simple; pod globose.....*I. linifolia*
- 1b. Leaves compound; pod oblong-linear.....2
- 2a. Pods angled, subtetragonous or tetragonous.....3
- 2b. Pods otherwise.....5
- 3a. Leaves 3-7-foliolate; seeds 6-10, rectangular.....*I. trita*

3b. Leaves 9-13-foliolate; seeds 5-6, cuboid.....	4
4a. Leaflets up to 2.5 cm long; pods white pubescent	<i>I. astragalina</i>
4b. Leaflets up to 5 cm long; pods brown pubescent.....	<i>I. hirsuta</i>
5a. Leaves trifoliolate.....	<i>I. prostrata</i>
5b. Leaves multifoliolate.....	6
6a. Pods curved; branchlets silvery-canescens.....	7
6b. Pods straight.....	8
7a. Racemes > 8 cm; pods 3 or 4-seeded; leaflets 3 pairs.....	<i>I. caerulea</i>
7b. Racemes < 3 cm; pods > 8 seeded; leaflets 5 pairs.....	<i>I. parviflora</i>
8a. Racemes as long, or twice as long, as leaves; pods 4-gonus.....	<i>I. spicata</i>
8b. Racemes shorter than leaves; pods not 4-gonus.....	9
9a. Prostrate herbs; leaflets 4-5 pairs; pods 2-seeded.....	<i>I. linnaei</i>
9b. Erect subshrubs; leaflets 7-10 pairs; pods > 10 seeded.....	10
10a. Branchlets viscid; petals flame-coloured.....	<i>I. colutea</i>
10b. Branchlets other than viscid.....	11
11a. Leaflets linear.....	<i>I. foliosa</i>
11b. leaflets elliptic or obovate.....	12
12a. Branches woody; pod hirsute.....	<i>I. tinctoria</i>
12b. Branches not woody; pod not hirsute.....	13
13a. Flowers 1.5 cm across; petals pink to rose.....	<i>I. cassioides</i>
13b. Flowers < 1 cm across.....	14
14a. Racemes 2-5 flowered; petals red coloured.....	<i>I. glabra</i>
14b. Racemes > 5 flowered; petals violet.....	<i>I. wightii</i>

Indigofera astragalina DC., Prodr. 2: 228. 1825; FTN 1: 111. 1983; FIFTC 167. 1988; FEG 2: 253. 2000. *I. hirsuta* sensu Wight & Arn., Prodr. Fl. Ind. Orient. 255. 1834; FBI 2: 98. 1876; FPM 1: 221. 1957, non L. 1753.

Densely hairy erect herb. Stem pilose, woody, hairs stiff, mostly brown. Leaf imparipinnately compound. Leaflets 5-13, pilose on both sides elliptic, acute. Inflorescence a raceme, axillary, hirsute. Flowers densely arranged. Calyx tube brown hirsute, lobes linear setaceous, cup very small. Petals pink, glabrous. Fruit tetragonal, hirsute. Seeds black, pitted.

Rare in moist deciduous forest. **Fl. & Fr.:** Aug.-Oct. **Sp.Ex.:** CECF 13962, 13963 (MH); TRN 78656 (MH).

Indigofera caerulea Roxb., Fl. Ind. 2: 377. 1832; FTN 1: 111. 1983; FTC 3(1): 415. 1983; FEG 2: 254. 2000.

Subshrub. Branchlets appressed silvery-canescens. Leaves odd-pinnate. Leaflet 5 pairs, subopposite, obovate, chartaceous, canescens, base cuneate, margin entire, apex obtuse, emarginate. Racemes axillary. Calyx-tube pubescent. Corolla exserted, pink. Pod deflexed, curved, silvery-pubescent.

Occasional in dry deciduous forest. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** EV 70954 (MH); VS 18534 (FRC).

Indigofera cassioides Rottler ex DC., Prodr. 2: 225. 1825; FTC 3(1): 416. 1983; FTN 1: 111. 1983; FEG 2: 255. 2000. *I. pulchella* auct. non Roxb., Fl. Ind. 3: 382. 1832; FBI 2: 101. 1876; FSIHS 1: 156. 1932; FPM 1: 221. 1957.

Shrub. Branchlets appressed white-pubescent. Leaves odd-pinnate. Leaflets 10 pairs, subopposite, oblong-elliptic, chartaceous, appressed-pubescent, base and apex obtuse. Margin entire. Inflorescence a raceme, axillary. Calyx-tube appressed-pubescent, lobes lanceolate. Corolla exserted, sparsely puberulous, pink to rose, petals clawed. Pod straight, slightly deflexed.

Common in moist deciduous forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** KNS 1729 (FRC); CAB 13992 (MH); CECF 14009, 114005 (MH); VS 18234, 18272, 18273, 18747, 20744, 20796 (FRC); VN 79683 (MH); SRN 80558 (MH); KCJ 81281 (MH); PSAT 186764, 186765, 187155, 187424, 187425 (MH).

Indigofera colutea (Burm. f.) Merr., Philipp. J. Sci. Bot. 19: 355. 1921; FTN 1: 111. 1983; FTC 3(1): 418. 1983; FEG 2: 255. 2000. *I. viscosa* Lam., Encycl. 3: 247. 1789; FBI 2: 95. 1876; FPM 1: 220. 1957.

Subshrub. Branchlets viscid. Leaves odd-pinnate. Leaflets 7 pairs, opposite, oblong-elliptic, pubescent, base and apex obtuse, margin entire. Inflorescence of racemes or panicles, axillary. Calyx lobes setaceous. Corolla exserted, flame coloured. Pod spreading, straight, hirsute, tortulose.

Common in wastelands. **Fl. & Fr.:** Sept.-Jan. **VN:** Naikadugu. **Sp.Ex.:** CECF 13820 (MH); VS 20703 (FRC); CECF 3742 (FRC).

Indigofera foliosa E. Mey., Comm. Pl. Afr. Austr. 102. 1836. *I. vestita* Baker in Hook. f., Fl. Brit. India 2(4): 96. 1876; FPM 1: 219. 1957.

Erect shrub. Leaves subsessile. Leaflets linear-cuneate, mucronate, glabrous above, strigillose beneath, with incurved margins, the terminal subsessile. Racemes shorter than the leaf, 3-6 flowered. Calyx-segments subulate. Petals fulvo-sericeous. Pod few-seeded, subterete, acute, deflexed, thinly strigillose.

Rare in moist deciduous forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** CECF 13652, 13653 (MH).

Indigofera glabra L., Sp. Pl. 751. 1753; FPM 1: 219. 1957; FTN 1: 111. 1983; FEG 2: 258. 2000. *I. pentaphylla* L., Syst. Veg. ed. 13. 564. 1774; FBI 2: 95. 1876.

Hispid herbs. Leaflets 5, opposite, obovate, obtuse, entire, obtusely mucronulate, glaucous beneath. Racemes short, 2-5 flowered. Calyx incised to more than halfway. Petals red coloured. Standard orbicular. Pod straight subcylindrical, turgid. 10-12 seeded. Pods oblong. Seeds 7-13.

Rare in moist deciduous forest. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** VS 20720, 20721, 20722 (FRC).

Indigofera hirsuta L., Sp. Pl. 751. 1753; FBI 2: 96. 1876; FPM 1: 221. 1957; FTN 1: 111. 1983; FTC 3(1): 420. 1983; FEG 2: 260. 2000.

Subshrub. Branchlets white-pilose. Leaves odd-pinnate. Leaflets 5 pairs, subopposite, elliptic-oblongate, chartaceous, densely pilose, base subacute, margin entire, apex obtuse, apiculate. Racemes axillary, dense. Calyx-tube hirsute, lobes linear, setaceous. Corolla as long as calyx, pink-bright red. Pod straight, 4-gonus, deflexed, tomentose, mucronate.

Rare in moist deciduous forest. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** VS 19260 (FRC).

Indigofera linifolia (L. f.) Retz., Obs. Bot. 4: 29. 1786; FBI 2: 92. 1876; FPM 1: 218. 1957; FTN 1: 112. 1983; FTC 3(1): 421. 1983; FEG 2: 262. 2000.

Prostrate herb. Branchlets silvery-canescant. Leaves simple, linear, chartaceous, appressed-pubescent, base cuneate, margin entire, apex acute, mucronate. Inflorescence a raceme, axillary. Calyx-tube campanulate, lobes linear. Corolla exserted, red-crimson, petals clawed. Pod globose, appressed-silvery-pubescent. Seeds solitary, globose.

Common in roadsides, fallow lands and scrub jungles. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** LP 2890 (SACONH); VN 78959 (MH).

Indigofera linnaei Ali, Bot. Not. 111 (3): 549. 1958; FTN 1: 112. 1983; FTC 3(1): 421. 1983; FEG 2: 263. 2000. *I. enneaphylla* L., Mant. Pl. Altera 2: 272. 1771, nom. illeg.; FBI 2: 94. 1876; FPM 1: 218. 1957.

Prostrate or trailing herb. Branchlets appressed white-hirsute. Leaves odd-pinnate. Leaflets 4 or 5 pairs, alternate, oblanceolate, membranous, densely hirsute below, base cuneate, margin entire, apex obtuse, retuse. Racemes axillary, subcapitate, 10-20 flowered. Calyx-tube campanulate, lobes setaceous. Corolla exserted, glabrous, pink, petals clawed. Staminal sheath 3 mm. Pod ellipsoid, turgid, white hirsute.

Common, wide range of habitats. **Fl. & Fr.:** Throughout the year. **VN:** *Seppu nerunji*. **Sp.Ex.:** CECF 13601, 13616 (MH); VS 18323, 18416, 18581 (FRC); VN 79047 (MH); SRR 81054 (MH); PSAT 186934, 186985 (MH).

Indigofera parviflora B. Heyne ex Wight & Arn., Prodr. Fl. Ind. Orient. 201. 1834; FBI 2: 97. 1876; FPM 1: 220. 1957; FTN 1: 113. 1983; FTC 3(1): 426. 1983; FEG 2: 267. 2000.

Subshrub. Branchlets silvery-canescens. Leaves odd-pinnate. Leaflet 3 pairs, opposite, oblong-oblanceolate, chartaceous, appressed-canescens, base cuneate, margin entire, apex obtuse, mucronate. Racemes axillary, 3-5 flowered. Calyx-tube campanulate, lobes setaceous. Corolla exserted, glabrous, rose, petals clawed. Pod terete, deflexed, pubescent, angled, tortulose, curved at the tip.

Occasional in along river banks. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** KA & PB 1680 (SACONH); CECF 3744 (FRC); SRR 81019 (MH).

Indigofera prostrata Willd., Sp. Pl. 3: 1226. 1803; FPM 1: 219. 1957; FTC 3(1): 427. 1983; FEG 2: 268. 2000. *I. trifoliata* L. Cent. Pl. 2: 29. 1756; FBI 2: 96. 1876 in part; FPM 1: 219. 1957; FTN 1: 115. 1983.

Prostrate herb. Branchlets appressed-pubescent. Leaves 3-foliate. Leaflets elliptic-obovate, chartaceous, appressed-pubescent, base cuneate, margin entire, apex obtuse, apiculate. Racemes axillary, 3-5 flowered. Calyx-tube campanulate, lobes setaceous. Corolla exserted, rose-purple. Pod terete, deflexed, slightly winged.

Occasional in hill slopes. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** LP 2506 (SACONH); VN 79040 (MH).

Indigofera spicata Forssk., Fl. Aegypt.-Arab. 138. 1775; FTN 1: 113. 1983; FTC 3(1): 427. 1983; Sanjappa, Fasc. Fl. Ind. 21: 123. 1995; FEG 2: 269. 2000. *I. endecaphylla* Jacq. Icon. Pl. Rar. 3 (3): 13. t. 570. 1789 ('*hendecaphylla*'); FBI 2: 98. 1876; FPM 1: 220. 1957.

Erect or trailing herb. Branchlets appressed-strigose or glabrescent. Leaves odd-pinnate. Leaflets 5 pairs, alternate, oblong-oblanceolate, chartaceous, densely appressed-pubescent below, base cuneate, margin entire, apex obtuse, apiculate. Racemes axillary, dense. Calyx lobes setaceous, appressed-strigose. Corolla slightly exserted, red. Pod straight, 4-gonus, sparsely pubescent, mucro sharp-pointed.

Rare in moist and semi-evergreen forests. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** KA & PB 1555 (SACONH); CECF 13796 (MH); KCJ 81482 (MH); EV 142110, 142111 (MH).

Indigofera tinctoria L., Sp. Pl. 751. 1753; Wight, Icon. Pl. Ind. Orient. t. 365. 1840; FBI 2: 99. 1876; FPM 1: 220. 1957; FTN 1: 113. 1983; FIFTC 179. 1988; FEG 2: 268. 2000. *I. sumatrana* Gaertn., Fruct. 2: 317. t. 148. f. 4. 1791; FPM 1: 220. 1957.

Grey pubescent undershrubs. Branches woody terete, appressed-pubescent. Leaves odd-pinnate, alternate, margin entire, glabrous above, pubescent beneath. Leaflets 3-5 pairs, elliptic-obovate, base obtuse to rounded, apex obtuse, mucronate. Flowers pink, in axillary racemes. Calyx hairy outside. Petals 5, pink-red. Stamens 9+1. Pods cylindric, slightly falcate, sutures thick. Seeds 5-9, yellowish-reddish brown.

Occasional in along the road sides and river beds. **Fl. & Fr.:** July-Dec. **VN:** *Avuri*. **Sp.Ex.:** LP 2105 (SACONH); KNS 1731 (FRC).

Indigofera trita L. f., Suppl. Pl. 335. 1781; FBI 2: 96. 1876; FPM 1: 219. 1957; FTC 3(1): 428. 1983; FTN 1: 113. 1983; LOI 196. 1992. FEG 2: 272. 2000.

Key to the varieties

- 1a. Erect woody herb; racemes 8-12 flowered; pod straight.....var. *trita*
 1b. Prostrate herb; racemes 15-35 flowered; pod curved at apex.....var. *scabra*

var. *trita*

Erect woody herb, grey pubescent. Leaves 3-foliolate. Leaflets opposite, elliptic, base rounded, obtuse, apex rounded, obtuse, mucronate, pubescent. Flowers pink-red, in axillary racemes. Calyx pubescent, campanulate. Pods subtetragonous, spinously beaked, strigose, 6 -10 seeded. Seeds yellow.

Occasional in shady places and scrub jungle. *Fl. & Fr.*: Almost throughout the year. *Sp.Ex.*: VS 18533 (FRC); KCJ 81132 (MH).

var. *scabra* (Roth) de Kort & G. Thijssse, Blumea 30 (1): 140. 1984; LOI 197.1992; FEG 2: 271. 2000. *I. trita* L. f., subsp. *subulata* auct. non (Vahl ex Poir.) Ali, Bot. Notis. Illu. 558. 1958: FTN 1: 113. 1983. *I. subulata* Vahl ex Poir. in Lam., Encycl. Suppl. 3: 150. 1813; FBI 2: 96. 1876; FPM 1: 219. 1957.

Prostrate herb. Branches pubescent. Leaves 3-7-foliolate. Leaflets obovate, elliptic or oblong, base cuneate, margin entire, apex mucronate, appressed silvery pubescent. Flowers reddish-orange in 12-25 flowered axillary raceme. Pod subtetragonous, slightly curved upwards, mucronate, 10-seeded.

Occasional in hill slopes. *Fl. & Fr.*: Sept.-Jan. *Sp.Ex.*: VS 18532 (FRC).

Indigofera wightii Graham ex Wight & Arn., Prodr. Fl. Ind. Orient. 202. 1834; FBI 2: 99. 1876; FPM 1: 221. 1957; FTN 1: 114. 1983; FTC 3(1): 430. 1983; FEG 2: 272. 2000.

Shrub. Branchlets silvery-strigose. Leaves odd-pinnate. Leaflets 10-pairs, opposite, elliptic, chartaceous, appressed-strigose, base and apex obtuse, apiculate, margin entire. Racemes axillary, dense. Calyx-tube pubescent, lobes triangular. Corolla exserted, purple. Pod terete, straight, mucronate.

Occasional in hill slopes among rocks. *Fl. & Fr.*: Sept.-Jan. *Sp.Ex.*: LP 2501 (SACONH); VN 79616 (MH); KCJ 81380 (MH); EV 142056, 142057 (MH); PSAT 18690, 186930 (MH).

MILLETTIA Wight & Arn., Prodr. Fl. Ind. Orient. 263. 1834.

Millettia racemosa Benth. in Miq, Pl. Jungh. 2: 249. 1852; FBI 2: 105. 1876; FPM 1: 227. 1957; FTN 1: 115. 1983; FEG 2: 279. 2000.

Climbing shrub. Leaflets 11-13, obovate or obovate-oblong, obtuse or abruptly acuminate, glabrous above, appressed-pubescent beneath. Racemes many-flowered. Calyx lobes short. Corolla bluish-white. Pod linear, flat, glabrous.

Rare in moist deciduous forest. *Fl. & Fr.*: April-Oct. *Sp.Ex.*: VN 79716 (MH).

MUCUNA Adens., Fam. Pl. 2: 325, 579. 1763.

Key to the species

- 1a. Pods curved like 'S'; longitudinally ridged.....*M. pruriens*
 1b. Pods oblong; obliquely or transversely plaited.....2
 2a. Branchlets and leaves pubescent; pods 1-seeded.....*M. monosperma*
 2b. Branchlets and leaves glabrescent; pods 2-seeded.....*M. atropurpurea*

Mucuna atropurpurea DC., Prodr. 2: 406. 1825; FBI 2: 186. 1876; FPM 1: 251. 1957; FTC 3(1): 434. 1983; FTN 1: 115. 1983; LOI 215. 1992; FEG 2: 281. 2000.

Liane. Branchlets glabrescent. Leaves 3-foliolate. Leaflets oblong-ob lanceolate or elliptic, oblique, thin-coriaceous, glabrous, base subacute-obtuse, margin entire. Racemes pendent. Calyx-tube campanulate. Pod oblong, deeply plaited, oblique, yellow-brown bristly. Seeds 2.

Common in river banks. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** LP 1382 (SACONH).

Mucuna monosperma DC. ex Wight, Bot. Misc. 2: 346. suppl. t. 12. 1831; FBI 2: 185. 1876; FPM 1: 251. 1957; FTN 1: 116. 1983; FEG 2: 281. 2000.

Stout climbers; stems terete. Leaflets ovate, abruptly acuminate, rounded to subcordate at base, hispid below. Stipules ovate, densely hispid. Racemes to drooping. Flowers few, greenish white. Calyx lobes lanceolate, hairy. Pods woody, compressed, winged along the margins, transversely ridged on sides, densely covered with strong reddish-brown bristles.

Occasional in riparian zones. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KA & PB 1623 (SACONH).

Mucuna pruriens (L.) DC., Prodr. 2: 405. 1825; FBI 2: 187. 1876; FTC 3(1): 435. 1983; FTN 1: 116. 1983; FEG 2: 283. 2000.

Vine. Branchlets-pubescent. Leaflets ovate-rhomboid, thin coriaceous, oblique, appressed white pubescent, base obtuse-subacute, mucronate. Inflorescence in racemes. Calyx-tube pubescent. Corolla dark-purplish. Pod curved at base and apex, S-shaped. Seeds ca.6.

Common along the river banks. **Fl. & Fr.:** Dec.-Mar. **VN:** *Poonakaali*. **Sp.Ex.:** PSAT 187269, 187270 (MH).

MUNDULEA Benth. in Miq., Pl. Jungh. 2: 248. 1852.

Mundulea sericea (Willd.) A. Cheval, Compt. Rend. 180: 1521. 1925; FTC 3(1): 435. 1983; FTN 1: 116. 1983; FEG 2: 285. 2000. *M. suberosa* Benth. in Miq., Pl. Jungh. 248. 1852; FBI 2: 110. 1876; FPM 1: 222. 1957.

Shrub, bark deeply fissured. Branchlets silky-tomentose. Leaves odd-pinnate. Leaflets 8-10 pairs, subopposite, elliptic-lanceolate or oblong, sericeous, coriaceous, base obtuse, margin ciliate, apex acuminate, apiculate. Pseudoracemes terminal, corymbose. Calyx-tube campanulate, lobes triangular. Corolla exserted, violetish, petals clawed. Stamens monadelphous. Pod linear, tomentose, compressed.

Common in dry deciduous and scrub jungles. **Fl. & Fr.:** Sept.-Dec. **VN:** *Vellapurasu*. **Sp.Ex.:** LP 2014, 2889, 2561 (SACONH); PSAT 187081 (MH).

NEONOTONIA J.A. Lackey, Phytologia 37: 210. 1977.

Neonotonia wightii (Arn.) J.A. Lackey, Phytologia 37: 210. 1977; FTC 3(1): 436. 1983; FTN 1: 116. 1983; FEG 2: 287. 2000. *Notonia wightii* Graham ex Wight & Arn., Prodr. Fl. Ind. Orient. 208. 1834; LOI 220. 1992. *Glycine javanica* auct. non L. 1753; FBI 2: 183. 1876; FPM 1: 248. 1957.

Vine. Branchlets densely downy-pubescent. Leaves 3-foliolate. Terminal leaflet rhomboid, laterals obliquely obovate, inequilateral, thin-coriaceous, appressed-pubescent, base obtuse-subacute, margin ciliate, apex acute, mucronate. Racemes axillary, flowers clustered. Calyx-tube campanulate, long tomentose, lobes lanceolate. Corolla hardly exserted, white, petals clawed. Stamens monadelphous, later 9+1. Pod linear, pubescent, flat, septate between seeds, shortly beaked.

Common in dry deciduous and scrub jungles and along stream banks. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** LP 2618 (SACONH); VN 79049 (MH); SRN 80544 (MH); KCJ 81298 (MH).

OUGEINIA Benth. in Miq., Pl. Jungh. 216. 1852.

Ougeinia oojeinensis Hochr., Bull. Soc. Bot. Geneve 13 & 14: 51. 1909; FTN 1: 116. 1983; Sanjappa, Legumes Ind. 224. 1992; FEG 2: 290. 2000. *O. dalbergioides* Benth. in Miq. Pl. Jungh. 216. 1852; FBI 2: 161. 1876; FPM 1: 240. 1957.

Small deciduous tree with grey or dark brown, deeply cracked bark. Leaves alternate, trifoliate. Leaflets broadly ovate, coriaceous, glabrous above, sparsely pubescent beneath, base cordate, margins shallowly crenate. Flowers white or pink, fragrant, borne in short-fascicled racemes arising from the nodes of old branches. Calyx campanulate, pubescent, teeth short, triangular. Pods linear-oblong, light brown, flat.

Occasional in dry deciduous forest. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KNS 6909, 6910 (FRC); VS 18186, 18744, 19036 (FRC).

PARACALYX Ali in Karachi, Univ. Stud. 5: 95. 1968.

Paracalyx scariosus (Roxb.) Ali in Karachi, Univ. Stud. 5: 95. 1968; FTC 3(1): 438. 1983; FTN 1: 117. 1983; FEG 2: 290. 2000. *Cylista scariosa* Roxb., Pl. Coromandel 1: 64. t. 92. 1795; FBI 2: 219. 1876; FPM 1: 262. 1957.

Vine. Branchlets densely pubescent. Leaves 3-foliate, terminal leaflet deltoid-ovate, laterals ovate, chartaceous, pubescent, base obtuse-subacute, margin entire, apex acuminate, apiculate. Inflorescence of racemes or panicles. Calyx-tube persistent, campanulate. Corolla enclosed with calyx, yellow, petals clawed. Stamens 9+1. Pod ellipsoid, flat, pubescent. Seed solitary.

Rare in moist deciduous forest. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KCJ 81426 (MH); PSAT 187297, 187298 (MH).

PONGAMIA Vent., Jard. Malmaison 1: 28, t. 28. 1803.

Pongamia pinnata (L.) Pierre, Fl. Forest. Cochinch. sub. t. 385. 1899; FTC 3(1): 441. 1983; FTN 1: 117. 1983; LOI 230. 1992; FEG 2: 292. 2000. *P. glabra* Vent., Jard. Malmaison 1: 28, t. 28. 1803; FBI 2: 240. 1876; FPM 1: 272. 1957.

Large deciduous tree. Branchlets glabrescent. Leaves odd-pinnate. Leaflets 3-5 pairs, opposite, obovate, thin coriaceous, glabrous, glossy above, base obtuse-cuneate, margin entire, apex acuminate. Inflorescence in pseudoracemes or panicles. Calyx-tube campanulate. Corolla exerted, pinkish white, fragrant, petals clawed. Stamens 10, monadelphous. Pod obliquely oblong, woody, compressed.

Common in riverbanks, dry deciduous forest and along road sides. **Fl. & Fr.:** Feb-Oct. **VN:** *Punga maram*. **Sp.Ex.:** VS 18241 (FRC); KCJ 81099 (MH); PSAT 187051, 187052, 187341, 187342, 187347, 187348, 187377 (MH).

PSEUDARTHRIA Wight & Arn., Prodr. Fl. Ind. Orient. 209. 1834.

Pseudarthria viscida (L.) Wight & Arn., Prodr. Fl. Ind. Orient. 209. 1834; FBI 2: 154. 1876; FPM 1: 236. 1957; FTC 3(1): 442. 1983; FTN 1: 117. 1983; LOI 230. 1992; FEG 2: 293. 2000.

Subshrub. Branchlets densely villose, viscid. Leaves 3-foliate, terminal leaflet ovate-rhomboid, twice as long as laterals, base cuneate-obtuse, margin ciliate, apex acute, mucronate. Racemes, flowers in pairs or clusters. Calyx-tube campanulate, lobes lanceolate. Corolla exerted, rose, petals clawed. Stamens 9+1. Pod linear, oblong, flat, compressed, hooked-pubescent, margin undulate, non-septate, apex apiculate.

Common in river banks and along roadsides. **Fl. & Fr.:** Sept.-Jan. **Sp.Ex.:** LP 2069, 2266 (SACONH); KA & PB 1433 (SACONH).

PTEROCARPUS Kuntze, Kongl. Ventensk. Acad. Handl. 116. 1769, non. illeg.

Pterocarpus marsupium Roxb., Pl. Coromandel t. 116. 1799; FBI 2: 239. 1876; FPM 1: 271. 1957; FTC 3(1): 445. 1983; FTN 1: 118. 1983; LOI 232. 1992; FEG 2: 295. 2000.

Large tree with greyish bark, rough, deeply vertically cracked. Exudation blood-red. Leaves imparipinnate, alternate. Leaflets 5-7, alternate, estipulate, elliptic-oblong, emarginate, coriaceous. Flowers yellow, in terminal and axillary panicles. Calyx tube campanulate. Corolla exserted, petals 5, long-clawed. Stamens 10, monadelphous. Pod orbicular-reniform, broadly winged. Seed one.

Common in moist deciduous forest. **Fl. & Fr.:** June-Mar. **VN:** *Vengai*. **Sp.Ex.:** LP 3098 (SACONH); KNS 13379, 13380 (FRC); VS 18245, 18271, 18554 (FRC); VN 78371 (MH); KCJ 81392 (MH); EV 142122, 142123 (MH); PSAT 187021, 187022, 187460, 187461, 187462, 187463 (MH).

PYCNOSPORA R. Br. ex Wight & Arn., Prodr. Fl. Ind. Orient. 197. 1834.

Pycnospora lutescens Schindl., J. Bot. 64: 145. 1926; FTC 3(1): 447. 1983; FTN 1: 118. 1983; FEG 2: 300. 2000. *P. hedysaroides* R. Br. Prodr. Fl. Ind. Orient. 1: 197. 1834, nom. inval.; FBI 2: 153. 1876; FPM 1: 235. 1957.

Prostrate or decumbent trailing herb. Branchlets downy-pubescent. Leaves 3-foliate. Leaflets obovate, thin coriaceous, base cuneate, margin ciliate, apex rounded, emarginated. Flowers paired. Calyx-tube campanulate, lobes lanceolate. Corolla enclosed with calyx, purple, petals clawed. Stamens 9+1. Pod oblong, inflated, non septate.

Rare in forest undergrowth. **Fl. & Fr.:** June-Nov. **Sp.Ex.:** CECF 14697, 14698 (MH); VS 18415 (FRC).

RHYNCHOSIA Lour., Fl. Cochinch. 425, 460. 1790.

Key to the species

- | | |
|---|----------------------|
| 1a. Erect herb or shrub..... | <i>R. cana</i> |
| 1b. Climbers, trailers, lianas..... | 2 |
| 2a. Calyx-lobes apically obtuse; pod 1-2 seeded..... | 3 |
| 2b. Calyx-lobes apically acuminate..... | 4 |
| 3a. Flowers many; bracts foliaceous..... | <i>R. hirta</i> |
| 3b. Flowers ca. 5; bracts not foliaceous..... | <i>R. rufescens</i> |
| 4a. Racemes capitate..... | <i>R. densiflora</i> |
| 4b. Racemes elongate..... | 5 |
| 5a. Leaf-apex obtuse-rotund; flowers yellow..... | <i>R. minima</i> |
| 5b. Leaf-apex acute-acuminate; flowers brownish-purple..... | 6 |
| 6a. Leaflet obovate to deltoid; calyx tomentose..... | <i>R. viscosa</i> |
| 6b. Leaflet rhomboid; calyx sericeous with glandular hairs..... | <i>R. rothii</i> |

Rhynchosia cana (Willd.) DC., Prodr. 2: 386. 1825; FBI 2: 222. 1876; FPM 1: 264. 1957; FTN 1: 119. 1983; FTC 3(1): 448. 1983; LOI 237. 1992; FEG 2: 306. 2000.

Straggler. Branchlets viscid, glandular-pubescent. Leaflets terminal ovate-elliptic, laterals narrow-elliptic or ovate, oblique, thin coriaceous, base cuneate-obtuse, margin entire, apex obtuse-acute. Flowers solitary or in pairs. Calyx-tube campanulate, lobes lanceolate. Corolla yellow. Pod obovoid, apex obtuse, apiculate, exceeding calyx.

Occasional in dry forests. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** TRN 78658 (MH); KCJ 81349 (MH).

Rhynchosia densiflora (Roth) DC., Prodr. 2: 386. 1825; FBI 2: 226. 1876; FPM 1: 265. 1957; FTN 1: 119. 1983; FTC 3(1): 449. 1983; FEG 2: 311. 2000.

Vine. Branchlets downy-pubescent, viscid. Terminal leaflet ovate-rhomboid, laterals ovate, thin coriaceous, base cuneate, obtuse, margin ciliate, apex acute, apiculate. Racemes dense, sub-capitate. Calyx-tube campanulate, pubescent, lobes lanceolate. Corolla exceeding calyx, yellow. Pod oblong as long as calyx, glandular-pubescent.

Occasional in deciduous forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** DD 87084 (MH).

Rhynchosia hirta (Andrews) Meikle & Verdc., Taxon 16: 462. 1967; FTC 3(1): 450. 1983; FEG 2: 311. 2000. *R. cyanosperma* Benth. ex Baker in Oliver, Fl. Trop. Africa 2: 218. 1871; FBI 2: 222. 1876; FPM 1: 264. 1957.

Liane. Branchlets densely villous. Terminal leaflet ovate-elliptic, laterals ovate-rhomboid, coriaceous, velvety-villous, rusty, base cuneate-obtuse, margin entire, apex acuminate, mucronate. Racemes dense, viscid. Calyx-tube campanulate, villous, lobes oblong, apex obtuse. Corolla hardly exserted, cream. Pod constricted, as long as calyx, mucronate.

Common in moist shady places. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** PSAT 186776, 186777, 187279, 187280 (MH).

Rhynchosia minima (L.) DC., Prodr. 2: 385. 1825; FBI 2: 223. 1876 incl. var. *laxiflora* (Camb.) Baker; FPM 1: 264. 1957; FTN 1: 119. 1983; FTC 3(1): 452. 1983; FEG 2: 316. 2000.

Vine. Branchlets downy-pubescent. Leaves 3-foliate, terminal and lateral leaflets obovate-rhomboid, thin coriaceous, pubescent, gland-dotted below, base cuneate, margin entire, apex obtuse-rotund, apiculate. Racemes axillary, 10-flowered. Calyx-tube campanulate, pubescent. Corolla exceeding calyx, yellow. Pod pubescent, slightly falcate, horned.

Common in foothills and Wastelands. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** VS 18257, 18551(FRC); PSAT 187222 (MH).

Rhynchosia rothii Benth. ex Aitch., Cat. Pl. Punjab & Sindh. 50. 1869; FTN 1: 119. 1983; LOI 240. 1992; FEG 2: 317. 2000.

Climber. Branches with grey-glandular hairs. Leaves 3-foliate. Leaflets rhomboid in terminal, broadly ovate in laterals, base cuneate, apex acute, dense pubescent. Flowers purple, in 30-40 flowered racemes. Calyx campanulate, sericeous with glandular hairs, villous. Petals 5, purplish with brown spots, silky pubescent. Standard auricled at base. Pods oblong, finely pubescent, turgid, 2-seeded.

Rare in moist shady places. **Fl. & Fr.:** Sept.-Mar. **Sp.Ex.:** LS 2974 (SACONH).

Rhynchosia rufescens (Willd.) DC., Prodr. 2: 387. 1825; FSIHS 1: 172. 1932; FBI 2: 220. 1876; FPM 1: 263. 1957; FTN 1: 119. 1983; FTC 3(1): 454. 1983; FEG 2: 318. 2000.

Spreading vine. Branchlets viscid, pubescent, terminal leaflet ovate-elliptic, ovate-rhomboid, pubescent, thin coriaceous, base obtuse-subacute, margin entire, apex acute, apiculate. Racemes 3-5 in a cluster. Calyx-tube accrescent, foliaceous, pubescent, lobes oblong. Corolla slightly exceeding or equal to calyx, yellow. Pod ovoid, apically beaked, slightly exceeding calyx. Seed solitary.

Occasional in foothills and scrub jungles. **Fl. & Fr.:** Sep-Mar. **Sp.Ex.:** LP 2820, 2946 (SACONH); CAB 16676, 16677 (MH); KCJ & JD 81239 (MH); PSAT 187237, 187281, 187282, 187408, 187409, 187436, 187437 (MH).

Rhynchosia viscosa (Roth) DC., Prodr. 2: 387. 1825; FBI 2: 225. 1876; FPM 1: 265. 1957; FSIHS 1: 172. 1932; FTC 3(1): 455. 1983; FTN 1: 120. 1983; FEG 2: 322. 2000.

Vine. Branchlets densely viscid, tomentose, terminal and lateral leaflets ovate-deltoid, margin entire, apex acuminate, apiculate. Racemes dense. Calyx-tube tomentose, lobes lanceolate, apex setaceous. Corolla exserted, purplish. Pod oblong, pubescent, horned, exceeding calyx.

Occasional clumps in moist deciduous forest. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** LP 2611 (SACONH); VN 79703 (MH); PSAT 187573, 187574 (MH).

ROTHIA Schreb., Gen. Pl. ed. 8. 2: 531. 1791.

Rothia indica (L.) Druce, Bot. Exch. Club Soc. Brit. Isles Rep. 3(5): 423. 1914; FTC 3(1): 456. 1983; FTN 1: 120. 1983; FEG 2: 322. 2000. *R. trifoliata* (Roth) Pers., Syn. Pl. 2: 302. 1806; FBI 2: 63. 1876; FPM 1: 199. 1957.

Prostrate herb. Branchlets hirsute. Leaves 3-foliate. Leaves oblanceolate, thin coriaceous, hirsute below, base attenuate, margin ciliate, apex obtuse. Flowers axillary, solitary or 3-flowered fascicles. Calyx-tube turbinate, lobes lanceolate. Corolla scarcely exserted, yellow, petals long-clawed, equal. Stamens monadelphous. Pod linear, compressed, continuous, mucronate. Seeds reniform. Rare in high elevation along hill slopes. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VN 79195 (MH).

SESBANIA Scop., Inrod. Hist. Nat. 308. 1777.

Key to the species

- 1a. Stems suberect or prostrate; pods less than 10 cm long.....*S. procumbens*
- 1b. Stems erect; pods more than 10 cm.....*S. bispinosa*

Sesbania bispinosa (Jacq.) W.F. Wight, Bull. Bur. Pl. Industr. U.S.D.A. No. 137: 15. 1909; FTN 1: 120. 1983; FTC 3(1): 457. 1983; FEG 2: 324. 2000. *S. aculeata* (Schreb.) Pers., Syn. Pl., 2(2): 316. 1807; FBI 2: 114. 1876; FPM 1: 228. 1957.

Shrub. Branchlets with short prickles, latex watery. Leaves 45-50 pairs, oblong, chartaceous, glabrous, base cuneate, margin entire, apex obtuse, apiculate. Racemes erect. Calyx-tubes campanulate, lobes obscure. Corolla yellow-brown with blackish dots. Pods subterete, tortulose, margin not grooved.

Occasional in along the road sides and waste lands. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VN 79173 (MH); KCJ & JD 81155 (MH).

Sesbania procumbens (Roxb.) Wight & Arn., Prodr. Fl. Ind. Orient. 215. 1834; FBI 2: 115. 1876; FPM 1: 228. 1957; FTN 1: 120. 1983; FEG 2: 325. 2000.

Erect herb. Leaflets 20-30 pairs, linear-oblong, obtuse at apex, apiculate, rounded at base, entire at margins, glabrous. Flowers in axillary racemes. Calyx-tube campanulate, glabrous, lobes deltoid. Corolla yellow. Stamens 9+1. Pod straight, beaked, oblong.

Common along water logged areas and bunds of cultivated fields. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2294 (SACONH).

SHUTERIA Wight & Arn., Prodr. Fl. Ind. Orient. 207. 1834.

Shuteria involucrata (Wall.) Wight & Arn., Prodr. Fl. Ind. Orient. 207. 1834. nom. inval.; FTC 3(1): 460. 1983; FEG 2: 325. 2000. *S. vestita* Wight & Arn., Prodr. Fl. Ind. Orient. 207. 1834; FBI 2: 181. 1876; FSIHS 1: 165. t. 127. 1932; FPM 1: 247. 1957; FTC (3)1: 460. 1983; FTN 1: 121. 1983; LOI 245. 1992.

Vine. Branchlets strigose-villous. Leaves 3-foliate, terminal one ovate-rhomboid, laterals pairs ovate, chartaceous, base cuneate, margin ciliate, apex obtuse, mucronate. Racemes axillary, flowers solitary or paired on rachis. Calyx-tube gibbous, lobes ovate. Corolla purplish, apically pink, exserted, petals clawed. Stamens 9+1. Pod linear flat, tomentose, recurved.

Occasional in along the forest borders of the moist deciduous and semi-evergreen forests. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** KA & PB 1705 & 1717 (SACONH); KCJ 81451 (MH).

SMITHIA Aiton, Hort. Kew. 3: 496. 1789.

Smithia blanda Wall. Numer. List. n. 5669. 1830; FBI 2: 151. 1876; FSIHS 1: 159. t. 121. 1932; FPM 1: 233. 1957; FTN 1: 121. 1983. *S. racemosa* B. Heyne, Numer. List. n. 5670. 1830; FPM 1: 233. 1957; FTC 3(1): 461. 1983; FEG 2: 327. 2000.

Prostrate herb, branchlets tomentose or pubescent. Leaflets 4-5 pairs, elliptic lanceolate, obtuse at apex with mucronate tip, ciliate on margins. Racemes corymbose, axillary and terminal. Bracts lanceolate. Calyx tube campanulate, 2-lipped, upper large, emarginate, lower 3-lobed, ciliate on margins. Petals yellow, wing petal with transverse scaly folding. Pods 4-5 jointed folded and enclosed in the accrescent calyx.

Occasional in grasslands. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** KA & PB 1439 (SACONH).

SOPHORA L., Sp. Pl. 373. 1753.

Sophora glauca Lesch. ex DC., Ann. Sci. Nat. (Paris) 4: 98. 1825; FBI 2: 249. 1878; FSIHS 1: 177. t. 137. 1932; FPM 1: 274. 1957; FTN 1: 122. 1983; FTC 3(1): 462. 1983. *S. velutina* Lindl., Bot. Reg. 14: t. 1185. 1828; FEG 2: 328. 2000.

Shrub. Branchlets densely appressed-velvety. Leaves odd-pinnate. Leaflets 10-12 pairs, opposite-alternate, oblong-lanceolate, chartaceous, pubescent below, base obtuse-truncate, margin entire, apex acute. Racemes axillary. Calyx-tube campanulate. Corolla exserted, rose-purple, petals clawed. Stamens 10, free. Pod moniliform, glabrous, horn erect.

Open areas, hillslopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KNS 6907 (FRC); CECF 17412, 17413 (MH); VS 18255, 18318, 18555 (FRC).

STYLOSANTHES Sw., Prodr. 7, 108. 1788.

Stylosanthes fruticosa (Retz.) Alston in Trim., Hand-book Fl. Ceylon 6 (Suppl.): 77. 1931; FTC 3(1): 463. 1983; FTN 1: 122. 1983; FEG 2: 330. 2000. *S. mucronata* Willd., Sp. Pl. 3: 1166. 1802, nom. illeg.; FBI 2: 148. 1876; FPM 1: 230. 1957.

Shrub. Branchlets appressed-tomentose. Leaves 3-foliate, base subacute, margin ciliate, apex obtuse, stiff-mucronate. Upper calyx lobes subconnate, lower one lanceolate. Corolla yellow, petals shortly clawed. Stamens monadelphous. Pod oblong, beaked.

Common in dry deciduous forest. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** LP 1383 (SACONH); PSAT 186991, 187483, 187484 (MH).

TEPHROSIA Pers., Syn. Pl. 2: 328. 1807.

Key to the species

- 1a. Flower(s) 1 or 2 in leaf axils; stipules spinous.....*T. spinosa*
- 1b. Flowers in pseudoracemes or panicles; stipules not spinous.....2
- 2a. Flower-clusters interrupted on the rachis of flowers 1-3 in leaf axil.....*T. pumila*
- 2b. Flower-clusters uninterrupted on the rachis.....3
- 3a. Terminal leaflet > 3 cm long; style pubescent.....4
- 3b. Terminal leaflet < 1.5 cm long; style glabrous.....5
- 4a. Peduncle twice as long as leaflet, 7-9(11).....*T. tinctoria*
- 4b. Peduncle equal to or slightly exceeding leaflets, 3-5 (7), rarely solitary.....*T. pulcherima*
- 5a. Leaflets silvery tomentose below; racemes 15-30 cm long.....6
- 5b. Leaflets not silvery tomentose below; racemes 2-10 cm long.....*T. purpurea*
- 6a. Leaflets obtuse or acute at apex, stiff-mucronate; pod soft tomentose.....*T. hookeriana*
- 6b. Leaflets retuse at apex; pods densely villous.....*T. villosa*

Tephrosia hookeriana Wight & Arn., Prodr. Fl. Ind. Orient. 212. 1834; FBI 2: 113. 1876; FPM 1: 226. 1957; FTN 1: 122. 1983; FTC 3(1): 466. 1983; FEG 2: 337. 2000.

Shrub. Branchlets silky-pubescent. Leaflets 8-10 pairs, opposite, oblong-obovate or oblanceolate, chartaceous, glabrescent above, yellowish-pubescent below, base subacute-cuneate, margin entire, apex obtuse-truncate, stiff-mucronate. Pseudoracemose, leaf-opposed. Calyx-tube velvety. Petals obovate, sericeous. Pod oblong, compressed, tomentose.

Occasional in dry deciduous forest. **Fl. & Fr.:** June-Oct. **Sp.Ex.:** LP 2504, 2547, 2877 (SACONH); VS 18311 (FRC); PSAT 186949, 187088 (MH).

Tephrosia pulcherrima Wight ex Baker in Hook. f., Fl. Brit. India 2(4):112. 1876; FPM 1: 225. 1957; FTN 1: 123. 1983; FTC 3(1): 468. 1983; LOI 257. 1992; FEG 2: 339. 2000.

Prostrate to ascending subshrub. Branchlets velvety. Leaflets 3-5, terminal one 2 or 3 times as long as laterals, oblong, elliptic, thin coriaceous, velvety, base and apex obtuse-retuse, apiculate, margin ciliate. Pseudoracemes axillary, 5-flowered. Calyx-tubes velvety, lobes lanceolate. Corolla pink-red with yellow blotch. Pod densely velvety, subquadrate, strophiolate.

Occasional in moist deciduous forest. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 3157, 3152 (SACONH).

Tephrosia pumila (Lam.) Pers., Syn. Pl. 2: 330. 1807; FTN 1: 123. 1983; FTC 3(1): 468. 1983; FEG 2: 339. 2000.

Prostrate herb. Branchlets sericeous-velutinous. Leaflet 4-6 pairs, obovate-oblanceolate, chartaceous, appressed-tomentose, base cuneate, margin entire, apex truncate, emarginated, mucronate. Pseudoracemes leaf-opposed, flowers 1-3 in cluster. Calyx-tube lobes lanceolate, scattered-pubescent. Corolla white or purplish. Pod pubescent, stiff-hispid.

Common in fallow lands and waste lands. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** CECF 14308, 14311 (MH).

Tephrosia purpurea (L.) Pers., Syn. Pl. 2: 328. 1807; FBI 2: 112. 1876; FPM 1: 226. 1957; FTN 1: 123. 1983; FTC 3(1): 470. 1983; LOI 258. 1992; FEG 2: 340. 2000.

Subshrub. Branchlets pubescent villose. Leaflets 4-9 pairs, obovate, pubescent, base cuneate, margin entire, apex obtuse, mucronate. Pseudoracemes leaf-opposed. Calyx-tube pubescent, lobes lanceolate. Corolla bluish-pink to purple. Pod downy puberulous, slightly falcate.

Common along road sides and dry and moist deciduous forest. **Fl. & Fr.:** Throughout the year. **VN:** *Kozhingi, Avuri*. **Sp.Ex.:** LP 1691 (SACONH); KNS 1732, 2064 (FRC); VS 18308, 18309 (FRC); PSAT 187204, 187259, 187260, 187543, 187544 (MH).

Tephrosia spinosa (L. f.) Pers., Syn. Pl. 2: 330. 1807; FBI 2: 112. 1876; FPM 1: 226. 1957; FTN 1: 123. 1983; FTC 3(1): 472. 1983; FEG 2: 342. 2000.

Shrub. Branchlets grey-canescens. Leaflets 4-5 pairs, obovate, chartaceous, appressed-pubescent, base cuneate, margin entire, apex truncate, emarginate. Stipules spinous. Flowers axillary, 1 or 2. Calyx-tube campanulate. Corolla red. Pod appressed-pubescent.

Occasional in waste lands. **Fl. & Fr.:** Oct.-Jan. **VN:** *Mullukozhingi*. **Sp.Ex.:** VS 18310 (FRC).

Tephrosia tinctoria Pers., Syn. 2: 329. 1807; FBI 2: 111. 1876; FSIHS 1: 158. 1932; FPM 1: 225. 1957; FTN 1: 123. 1983; FTC 3(1): 473. 1983; FEG 2: 343. 2000.

Erect or scandent subshrub. Branchlets woolly-velvety. Leaves odd-pinnate. Leaflets 7-9 pairs, terminal one twice as long as laterals, oblong-elliptic, thin coriaceous, glaucous to velvety, base and apex obtuse, retuse, apiculate, margin entire. Pseudoracemes axillary, 5-flowered. Calyx-tube velvety, lobes lanceolate. Corolla orange to flame coloured. Pods sparsely velvety.

Rare in grassy hill slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KNS 11840, 11841 (FRC); CAB 14199 (MH); CECF 14220 (MH); VS 18410, 18539 (FRC); KCJ 81257 (MH); PSAT 186933, 187446, 187447, 187456, 187457 (MH).

Tephrosia villosa (L.) Pers., Syn. Pl. 2: 329. 1807; FBI 2: 113. 1876; FTN 1: 123. 1983; FTC 3(1): 473. 1983; FEG 2: 345. 2000.

Subshrub. Branchlets sericeous-villous. Leaflets 5-7 pairs, obovate-oblongate, chartaceous, glabrous above, sericeous below, base cuneate, margin entire, apex obtuse, retuse. Pseudoracemes axillary. Calyx-tube sericeous. Corolla pink. Pod sericeous, apex slightly curved, not horned.

Common in wastelands. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** LP 2893 (SACONH); CAB 14135, 14141 (MH); VS 18536 (FRC); TRN 78657 (MH).

TERAMNUS P. Browne, Civ. Nat. Hist. Jamaica 290. 1756.

Teramnus labialis (L. F.) Spreng., Syst. Veg. ed. 16. 3: 235. 1826; FBI 2: 184. 1876; FPM 1: 249. 1957; FTC 3(1): 474. 1983; FTN 1: 123. 1983; FEG 2: 347. 2000.

Vine. Branchlets appressed-tomentose. Leaves 3-foliate, terminal leaflet obovate-lanceolate, laterals inequilateral, thin coriaceous, pubescent below, base cuneate, margin entire, apex obtuse-acute, mucronate. Racemes axillary, solitary. Calyx-tube campanulate. Corolla slightly exerted, pink, petals clawed. Stamens monadelphous. Pod linear, compressed, septate, horn stout, hooked.

Occasional in margins of the dry deciduous forest. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** SRR 81023 (MH).

TRIFOLIUM L., Sp. Pl. 764. 1753.

Trifolium pratense L., Sp. Pl. 2: 768. 1753; FBI 2: 86. 1876; FPM 1: 214. 1957; FTN 1: 124. 1983.

Perennial erect herb, sparsely villous or glabrescent. Leaves palmately 3-foliate. Leaflets obovate to elliptic, margins serrulate, apex obtuse, retuse. Flowers 30-70, terminal, sessile. Calyx slightly pubescent or glabrous. Corolla reddish purple to pink, rarely white. Seed 1, yellow or brown.

Rare in high altitude grasslands. **Fl. & Fr.:** May-Sept. **Sp.Ex.:** VS 18321 (FRC).

URARIA Desv., J. Bot. Agric. 1: 122. 1813.

Uria rufescens (DC.) Schindl., Repert. Spec. Nov. Regni Veg. 21: 14. 1925; FTN 1: 124. 1983; FTC 3(1): 476. 1983; LOI 268. 1992; FEG 2: 352. 2000. *U. hamosa* (Roxb.) Wall., Numer. List. n. 5681. 1830; FBI 2: 156. 1876; FPM 1: 237. 1957.

Straggler. Branchlets downy-villous. Leaves 3-foliate. Leaflets oblong or ovate-elliptic, tomentose below, chartaceous, base truncate-obtuse, margin ciliate, apex obtuse, mucronate. Inflorescence of racemes or panicles. Calyx-tube campanulate, 2-lipped. Corolla rose. Stamens 9+1. Pod with 4 or 5 joint, bristly, folded up and inserted in calyx.

Occasional in moist deciduous forest. **Fl. & Fr.:** October-January. **Sp.Ex.:** LP 2699 (SACONH); KCJ 81507 (MH).

VIGNA Savi, Nuovo. Giorn. Lett. 3. 8: 113. 1824.

Key to the species

- 1a. Leaflets entire; flowers pink or purple.....2
- 1b. Leaflets lobed; flowers yellow.....3
- 2a. Stipules lanceolate.....*V. grahamiana*
- 2b. Stipules ovate.....*V. vexillata* var. *wightii*
- 3a. Stipules obovate; leaf margins ciliate.....*V. trilobata*
- 3b. Stipules deltoid; leaf margin entire.....*V. radiata*

Vigna grahamiana (Wight & Arn.) Verde., Kew Bull. 24(3): 562. 1970; FTN 1: 125. 1983; LOI 273. 1992; FEG 2: 356. 2000. *Phaseolus grahamianus* Wight & Arn., Prodr. Fl. Ind. Orient. 244. 1834; FBI 2: 201. 1876; FPM 1: 256. 1957.

Climber. Branchlets hirsute to glabrescent. Leaves 3-foliate. Leaflet rhomboid-ovate, acute at base, apex acute-acuminate, apiculate. Stipules lanceolate. Racemes axillary. Calyx lobes acute. Petals violet-purple, wings obovate. Stamens 9+1. Pods linear, subcompressed, beaked, glabrous. Seeds oblong.

Rare in moist deciduous forest. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** PSAT 187390 (MH).

Vigna radiata (L.) R. Wilczek, Fl. Congo Belge 6: 386. 1954; FTN 1: 126. 1983; FTC 3(1): 478. 1983; FEG 2: 359. 2000. *Phaseolus radiatus* L., Sp. Pl. 725. 1753; FPM 1: 256. 1957.

Erect herb. Branchlets spreading-hispid. Leaves 3-foliate. Leaflets oblong-lanceolate or somewhat rhomboid, chartaceous, glabrous above, sparsely hispid below, base oblique, obtuse-rounded, margin entire, apex acuminate. Stipule ovate. Flowers axillary. Calyx-tube glabrous. Corolla exserted, yellow, petals clawed. Pod straight puberulous.

Cultivated. **Fl. & Fr.:** Sept.-Dec. **VN:** *Pachipayiru*. **Sp.Ex.:** PSAT 187217 (MH).

Vigna trilobata (L.) Verdc., Taxon 17: 172. 1968; FTC 3(1): 479. 1983; FTN 1: 126. 1983; FEG 2: 360. 2000. *Phaseolus trilobus* auct. non (L.) Aiton, Hort. Kew. 3: 30. 1789; Roxb., Fl. Ind. 3: 298. 1832; FBI 2: 201. 1876; FPM 1: 256. 1957.

Prostrate or twining herb. Branchlets angular, finely ribbed. Leaves 3-foliate. Leaflets palmately 3-lobed, midlobe large, obovate-spathulate, lateral lobes oblique, small, chartaceous, appressed-pubescent, base and apex obtuse, margin ciliate, apiculate. Racemes axillary. Calyx-tube deeply lobed, lobes 5. Corolla yellow. Pod subterete, turgid, sparsely pubescent.

Common in riverbanks and fallow lands. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** SRR 81030 (MH).

Vigna vexillata (L.) A. Rich. var. **wightii** (Benth. ex Bedd.) Babu & S.K. Sharma, Bull. Bot. Surv. India 27: 28. 1987; LOI 278. 1992. *V. wightii* Benth. ex Bedd., Trans. Linn. Soc. London 25: 215. 1865; FBI 2: 206. 1876; FSIHS 1: 169. 1932; FPM 1: 257. 1957; FTN 1: 126. 1983.

Twining, pubescent. Leaflet, ovate, apex obtuse, mucronate, base rounded, oblique at the base, puberulous above, densely silky pubescent below. Racemes axillary. Flowers solitary or 2-3 together, light purple. Calyx campanulate, lobes unequal, ciliate. Corolla yellow, petal clawed. Pod terete, pilose, acuminate at the apex.

Rare in Moist deciduous forest. **Fl. & Fr.:** Nov.-Dec. **Sp.Ex.:** VS 18324 (FRC).

ZORNIA J.F.Gmel., Syst. Nat. 2: 1076. 1096. 1792.

Zornia gibbosa Span., Linnaea 15: 192. 1841; FTN 1: 127. 1983; FTC 3(1): 482. 1983; FEG 2: 362. 2000. *Z. diphylla* auct. non (L.) Pers. 1807; FBI 2: 147. 1876; FPM 1: 229. 1957; FTC 3(1): 481. 1983; FEG 2: 363. 2000.

Prostrate herb. Branchlets pubescent. Leaves digitately 2-foliate, lanceolate, sparsely pubescent, base obtuse, margin entire, apex acute, apiculate. Racemes 3-12 flowered. Calyx-tube campanulate. Corolla yellow. Pod compressed, articles with retrorsely scabrid prickles.

Common in plains, dry deciduous and scrub jungles. **Fl. & Fr.:** Sept.-Jan. **VN:** *Porikarappanthalai*. **Sp.Ex.:** LP 2287 (SACONH); KA & PB 1535, 1683 (SACONH); PSAT 186938 (MH); CECF 14469, 14470 (MH); VS 18542 (FRC).

CAESALPINIACEAE R. Br., Voy. Terra Austral. 2: 551. 1814, nom. cons.

Key to the genera

- 1a. Leaflets 2.....2
- 1b. Leaflets many.....3
- 2a. Petals 0; leaves fully divided to the base.....*Hardwickia*
- 2b. Petals 5; leaves $\pm$ divided to 2/3 or to the middle.....*Bauhinia*
- 3a. Leaves odd pinnate.....4
- 3b. Leaves even pinnate.....7
- 4a. Petals 3; stamens 3, connate; pod with pulpy mesocarp.....*Tamarindus*
- 4b. Petals 5; stamens 5 or 10, free; pod without pulpy mesocarp.....5
- 5a. Pods indehiscent; filaments of 3-lowest stamens longer and curved.....*Cassia*
- 5b. Pods dehiscent; filaments subequal in length and straight.....6
- 6a. Shrubs; bracteoles 0; androecium zygomorphic; seed-coat with areole.....*Senna*
- 6b. Herbs; bracteoles 2; androecium actinomorphic.....*Chamaecrista*
- 7a. Lianes or stragglers; flowers in racemes.....8
- 7b. Trees or shrubs.....9
- 8a. Petals yellow; pods not samaroid.....*Caesalpinia*(p.p.)
- 8b. Petals white; pod samaroid.....*Pterolobium*
- 9a. Leaf-rachis flattened; pods tortulose, turgid.....*Parkinsonia*
- 9b. Leaf-rachis terete; pods not tortulose, compressed.....10
- 10a. Flowers in panicles; petals hairy at base.....*Peltophorum*
- 10b. Flowers in corymbose racemes; petals glabrous.....11
- 11a. Flowers in diffuse corymbose; sepals valvate; pod < 5 cm long.....*Caesalpinia*(p.p.)
- 11b. Flowers in elongate corymbose; sepals imbricate; pod 15-30 cm long.....*Delonix*

BAUHINIA L., Sp. Pl. 374. 1753.

Key to the species

- 1a. Flowers white; petals < 1.5 cm long; pods twisted.....*B. racemosa*
- 1b. Flowers not white; petals > 3.5 cm long; pods other than twisted.....2
- 2a. Stamens 10; flowers yellow or greenish yellow.....3
- 2b. Stamens 3-5; flowers pale rose-pink.....4
- 3a. Inflorescence in panicles axillary; flowers 2 cm long.....*B. malabarica*
- 3b. Inflorescence in terminal racemes; flowers 7-8 cm long.....*B. tomentosa*
- 4a. Petals similar; leaflets connate to half way.....*B. purpurea*
- 4b. Petals dissimilar; leaflets connate to about two thirds.....*B. variegata*

Bauhinia malabarica Roxb., Fl. Ind. 2: 321. 1832; FBI 2: 227. 1878; FPM 1: 288. 1957; FTN 1: 127. 1983; LOI 3. 1992; FEG 2: 3. 2000.

Small deciduous trees. Leaves orbicular, bilobed above. Lobes obtuse, cordate at base. Panicles axillary. Flowers few. Calyx oblong, connate. Petals 5, oblong, greenish yellow, glabrous. Stamens 10. Ovary oblong. Pod compressed, longitudinally striate. Seeds many, oblong.

Rare in moist deciduous forest. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** KCJ 81348 (MH).

Bauhinia purpurea L., Sp. Pl. 375. 1753; FBI 2: 284. 1876; FPM 1: 288. 1957; FTC 3(1): 485. 1983; FTN 1: 128. 1983; LOI 5. 1992; FEG 2: 3. 2000.

Tree. Leaflet connate about half way, sometimes overlapping. Terminal or axillary racemes or panicles. Calyx-tube turbinate. Petals 5, rose to pink, equal and similar. Stamens (3)5. Ovary compressed, grooved. Pod oblong, compressed, narrow at base, apex horned.

Planted. **Fl. & Fr.:** Throughout the year. **VN:** *Mantharai*. **Sp.Ex.:** PSAT 187061 (MH).

Bauhinia racemosa Lam., *Encycl.* 1: 390. 1785; FBI 2: 276. 1878; FPM 1: 288. 1957; FTC 3(1): 485. 1983; FTN 1: 128. 1983; LOI 3. 1992; FEG 2: 5. 2000.

Deciduous tree. Leaves ovate to orbicular, thin coriaceous. Leaflet connate to for two third of the length, base cordate. Racemes axillary or terminal. Calyx-tube campanulate, deeply 5-lobed. Petals white, oblong. Stamens 10. Pod oblong, twisted, compressed, apex obtuse and horned.

Very common in dry and moist deciduous forest. **Fl. & Fr.:** March-October. **VN:** *Aachi*, *Aathi*. **Sp.Ex.:** LP 1865, 2914, 3177 (SACONH); KNS 2006, 2007, 6892, 6893, 6894 (FRC); CECF 18281, 18282, 18283 (MH); VS 18301, 18422 (FRC); VN78942, 79763 (MH); KCJ 81276 (MH); SRR 83197 (MH); PSAT 186958, 187126, 187325, 187326, 187372, 187561, 187562 (MH).

Bauhinia tomentosa L., *Sp. Pl.* 375. 1753; FBI 2: 275. 1878; FPM 1: 288. 1957; FTN 1: 128. 1983; FTC 3(1): 486. 1983; FEG 2: 8. 2000.

Shrub. Leaves orbicular. Leaves connate for about half their length, glabrous above pubescent below, base subcordate, margin entire, apex obtuse, subacute. Racemes terminal, 2-5 flowered. Calyx-tube spathaceous, lobes 5. Petals 5, yellow. Stamens 10. Pod oblong, compressed.

Planted. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** PSAT 186810, 186811 (MH).

Bauhinia variegata L., *Sp. Pl.* 375. 1753; FBI 2: 284. 1876; FPM 1: 288. 1957; FTC 3(1): 487. 1983; FTN 1: 128. 1983; LOI 6. 1992; FEG 2: 11. 2000.

Tree. Branchlets glabrescent. Leaves ovate. Leaflets connate for about two thirds, thin-coriaceous, base deeply cordate, margin entire. Panicles terminal. Calyx-tube irregularly lobed. Petals 5, light pink, upper one dark, variegated. Stamens (3)5. Pod oblong, horned.

Rare in wild. Often cultivated. **Fl. & Fr.:** August-February. **VN:** *Mantharai*. **Sp.Ex.:** LP 2900 (SACONH); PSAT 187212 (MH).

CAESALPINIA L., *Sp. Pl.* 380. 1753.

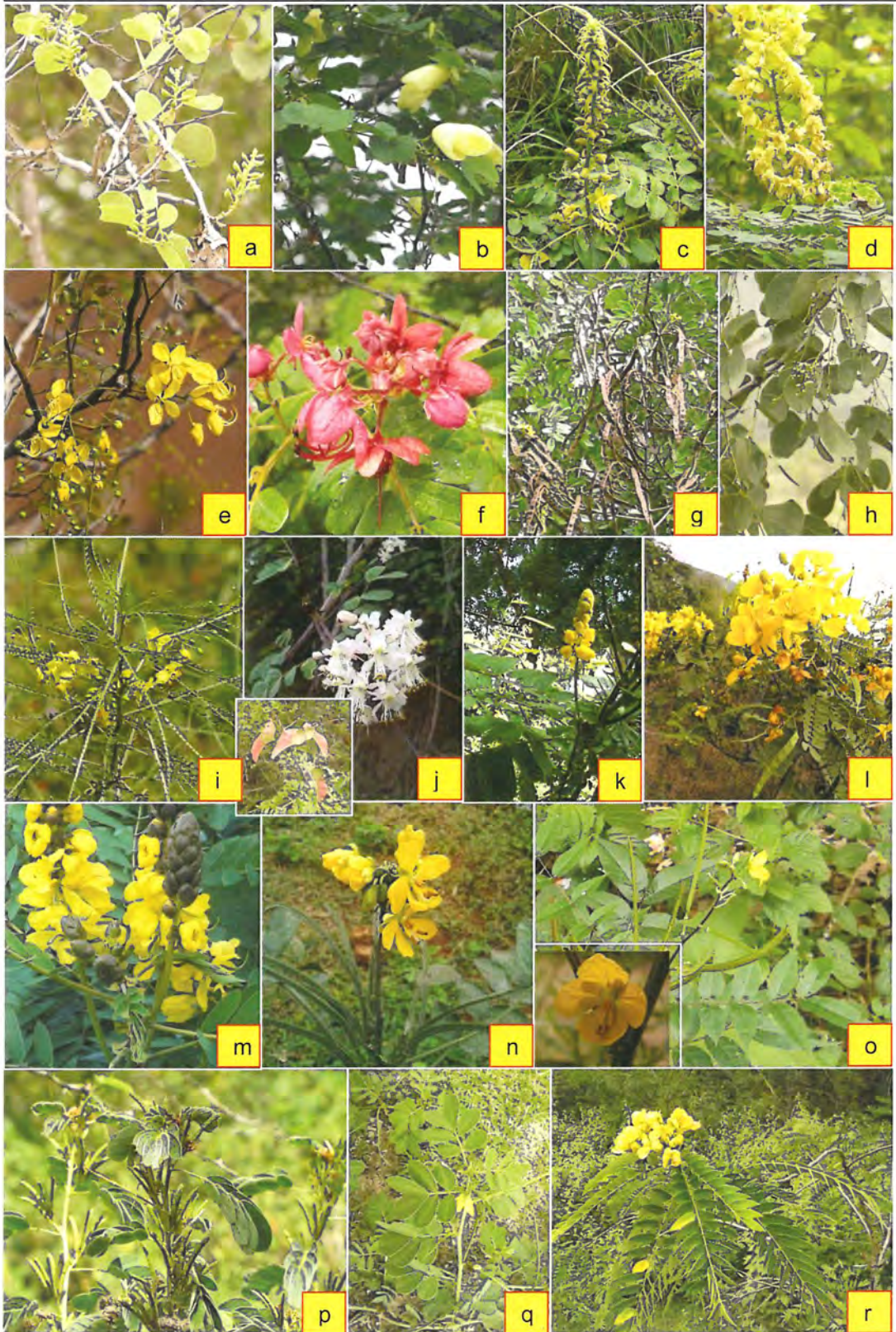
Key to the species

- 1a. Armed stragglers; flowers yellowish; pods with prickles.....2
- 1b. Unarmed shrub or trees.....4
- 2a. Pinnae 2-8 pairs; leaflets 7-9 pairs.....*C. cristata*
- 2b. Pinnae 10-20 or more pairs; leaflets 10-15 pairs.....3
- 3a. Branchlets dark purple, glandular-bristly.....*C. mimosoides*
- 3b. Branchlets yellowish, matty tomentose.....*C. decapetala*
- 4a. Flowers reddish; pods smooth.....*C. pulcherima*
- 4b. Flowers cream; pods twisted.....*C. coriaria*

Caesalpinia coriaria (Jacq.) Willd., *Sp. Pl.* 2: 532. 1799; FPM 1: 279. 1957; FTN 1: 128. 1983; FTC 3(1): 489. 1983; FEG 2: 13. 2000.

Unarmed tree. Pinnae 4-8 pairs, subopposite. Leaflets 20 pairs, oblong, punctuate, glabrous, base oblique, cordate, margin entire, apex emarginate. Panicles axillary and terminal. Calyx-tube campanulate. Sepals 5, oblong. Petals 5, cream, clawed. Stamens 10. Ovary stipitate. Pod twisted.

PLATE 9 - CAESALPINIACEAE



a) *Bauhinia racemosa*, b) *Bauhinia tomentosa*, c) *Caesalpinia crista*, d) *Caesalpinia decapetala*, e) *Cassia fistula*, f) *Cassia roxburghii*, g) *Cassia siamea*, h) *Hardwickia binata*, i) *Parkinsonia aculeata*, j) *Pterolobium hexapetalum*, k) *Senna alata*, l) *Senna auriculata*, m) *Senna didymobotrya*, n) *Senna hirsuta*, o) *Senna occidentalis*, p) *Senna uniflora*, q) *Senna tora*, r) *Senna spectabilis*.

Planted along road sides. **Fl. & Fr.:** Throughout the year. **VN:** *Konapuli*. **Sp.Ex.:** LP 1875 (SACONH).

Caesalpinia crista L., Sp. Pl. 380. 1753; FPM 1: 278. 1957; FTN 1: 128. 1983. *C. bonduc* (L.) Roxb., Fl. Ind. 2: 362. 1832; FTC 3(1): 488. 1983; LOI 9. 1992; FEG 2: 13. 2000.

A stout armed straggler. Branchlets downy-pubescent, prickles recurved. Pinnae 4-7 (8) pairs, prickled. Leaflets 7-9 pair. Racemes axillary, simple or branched. Calyx-tube campanulate. Petals 5, yellow, oblanceolate, upper one smaller. Stamens 10, declinate. Pod oblong-obovate. Common in dry deciduous and moist deciduous along the river and stream sides. **Fl. & Fr.:** Sept.-Feb. **VN:** *Kalatchikai*. **Sp.Ex.:** CECF 17501, 17502 (MH); PSAT 186983 (MH); VS 18566 (FRC).

Caesalpinia decapetala (Roth) Alston in Triman, Hand-Book Fl. Ceylon 6 (Suppl.): 89. 1931; FTN 1: 128. 1983; FTC 3(1): 490. 1983; FEG 2: 15. 2000. *C. sepiaria* Roxb., Fl. Ind. 2: 360. 1832; FBI 2: 256. 1878; FSIHS 1: 180. 1932; FPM 1: 279. 1957.

Armed stragglers. Branchlets matty-tomentose, prickles recurved. Pinnae 10-12 pairs. Leaflets 10 pairs, elliptic or oblong-obovate. Rachis and petioles prickly. Racemes axillary or terminal, prickled. Calyx-tube campanulate. Sepals 5, oblong. Petals 5, golden yellow, upper one spatulate. Stamens 10. Pod flat, turgid, tomentose, obtuse, apex mucronate, horned.

Rare in evergreen forest boundaries. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** KCJ 81315 (MH); SRR 83206 (MH).

Caesalpinia mimosoides Lam., Encycl. 1: 452. 1785; FBI 2: 256. 1878; FPM 1: 279. 1957; FTN 1: 128. 1983; FTC 3(1): 492. 1983. LOI 12. 1992; FEG 2: 17. 2000.

Armed straggler. Branchlets with reddish glandular bristles, prickles erect and recurved. Pinnae > 20 pairs, prickled, opposite. Leaflets 15 pairs, close, oblong or elliptic, base and apex rounded. Racemes axillary. Calyx-tube campanulate. Sepals 5, upper sepal oblong. Petals 5, yellow, upper petals obovate, clawed. Stamens 10. Pod oblong-obovoid, falcate, recurved. Not common in Scrub jungles and moist places. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** KA & PB 1522 (SACONH); VS 18423 (FRC); VN 79146 (MH); PSAT 187273 (MH).

Caesalpinia pulcherrima (L.) Sw., Observ. Bot. 161. 1791; FBI 2: 255. 1878; FPM 1: 279. 1957; FTN 1: 129. 1983; FTC 3(1): 493. 1983; FEG 2: 17. 2000.

Erect shrubs. Branchlets often prickly, glabrous. Pinnae 3-10 pairs. Leaflets 4-12 pairs, ovate-oblong, glabrous, apex and base obtuse, glaucous beneath, glabrous. Flowers in branched racemes. Sepals 5. Petals 5, clawed. Pods 10-12 cm long, straight, flat, linear, 2-valved.

Commonly planted in gardens. **Fl. & Fr.:** Throughout the year. **VN:** *Mayilkonnai*. **Sp.Ex.:** LP 1375 (SACONH).

CASSIA L., Sp. Pl. 376. 1753.

Key to the species

- 1a. Flowers reddish to flame coloured.....*C. roxburghii*
- 1b. Flowers yellow.....2
- 2a. Inflorescence of corymbose panicles.....3
- 2a. Inflorescence of racemes.....4
- 3a. Leaflet 7-10 pairs, retuse, short-mucronate.....*C. siamea*
- 3b. Leaflets 10-12 pairs, obtuse, long mucronate.....*C. montana*
- 4a. Pod flat, < 40 cm long.....*C. intermedia*
- 4b. Pod terete, > 40 cm long.....*C. fistula*

Cassia fistula L., Sp. Pl. 377. 1753; FBI 2: 261. 1878; FSIHS 1: 181. t. 139. 1932; FPM 1: 283. 1957; FTN 1: 129. 1983; FTC 3(1): 498. 1983; LOI 15. 1992; FEG 2: 24. 2000.

Medium sized deciduous tree. Leaflets 5 pairs, subopposite, oblong-broadly ovate, thick coriaceous. Petiole and rachis eglandular. Racemes terminal. Calyx lobe 5, reflexed. Petals 5, yellow. Stamens 10, all antheriferous. Pod shortly stipitate, oblong, terete, dark indehiscent. Seeds many.

Common in moist deciduous forest. **Fl. & Fr.:** Mar.-June. **VN:** *Sarakkonnai*. **Sp.Ex.:** LP 2631, 3166 (SACONH); VS 18304, 18565 (FRC); KCJ 81151 (MH); PSAT 186653 186654, 186925, 187355, 187356 (MH).

Cassia intermedia B.D. Sharma, Vivek. & Rathakr., Proc. Indian Acad. Sci. 80B: 301. 1974; FTN 1: 129. 1983.

Shrub. Stem zigzag. Leaves alternate. Leaflets 3-5 pairs, ovate, attenuate at base, acute-acuminate. Petiole glandular at base. Racemes terminal and axillary, few flowered. Calyx lobes 5, ovate, hirsute. Petals 5, yellow. Stamens 10, unequal. Pods linear. Seeds ovate-suborbicular.

Rare in moist deciduous forest. **Fl. & Fr.:** April-Nov. **Sp.Ex.:** PSAT 186615, 186616 (MH).

Cassia montana B. Heyne in Roth, Nov. Pl. Sp. 214. 1821; FBI 2: 264. 1878; FPM 1: 284. 1957; FTC 3(1): 504. 1983; FTN 1: 130. 1983; LOI 18. 1992; FEG 2: 32. 2000.

Shrub. Leaflets 10-12 pairs, oblong-elliptic, glabrous. Panicle axillary or terminal. Calyx-lobes 5, ovate. Petals 5, yellow, ovate. Stamens 10, upper 3 staminodes, 5 medium, lower 2 large. Pods short stipitate, flat, straight, compressed, beaked.

Rare in moist and evergreen forest. **Fl. & Fr.:** Throughout the year. **VN:** *Malai aavaram*. **Sp.Ex.:** VN 79119, 19762 (MH).

Cassia roxburghii DC., Prodr. 2: 489. 1825; FTC 3(1): 506. 1983; FTN 1: 130. 1983; LOI 20. 1992; FEG 2: 36. 2000. *C. marginata* Roxb., Fl. Ind. 2: 338. 1832 non willd.; FBI 2: 262. 1878; FPM 1: 284. 1957.

Trees. Leaflets 10-15 pairs, subopposite, upper leaves oblong-elliptic, lower one ovate. Raceme axillary, corymbose. Calyx-lobes 5, ovate. Petals 5, flame coloured, ovate-oblong. Stamens 10, all fertile. Pod oblong, terete, tortulose, indehiscent.

Planted. **Fl. & Fr.:** Throughout the year. **VN:** *Sengonrai*. **Sp.Ex.:** LP 2009 (SACONH).

Cassia siamea Lam., Encycl. 1: 648. 1785; FBI 2: 264. 1878; FPM 1: 285. 1957; FTC 3(1): 508. 1983; FTN 1: 131. 1983; FEG 2: 36. 2000.

Medium sized tree. Leaflets 7-10 pairs, ovate-oblong, coriaceous. Panicles terminal, corymbose. Calyx-lobes 5, ovate, outer 2 smaller, inner 3 larger. Petals 5, yellow, ovate-elliptic. Stamens 10. Pod long-stipitate, strap shaped, flat, compressed, woody.

In degraded forest and also planted in settlements and along the roadside. **Fl. & Fr.:** Throughout the year. **VN:** *Manja konnai*. **Sp.Ex.:** KNS 1169 (FRC); VS 18303 (FRC).

CHAMAECRISTA (L.) Moench, Methodus, 272. 1794.

Key to the species

- 1a. Branches and pods covered with viscid glandular hairs; leaflets 2 pairs.....*C. absus*
- 1b. Branches and pod pubescent without glandular hairs; leaflets more than 5 pairs.....2
- 2a. Gland on petiole stalked, below the lowest pair of leaflets; fertile stamens 5.....*C. pumila*
- 2b. Gland on petiole sessile; fertile stamens 10.....*C. leschenaultiana*

Chamaecrista absus (L.) H.S. Irwin & Barneby, Mem. New York Bot. Gard. 35: 664. 1982. *Cassia absus* L., Sp. Pl. 376. 1753; FBI 2: 265. 1878; FPM 1: 285. 1957; FTN 1: 129. 1983. FTC 3(1): 496. 1983; FEG 2: 21. 2000.

Subshrub. Branchlets viscid, pubescent. Leaflets in 2 pairs, digitate, broadly ovate-obovate. Racemes terminal or leaf-opposed. Calyx lobes 5, narrow. Petals 5, reddish or flame coloured. Stamens 5(6), unequal. Pod short-stipitate, ligulate, falcate.

Occasional in moist localities. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VN 79226 (MH).

Chamaecrista leschenaultiana (DC.) O. Deg., Fl. Hawaiiensis. Fam. 169 b. 1934. *Cassia leschenaultiana* DC., Mem. Soc. Phys. Geneve 2: 132. 1824; FSIHS 1: t. 142. 1932; FPM 1: 286. 1957; FTN 1: 130. 1983; FEG 2: 31. 2000.

Prostrate or decumbent herb. Branchlets with or without hairs. Leaflets 13-24 pairs, elliptic-oblong, glabrescent, smooth, margin entire. Gland is sessile, cupuliferous. Flowers solitary or 2-3 in a cluster. Calyx lobes 5. Petals 5, yellow, obtuse. Stamens 10. Pods flat, hirsute. Seeds elliptic.

Occasional in near marshy places. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** LP 2275 (SACONH).

Chamaecrista pumila (Lam.) K. Larsen, Nordic J. Bot. 13: 403. 1993; V. Singh, Monogr. Indian Subtribe Cassiinae 84. 2001. *Cassia pumila* Lam., Encycl. 1: 651. 1785; FBI 2: 266. 1878; FPM 1: 285. 1957; FTN 1: 130. 1983; FTC 3(1): 506. 1983; LOI 19. 1992; FEG 2: 36. 2000.

Prostrate or decumbent herb. Leaflets 10-20 pairs, oblong-elliptic. Flowers in axillary, solitary or 2-3 in cluster. Calyx lobes 5, lanceolate. Petals 5, yellow, ovate, clawed. Stamens 5. Pod short-stipitate, flat, compressed, horned.

Occasional in near marshy places around wetlands and fallow lands. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** SRN 80555 (MH).

DELONIX Raf., Fl. Tellur. 2:92. 1836.

Key to the species

- 1a. Flowers cream, become yellow, < 5cm across; pod < 15 cm long.....*D. elata*
- 1b. Flowers crimson, > 10 cm across; pods > 20 cm long.....*D. regia*

Delonix elata Gamble, Fl. Madras 396. 1919 & 1: 280. 1957; FTN 1: 131. 1983; FTC 3(1): 512. 1983; FEG 2: 47. 2000. *Poinciana elata* L., Cent. Pl. 2: 16. 1756; FBI 2: 260. 1878.

Deciduous tree. Pinnae 6-9 pairs. Leaflets 10-22 pairs, oblong-elliptic, chartaceous, base cuneate, margin entire, apex obtuse. Racemes corymbose. Calyx-tube short. Petals 5, cream, becoming yellow, shortly clawed. Stamens 10. Pod apices attenuate, horned, sutures grooved.

Planted along road sides and near temple premises. **Fl. & Fr.:** Jan.-May. **VN:** *Vathamudakki*. **Sp.Ex.:** VS 18558 (FRC); SRR 832129 (MH).

Delonix regia (Bojer) Raf., Fl. Tell. 2: 92. 1836; FPM 1: 280. 1957; FTN 1: 132. 1983; FTC 3(1): 512. 1983; FEG 2: 48. 2000.

Deciduous tree. Pinnae 5-15 pairs. Leaflets 10-25 pairs, sessile, oblong-elliptic, glabrous, coriaceous, truncate, margin entire. Racemes corymbose in axillary. Flowers solitary or in pairs. Calyx lobes 5. Petals 5, crimson to scarlet, elliptic-orbicular. Pods star-shaped, flat, rostrate at apex.

Degraded forests. Also planted along the road sides. **Fl. & Fr.:** April-June. **VN:** *Mayil Konrai*. **Sp.Ex.:** LP 1407 (SACONH).

HARDWICKIA Roxb., Coromandel Pl. 3: 6. t. 209. 1819.

Hardwickia binata Roxb., Pl. Coromandel t. 209. 1811 & Fl. India 2: 423. 1832; FBI 2: 270. 1878; FPM 1: 292. 1957; FTC 3(1): 513. 1983; FTN 1: 132. 1983; LOI 9. 1992; FEG 2: 49. 2000.

Deciduous tree. Bark longitudinally fissured. Branchlets glabrous. Leaves bifoliate. Leaflets obliquely obovate, glabrous, base truncate, margin entire, apex obtuse. Panicles axillary or terminal. Calyx-lobes 5, Petaloid. Petals 0. Stamens 10. Pod strap-shaped, compressed. Seed solitary.

Common in dry savannah forest type and distinct distribution in dry deciduous forest and scrub jungles. **Fl. & Fr.:** Aug.-Dec. **VN:** *Karachi, Aachi*. **Sp.Ex.:** LP 2019 (SACONH); VN 79211 (MH).

PARKINSONIA L., Sp. Pl. 375. 1753.

Parkinsonia aculeata L., Sp. Pl. 375. 1753; FBI 2: 260. 1878; FPM 1: 281. 1957; FTC 3(1): 514. 1983; FTN 1: 132. 1983; LOI 33. 1992; FEG 2: 51. 2000.

Armed large shrub. Branchlets tomentose, spines erect, woody. Leaves bipinnate, main rachis short, spiny. Pinnae 2 or 3 pairs, flattened. Leaflets many, minute. Racemes axillary. Calyx-tube short, disc-lined. Petals 5, yellow. Stamens 10, free. Pod, tortulose, turgid above seeds.

Occasional in hedges near stream and wetlands. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** LP 2296 (SACONH); VS 18559 (FRC).

PELTOPHORUM (Vogel) Benth. in Hook. f., J. Bot. 2: 75. 1840.

Peltophorum pterocarpum (DC.) Backer ex K. Heyne, Nutt. Pl. Ned. India (ed.2) 2: 755. 1927; FTC 3(1): 514. 1983; FTN 1: 132. 1983; LOI 33. 1992; FEG 2: 51. 2000.

Densely foliaceous tree. Pinnae 5-11 pairs. Leaflets 4-16 pairs, opposite, oblong, pubescent. Panicle terminal. Calyx-tube oblique, lobes 5, reflexed. Petals 5, golden yellow, base thick, hairy. Stamens 10, free, base woolly. Pod stipitate. Copper coloured.

Commonly planted along roadsides. **Fl. & Fr.:** Jan.-May. **VN:** *Perungkonyai*. **Sp.Ex.:** LP 1375 (SACONH).

PTEROLOBIUM R. Br. ex Wight & Arn., Prodr. Fl. Ind. Orient. t. 283. 1834.

Pterolobium hexapetalum (Roth) Santapau & Wagh, Bull. Bot. Surv. India 5: 108. 1963; FTN 1: 133. 1983; FTC 3(1): 515. 1983; LOI 34. 1992; FEG 2: 54. 2000. *P. indicum* A. Rich., Tent. Fl. Abyss. 1: 247. 1847; FBI 2: 259. 1878; FPM 1: 280. 1957.

Armed straggler. Branchlets stellate tomentose, thorns recurved. Leaves bipinnate. Pinnae 6 pairs. Leaflets 8-10 pairs, oblong. Racemes axillary or terminal. Calyx-tube short, lobes 5, unequal. Petals 5, white, clawed. Stamens 10, free. Stigma terminal dialated. Pod samaroid, apically winged.

Very common in Foothills and scrub jungles. **Fl. & Fr.:** April-July. **VN:** *Karu indu, Indi mulu*. **Sp.Ex.:** CECF 17650 (MH); VS 18298, 18299 (FRC); VN 79019 (MH); PSAT 186470, 186483, 186970, 187055 (MH).

SENNA Mill., Gard. Dict. Abr., ed. 4. 1754.

Key to the species

- 1a. Pod terete or subterete, broader than 10 mm.....2
- 1b. Pod compressed or if terete than less than 8 mm.....4
- 2a. Pods winged.....*S. alata*
- 2b. Pods other than winged.....3
- 3a. Pods 10-15 cm long.....*S. hirsuta*
- 3b. Pods 15-30 cm long.....*S. spectabilis*

4a. Leaves eglandular.....	5
4b. Leaves glandular.....	6
5a. leaflets acute.....	<i>S. alexandrina</i>
5b. Leaflets obtuse.....	<i>S. italica</i>
6a. Glands near the petiole base.....	<i>S. occidentalis</i>
6b. Glands on rachis.....	7
7a. Stipules linear, caduceus.....	8
7b. Stipules lunate, foliaceous.....	9
8a. Pod 3-5 cm long.....	<i>S. uniflora</i>
8b. Pod >10 cm long.....	<i>S. tora</i>
9a. Stipules persistent; leaf-rachis with glands.....	<i>S. auriculata</i>
9b. Stipules deciduous; leaf-rachis without glands.....	<i>S. didymobotrya</i>

Senna alata (L.) Roxb., Fl. India 2: 349. 1832. *Cassia alata* L., Sp. Pl. 378. 1753; FBI 2: 264. 1878; FPM 1: 286. 1957; FTC 3(1): 497. 1983; FTN 1: 129. 1983; LOI 14. 1992; FEG 2: 22. 2000.

Shrub. Branchlets glabrescent, leaf scars persistent. Leaflets 8-14 pairs. Racemes terminal dense. Flowers 2.5 cm across. Calyx lobes 5, oblong. Petals 5, orange, ovate. Stamens 10. Pods shortly stipitate, oblong, thin, base and apex obtuse, winged.

Along the watercourses in plains. **Fl. & Fr.:** Nov.-Feb. **VN:** *Seemaïyagatthi*. **Sp.Ex.:** LP 2007 (SACONH).

Senna alexandrina Mill., Gard. Diet. ed. 8 *Senna* No. 1. 1768. *Cassia senna* L., Sp. Pl. 377. 1753; FTN 1: 131. 1983; FTC 3(1): 507. 1983. *C. angustifolia* Vahl, Symb. Bot. 1: 29. 1790; FBI 2: 264. 1878; FPM 1: 286. 1957.

Small shrub. Branchlets subglabrous. Leaflets 5-7 pairs, opposite, ovate-lanceolate, entire at margins. Flowers in terminal or axillary, branched or simple. Calyx-tube 5, spatulate, concave. Petals 5, yellow, orbicular-ovate. Stamens 10, staminodes 3. Pods short stipitate, flat. Common in waste lands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2006 (SACONH).

Senna auriculata (L.) Roxb., Fl. Ind. 2: 349. 1832; V. Singh, Monogr. Indian Subtribe Cassiinae 119. 2001. *Cassia auriculata* L., Sp. Pl. 379. 1753; FBI 2: 263. 1878; FPM 1: 284. 1957; FTN 1: 129. 1983; FTC 3(1): 497. 1983; FEG 2: 22. 2000.

Shrub. Branchlets densely tomentose above. Leaflets 7-12 pairs, oblong-obovate, mucronate. Racemes corymbose, terminal and or axillary. Calyx lobes 5, ovate. Petals 5, golden yellow, ovate-orbicular. Stamens 10. Ovary stipitate, falcate. Pod long stipitate, flat, turgid, mucronate.

Common in scrub jungles, foothills and in plains along road sides. **Fl. & Fr.:** Throughout the year. **VN:** *Aavaram*. **Sp.Ex.:** KNS 1168 (FRC); VS 18567, 186568 (FRC); KCJ & JD 81121 (MH); PSAT 187101, 187370 (MH).

Senna didymobotrya (Fresen.) H.S. Irwin & Barneby, Mem. New York Bot. Gard. 35: 467. 1982; V. Singh, Monogr. Indian Subtribe Cassiinae 131. 2001. *Cassia didymobotrya* Fresen. Flora 22: 53. 1839; FSIHS 1: 183. 1932; FTN 1: 129. 1983; FTC 3(1): 510. 1983; FEG 2: 24. 2000.

Shrub. Stipules tardily deciduous, ovate-cordate. Leaflet 8-16 pairs, ovate-oblong or lanceolate-oblong, mucronate. Flowers in racemes axillary or terminal panicle, large showy flowers. Sepals oblong-obovate. Petals 5, golden yellow, shortly clawed. Stamens 10. Pod compressed, ligulate-oblong, leathery, bicarinate by sutures.

Introduced. Also run in wild along river banks and streams. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** PSAT 186719, 186720 (MH).

Senna hirsuta (L.) H.S. Irwin & Barneby, *Phytologia* 44: 499. 1979. *Cassia hirsuta* L., *Sp. Pl.* 378. 1753; *FBI* 2: 263. 1878; *FPM* 1: 284. 1957; *FTN* 1: 129. 1983; *FTC* 3(1): 501. 1983; *FEG* 2: 27. 2000.

Hirsute subshrub. Branchlets tomentose. Leaflets 4-6 pairs, ovate-oblong, appressed-hirsute, base cuneate, margin entire, apex caudate. Panicles axillary, corymbose, bract linear. Calyx lobes oblong. Sepals obovate, hispid. Stamens 10. Pod sessile, sub-terete, ribbed, hirsute. Common in moist places. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18242 (FRC); PSAT 186990 (MH).

Senna italica Mill., *Gard. Diet.*, ed. 8, *Senna* No. 2. 1768. *Cassia italica* (Mill.) Lam. ex F.W. Andr., *Fl. Pl. Anglo-Egypt. Sudan* 2: 117. 1952; *FTN* 1: 129. 1983; *FEG* 2: 29. 2000. *C. obtusa* Roxb. in Wight & Arn., *Prodr. Fl. Ind. Orient.* 288. 1834; *FPM* 1: 285. 1957; *FTC* 3(1): 504. 1983.

Subshrub. Branchlets glabrescent. Leaflets 4-6 pairs, oblong-elliptic or obovate, chartaceous, glabrous. Racemes axillary. Calyx-lobes 5, oblong-obovate. Petals 5, yellow, ovate. Subequal. Stamens 10. Pod short-stipitate, lunate, flat, compressed.

Common along road sides. **Fl. & Fr.:** Throughout the year. **VN:** *Nilavaagai*. **Sp.Ex.:** VS 18563 (FRC).

Senna occidentalis (L.) Link, *Handbuch.* 2: 140. 1831. *Cassia occidentalis* L., *Sp. Pl.* 377. 1753; *FBI* 2: 262. 1878; *FSIHS* 1: 181. 1932; *FPM* 1: 284. 1957; *FTN* 1: 130. 1983; *FTC* 3(1): 505. 1983; *FEG* 2: 34. 2000.

Shrub. Branchlets glabrescent. Leaflet 4-5 pairs, opposite. Racemes axillary and terminal, corymbose. Calyx lobes 5, ovate, apex obtuse, mucronate. Petals 5, yellow, oblong-obovate. Stamens 10. Pod short-stipitate, slightly falcate, flat, compressed, obtuse at apices, horned.

Common in wastelands and along roadside. **Fl. & Fr.:** Throughout the year. **VN:** *Thagarai*. **Sp.Ex.:** KNS 6904, 6905, 8639, 8640, 12053, 12054 (FRC); VS 18305, 18590 (FRC); KCJ 81113 (MH); PSAT 187146, 187521, 187522 (MH).

Senna spectabilis (DC.) H.S. Irwin & Barneby, *Mem. New York Bot. Gard.* 35: 600. 1982; V. Singh, *Monogr. Indian Subtribe Cassiinae* 205. 2001. *Cassia spectabilis* DC., *Cat. Pl. Horti Monsp.* 90. 1813.

Evergreen small tree with long spreading branches. Leaflet 8-15 pairs, elliptic or oblong-lanceolate. Flowers in terminal panicles or axillary racemes. Petals dark brownish yellow, shortly clawed. Stamens 10, 7 fertile. Pod pendulous, black narrow cylindrical, slightly compressed.

Common in dry and moist deciduous along forest along the river banks. **Fl. & Fr.:** Oct- Dec. **Sp.Ex.:** VS 18302 (FRC); PSAT 187275, 187276 (MH).

Senna tora (L.) Roxb., *Fl. India* 2: 340. 1832. *Cassia tora* L., *Sp. Pl.* 376. 1753; *FBI* 2: 263. 1878; *FPM* 1: 284. 1957; *FTN* 1: 131. 1983; *FTC* 3(1): 510. 1983; *LOI* 22. 1992; *FEG* 2: 46. 2000.

Herb. Branchlets glabrous. Leaflets 3 pairs, obovate, thin coriaceous. Racemes terminal, corymbose. Calyx-lobes 5, ovate. Petals 5, golden yellow, obovate, subequal. Stamens 10. Pod short stipitate, flat, compressed, glabrous.

Common in moist places, roadsides and river banks. **Fl. & Fr.:** Throughout the year. **VN:** *Thagarai*. **Sp.Ex.:** LP 3145 (SACONH); VS 18561, 18589 (FRC); KCJ & JD 81129 (MH); CECF 3988 (FRC).

Senna uniflora (Mill.) H.S. Irwin & Barneby, Mem. Bot. Gard. 35: 258. 1982. *Cassia uniflora* Mill., Gard. Dict. ed. 8. No. 5. 1768.

Erect herb. Leaves alternate, bipinnate. Rachis viscous hairy grooved. Leaflets 4 pairs, lowest pair smallest, mucronate at obtuse apices, sparsely pubescent awl-shaped stalked glands in lowers 2-3 pairs. Racemes axillary. Flowers yellow. Sepals 5 unequal, boat-shaped. Petals 5 unequal, shortly clawed. Stamens 10. Pods straight, pilose, suboblique, minutely beaked at apex. Common in moist places, roadsides and river banks. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2004 (SACONH).

TAMARINDUS Tour. ex L., Sp. Pl. 34. 1753.

Tamarindus indica L., Sp. Pl. 34. 1753; FBI 2: 273. 1878; FPM 1: 290. 1957; FTC 3(1): 516. 1983; FTN 1: 133. 1983; LOI 36. 1992; FEG 2: 57. 2000.

Large tree. Branchlets warty, tomentose. Leaves evenpinnate. Leaflets 15-17 pairs, narrowly oblong. Racemes terminal on short branchlets. Buds pinkish reds. Calyx-tube lobes 4. Petals 3, yellow, pink dotted. Staminal sheath, subterete. Stamens 3, monadelphous. Pod oblong. Commonly planted along road sides and around villages also run in wild near river banks, and near foothills. **Fl. & Fr.:** Feb.-May. **VN:** *Puliyamaram*. **Sp.Ex.:** VS 18300 (FRC); PSAT 187363 (MH).

MIMOSACEAE R. Br., Voy. Terra Austral. 2: 551. 1814.

Key to the genera

1a. Plants armed.....	2
1b. Plants unarmed.....	7
2a. Pinnae pairs 1 or 2.....	3
2b. Pinnae pairs 3 or more.....	4
3a. Stamens numerous; pods dehiscent, spirally coiled; seeds ariliate.....	<i>Pithecellobium</i>
3b. Stamens 10; pods indehiscent, straight or curved; seeds exariliate.....	<i>Prosopis</i>
4a. Pods splitting transversely in to 1 seeded segment.....	5
4b. Pods not splitting transversely.....	6
5a. Flowers 4-merous; pods margin armed, breaking up leaving a persistent replum.....	<i>Mimosa</i>
5b. Flowers 5-merous; pods unarmed, not breaking up with a persistent replum.....	<i>Acacia</i> (p.p.)
6a. Inflorescence bicoloured; pods clustered, coiled, indehiscent.....	<i>Dichrostachys</i>
6b. Inflorescence concolorous; pods not clustered, straight curved, dehiscent.....	<i>Acacia</i> (p.p.)
7a. Pods indehiscent.....	8
7b. Pods dehiscent.....	9
8a. Pods straight, compressed, thin; mesocarp scanty or 0.....	<i>Albizia</i> (p.p.)
8b. Pods curved, turgid, woody; mesocarp copious.....	<i>Samanea</i>
9a. Leaflets subopposite; pods spirally twisted after dehiscence.....	<i>Adenanthera</i>
9b. Leaflets opposite; pods dehiscing otherwise.....	10
10a. Lianes pod splitting transversely into 1 seeded segment.....	<i>Entada</i>
10b. Trees or shrubs; pods dehiscing otherwise.....	11
11a. Valves of pods separating along one margin only; pods < 1 cm across.....	<i>Acacia</i> (p.p.)
11b. Valves of pods separating along both margins.....	12
12a. Stamens 10; pods apically acute, 1-2 cm across.....	<i>Leucaena</i>
12b. Stamens numerous; pods not apically acute, > 3 cm across.....	<i>Albizia</i> (p.p.)

ACACIA P.Mill., Gard. Dict. Abr. Ed. 4. 1754.

Key to the species

1a. Unarmed trees.....	2
1b. Armed straggler, shrub or trees.....	3

2a. Phyllodes present; flowers in spike.....	<i>A. auriculiformis</i>
2b. Phyllodes 0; flowers in heads.....	<i>A. mearnsii</i>
3a. Thorns non-stipular, scattered or internodes; straggler; flowers in heads.....	4
3b. Thorns stipular, inserted at nodes; trees.....	8
4a. Pinnae pairs 6; leaflets 10-15 pairs.....	<i>A. caesia</i>
4b. Pinnae pairs 8-15.....	5
5a. Leaf rachis with foliar glands opposite to 4 uppermost pinnae.....	6
5b. Leaf rachis with foliar glands opposite to 2 uppermost pinnae.....	7
6a. Leaflets oblong-falcate; petals white.....	<i>A. torta</i>
6b. Leaflets linear; petals yellow.....	<i>A. grahamii</i>
7a. Leaflets pubescent, 15-35 pairs, margin not ciliate.....	<i>A. sinuata</i>
7b. Leaflets glabrous, 40-50 pairs, margin ciliate.....	<i>A. pennata</i>
8a. Flowers in spikes.....	9
8b. Flowers in heads; pinnae 3-7 pairs.....	11
9a. Pinnae 2-8 pairs; thorns hollow.....	<i>A. horrida</i>
9b. Pinnae 10-25 pairs.....	10
10a. Pinnae < 2 cm; leaf rachis unarmed; branchlets glabrous or villous.....	<i>A. catechu</i>
10b. Pinnae 3.5-6 cm; leaf rachis unarmed; branchlets pubescent.....	<i>A. polyacantha</i>
11a. Leaf rachis glandular; involucels at the base of peduncle.....	<i>A. farnesiana</i>
11b. Leaf rachis eglandular.....	12
12a. Pinnae < 1 cm long.....	<i>A. planifrons</i>
12b. Pinnae 1-3.5 cm long.....	13
13a. Flower heads in extensive panicles; flowers cream or pale yellow; bark white; pods neither moniliform or glaucous.....	<i>A. leucophloea</i>
13b. Flower heads in axillary clusters; flowers bright yellow; bark grey; pods moniliform, glaucous.....	<i>A. nilotica</i> ssp. <i>indica</i>

Acacia auriculiformis A. Cunn ex Benth. in Hook., J. Bot. Kew Gard. Misc. 1: 377. 1842; FTN 1: 133. 1983; FTC 3(1): 521. 1983; FEG 2: 61. 2000.

Unarmed tree. Branchlets glabrous. Phyllodes alternate, elliptic falcate, thick coriaceous, palminerved. Spike(s) axillary, solitary or paired. Flowers yellowish. Calyx tube 5-lobed. Petals 5, yellow, lanceolate. Stamens numerous. Ovary subsessile, globose. Pod coiled or spirally twisted.

Planted in dry deciduous and along road sides by forest departments. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** PSAT 187301 (MH).

Acacia caesia (L.) Willd., Sp. Pl. 4: 1090. 1806; FPM 1: 304. 1957; LOI 37. 1992; FTN 1: 133. 1983; FTC 3(1): 522. 1983; FEG 2: 61. 2000. *Mimosa caesia* L., Sp. Pl. 522. 1753.

Stragglers. Intermodal thorns hooked. Leaves alternate, bipinnate. Pinnae 6 pairs. Leaflets not overlapping, 10-15 pairs. Rachis prickled. Glands opposite to lowermost and 2 uppermost pairs of pinnae. Flowers in head, terminal panicle. Calyx-tube 5-lobed. Petals 5, cream. Stamens numerous, basally connate. Ovary stipitate. Pod stipitate, thin, flat, glabrous, base and apex obtuse, horned.

Common in dry deciduous forest near streams and rivers. **Fl. & Fr.:** Oct.-Jan. **VN:** Karuindu. **Sp.Ex.:** VN 79618 (MH); KCJ 81253 (MH); PSAT 186982 (MH).

Acacia catechu (L. f.) Willd., Sp. Pl. 4: 1079. 1806; FBI 2: 295. 1878; FPM 1: 303. 1957; FTN 1: 133. 1983; LOI 38. 1992; FEG 2: 64. 2000. *Mimosa catechu* L. f., Suppl. Pl. 439. 1781. *Acacia chundra* (Roxb. ex Rottler) Willd., Sp. Pl. 4: 1078. 1806, "sandra"; FBI 2: 295. 1878; FPM 1: 303. 1957 "sundra"; FTC 3(1): 524. 1983; FTN 1: 133. 1983; LOI 38. 1992. *A. sundra* (Roxb.) DC., Prodr. 2: 458. 1825.

Large deciduous tree. Leaves bipinnate, alternate, stipulate. Stipular spines slightly infra axillary, paired, straight or hooked. Rachis pulvinate, grooved above. Pinnae 10-20 pairs, a gland in between the terminal 6 pairs on the lower side. Leaflets 30-50, opposite, paripinnate. Flowers pale yellow. Calyx cupular-campanulate. Stamens numerous. Ovary stipitate. Pod flat, straight. Common in dry deciduous forest. **Fl. & Fr.:** April-Aug. **VN:** *Karungali*. **Sp.Ex.:** LP 1859 (SACONH); KNS 12824 (FRC); VS 18292, 18293 (FRC); CECF 18928, 18929, 18930 (MH); VN 79646 (MH); KCJ 81179 (MH).

Acacia farnesiana (L.) Willd., Sp. Pl. 4(2): 1083. 1806; FBI 2: 292. 1878; FPM 1: 303. 1957; FTC 3(1): 525. 1983; FTN 1: 133. 1983; FEG 2: 68. 2000. *Vachellia farnesiana* (L.) Wight & Arn., Prodr. Fl. Ind. Orient. 272. 1834.

Armed small tree. Branchlets warty. Pinnae 5 pairs. Leaflets 10-15 pairs, elliptic, linear-oblong, base truncate, margin entire, apex obtuse. Glands near the middle of the petiole. Flower head globose. Calyx-tube 5-toothed. Petals 5, yellow. Stamens numerous. Pod terete, pulpy, horned.

Occasional in dry deciduous scrub forest. **Fl. & Fr.:** June-Dec. **VN:** *Vaedavael*. **Sp.Ex.:** LP 1585 (SACONH).

Note: Some of the publications keep this species under *Vachellia* based on pod characters.

Acacia grahamii Vajr. in Nair & A.N. Henry, Fl. Tamil Nadu., ser.1: Analysis 1: 1(addenda): ii. 1983. *A. canescens* (Baker) Graham, Numer. List n. 5256. 1831.

Large climber. Leaves bipinnate. Pinnae 8-18 pairs. Leaflets up to 30 pairs, slightly overlapping, sessile, linear. Globose heads in terminal panicles, white to pale yellow. Calyx glabrous, lobes linear-lanceolate. Pods glabrous, thin, flat, brown. Seeds 8-15 compressed, dark brown.

Rare in moist deciduous forests. **Fl. & Fr.:** Sept.-Oct. **Sp.Ex.:** KNS 8938, 8939 (FRC).

Acacia horrida (L. f.) Willd., Sp. Pl. 4: 1082. 1806; FTN 1: 134. 1983; FTC 3(1): 526. 1983; LOI 40. 1992; FEG 2: 71. 2000. *A. latronum* (L. f.) Willd., Sp. Pl. 4: 1077. 1806; FBI 2: 296. 1878; FPM 1: 302. 1957.

Small tree. Leaves bipinnate, 3-5 in cluster. Pinnae 2-5 pairs. Leaflets 10-15 pairs, elliptic. Gland near the middle of the petiole. Stipular thorns unequal, white hollow. Spikes axillary. Calyx tube 5-lobed. Petals cream. Stamens numerous. Ovary globose. Pod flat, curved, turgid, horned.

Common in scrub jungles and foothills. **Fl. & Fr.:** July-Dec. **VN:** *Odaivelaen*. **Sp.Ex.:** KNS 1850, 6899, 6900 (FRC).

Acacia leucophloea (Roxb.) Willd., Sp. Pl. 4: 1083. 1806; FBI 2: 294. 1878; FPM 1: 302. 1957; FTN 1: 135. 1983; FTC 3(1): 527. 1983; LOI 41. 1992; FEG 2: 73. 2000.

Medium sized deciduous tree. Leaves alternate or clustered. Pinnae 7 pairs. Leaflets 20-30 pairs, elliptic. Stipular thorns short or long. Flowers heads in terminal panicle. Calyx tube 5-lobed. Petals 5, cream or yellow. Stamens 25-30. Ovary stipitate. Pod sessile, flat, rusty tomentose.

Very common in dry deciduous forest and road sides. **Fl. & Fr.:** Aug.-Feb. **VN:** *Velvelam*, *Vellavelan*. **Sp.Ex.:** VS 18296 (FRC); KCJ 81306 (MH); PSAT 186589, 186590 (MH).

Acacia mearnsii De willd., Plantae Bequaertianae 3: 61. 1925, "*mearnsii*"; FTC 3(1): 528. 1983. *A. decurrens* Willd. var. *mollis* Lindl., Botanical Register 5. t. 371. 1819.

Trees. Leaves bipinnate, alternate. Pinnae 8-21 pairs. Leaflets 15-20. Flowers bisexual, white or creamy, heads arranged in axillary or terminal panicles or racemes. Calyx ochraceous puberulous. lobes 5, oblong. Petals 5. Fruit a pod, flat, narrow, straight to slightly curved, tomentose.

Planted. **Fl. & Fr.:** Sept.-Jan. **Sp.Ex.:** PSAT 186856 (MH).

Acacia nilotica (L.) Delile, Fl. Aegypt. Illustr. 79. 1813, subsp. **indica** (Benth.) Brenan, Kew Bull. 12: 84. 1957; FTN 1: 135. 1983; FTC 3(1): 528. 1983; LOI 42. 1992; FEG 2: 75. 2000. *A. arabica* auct. non (Lam.) Willd. Sp. Pl. 4: 1085. 1806; FBI 2: 293. 1878; FPM 1: 301. 1957.

Armed tree. Leaves bipinnate, alternate. Leaflets 15-20 pairs, elliptic. Rachis with several glands. Petiole with a gland near lowermost pair of pinnae. Stipular thorns straight. Flower head globose, solitary. Calyx lobes 5. Petals 5, bright yellow. Pod stipitate, moniliform, constricted. Common in deciduous forest. One of the dominant species in Carnatic umbrella thorn forest. **Fl. & Fr.:** July-Jan. **VN:** *Karuvaelam*. **Sp.Ex.:** LP 1578 (SACONH); PSAT 187319, 187320 (MH).

Acacia pennata (L.) Willd., Sp. Pl. 4: 1090. 1806; FBI 2: 297. 1878; FPM 1: 304. 1957; FTC 3(1): 530. 1983; FTN 1: 135. 1983; LOI 42. 1992; FEG 2: 77. 2000.

Ramblers. Leaves alternate, bipinnate. Pinnae 14 pairs. Rachis prickled. Leaflets 40-50 pairs, overlapping, elliptic. Flowers pale yellow, in terminal or axillary racemes. Pods stipitate, flat, horned.

Common in dry and moist deciduous forest. **Fl. & Fr.:** Dec.-April. **VN:** *Vellaindu*. **Sp.Ex.:** VS 18290, 18291, 18575 (FRC); KCJ 81296 (MH); SRR 83199, 83213 (MH).

Acacia planifrons Wight & Arn., Prodr. Fl. Penin. Ind. Orient. 276. 1834; FBI 2: 293. 1878 in part; FPM 1: 302. 1957; FTC 3(1): 531. 1983; FTN 1: 135. 1983; LOI 43. 1992; FEG 2: 77. 2000.

Medium sized trees. Leaves bipinnate, alternate. Rachis slender, pulvinate. Pinnae 3-5 pairs. Leaflets 10-30, opposite. Flowers white, heads axillary. Calyx campanulate. Corolla funnel shaped. Stamens numerous. Pod slightly fleshy, circinate.

Common in dry deciduous forest. One of the dominant species in the Carnatic umbrella thorn forest. **Fl. & Fr.:** June-Oct. **VN:** *Odaivaelan*, *Kudaivaelan*. **Sp.Ex.:** KNS 1877, 6902, 6903 (FRC).

Acacia polyacantha Willd., Sp. Pl. 4(2): 1079. 1806; FTC 3(1): 531. 1983; FTN 1: 135. 1983. *A. suma* (Roxb.) Buch.-Ham. ex Voigt., Hort. Sub. Calc. 260. 1845; FBI 2: 294. 1878; FPM 1: 303. 1957.

Large tree. Stipular spines infra axillary, paired, hooked. Leaves bipinnate, alternate. Rachis softly prickled, pulvinate. Pinnae 15-25 pairs. Leaflets 25-40 pairs. Flowers white in axillary solitary or paired spikes. Calyx 5-lobed. Corolla lobes 5. Stamens numerous. Pod stipitate, grey, woody.

Common in dry deciduous forest along the river sides. **Fl. & Fr.:** Mar.-Oct. **Sp.Ex.:** VS 18294 (FRC); KCJ 81312 (MH); PSAT 187079, 187585, 187586 (MH).

Acacia sinuata (Lour.) Merr., Trans. Amer. Philos. Soc. ser. 2. 24(2): 186. 1935; FTN 1: 136. 1983; FTC 3(1): 532. 1983. *Mimosa sinuata* Lour., Fl. Cochinch. 653. 1790; FEG 2: 80. 2000. *A. concinna* (Willd.) DC., Prodr. 2: 464. 1825; FBI 2: 296. 1878; FPM 1: 304. 1957; LOI 38. 1992.

Coarse ramblers, densely prickly. Leaves alternate. Pinnae 8-15 pairs. Leaflets oblong, 15-35 pairs. Rachis prickled. Head axillary, solitary or paired, 1 cm across in terminal or axillary. Flowers 2 mm across. Calyx-tube elongate, 5-lobed. Petals 5, cream. Stamens numerous. Pod brownish, flashy.

Moist deciduous forest along the riparian forests. **Fl. & Fr.:** Feb.-May. **VN:** *Seeyakkai*, *cheevakkaa*, *seegae*. **Sp.Ex.:** VS 18576 (FRC); CAB 19035, 19036, 19037 (MH); KCJ & JD 81152 (MH); SRR 83217 (MH).

Acacia torta (Roxb.) Craib, Bull. Misc. Inform. 1915: 410. 1915; FPM 1: 340. 1957; FTC 3(1): 533. 1983; FTN 1: 136. 1983; LOI 42. 1992.

Rambling shrub. Leaves alternate. Pinnae 10-14 pairs. Leaflets 25-40 pairs, not overlapping, elliptic. Rachis pubescent grooved. Flower in head, cluster, in terminal panicle. Calyx-tube 5-lobed. Petals 5, white. Stamens numerous. Pod flat, slightly falcate.

Common in foothills, scrub jungles and dry deciduous forest. **Fl. & Fr.:** July-Nov. **VN:** *Seengaimul*, *Seengaikodi*. **Sp.Ex.:** VS 18247, 18574 (MH); PSAT 187128, 187271, 187272, 187399, 187563, 187564, 187567, 187568 (MH).

ADENANTHERA L., Sp.Pl. 384.1753.

Adenanthera pavonina L., Sp. Pl. 384. 1753; FBI 2: 287. 1878; FPM 1: 296. 1957; FTC 3(1): 534. 1983; FTN 1: 136. 1983; FEG 2: 81. 2000.

Deciduous tree. Leaves alternate or clustered, bipinnate. Pinnae 4-5 pairs. Leaflet 5-8 pairs, oblong-elliptic, subopposite. Racemes axillary, spiciform. Flowers clustered. Flowers 5-merous. Calyx campanulate. Petals 5, yellow-cream. Stamens 10, free. Pod spirally coiled after dehiscence.

Planted along the road sides. **Fl. & Fr.:** January-April. **VN:** *Anaikundumani*. **Sp.Ex.:** LP 2968 (SACONH).

ALBIZIA Durazz., Mag. Tosc. 3(4): 13. 1772.

Key to the species

- 1a. Pinnae more than 6 pairs.....2
- 1b. Pinnae pairs 6 or less than.....*A. amara*
- 2a. Leaf rachis glabrous.....3
- 2b. Leaf rachis hairy.....4
- 3a. Flowers sessile, greenish white.....*A. procera*
- 3b. Flowers pedicelled, whitish yellow.....*A. lebbeck*
- 4a. A discoid gland below middle of the petiole.....*A. odoratissima*
- 4b. A gland above middle of the petiole.....*A. thompsoni*

Albizia amara (Roxb.) Boivin, Encycl. Dix-neuvieme Siecle 19 (2): 34. 1834; FBI 2: 301 1878; FPM 1: 306. 1957; FTC 3(1): 535. 1983; FTN 1: 136. 1983; LOI 54. 1992; FEG 2: 82. 2000.

Medium sized deciduous tree. Pinnae 9-13 pairs. Leaflets 20-25 pairs, narrow, elliptic. Petiole pubescent, gland above middle. Rachis pubescent, gland opposite to uppermost pinnae. Flower in heads, axillary cluster or in racemes. Calyx-tube pubescent. Petals 5, cream. Stamens 30-40, filaments pinkish. Pod flat, compressed, straight or wavy along margins, horned indehiscent.

Common along road sides, foothills, dry & moist deciduous forests. **Fl. & Fr.:** April-August. **VN:** *Oonjaa*, *Ushil*, *Arappu maram*. **Sp.Ex.:** CECF 4063 (FRC); VS 18295 (FRC); CECF 19242 (MH); KCJ & JD 81202 (MH); PSAT 187099 (MH).

Albizia lebbeck (L.) Willd., Sp. Pl. 4: 1066. 1806; FBI 2: 298. 1878; FPM 1: 306. 1957; FTN 1: 137. 1983; FTC 3(1): 538. 1983; LOI 56. 1992; FEG 2: 87. 2000.

Large deciduous unarmed tree. Pinnae 2-3 pairs. Leaflets 4-8 pairs, basal one oblong-elliptic, terminal obovate, glabrous above, pubescent below, base oblique. Main rachis with glands opposite to the uppermost pinnae. Flowers in heads, axillary in umbellate clusters or solitary. Calyx-tube 5-lobed, Petals 5, greenish. Stamens 25, filaments pink or greenish. Pod flat, compressed, yellow.

Common in dry deciduous forest and planted along road sides. **Fl. & Fr.:** Mar.-Sept. **VN:** *Vaagai*. **Sp.Ex.:** CECF 4061 (FRC); KNS 6898 (FRC); VN 79016 (MH); KCJ 81238 (MH).

Albizia odoratissima (L. f.) Benth. in Hook.'s London J. Bot. 3: 88. 1844, var. *odoratissima*; FBI 2: 298. 1878; FPM 1: 306. 1957; FTN 1: 137. 1983; FTC 3(1): 539. 1983; LOI 54. 1992; FEG 2: 88. 2000.

Large tree. Pinnae 3-5 pairs. Leaflets 15-20 pairs, oblong-elliptic, base oblique. Petiole with a discoid gland below middle. Flowers in heads aggregated as umbellate to corymbose panicle. Calyx-tube 5-lobed. Petals 5, cream. Stamens numerous. Pod sessile, compressed, flat.

Occasional in moist deciduous forest. **Fl. & Fr.:** May-Oct. **VN:** *Karuvaagai*. **Sp.Ex.:** LP 1843 (SACONH); CECF 4058 (FRC); VS 18236, 18286, 18287, 18288, 18425 (FRC); CECF 19165 (MH); PSAT 187024 (MH).

Albizia procera (Roxb.) Benth., London J. Bot. 3: 89. 1844; FBI 2: 299. 1878; FPM 1: 306. 1957; FTN 1: 137. 1983; FEG 2: 90. 2000.

Large deciduous tree. Pinnae 2-4 pairs. Rachis glandular near the terminal pair of leaflets. Leaflets 6-9 pairs, oblong-obovate. Petiole with a gland near the base. Flower heads in terminal panicles. Calyx glabrous, lobes ovate. Petals 5, lanceolate. Pod brown, oblong.

Rare in Moist deciduous forest. **Fl. & Fr.:** April-June. **Sp.Ex.:** KNS 1162 (FRC).

Albizia thompsonii Brandis, Indian Forester 25: 284. 1989; FPM 1: 306. 1957; FTN 1: 137. 1983; FEG 2: 90. 2000.

Large deciduous tree. Pinnae 3-5 pairs. Leaflets 10-25 pairs, oblong-elliptic, terminal one obovate, base oblique. Petiole with a discoid gland. Flowers in heads aggregated as umbellate to corymbose panicle. Calyx 5-lobed. Petals 5, pinkish white. Stamens numerous. Pod compressed, flat. Rare in moist deciduous forest. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** CECF 19193, 19194 (MH)

DICHROSTACHYS (DC.) Wight & Arn., Prodr. Fl. Ind. Orient. 271. 1834.

Dichrostachys cinerea (L.) Wight & Arn., Prodr. Fl. Ind. Orient. 271. 1834, var. *cinerea*; FBI 2: 288. 1878; FPM 1: 297. 1957; FTN 1: 138. 1983; FTC 3(1): 540. 1983; LOI 64. 1992; FEG 2: 93. 2000.

Small tree. Leaves alternate or 3 in cluster, bipinnate. Pinnae 5-15 pair. Leaflet 12-16 pairs, elliptic. Rachis pubescent with stipitate glands. Spikes axillary, solitary or in pairs. Flowers 5 merous polygamous, bicoloured. Upper flower bisexual, yellow. Lower one male and sterile, pink. Stamens 10, free. Pod linear flat, coiled.

Common in common in foot hills and scrub jungles. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** KNS 6897 (FRC); VS 18571, 18572 (FRC); CECF 18656, 18657 (MH); VN 79089, 79166, 79686 (MH); KCJ 81176 (MH); PSAT 186471, 186472, 187102 (MH).

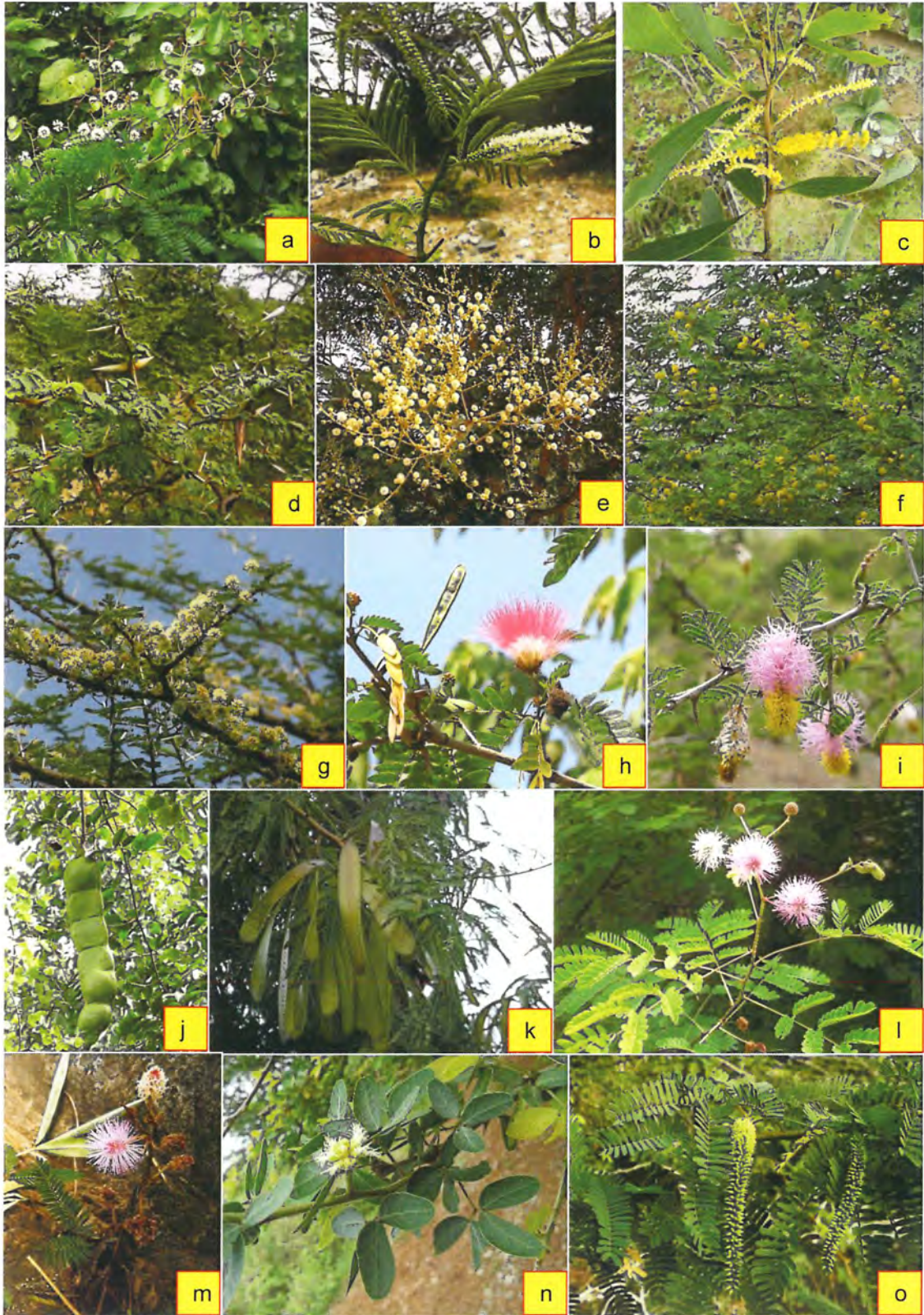
ENTADA Adnson, Fam. 2:318. 554. 1763.

Entada rheedei Spreng., Syst. Veg. (ed.16)2: 325. 1825; FTC 3(1): 542. 1983. *E. pursaetha* DC., Prodr. 2: 425. 1825; FTN 1: 138. 1983; LOI 65. 1992; FEG 2: 95. 2000. *E. scandens* auct. non Benth. 1841; FBI 2: 287. 1878; FPM 1: 296. 1957.

Unarmed *liane*. Leaves alternate, bipinnate. Pinnae 2 pairs, ovate-obovate. Rachis grooved, tendrilled. Spike pendulous. Flowers 5-merous. Petals 5, cream, oblanceolate. Stamens 10, free. Pod elongate, flat, woody, valves splitting transversely in to 1-seeded segments. Seeds compressed hard.

Occasional in dry and moist deciduous along the riparian zones. **Fl. & Fr.:** April- July. **Sp.Ex.:** LP 1652 (SACONH).

PLATE 10 - MIMOSACEAE



a) *Acacia caesia*, b) *Acacia catechu*, c) *Acacia auriculiformis*, d) *Acacia horrida*, e) *Acacia leucophloea*, f) *Acacia nilotica* subsp. *indica*, g) *Acacia planifrons*, h) *Albizia lebbeck*, i) *Dichrostachys cinerea*, j) *Entada rheedii*, k) *Leucaena leucocephala*, l) *Mimosa intsia*, m) *Mimosa pudica*, n) *Pithecellobium dulce*, o) *Prosopis juliflora*.

LEUCAENA Benth., J. Bot. (Hooker) 4: 416. 1842.

Leucaena leucocephala (Lam.) de Wit, Taxon 10: 54. 1961; FTC 3(1): 543. 1983; LOI 67. 1992.
L. glauca Benth. in Hook., J. Bot. 4: 416. 1842; FBI 2: 290. 1878; FPM 1: 297. 1957.
L. latisiliqua (L.) Gillis, Taxon 23: 190. 1974; FTN 1: 138. 1983; FEG 2: 95. 2000.

Unarmed medium sized deciduous tree. Leaves bipinnate. Leaflet 10-20 pairs, elliptic, glabrous above, pubescent below. Inflorescence white globose heads, greenish white. Calyx-tube campanulate. Petals 5, boat shaped, cream. Stamens 10, exserted. Pod flat, broadly linear.

Escapes from plantation in the social forest and planted along the road sides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18297 (FRC).

MIMOSA L., Sp. Pl. 516. 1753.**Key to the species**

- 1a. Spreading herb; pinnae pairs 2 or 3; stamens as many as petals; pods clustered.....***M. pudica***
 1b. Straggling herb; pinnae pairs 4-7; stamens twice as many as petals; pods other than clustered.....***M. intsia***

Mimosa intsia L., Sp. Pl. 522. 1753; FTC 3(1): 544 t. 543. 1983; FTN 1: 138. 1983; FEG 2: 100. 2000. *M. rubicaulis* Lam., Encycl. 1: 20. 1783; FBI 2: 291. 1878 in part; FPM 1: 299. 1957.

Armed straggler. Leaflet 10-17 pairs, oblong-elliptic, overlapping, truncate. Petiole and rachis prickled. Flowers in heads. Calyx-tube 4-lobed. Petals 4, rose to pink. Stamens 10-12 in male flowers. Stamens 8 in bisexual flowers. Pod stipitate, falcate, thin, spinous along margins. Common in foothills near rocky slopes. **Fl. & Fr.:** Aug.-April. **Sp.Ex.:** VN 78384, 79620 (MH); KCJ 81259 (MH); PSAT 187156 (MH).

Mimosa pudica L., Sp. Pl. 518. 1753; FBI 2: 291. 1878; FSIHS 1: 184. 1932; FPM 1: 298. 1957; FTC 3(1): 545. 1983; FTN 1: 138. 1983; LOI 69. 1992; FEG 2: 108. 2000.

Armed prostrate herb. Prickles short, curved. Leaves sensitive, bipinnate. Leaflets 14-20 pairs, elliptic-oblong, overlapping, hispid, base truncate. Flower heads axillary, 2 or 3 in cluster, oblong-globose. Calyx-tube 4-lobed. Petals 4, pink. Stamens 4. Pod clustered, flat.

Common in marshy localities of foothills, forest margins and stream banks. **Fl. & Fr.:** Throughout the year. **VN:** *Thottasinungi*, *thottavaadi*. **Sp.Ex.:** VS 18232 (FRC); VN 78362 (MH); PSAT 187199 (MH).

PITHECELLOBIUM Mart., Flora 20(2): 114. 1837.

Pithecellobium dulce (Roxb.) Benth. in Hook. f., Lond. J. Bot. 3: 199. 1844; FBI 2: 302. 1878; FPM 1: 308. 1957; FTC 3(1): 548. 1983; FTN 1: 139. 1983; LOI 71. 1992; FEG 2: 110. 2000.

Armed tree. Leaves alternate, bipinnate. Pinnae 2-pairs. Leaflets paired, oblong lanceolate. Flowers head in panicle spikes, terminal or axillary. Flowers 5-merous. Calyx-tube 5-lobed, campanulate. Petals 5, cream. Stamens numerous, monadelphous. Pod strap shaped, circinate or falcate, moniliform, turgid. Seed orbicular with whitish aril.

Planted along the road sides. Planted. **Fl. & Fr.:** Throughout the year. **VN:** *Kodukkapuli*. **Sp.Ex.:** VS 18579 (FRC); PSAT 187191 (MH).

PROSOPIS L., Syst. Nat. ed. 12. 2: 282, 293. 1767.

Prosopis juliflora (Sw.) DC., Prodr. 2: 447. 1825; FTC 3(1): 549. 1983; LOI 71. 1992; FEG 2: 112. 2000. *P. chilensis* (Molina) Stentz, Bull. Bur. Pl. Industr. U.S.D.A. 31: 85. 1914; FTN 1: 139. 1983.

Armed small tree. Leaves alternate or clustered, bipinnate. Pinnae 1 or 2 pairs. Leaflets 15-18 pairs, oblong. Spikes axillary, solitary or 2-4 in cluster. Flowers bisexual. Calyx-tube campanulate, 5-toothed. Petals 5, cream. Stamens 10. Pod drupaceous, straight or slightly curved, compressed.

Aggressive invasive species in the dry deciduous and Carnatic umbrella thorn forests. **Fl. & Fr.:** Dec.-April. **VN:** *Vaelikkaruvai*, *Dillimullu*. **Sp.Ex.:** PSAT 18570 (FRC); VS 187327, 187328 (MH).

SAMANEA (DC.) Merr., J. Wash. Acad. Sci. 6: 46. 1916.

Samanea saman (Jacq.) Merr., J. Wash. Acad. Sci. 6: 47. 1916; FTN 1: 140. 1983; FTC 3(1): 550. 1983; FEG 2: 117. 2000. *Enterolobium saman* (Jacq.) Prain, J. Asiat. Soc. Bengal Pt. Nat. Hist. 66: 252. 1897; FPM 1: 308. 1957.

Tree. Leaves alternate, bipinnate. Pinnae 4-5 pairs. Leaflets 3-7 pairs. Flower heads in terminal or axillary corymbose racemes. Flowers pinkish, bisexual. Calyx-tube elongate, lobes 5. Petals 5. Stamens numerous, apex of the filaments pinkish. Pod woody, with a thick mesocarp. Commonly planted along roadsides for its shade. **Fl. & Fr.:** Mar.-June. **VN:** *Thoongumoonji maram*, *Thoongu vaagai*. **Sp.Ex.:** LP 1583 (SACONH).

ROSACEAE Juss., Gen. Pl.: 334. 1789.

RUBUS L., Sp. Pl. 1: 492. 1753.

Key to the species

- 1a. Leaves simple, 3-7-lobed, fulvous tomentose above.....*R. indicus*
- 1b. Leaves pinnately foliolate, glabrous above.....2
- 2a. Leaflets 3, obovate to suborbicular; petals white; fruit orange-yellowish.....*R. ellipticus*
- 2b. Leaflets 5-7, ovate-elliptic; petals pink; fruit purplish pink.....*R. niveus*

Rubus ellipticus Sm. in Rees, Cycl. 30: n. 16. 1815; FBI 2: 336. 1878; FSIHS 1: 193. 1932; FPM 1: 313. 1957; FTC 3(1): 555. 1983; FTN 1: 143. 1983; FEG 3: 3. 2007.

Straggler. Leaves 3-folioate. Leaflets broadly ovate to suborbicular, serrate along margins. Panicles bristly. Calyx lobes 5, ovate, tomentose, bristly. Petals 5, white, oblong-obovate. Stamens 20. Carpels numerous. Fruit an etaerio of drupes, globose, orange-yellow when ripe. Seed 1.

Occasional in along the road sides and border of semi-evergreen forests. **Fl. & Fr.:** Feb.-July. **Sp.Ex.:** KCJ 81443 (MH).

Rubus indicus Thunb., Diss. Rub. 5 & 7. 1813; FTN 1: 143. 1983. *R. mollicaulis* Sudre, Rub. Tarn. 33. 1909; FBI 2: 330. 1878, non L. 1753; FSIHS 1: 192. 1932.

Shrubs, stems covered with rusty tomentum. Leaves broadly ovate, acute at apex, serrate along margins, rusty tomentose below. Flowers in terminal panicles. Sepals tomentose, fimbriate along margins. Petals white. Drupelets globose, red when ripe.

Occasional in evergreen forest near streamlets. **Fl. & Fr.:** Jan.-June. **Sp.Ex.:** VS 18810 (FRC).

Rubus niveus Thunb, Rubo. 9. t. 1. f. 3. 1813; FSIHS 1: 194. 1932; FPM 1: 313. 1957; FTC 3(1): 556. 1983; FTN 1: 143. 1983; FEG 3: 4. 2007.

Shrubs. Leaves 5-7 foliolate. Leaflets opposite, ovate. Flowers in axillary solitary or terminal corymbs. Calyx lobes oblong, acuminate, aristate, villous, 4-5 mm long. Petals ovate,

pink-red, smaller than the calyx lobes. Carpels receptacle villous. Drupelets globose purplish pink when ripe.

Occasional in along the road sides and border of semi-evergreen forests. **Fl. & Fr.:** April-May. **Sp.Ex.:** KNS 813 (FRC); VS 18811, 19347, 19348 (FRC); CECF 19446 (MH); VN 19789 (MH); KCJ 81440 (MH).

CRASSULACEAE J. St.-Hil., Expos. Fam. Nat. 2: 123. 1805.

Key to the genera

- la. Flowers pendulous; filaments free.....*Bryophyllum*
lb. Flowers erect; filaments adnate to the corolla tube.....*Kalanchoe*

BRYOPHYLLUM Salisb., Parad. Lond. t. 3. 1805.

Bryophyllum pinnatum (Lam.) Oken, Allg. Naturgesch. 3(3): 1966. 1841; FBI 2: 413. 1878; FSIHS 1: 209. 1932; FPM 1: 319. 1957; FTN 1: 146. 1983. *Kalanchoe pinnata* (Lam.) Pers. Syn. 1: 446. 1805; FTC (3)1: 556. 1983; FEG 3: 10. 2007.

Erect fleshy herbs. Leaves elliptic-ovate, crowded in young shoots, 3-5-foliate at terminals, obtuse, petiole greenish with violet blotches. Flowers in cymose panicles. Bracts foliaceous. Calyx lobes greenish red, ovate, Corolla tube 8-folded, lobes ovate. Seeds many, linear. Occasional in rocky crevices. **Fl. & Fr.:** Nov.-Jan. **VN:** *Ranakalli*. **Sp.Ex.:** VN 78957 (MH); KCJ 81346 (MH).

KALANCHOE Adens., Fam. Pl. 2: 248. 1763.

Key to the species

- 1a. Leaves subterete; flowers red.....*K. tubiflora*
1b. Leaves dorsiventral; flowers yellow.....2
2a. Leaves simple, brownish, subsessile.....*K. lanceolata*
2b. Leaves 2-pinnatifid, greenish, petiolate.....*K. laciniata*

Kalanchoe laciniata (L.) DC., Pl. Hist. Succ. t. 100. 1802; FBI 2: 415. 1878; FPM 1: 319. 1957; FTC 3(1): 560. 1983; FEG 3: 9. 2007. *K. schweinfurthii* Penz., Atti Congr. Bot. Genova 341. 1893; FTN 1: 146. 1983.

Erect herbs, semisucculent. Leaves attenuate at base. Flowers in terminal paniculate cymes, erectopatent. Calyx tube lobed, lobes lanceolate. Corolla langeniiform, yellowish. Stamens inserted above middle of corolla-tube. Styles 4. Carpels 4, free, oblong, ovules many. Seeds many, ellipsoid.

Rare along exposed rocky slopes in dry deciduous forests. **Fl. & Fr.:** Dec.-May. **Sp.Ex.:** KCJ 81288 (MH); SRR 83201 (MH).

Kalanchoe lanceolata (Forssk.) Pers., Syn. Pl. 1: 446. 1805 var. *lanceolata*; FTN 1: 145. 1983; FEG 3: 9. 2007. *K. floribunda* Wight & Arn., Prodr. Fl. Ind. Orient. 359, 1834; FBI 2: 414. 1878; FSIHS 1: 209. 1932; FPM 1: 319. 1957.

Succulent herbs. Leaves bipinnatifid, segments greenish purple, lanceolate or oblong. Flowers many, cymes paniculate in terminal and in upper axils. Sepals 4, linear-lanceolate. Corolla tube dull pink or yellow, lobes 4. Stamens ovate, 4+4. Seeds many, oblong, reddish brown.

Rare in dry rocky areas. **Fl. & Fr.:** Dec.-April. **VN:** *Malai kalli*. **Sp.Ex.:** KNS 11820 (FRC); VS 18591 (FRC).

Kalanchoe tubiflora (Harv.) Raym.-Hamet, Beih Bot. Centralbl., Abt. 2. 29 (2): 41. 1912; FTN 1: 146. 1983; FTC 3(1): 562. 1983; FEG 3: 11. 2007.

Succulent herb. Leaves in whorls of 3, simple, linear, subterete, brown, glabrous. Flowers pendulous. Calyx-tube glabrous. Corolla orange to reddish. Stamens inserted below the middle of corolla at constriction.

Rare in wild, in the dry rocky areas. Also planted as ornamental in gardens. **Fl. & Fr.:** Sept. - Mar. **Sp.Ex.:** LP 1584 (SACONH).

DROSERACEAE Salisb., Parad. Lond. 2: ad t. 95. 1808.

DROSERA L., Sp. Pl. 1: 281. 1753.

Key to the species

- 1a. Leaves peltate; flowers white; stem present, racemes lateral.....*D. peltata*
1b. Leaves spatulate; flowers pink; stem absent, racemes terminal.....*D. burmanni*

Drosera burmanni Vahl, Symb. Bot. 3: 50. 1794; FBI 2: 424. 1878; FSIHS 1: 211. t. 159. 1932; FPM 1: 320. 1957; FTN 1: 146. 1983; FTC 3(1): 563. 1983; FEG 3: 11. 2007.

Acaulescent herbs. Leaves sessile, rosette of spatulate, obovate, obtuse, prostrate, densely covered with glandular hairs, greenish pink. Flowers few in erect racemes. Calyx lobes 5, oblong-elliptic. Petals 5, white, oblong. Stamens 5. Stigma fimbriate. Capsules loculicidally 2-5-valved.

Rare in wet rocky areas and grasslands. **Fl. & Fr.:** Aug.-Dec. Insectivorous plant. **Sp.Ex.:** LP 1686 (SACONH).

Drosera peltata Thunb, Drosera, 7. 1797; FBI 2: 424. 1878; FSIHS 1: 211. t. 160. 1932; FPM 1: 320. 1957; FTN 1: 146. 1983; FTC 3(1): 565. 1983; FEG 3: 13. 2007.

Erect herbs, unbranched, tuber globose. Leaves basal leaves rosulate, cauline leaves opposite or alternate, lunate, covered with glandular hairs. Flowers in terminal racemes. Sepals 5, united at base. Petals white, obovate, obtuse. Styles 3, free.

Rare in wet rocky areas and grasslands. **Fl. & Fr.:** Nov.-Dec. **Sp.Ex.:** VS 19388 (FRC).

HALORAGACEAE R. Br., Voy. Terra Austral. 2: 549. 1814.

MYRIOPHYLLUM L., Sp. Pl. 2: 992. 1753.

Myriophyllum oliganthum (Wight & Arn.) F. Muell, Fragm. 10: 54. 1876; FTC 3(1): 567. 1983; FTN 1: 147. 1983; FEG 3: 15. 2007. *M. intermedium* auct. non DC. 1828; FBI 2: 433. 1878; FSIHS 1: 213. t. 162. 1932; FPM 1: 321. 1957.

Submerged or floating herbs. Leaves linear, upper leaves usually alternate or decussate, lower ones in whorls, pinnatifid, lobes filiform, serrate. Flowers white, axillary clusters, 4-merous, bisexual. Calyx minute. Petals rose or pink. Drupe of 4 mericarps, muricate, rugose.

Rare in high altitude ponds. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** VS 19384 (FRC); EV 142094, 142095 (MH).

COMBRETACEAE R. Br., Prodr. Nov. Holl. 351. 1810.

Key to the genera

- 1a. Trees; petals 0.....2
1b. Stragglers, lianes/ climbers; petals 4 or 5.....*Combretum*
2a. Flowers in globose heads, all bisexual.....*Anogeissus*
2b. Flowers in simple or branched spikes, basically bisexual, apically male.....*Terminalia*

ANOGEISSUS (DC.) Wall. ex Guill. & Perr., Fl. Seneg. Tent. 1: 279. 1832.

Key to the species

- 1a. Flower heads in cymes; fruit winged entire.....*A. acuminata*
 1b. Flower heads solitary or rarely paired; fruit wings dentate.....*A. acuminata*

Anogeissus acuminata (Roxb. ex DC.) Wall. ex Guill. & Perr., Fl. Seneg. Tent. 7: 280. 1832; FBI 2: 451. 1878; FPM 1: 330. 1957; FEG 3: 18. 2007.

Small tree. Leaves opposite to subopposite, elliptic to oblong-elliptic. Flowers in axillary and terminal, solitary or occasionally in pairs, sessile. Calyx tube tawny or ferrugineous-tomentellous, teeth 5-6. Fruits puberulous to glabrous, reddish-brown, wings 2.

Occasional in dry deciduous forest. **Fl. & Fr.:** May-Dec. **Sp.Ex.:** PSAT 187395 (MH).

Anogeissus latifolia (Roxb. ex DC.) Wall. ex Guill. & Perr., Fl. Seneg. Tent. 7: 280. 1832; FBI 2: 450. 1878; FPM 1: 330. 1957; FTC 3(1): 575. 1983; FTN 1: 148. 1983; FEG 3: 20. 2007.

Medium sized deciduous tree, bark smooth white with rounded patches. Leaves alternate and subopposite oblong, broadly ovate, subcoriaceous. Cymose globose spikes axillary, shortly pedicelled. Calyx-tube yellowish, lobes 5. Petals absent. Stamens 10. Ovary 1-celled, densely tomentose. Fruit a biconvex drupe, in dense heads. Compressed, winged, seed 1.

Common in scrub jungles, dry and moist deciduous forest. **Fl. & Fr.:** June-Aug. VN: *Vellanamai*, *Vallanaval*. **Sp.Ex.:** LP 1839, 1550, 1565, 1568 (SACONH); KA & PB 1612 (SACONH); KNS 11846, 11893 (FRC); VS 18594 (FRC); CECF 20137 (MH); CAB 20167, 20168 (MH); TRN 78660 (MH); KCJ 81267, 81267 (MH); EV 142052 (MH); PSAT 186580, 186581, 186956, 187125 (MH).

COMBRETUM Loebl., Iter Hispan. 308. 1758.

Key to the species

- 1a. Calyx tube 5-9 cm long.....*C. indicum*
 1b. Calyx tube usually shorter than 2 cm.....2
 2a. Calyx limb cup-shaped; fruits to 2.5 x 2.2 cm.....*C. albidum*
 2b. Calyx limb funnel-shaped; fruits to 3.5 x 3.3 cm.....*C. latifolium*

Combretum albidum G. Don, Trans. Linn. Soc. London 15: 429. 1827; FTN 1: 149. 1983.

C. ovalifolium Roxb., Fl. Ind. 2: 226. 1832; FBI 2: 458. 1878; FPM 1: 332. 1957; FTC 3(1): 577. 1983; FEG 3: 24. 2007.

Deciduous straggler, rusty brown stem. Leaves decussate, ovate-elliptic or orbicular, base acute, margin entire, apex acuminate, coriaceous. Axillary and terminal panicles, flowers white, polygamo-dioecious, campanulate. Calyx cupulate, lobes 4. Petals 4, obovate-oblong, yellow, long white hairy inside. Stamens 8, inserted on expanded portion of calyx. Ovary inferior. Fruit ovoid to obcordate, wings chartaceous, wings 4, pinkish, seeds solitary.

Occasional in deciduous forests. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** KCJ 20345, 20346, 20347 (MH); VN 79196 (MH); PSAT 186591, 186592 (MH).

Combretum indicum (L.) DeFilipps, Useful Pl. Dominica, 277. 1998. *Quisqualis indica* L., Sp. Pl. (ed. 2) 556. 1762; FBI 2: 459. 1878; FPM 1: 332. 1957; FTN 1: 149. 1963; FTC 3(1): 579. 1983.

Woody climbers. Young branchlets tomentose. Leaves opposite to subopposite, elliptic to oblong, rounded to subcordate at base, unequal, acuminate at apex, chartaceous. Flowers on terminal spikes, fragrant. Sepals triangular reflexed. Petals obovate-oblong, obtuse, white, turning deep red at maturity, finely pubescent. Fruit ovate-elliptic, black.

Planted. **Fl. & Fr.:** Dec.- Aug. **Sp.Ex.:** LP 1821 (SACONH).

Combretum latifolium Blume, Bijdr. Fl. Ned. Ind. 641. 1826. *C. extensum* Roxb. ex G. Don, Trans. Linn. Soc. London 15: 414. 1827; FBI 2: 458. 1878; FPM 1: 332. 1957.

Climbing shrub. Leaves opposite or sub opposite, elliptic-obovate, subcoriaceous. Inflorescence of long-peduncled axillary spikes. Flowers 4-merous, bisexual, subsessile, greenish-white. Receptacle funnel shaped. Sepals 4, triangular. Petals 4, rounded, greenish-yellow. Stamens 8. Ovary linear, 1-locular. Drupe with 4 membranous wings. Occasional in moist deciduous forest. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** KNS 6953 (FRC); PSAT 187238 (MH).

TERMINALIA L. Syst. Nat. ed. 12, 2: 74. 1767.

Key to the species

- 1a. Fruits winged; spikes panicled.....2
- 1b. Fruits not winged; spikes simple.....5
- 2a. Glands on the petiole, close to the leaf blade, fruit shortly winged or angled; riparian.....*T. arjuna*
- 2b. Glands inserted at the base of the leaf blade fruits always winged, not angled; non-riparian...3
- 3a. Wings unequal, one larger, the other two shorter; fruits rusty-tomentose.....*T. paniculata*
- 3b. Wings equal; fruits not rusty -tomentose.....4
- 4a. Leaves glabrous below; fruits to 4 cm long.....*T. crenulata*
- 4b. Leaves densely tomentose below; fruits < 3 cm long.....*T. elliptica*
- 5a. Lateral nerves 6-8 pairs.....6
- 5b. Lateral nerves 10-18 pairs.....*T. gella*
- 6a. Leaves apically clustered, base subcordate, drupes 5 or 2- ridged.....7
- 6b. Leaves subopposite, base rounded; drupes not ridged.....9
- 7a. Glands 0; drupes subglobose, 5-ridged, softly tomentose; new foliage reddish.....*T. bellirica*
- 7b. Glands present; drupes ellipsoid, 2-ridged; new foliage green.....8
- 8a. Leaves ovate, glaucous, thick, base rounded; fruit obovoid.....*T. pallida*
- 8b. leaves obovate, green, thin base cordate; fruit ellipsoid.....*T. catappa*
- 9a. Inflorescence grey pubescent; fruits globose shining.....*T. chebula*
- 9b. Inflorescence tawny pubescent; fruits brown tomentose.....*T. gella*

Terminalia arjuna (Roxb. ex DC.) Wight & Arn., Prodr. Fl. Ind. Orient. 314. 1834; FBI 2: 447. 1878; FPM 1: 329. 1957; FTN 1: 149. 1983; FTC 3(1): 581. 1983; FEG 3: 28. 2007.

Large tree. Leaves alternate to sub-opposite, oblong to obovate-oblongate, thick coriaceous, arcuate, glabrous, base obtuse to sub cordate, margin serrate to crenate. Spikes axillary in panicles. Calyx pubescent, lobes 5, triangular. Stamens 10. Ovary ovoid. Drupe 5-angled, 5-winged.

Very common in river banks. **Fl. & Fr.:** April to August. **VN:** *Neermaruthu, Vellamaruthu*. **Sp.Ex.:** LP 2915 (SACONH); VS 18593 (FRC); VN 78952 (MH); KCJ 81100 (MH); PSAT 187091 (MH).

Terminalia bellirica (Gaertn.) Roxb., Pl. Coromandel 2: 54. t. 198. 1805, "*bellerica*" & Fl. Ind. 2: 431. 1832; FBI 2: 445. 1878; FPM 1: 328. 1957; FTN 1: 149. 1983; FTC 3(1): 581. 1983; FEG 3: 28. 2007.

Large emergent trees with large buttresses, branchlets warty with persistent leaf scars. Leaves simple, opposite to alternate, clustered at the tip of branchlets, obovate, oblique, entire, greyish green, coriaceous. Flowers in axillary spikes, greenish-yellow. Calyx tube pubescent, lobes 5, cream, triangular, tomentose. Disc 5-lobed, villous. Petals absent, tomentose. Drupe obovoid, obscurely 5-ridged, yellowish-brown, pointed at both ends, soft-tomentose. Seed one, ellipsoid.

Common in moist deciduous forest and along riparian zone. **Fl. & Fr.:** Dec.-Jan. **VN:** *Thani maram*. **Sp.Ex.:** LP 3002 (SACONH); KA & PB 1702 (SACONH); PSAT 186917, 187305, 187306 (MH).

Terminalia catappa L., Mant. Pl. 128. 1767 & Syst. Nat. (ed.12) 2: 674. 1767; FBI 2: 444. 1878; FPM 1: 328. 1957; FTN 1: 150. 1983; FTC 3(1): 582. 1983; FEG 3: 30. 2007.

Medium sized fast-growing trees. Leaves simple, alternate, clustered at the tip of branchlets, obovate, entire, glabrous above, puberulent beneath, coriaceous. Flowers polygamous, sessile, white or yellowish-green, in axillary pubescent simple racemes. Calyx tube, pubescent, lobes 5, triangular. Petals absent. Stamens 10. Ovary, 1-celled. Drupe, broadly ellipsoid to ovoid, laterally compressed, inflated, reddish-brown, glabrous, glossy.

Planted along the road sides. **Fl. & Fr.:** Mar.-Jan. **VN:** *Badam*. **Sp.Ex.:** PSAT 187213 (MH).

Terminalia chebula Retz., Obs. Bot. 5: 31. 1789 incl. forma *tomentosa*; Hook. f., Fl. Brit. India 2: 446. 1878; FSIHS 1: 214. 1932; FPM 1: 328. 1957; FTC 3(1): 583. 1983; FTN 1: 150. 1983; FEG 3: 30. 2007.

Deciduous tree with branchlets rusty-villose or glabrescent. Laves alternate to opposite, ovate or elliptic-obovate, thin coriaceous, densely woolly below, base rounded, margin entire. Spikes axillary, simple or branched. Calyx lobes 5, villose, cream, triangular. Stamen 10. Ovary unilocular. Drupe oblong to ellipsoid, glossy glabrous, horned, faintly angled.

Common in moist deciduous forest. **Fl. & Fr.:** Mar.-Oct. **VN:** *Kadukkai*. **Sp.Ex.:** KA & PB 1681 (SACONH); KNS 11823, 11824 (FRC); VS 1592, 18759 (FRC); VS 20364, 20368, 20371 (FRC); CECF 19964, 19965 (MH); VN 79681 (MH); KCJ 81240 (MH); PSAT 186539, 186540, 186586, 186587, 186741, 186742, 187032, 187033, 187158 (MH).

Terminalia crenulata Roth, Nov. Pl. Sp. 380. 1821; FPM 1: 329. 1957; FTN 1: 150. 1983; FTC 3(1): 584. 1983; FEG 3: 34. 2007. *T. tomentosa* (Roxb. ex DC.) Wight & Arn., Prodr. Fl. Ind. Orient. 315. 1834, var. *crenulata* (Roth) C.B. Clarke in Hook. f., Fl. Brit. India 2: 448. 1878.

Tree with branchlets rusty-villose or glabrescent. Leaves alternate to sub-opposite, elliptic or elliptic-oblong, chartaceous, glabrescent, margin entire-crenulate, glands 2 at the base of leaf-blade. Spikes axillary and terminal. Calyx lobes 5, ovate, yellow. Stamens 10. Ovary unilocular. Drupe ovoid, glabrous, 5-winged, wings reddish.

Occasional in deciduous forests. **Fl. & Fr.:** July-Sept. **VN:** *Karumaruthu*. **Sp.Ex.:** KA & PB 1686 (SACONH); PSAT 187003, 187386 (MH).

Terminalia elliptica Willd., Sp. Pl. 4: 969. 1806. *T. alata* B. Heyne ex Roth, Nov. Pl. Sp. 379. 1821; FTN 1: 149. 1983. *T. crenulata* Roth, Nov. Pl. Sp. 380. 1821; FPM 1: 465. 1957; FTN 1: 150. 1983. *T. coriacea* (Roxb.) Wight & Arn., Prodr. Fl. Ind. Orient. 315. 1834; FPM 1: 465. 1957; FTN 1: 150. 1983; FEG 3: 32. 2007.

Large deciduous trees with rough, much fissured bark. Leaves alternate to opposite, elliptic-oblong, oblique at base, glabrous, midrib with 2 stalked glands near the base beneath. Flowers in terminal and axillary paniculate spikes, dull yellow. Calyx tube angled, lobes 5, ovate, yellow. Petals absent. Stamens 10 in 2 rows. Disc 5-lobed, villous. Ovary unilocular, inferior, densely villous, pendulous. Drupe longitudinally 5-winged, glabrous.

Occasional along riverbanks in moist and dry forests. **Fl. & Fr.:** April-May. **Sp.Ex.:** CECF 20034, 20035 (MH); CECF 84993 (MH); VN 79712 (MH).

Terminalia gella Dalzell in Hook. f., Kooker's J. Bot. Kew Gard. Misc. 3: 27. 1841; FPM 1: 328. 1957; FTN 1: 150. 1983; FEG 3: 34. 2007.

Tree with branchlets tawny-pubescent. Leaves coriaceous, ovate or elliptic to oblong, glabrous above, tawny villose beneath, apex acute, margin entire, base rounded, glands sessile at

the base of the lamina. Flowers pale yellow in axillary, pubescent. Fruits obovoid, brown-tomentose, very faintly 5-ridged when dry.

Rare in moist deciduous forest. **Fl. & Fr.:** May-Aug. **Sp.Ex.:** VS 20363, 20366, 20367, 20369 (FRC); EV 142068, 142069 (MH).

Terminalia pallida Brandis, Indian Trees 308. 1921; FPM 1: 328. 1957; FTN 1: 150. 1983; FEG 3: 34. 2007.

Semi-evergreen tree, bark greyish branchlets glabrous. Leaves alternate, orbicular, base cuneate, margin entire, apex obtuse or rounded, thick coriaceous, petiole orange-red colour. Flowers pale yellow, in simple terminal spikes. Fruits obovoid, green, 5-ridged, shiny.

Occasional in hill slopes of the dry deciduous forest. **Fl. & Fr.:** Mar.-Sept. **Sp.Ex.:** PSAT 187068 (MH).

Terminalia paniculata Roth, Nov. Pl. Sp. 383. 1821; FBI 2: 448. 1878; FPM 1: 329. 1957; FTC 3(1): 585. 1983; FTN 1: 150. 1983; FEG 3: 37. 2007.

Large deciduous trees, bark thick, rough with vertical shallow fissures. Leaves simple, alternate-subopposite, elliptic-oblong, round to cordate at base, 2 stalked glands near the base beneath. Flowers white, sessile, in axillary and terminal tomentose panicles. Calyx tube, constricted above the ovary, lobes 5, cream, triangular, villous. Petals absent. Stamens 10 in 2 rows. Disc 5-lobed, villous. Ovary unilocular. Drupe winged, reddish-brown. Seed one.

Occasional in moist deciduous forest. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** CECF 4128 (FRC); CECF 20064, 20065 (MH); PSAT 187197 (MH).

MYRTACEAE Juss., Gen. Pl. 322. 1789.

Key to the genera

- 1a. Leaves alternate; fruit a capsule.....2
- 1b. Leaves opposite; fruit a berry.....3
- 2a. Young branches rough pubescence margins with reddish hairs.....*Corymbia*
- 2b. Young branches glabrous bluish green.....*Eucalyptus*
- 3a. Flowers in axillary cymes or short racemes.....4
- 3b. Flowers solitary, white.....*Psidium*
- 4a. Calyx-tube produced beyond the ovary.....*Syzygium*
- 4b. Calyx-tube not produced beyond the ovary.....*Eugenia*

CORYMBIA K.D. Hill & L.A.S. Johnson, Telopea. 6: 185–504. 1995.

Corymbia torelliana (F. Muell.) K.D. Hill & L.A.S. Johnson, Telopea 6: 385. 1995. *Eucalyptus torelliana* F. Muell., Fragm. 10: 106. 1877; FTC 3(1): 591. 1983; FTN 1: 153. 1983.

Trees, base of the trunk grey to black, apically greyish green, smooth, branchlets terete, with rough pubescence. Inflorescences terminal or axillary, paniculate umbels 3- or 7- flowered. Flower buds obovoid. Hypanthium semi-globose. Capsule globose.

Planted in roadsides and gardens in Hassanur. **Fl. & Fr.:** Oct.-Nov. **Sp.Ex.:** LP 1519 (SACONH); VS 18595 (FRC).

EUCALYPTUS L'Hér., Sert. Angl. 18. 1789.

Key to the species

- 1a. Hypanthium in flower and fruit 4-ridged.....*E. globulus*
- 1b. Hypanthium not ridged or 2-ridged.....2
- 2a. Calyptra acutely conic.....*E. tereticornis*
- 2b. Calyptra rostrate or obtusely conic.....*E. camaldulensis*

Eucalyptus camaldulensis Dehnh., Cat. Pl. Hort. Camald. (ed. 2) 61: 20. 1832; FTN 1: 151. 1983.

Trees, bark smooth or loosely rough in upper half. Leaves lanceolate often falcate, concolorous. Axillary in umbels. Hypanthium hemispherical, operculum conical. Stamens many, free. Ovule numerous. Stigma capitate. Fruit hemispherical, valves exserted. Seeds cuboid, many. Rare in dry deciduous forest, often planted. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** PSAT 18690 (MH).

Eucalyptus globulus Labill., Voy. Rech. Pérouse 1: 153. 1800; FSIHS 1: 217. t. 164. 1932; FPM 1: 343. 1957; FTN 1: 151. 1983; FTC 3(1): 588. 1983.

Trees, bark smooth, peeling off in long stripes. Leaves petiolate, falcate or lanceolate, bluish-green, glaucous, strongly discolours, juvenile leaves opposite, sessile, adult leaves alternate. Flowers in axillary umbels. Buds turbinate. Hypanthium ribbed. Stamens many, free. Stigma capitate. Fruits obconical. Seeds many, flattened-ellipsoidal.

Common planted in foothills by forest department. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1408 (SACONH).

Eucalyptus tereticornis Sm., Spec. Bot. New Holland 4: 41. 1795; FTC 3(1): 591. 1983; FTN 1: 152. 1983.

Tall trees, bark white, smooth. Leaves simple, alternate, bluish-green, lanceolate, acuminate at apex, oblique at base, entire at margins, glabrous. Flowers in axillary umbels, pale white. Hypanthodium campanulate, operculum conical. Stamens many. Capsules ovoid, valves 4, exserted.

Extensively planted by forest department. **Fl. & Fr.:** April-Sept. **Sp.Ex.:** LP 1521, 2212 (SACONH).

EUGENIA Linnaeus, Sp. Pl. 1: 470. 1753.

Eugenia involucrata DC., Prodr. 3: 264. 1828; FPM 1: 342. 1957. *E. bracteata* (Willd.) Roxb. ex DC., Prodr. 3: 264 1828; FBI 2: 502. 1878; FTN 1: 153. 1983; FTC 3(1): 592. 1983; FEG 3: 38. 2007.

Tree. Branchlets glabrous. Leaves decussate, ovate or oblong-lanceolate, chartaceous, glabrous, margin entire. Cymes axillary, 2-flowered. Bracteoles 2. Calyx tube globose, lobes 4, oblong, persistent. Petals 4, white, glandular. Stamens many, erect or incurved. Ovary globose. Berry globose, crowned with calyx lobes. Seeds 1 or 2.

Rare in evergreen forest. **Fl. & Fr.:** April-May. **Sp.Ex.:** KA & PB 1667 (SACONH).

PSIDIUM L., Sp. Pl. 1: 470. 1753.

Psidium guajava L., Sp. Pl. 470. 1753; Fl. Brit. India 2: 468. 1878, 'Guayava'; FPM 1: 334. 1957; FTN 1: 154. 1983; FTC 3(1): 593. 1983; FEG 3: 39. 2007.

Small trees, bark decorticating, branchlets appressed tomentose. Leaves decussate, oblong, base cuneate, tomentose below, gland dotted. Flowers axillary, solitary or in pairs. Calyx tube urceolate, tomentose persistent, ovate-lanceolate, unequal. Petals 4, white, ovate. Disc broad. Stamens numerous, filaments white. Ovary globose. Berry globose, seeds numerous.

Fairly common around the settlements, Naturalised. Rare in foothills. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** LP 1414 (SACONH).

SYZYGIUM P. Browne ex Gaertn., Fruct. Sem. Pl. 1: 166. 1788.

Key to the species

- 1a. Inflorescence terminal dense umbels; petals obovate.....*S. densiflorum*
- 1b. Inflorescence lateral or axillary paniced cymes; petals orbicular.....*S. cumini*

Syzygium cumini (L.) Skeels, Bull. Bur. Pl. Industr. U.S.D.A. 248: 2. 25. 1912; FTC 3(1): 594. 1983; FTN 1: 156. 1983; FEG 3: 39. 2007. *S. jambolanum* (Lam.) DC., Prodr. 3: 259. 1828; FSIHS 1: 222. t. 170. 1932; FPM 1: 340. 1957.

Evergreen trees, branchlets glabrous, bark grey, light pinkish inside. Leaves elliptic to oblong-lanceolate, long-acuminate at apex, entire, glabrous, coriaceous. Flowers in cymose panicles in axillary. Calyx tube turbinate, 4-toothed. Petals 4, yellowish red, orbicular. Stamens many, red. Berries purplish-red to black when ripe, globose. Seed 1.

Common along riverbanks, stream sides. **Fl. & Fr.:** June-Sept. **VN:** Naval & Navapazham. **Sp.Ex.:** LP 1415 (SACONH); CECF 20784 (MH); VS 18760 (FRC); VN 78295, 78401 (MH); KCJ 81409 (MH); PSAT 187400, 187401 (MH).

Syzygium densiflorum Wall. ex Wight & Arn., Prodr. Fl. Ind. Orient. 329. 1834; FTN 1: 156. 1983. *S. arnottianum* Walp., Repert. Bot. Syst. 2: 180. 1843; FSIHS 2: 219. t. 167. 1932; FPM 1: 338. 1957.

Trees, bark smooth, grey. Leaves ovate-elliptic, cuneate at base, coriaceous, shiny, glabrous. Cymes of dense umbellales. Flowers cream-coloured, buds crimson-red. Calyx-tube turbinate. Stamens numerous. Berries glabrous, purple when ripe.

Rare in dense evergreen forests. **Fl. & Fr.:** Dec.-June. **Sp.Ex.:** LP 2122 (SACONH).

LECYTHIDACEAE A. Rich., J.B.G.M. Bory de Saint-Vincent, Dict. Class. Hist. Nat. 9: 269. 1825.

Key to the genera

- 1a. Stamens fused into hood over ovary.....*Couroupita*
- 1b. Stamens free.....*Careya*

CAREYA Roxb., Pl. Coromandel t. 218. 1811.

Careya arborea Roxb., Pl. Coromandel 3: 14. t. 218. 1819 & Fl. Ind. 2: 638. 1832; FBI 2: 511. 1879; FPM 1: 345. 1957; FTC 3(1): 597. 1983; FTN 1: 159. 1983; FEG 3: 49. 2007.

Small trees, branchlets puberulous, bark thick, pink inside. Leaves alternate, obovate, obtuse, cuneate to the base, crenulate along margins, coriaceous, glabrous, crowded at the apices of branchlets. Flowers in axillary small racemes on old branches. Sepals 4, orbicular. Petals 4, white, orbicular. Stamens many. Fruit a berry, globose. Seeds many.

Rare in moist deciduous forests. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** VN 78401 (MH).

COUROUPITA Aubl., Pl. Gui. 2: 708. t. 282. 1775.

Couroupita guianensis Aubl., Pl. Gui. 2: 708. t. 282. 1775; FTN 1: 158. 1983; FTC 3(1): 598. 1983; FEG 3: 50. 2007.

Tree. Leaves elliptic-lanceolate, cuneate at base, acute to shortly acuminate at apex, entire at margins. Flowers 5-merous. Calyx-tube enclosing ovary, lobes 5. Petals 5, imbricate. Stamens numerous. Ovary 2-6-celled. Stigma capitate. Fruit cannon-ball like. Seeds numerous.

Planted in temple premises. **Fl. & Fr.:** Throughout the year. **VN:** Naagalingam. **Sp.Ex.:** LP 1627 (SACONH).

MELASTOMATACEAE Juss., Gen. Pl. 328. 1789.

Key to the genera

- 1a. Shrubs or trees; leaves pinnately nerved; seeds solitary.....*Memecylon*
- 1b. Herbs; leaves 3-9-nerved from the base; seeds many.....*Osbeskia*

MEMECYLON L., Sp. Pl. 1: 349. 1753.

Key to the species

- 1a. Leaves sessile, base cordate or rounded.....*M. deccanense*
- 1b. Leaves petiolate, base obtuse to acute.....2
- 2a. Flowers sessile.....3
- 2b. Flowers pedicellate.....5
- 3a. Leaves lanceolate, acuminate; flowers axillary.....*M. heyneanum*
- 3b. Leaves elliptic to ovate; flowers axillary and lateral.....4
- 4a. Leaf apex obtuse to emarginate; flowers & fruits borne on leafless axils.....*M. lushingtonii*
- 4b. Leaf apex acute to acuminate; flowers and fruits borne on leafy axils.....*M. talbotianum*
- 5a. Disc with inconspicuous rays.....*M. edule*
- 5b. Disc with conspicuous rays.....6
- 6a. Leaves >7 cm long, acute to acuminate at apex, not yellow when dry.....*M. grande*
- 6b. Leaves <5 cm long, obtuse to emarginate at apex, yellow when dry.....*M. umbellatum*

Memecylon deccanense C.B. Clarke in Hook. f., Fl. Brit. India 2: 560. 1879; FPM 1: 356. 1957.
M. wightianum Triana, Trans. Linn. Soc. London 28: 158. 1871.

Large shrubs to small slender trees, branchlets subterete. Leaves opposite, oblong-lanceolate or elliptic-oblong, acute or acuminate at apex, rounded at base, glabrous, brown on drying. Flowers mostly fascicled on tubercles, pedicels slender. Calyx cupular, lobes obscure, pink. Petals blue. Stamens 8, equal. Fruit a berry.

Rare in semi evergreen forest. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** LP 2940 (SACONH).

Memecylon edule Roxb., Pl. Coromandel t. 82. 1798 & Fl. Ind. 2: 260. 1832; FBI 2: 563. 1879; FPM 1: 356. 1957; FTC 3(1): 600. 1983; FTN 1: 160. 1983; FEG 3: 52. 2007.

Small tree. Leaves opposite, elliptic, acute at base, margin entire, acuminate at apex, glabrous. Umbels axillary, dense. Calyx tube campanulate, lobes 4, deltoid. Petals 4, violet, broadly ovate. Stamens 8. Stigma simple. Berries globose, purplish black when ripe. Seed 1. Occasional in moist deciduous forest along the river sides. **Fl. & Fr.:** Mar.-June. **Sp.Ex.:** LP 1341, 2075, 2273 (SACONH); VS 19345, 19346 (MH).

Memecylon grande Retz., Observ. Bot. 4: 26. 1786; FBI 2: 557. 1879; FPM 1: 356. 1957; FTN 1: 160. 1983; FEG 3: 52. 2007.

Small tree. Leaves opposite, ovate-elliptic, base acute, margin entire, apex acute to acuminate, coriaceous. Flowers violet in fascicles. Calyx cupular. Petals 4, violet. Stamens 8. Ovary brownish-black. Berry brownish-black.

Rare along streamlets in moist deciduous forest. **Fl. & Fr.:** Mar.-July. **Sp.Ex.:** VS 78355, 79112 (MH); KCJ 81403 (MH).

Memecylon heyneanum Benth ex Wight & Arn., Prodr. Fl. Ind. Orient. 319. 1834; FBI 2: 560. 1879; FPM 1: 355. 1957; FTN 1: 160. 1983.

Large shrubs. Leaves opposite, lanceolate, base acute or broadly cuneate, apex acuminate, thin coriaceous. Flowers aggregated in fascicles. Flowers subsessile. Calyx-tube campanulate, 4-lobed. Petals 4, bluish, obovate. Disc-rays conspicuous. Berry globose, dark-purple.

Rare in moist deciduous forest. **Fl. & Fr.:** Feb.-Sept. **Sp.Ex.:** PSAT 187138 (MH).

Memecylon lushingtonii Gamble, Bull. Misc. Inform. Kew 1919: 227. 1919; FSIHS 1: 232. 1932; FPM 1: 355. 1957; FTN 1: 160. 1983; FEG 3: 53. 2007.

Shrubs. Leaves coriaceous, with obscure nerves. Flowers bluish. Calyx 4-lobed. Petals 4, bluish. Disc rays obscure. Berries globose, dark brown.

Rare along streamlets in dense evergreen forests. **Fl. & Fr.:** April-July. **Sp.Ex.:** LP 3160 (SACONH); KCJ 81401 (MH).

Memecylon talbotianum Brandis in Talbot, Trees, Shrubs, Woody climbers Bombay List ed. 2. Append. 1902 *et* Indian Trees 336. 1906; FPM 1: 355. 1957; FTN 1: 161. 1983; FEG 3: 54. 2007.

Trees, branchlets terete. Leaves opposite-decussate, dark-green, elliptic-ovate, narrowed at base, entire, obtusely or retusely acute to acuminate. Flowers in fascicles blue, fragrant, axillary, compact, bracts broadly ovate. Calyx tube campanulate, 4-lobed, ovate-deltoid. Petals 4, broadly obovate, concave. Stamens 8. Stigma simple. Berries yellow, globose, across. Seed 1, globose.

Rare in moist deciduous forest. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** LP 2261 (SACONH).

Memecylon umbellatum Burm. f., Fl. Indica 87. 1768; FPM 1: 355. 1957; FTC 3(1): 600. 1983; FTN 1: 161. 1983; FEG 3: 54. 2007. *M. edule* Roxb., Pl. Coromandel t. 82. 1798 & Fl. Ind. 2: 260. 1832; FBI 2: 563. 1879; FPM 1: 356. 1957; FTC (3)1: 600. 1983; FTN 1: 160. 1983; FEG 3: 52. 2007.

Large shrub, branchlets terete. Leaves opposite, ovate-elliptic, base acute to acuminate, margin entire, apex obtuse to emarginate, coriaceous. Flowers pinkish-violet, in thyrsoïd cyme. Calyx 4, campanulate, shallowly striate inside. Petals triangular, pinkish-violet. Stamens 8. Ovary orbicular, ovules 10. Berry bluish-black.

Common in riparian zones of deciduous forests. **Fl. & Fr.:** July.-Sept. **Sp.Ex.:** LP 2936, 2657 (SACONH); CECF 8880, 12566 (FRC); CECF 86020 (MH); VN 78368, 79096 (MH); PSAT 186576, 186577, 187173 (MH).

OSBECKIA L., Sp. Pl. 1: 345. 1753.

Osbeckia virgata D. Don ex Wight & Arn., Prodr. Fl. Ind. Orient. 1: 323. 1834; FTN 1: 163. 1983; FTC 3(1): 602. 1983; FEG 3: 59. 2007. *O. octandra* auct. non. (L.) DC., Prodr. 3: 142. 1828; FBI 2: 521. 1879; FPM 1: 348. 1957.

Shrub, hirsute, stems terete or slightly angular. Leaves opposite, elliptic, acute at both ends, hirsute. Cymes terminal, bracts ovate, bracteoles orbicular. Calyx lobes acute, stellate bristly, lobes 5 with tuft of bristles at tip. Petals 5, small, pink-purple. Stamens 10, yellow. Capsules globose, pilose. Seeds many.

Occasional in high altitude grasslands and semi-evergreen forest. **Fl. & Fr.:** Dec.-Jan. **Sp.Ex.:** LP 1980 (SACONH).

LYTHRACEAE J. St.-Hil. Expos. Fam. Nat. 2: 175. 1805.

Key to the genera

- 1a. Herbs; flowers(s) solitary, in racemes or cymes.....2
- 1b. Trees or shrubs; flowers in panicles.....3
- 2a. Flowers in axillary cymes.....*Ammania*
- 2b. Flower(s) in solitary in leaf axils or in racemes.....*Rotala*
- 3a. Flowers tetramerous; stamens 8; seeds wingless.....*Lawsonia*
- 3b. Flowers hexamerous; stamens numerous; seeds winged.....*Lagerstroemia*

AMMANNIA L., Sp. Pl. 1: 119. 1753.

Ammannia baccifera L., Sp. Pl. 120. 1753 incl. subsp. *aegyptiaca* (Willd) Koehne; FBI 2: 569. 1879; FSIHS 1: 234. 1932; FPM 1: 360. 1957; FTN 1: 165. 1983; FTC 3(1): 605. 1983; FEG 3: 63. 2007.

Erect herbs, branchlets glabrous. Leaves lanceolate-oblong, glabrous, base attenuate, apex acute, margin entire. Flowers at nodes, in clusters, reddish-brown. Capsules pyriform, glabrous. Seeds many.

Common in moist places. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2663 (SACONH); KCJ 81127 (MH); VN 78968 (MH); KR 138896 (MH); PSAT 187207 (MH).

LAGERSTROEMIA L. Syst. Nat. ed. 10, 2: 1068, 1076, 1372. 1759.

Key to the species

- 1a. Leaves decussate; trees.....2
- 1b. Leaves alternate; shrubs.....*L. indica*
- 2a. Flowers white, <2 cm across; calyx-tube smooth in capsule.....*L. parviflora*
- 2b. Flowers purple or pink, >5 cm across; calyx-tube ribbed in capsule.....*L. speciosa*

Lagerstroemia indica L., Syst. Nat. ed. 10. 1076. 1759; FBI 2: 576. 1879; FPM 1: 362. 1957; FTC 3(1): 607. 1983; FTN 1: 165. 1983.

A large deciduous glabrous shrub, bark smooth, brownish. Leaves alternate, elliptic to oblong, margin entire. Flowers pink in panicles. Calyx 6-lobed. Petals 6, pink. Fruit a capsule, globose, dehiscent.

Planted along the road sides and gardens. **Fl. & Fr.:** June-Oct. **VN:** Pavalakurinji. **Sp.Ex.:** LP 1593 (SACONH).

Lagerstroemia parviflora Roxb., Pl. Coromandel t. 1: 47, t. 66. 1795 & Fl. Ind. 2: 505. 1832; FBI 2: 575. 1879; FPM 1: 362. 1957; FTC 3(1): 608. 1983; FTN 1: 165. 1983; FEG 3: 64. 2007.

Trees, branchlets glabrous. Leaves elliptic-obovate, glabrous, base cuneate, apex obtuse, margin entire. Flowers axillary and terminal, in panicles, creamy-white. Capsules ellipsoid, glabrous. Seeds many, winged.

Common in dry deciduous forests. **Fl. & Fr.:** June-Dec. **VN:** Kuruvitthaekku. **Sp.Ex.:** LP 2169 (SACONH); VS 19401 (FRC); CECF 21941, 21942(MH); KCJ 81192 (MH); VN 79127 (MH); VN 79627 (MH).

Lagerstroemia speciosa (L.) Pers., Syn. Pl. 2: 72 1806. *L. reginae* Roxb., Pl. Coromandel t. 65. 1795; FTN 1: 165. 1983; FTC 3(1): 608. 1983; FEG 3: 66. 2007. *L. flos-reginae* Retz., Observ. Bot. 5: 25. 1788; FBI 2: 577. 1879; FPM 1: 362. 1957.

Medium sized trees, bark yellowish brown. Leaves simple, opposite or subopposite, ovate-lanceolate, margin entire, glabrous, coriaceous. Flowers bisexual, pink, in terminal panicles. Calyx tube, puberulous, lobes 6, triangular. Petals 6, obovate, clawed, margins crispate. Stamens many. Ovules many. Stigma capitate. Fruit a capsule, ovoid, brown, woody, dehiscent. Seeds winged, pale brown.

Rare in wild along streams and riverbanks; commonly planted along the road side as avenue trees. **Fl. & Fr.:** Feb.-June. **VN:** Poomaruthu. **Sp.Ex.:** LP 1685 (SACONH).

LAWSONIA L., Sp. Pl. 349. 1753.

Lawsonia inermis L., Sp. Pl. 349. 1753; FPM 1: 363. 1957; FTN 1: 165. 1983; FTC 3(1): 609. 1983; FEG 3: 66. 2007. *L. alba* Lam., Encycl. 3: 106. 1789; FBI 2: 573. 1879.

Shrubs bark ashy grey or brown, smooth, branchlets terete, ending in spines. Leaves elliptic to oblanceolate, subsessile. Flowers in terminal cymose panicles. Flowers 4-merous, creamy white. Calyx tube cupular, lobes 4. Petals 4, orbicular or obovate. Stamens 8, inflexed in bud. Ovary globose. Fruit purplish green, globose, dehiscing irregularly. Seeds numerous.

Grown as hedge plant in villages and planted in temple premises in inside of the forests. VN: *Mailanji & Maruthani*. **Fl. & Fr.:** Sept.-May. **Sp.Ex.:** VN 79172 (MH).

ROOTALA L. Mant. Pl. Altera 143, 175. 1771.

Rotala densiflora (Roth ex Roem. & Schul.) Koehne in Engler, Bot. Jahrb. 1: 164. 1880; FSIHS 1: 234. 1932; FPM 1: 274. 1957; FTC 3(1): 612. 1983; FTN 1: 166. 1983; FEG 3: 70. 2007.

An aquatic slender herb, creeping at the base and rooting at the lower nodes, branchlets glabrous. Leaves spreading horizontally, opposite, sessile, oblong-obtuse. Flowers minute in the leaf axils, lower whorls distant, upper spicate, reddish-purple. Capsule globose, 3-valved. Seeds many. Common in along the banks of streams and rivers. **Fl. & Fr.:** Oct.-April. **Sp.Ex.:** VS 18837 (FRC).

ONAGRACEAE Juss., Gen. Pl. 317. 1789.

LUDWIGIA L., Sp. Pl. 1: 118 ("Ludvigia"). 2: 1204. 1753.

Key to the species

- 1a. Plants prostrate; stems spongy with aerophores; flowers 5-merous; petals white... *L. adscendens*
- 1b. Plants erect or semierect; stems woody without aerophores; flowers 4-merous..... 2
- 2a. Plants above 2 m tall; stems and leaves pubescent to villous; stamens 8.....
..... *L. octovalvis* subsp. *sessiliflora*
- 2b. Plants below 1 m tall; stems and leaves glabrous; stamens 4..... *L. perennis*

Ludwigia adscendens (L.) H. Hara, J. Jap. Bot. 28: 291. 1953; FTC 3(1): 621. 1983; FTN 1: 167. 1983; FEG 3: 77. 2007. *Jussiaea repens* L., Sp. Pl. 1: 388. 1753, non *L. repens* J.R. Forst. 1771; FBI 2: 587. 1879; FPM 1: 365. 1957.

Aquatic floating herbs, with spongy aerophores, stems reddish cylindrical rooting at nodes. Leaves oblong to obovate or elliptic, glossy above, glabrous. Flowers solitary, white. Calyx tube pubescent, lobes 5, narrow-lanceolate. Petals 5, obovate, cream with yellow base. Stamens 10, subequal. Capsules terete, 10-ribbed, glabrous. Seeds many.

Common, near ponds, pools and lakes. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** PSAT 186629, 186630 (MH). VS 18601 (MH); KCJ 81205 (MH); EV 142093 (MH).

Ludwigia octovalvis (Jacq.) Raven, Kew Bull. 15: 476. 1962, subsp. *sessiliflora* (Micheli) P.H. Raven, Kew Bull. 15: 476. 1962; FTC 3(1): 623. 1983; FTN 1: 168. 1983. *Oenothera octovalvis* Jacq., Enum. Syst. Pl. 19. 1760; FEG 3: 79. 2007. *Jussiaea suffruticosa* L., Sp. Pl. 1: 388. 1753; FBI 2: 587. 1879, non L. 1753; FPM 1: 365. 1957.

Subshrubs, erect, branchlets densely tomentose. Leaves oblong to elliptic-lanceolate, tapering at base and apex, soft tomentose. Flowers solitary, axillary. Calyx 4-lobed. Petals obovate, yellow. Stamens 8. Capsules terete, 8-ribbed, pubescent. Seeds many, ovoid.

Rare in moist deciduous forest near streamlets. **Fl. & Fr.:** May-Oct. **Sp.Ex.:** PSAT 186935 (MH); VN 79770 (MH).

Ludwigia perennis L., Sp. Pl. 119. 1753; FTC 3(1): 623. 1983; FTN 1: 168. 1983. *L. parviflora* Roxb., Fl. India 1: 440. 1820; FBI 2: 588. 1879; FPM 1: 365. 1957.

Erect herb with spreading roots, stem narrowly winged. Leaves alternate, linear-elliptic to lanceolate, glabrous. Flowers solitary, axillary, subsessile. Calyx lobes 4, lanceolate. Petals 4, elliptic-oblong, yellow. Stamens 4, equal. Ovary 4-celled, ovules many. Stigma capitate. Capsules subterete, glabrous, turbinate, pale brown. Seeds ellipsoid.

Occasional in marshy places, paddy field bunds, banks of ponds and lakes, along water canals and degraded forest areas. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 18761 (FRC); VN 78968 (MH).

PASSIFLORACEAE Juss. ex Roussel, Fl. Calvados, ed. 2: 334. 1806.

PASSIFLORA L. Sp. Pl. 955. 1753.

Key to the species

- 1a. Stipule filiform; berry globose, to <3 cm across.....*P. foetida*
1b. Stipule ovate, not filiform; berry to >3 cm across.....*P. subpeltata*

Passiflora foetida L., Sp. Pl. 959. 1753; FBI 2: 599. 1879; FPM 1: 370. 1957; FTN 1: 169. 1983; FTC 3(1): 630. 1983; FEG 3: 87. 2007.

Tendrils-climbers, branches faintly angular, densely hispid, tendrils leaf opposed. Stipules subreniform, dissected. Leaves variable, palmately 3-5-lobed, cordate at base, margin ciliate. Flowers axillary, solitary, rarely in pairs. Calyx lobes ovate, saucer shaped, lobes apically spurred. Petals white, corona purple or white. Disc and gynandrophore prominent. Stamens 5. Berries subglobose, seeds black, pitted.

Common along river beds, on wayside thickets and in open waste lands. **Fl. & Fr.:** Throughout the year. **VN:** *Poonikaalipazham*. **Sp.Ex.:** KNS 6955, 6956 (FRC); VS 18762 (FRC); SRR 81056 (MH); KCJ 81314 MH); PSAT 187006 (MH).

Passiflora subpeltata Ortega, Nov. Pl. Descr. dec. 6: 78. 1798. *P. calcarata* Mast., Trans. Linn. Soc. London 27: 638. 1871; FSIHS 1: 240. t. 186. 1932; FPM 1: 370. 1957; FTN 1: 169. 1983; FTC 3(1): 631. 1983; FEG 3: 86. 2007.

Tendrils climber. Leaves palmately 3-lobed, lobes oblong, obtuse-mucronate, glaucous beneath. Stipules leafy, ovate-cordate. Flowers axillary, solitary. Calyx 5-lobed. Petals 5, white. Corona of many segments below the gynandrophore, corona in 2 series. Stamens 5. Ovary elliptic. Berry globose, glossy. Seeds ellipsoid.

Common in moist shady places. **Fl. & Fr.:** Aug.-Nov. **Sp.Ex.:** LP 2628 (SACONH); VS 18596 (FRC); PSAT 186695, 186696, 187133 (MH).

CARICACEAE Dumort., Anal. Fam. Pl. 37, 42. 1829.

CARICA L., Sp. Pl. 1036. 1753.

Carica papaya L., Sp. Pl. 1036. 1753; FBI 2: 599. 1879; FPM 1: 370. 1957; FTN 1: 170. 1983; FTC 3(1): 632. 1983; FEG 3: 88. 2007.

Small tree with white milky juice, almost branchless, trunk with scars of fallen leaves. Leaves large digitately lobed with long petioles. Mostly dioecious rarely monoecious. *Male inflorescence:* 30-100 cm long raceme; flowers in cluster, sessile; sepals 5-lobed; petals 5, twisted in bud, creamy yellow; stamens 10, in two whorls. *Female inflorescence:* solitary, axillary; sepals 5, united, green, fleshy; petals 5, lanceolate, obtuse. Fruit large spherical/ pyriform, yellow or orange when ripe. Seeds Black, wrinkled, enclosed by gelatinous membrane.

Rare in wild. Common in sloping banks of the agricultural fields and also cultivated. **Fl. & Fr.:** Throughout the year. **VN:** *Pappaali*. **Sp.Ex.:** LP 1632 (SACONH).

CUCURBITACEAE Juss., Gen. Pl. 393. 1789.

Key to the genera

- 1a. Tendrils branched.....2
1b. Tendrils simple.....5
2a. Petals fimbriate white; corolla rotate.....*Trichosanthes*

2b. Petals entire, greenish yellow; corolla campanulate.....	3
3a. Flowers < 2.5 cm across; leaves usually deeply lobed.....	4
3b. Flowers > 4 cm across; leaves usually angular or shallowly lobed.....	<i>Luffa</i>
4a. Male flowers solitary, not coaxillary with female flowers.....	<i>Citrullus</i> (p.p)
4b. Male flowers clustered, coaxillary with female flowers.....	<i>Diplocyclos</i>
5a. Bracts ciliate; stamens free; anther cells straight.....	<i>Ctenolepis</i>
5b. Bracts glabrous; anther cells triplicate (S-shaped).....	6
6a. Calyx-tube closed at base by scales; Male peduncle with spatheaceous bract.....	<i>Momordica</i>
6b. Calyx tube without scales.....	7
7a. Male flowers solitary.....	8
7b. Male flowers in clusters or racemes; corolla and calyx campanulate.....	9
8a. Petals yellow; anthers free; leaf lobes lobulate.....	<i>Citrullus</i> (p.p)
8b. Petals white; anthers united; leaf lobes other than lobulate.....	<i>Coccinia</i>
9a. All stamens 2-celled; connectives and filaments ciliate; flowers cream yellowish coloured.....	<i>Zehneri</i>
9b. All stamens not 2-celled (one 1-celled, two 2-celled); connectives and filaments glabrous...10	
10a. Connectives apically crusted; trailing herbs.....	<i>Cucumis</i>
10b. Connectives apically uncrusted; anthers erect or arcuate.....	11
11a. Ovary rostrate at the apex.....	12
11b. Ovary not rostrate; female flowers clustered, rarely solitary.....	14
12a. Stamens inserted in the mouth of calyx tube; monoecious.....	13
12b. Stamens inserted at the base of the calyx-tube; dioecious.....	<i>Solena</i>
13a. Leaves angular; connectives 2-partite; fruit dehiscing by valves or slits.....	<i>Kedrostis</i>
13b. Leaves lobed; connectives 2-fid; fruits dehiscing by operculum.....	<i>Corallocarpus</i>
14a. Anthers connate; style filiform.....	<i>Gymnopetalum</i>
14b. Anthers free; style disc annular.....	<i>Mukia</i>

CITRULLUS Schrad., Ecklon & Zeyher Enum. Pl. Afric. Austral. 279. 1836.

Key to the species

- 1a. Tendrils simple; fruits globose; bracts subulate.....*C. colocynthis*
 1b. Tendrils 2-fid; fruits ellipsoid-oblong; bracts spatulate.....*C. lanatus*

Citrullus colocynthis (L.) Schrad., Linnaea 12: 414. 1838; FBI 2: 620. 1877; FPM 1: 378. 1957; FTC 3(1): 636. 1983; FTN 1: 170. 1983; FEG 3: 89. 2007. *Cucumis colocynthis* L., Sp. Pl. 1011. 1753.

Perennial prostrate herb with angular stem. Tendrils bifid, robust. Bracts spoon shaped. Leaves ovate or triangular, 3-5 lobed; lobes pinnatifid-sinuate, rigid, margin crisped, densely villous hirsute below lobes. Flowers solitary. *Male flowers*: calyx lobes linear; corolla yellow, hirsute; petals ovate; stamens 3. *Female flowers*: ovary ovoid. Fruit globose. Seeds ovoid.

Common in sandy soil near river beds and open wetlands. **Fl. & Fr.**: Throughout the year. **VN**: *Peikumatti*. **Sp.Ex.**: SRR 81050 (MH).

Citrullus lanatus (Thunb.) Matsum. & Nakai, Cat. Sem. Spor. 1915 & 1916: 30. 854. 1916; FTN 1: 170. 1983; FTC 3(1): 636. 1983. *C. vulgaris* Schrad. in Ecklon & Zeyher, Enum. Pl. Afric. Austral. 279. 1836; FBI 2: 621. 1879; FPM 1: 379. 1957.

Annual trailing herbs. Stem villous. Leaves softly pubescent, ovate, deeply 5-7-lobed, lobes obovate, acute at apex, entire at margins. Tendril robust, bifid. Bracts spatulate. *Male flowers*: axillary, solitary; calyx-tube campanulate, lobes lanceolate; corolla yellow, villous; stamens 3. *Female flowers*: axillary, solitary; ovary oblong. Fruits globose, green. Seeds black.

Occasionally cultivated for edible fruits. **Fl. & Fr.:** Jan.-April. **VN:** Dharbusini. **Sp.Ex.:** VS 19230 (FRC).

COCCINIA Wight & Arn., Prodr. Fl. Ind. Orient. 347. 1834.

Coccinia grandis (L.) Voigt, Hort. Suburb. Calcutt. 59. 1845; FTN 1: 170. 1983; FTC 3(1): 637. 1983; FEG 3: 89. 2007. *C. indica* Wight & Arn., Prodr. Fl. Ind. Orient. 347. 1834, nom. Illeg.; FPM 1: 379. 1957.

Climber. Tendril simple. Root tuberous. Leaves ovate to shallowly 5-7 lobed, entire, ciliate, acuminate mucronulate, cordate at base, denticulate along margins, glandular beneath. Flowers dioecious, axillary, solitary. *Male flowers:* calyx campanulate; stamens 3. *Female flowers:* axillary, solitary; calyx lobes ovate; staminodes 3; ovary oblong-ovate. Stigma tripartite, fimbriate. Berries greenish white, glabrous, red when ripe, seeds obovoid.

Common in scrub jungles and dry thorn forest. **Fl. & Fr.:** Throughout the year. **VN:** Kovaikodi, Kovakka. **Sp.Ex.:** VS 18763, 18812, 78145 (FRC); PSAT 187377 (MH).

CORALLOCARPUS Welw. ex Benth. & Hook. f., Gen. Pl. 1: 831. 1867.

Corallocarpus epigaeus (Rottler) Hook. f., Fl. Brit. India 2: 628. 1879; FPM 1: 382. 1957; FTN 1: 170. 1983; FTC 3(1): 638. 1983; FEG 3: 91. 2007.

Glabrous climbing herb with tuberous roots. Tendrils filiform. Leaves 3-5 lobed, broadly suborbicular, densely villose, scabrid, base deeply cordate, apex obtuse, denticulate at margins. Flowers monoecious, greenish yellow, axillary. *Male flowers:* in subcapitate, pale yellow; stamens 3, free, inserted at base of calyx tube. *Female flowers:* solitary, axillary; calyx campanulate, lobes 5. Fruits beaked at apex, glabrous, red when ripe. Seeds ovoid, turgid, yellow, distinctly marginate.

Common in plains especially along the road sides. **Fl. & Fr.:** Nov.-Mar. **VN:** Agasagarudan. **Sp.Ex.:** VS 18597, 19233 (FRC); VN 79658 (MH).

CTENOLEPIS Hook. f., Gen. Pl. 1: 832. 1867.

Ctenolepis garcinii Benth. & Hook. f., Gen. Pl. 1(3): 832. 1867, non. inval.; FBI 2: 629. 1879; FTN 1: 171. 1983; FTC 3(1): 639. 1983; FEG 3: 92. 2007. *Bryonia garcinii* (Burm. f.) Willd., Sp. Pl. 4: 623. 1805; FPM 1: 381. 1957.

Scabrid climber with tuberous roots. Tendrils axillary. Leaves deeply 5-lobed, lobes ovate, obtusely mucronate, base cordate, margin crenulated-denticulate, villous hirsute on both sides. Flowers monoecious, pale yellow, male flowers in racemes, female solitary. Calyx campanulate. Corolla rotate, greenish white, lobes ovate. Ovary ovoid. Stigma 2-3 lobed. Fruit berries, obliquely ellipsoid, subreniform, reddish.

Occasional in hedges and scrub jungles in plains. **Fl. & Fr.:** Sept.- Jan. **Sp.Ex.:** VS 19236 (FRC).

CUCUMIS L., Sp. Pl. 1011. 1753.

Cucumis melo L., Sp. Pl. 1011. 1753, var. *melo*; FBI 2: 620. 1879; FPM 1: 378. 1957; FTN 1: 171. 1983; FTC 3(1): 641. 1983; FEG 3: 94. 2007. *C. pubescens* Willd., Sp. Pl. 4: 614. 1805; FPM 1: 378. 1957.

Prostrate spreading vine. Leaves suborbicular or reniform, 5-angled or shallowly 3-5 (7-) lobed, chartaceous, hispid, lobes short, margin denticulate. *Male flowers:* in clusters; calyx tube narrowly campanulate, densely hirsute; corolla yellow; stamens 3. *Female flowers:* solitary; ovary subterete; stigma 3-fid; staminodes ligulate. Fruit ellipsoid or oblong.

Occasional in moist localities. **Fl. & Fr.:** July-Dec. **VN:** Sukkangai. **Sp.Ex.:** VS 19237 (FRC).

DIPLOCYCLOS (Endl.) T. Post & Kuntze, Lex. Gen. Phan. 178. 1903.

Diplocyclos palmatus (L.) Jeffrey, Kew Bull. 15: 352. 1962; FTN 1: 172. 1983; FTC 3(1): 644. 1983; FEG 3: 95. 2007. *Bryonia laciniosa* L., Sp. Pl. 1013. 1753; FBI 2: 622. 1879; FPM 1: 377. 1957.

Slender climber. Tendrils bifid. Branchlets glabrous. Leaves palmately 5-lobed, membranous, scabrid above, glabrous below, lobes elliptic-oblong, cordate at base, margin denticulate-subcrenulate. Flowers monoecious, male and female flowers in clusters, coaxillary. Calyx tube campanulate, lobes subulate. Petals 5, obovate. Stamens 3. Ovary globose. Stigma 3. Berry, globose, red with white lines. Seeds pyriform, compressed.

Common in foothills and scrub jungles. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** LP 2026 (SACONH); VS 18598, 19235 (FRC); CECF 22590 (MH); VN 79102 (MH); PSAT 186979 (MH).

GYMNOPTALUM Arn., Madras J. Lit. Sci. 12: 52. 1840.

Gymnometalum tubiflorum (Wight & Arn.) Cogn., Monogr. Phan. 3: 388. 1881. *G. wightii* Arn., Madras J. Lit. Sci. 12: 52. 1840; FBI 2: 611. 1879; FPM 1: 374. 1957; FTN 1: 172. 1983; FEG 3: 97. 2007.

Dioecious climber. Branchlets pubescent or scabrous. Tendrils simple. Leaves cordate, 5-angular or 3-5 lobed. Flowers yellow, male flowers in racemose, female solitary. Calyx-tube elongate, tubular, lobes 5. Corolla rotate, deeply 5-partite. Stamens 3 in male flowers. *Female flowers:* staminodes 3, minute; ovary ovoid or oblong; ovules numerous; stigma 3, linear. Fruit an ovoid oblong berry.

Occasional in moist deciduous forests. **Fl. & Fr.:** Sept.-Oct. **Sp.Ex.:** LP 2612 (SACONH).

KEDROSTIS Medik., Philos. Bot. 2: 69. 1791.

Kedrostis foetidissima (Jacq.) Cogn. DC., Monogr. Phan. 3: 634. 1881; FTN 1: 172. 1983; FTC 3(1): 645. 1983; FEG 3: 99. 2007. *K. rostrata* (Rottl.) Cong. in DC., Monogr. Phan. 3: 636. 1881; FPM 1: 374. 1957.

Vine with glandular-pubescent branchlets. Tendrils filiform. Leaves ovate-cordate, faintly 3-5-angled, pubescent, irregularly dentate at margin, acute at apex, base deeply emarginate. Flowers unisexual. *Male flowers:* in racemes; calyx-tube campanulate, lobes 5, linear; corolla rotate, yellow; petals elliptic; stamens 3. *Female flowers:* ovary oblong fusiform, rostrate, glandular pubescent. Fruit flask-shaped.

Occasional in foothills and scrub jungles. **Fl. & Fr.:** Oct.-Jan. **VN:** Appakkovai. **Sp.Ex.:** PSAT 186872 (MH).

LUFFA Mill., Gard. Dict. Arb. ed. 4. 1754.

Luffa cylindrica (L.) M. Roem., Fam. Nat. Syn. Monog. Fam 2: 63. 1846; FTC 3(1): 646. 1983; FTN 1: 172. 1983. *L. aegyptiaca* Mill., Gard. Dict. ed. 8. 1768; FBI 2: 614. 1879; FPM 1: 376. 1957.

Vine with glabrous branchlets. Tendrils 3-fid. Leaves 5-lobed, lobes ovate, thin-coriaceous, gland dotted, scabrid, base cordate, margin sharply serrate, apex acute or acuminate. Flowers monoecious. *Male flowers:* racemes axillary, apically clustered, lax at the base; calyx tube broadly campanulate; corolla golden yellow; petals 5; stamens 5. *Female flowers:* solitary, coaxillary with Male flowers. Fruit oblong, glabrous, white striped. Seeds many, ovoid.

Occasional in hedges and bushes along the riverbeds. **Fl. & Fr.:** Sept.-Mar. **Sp.Ex.:** VS 18711 (FRC).

MOMORDICA L., Sp. Pl. 1009. 1753.**Key to the species**1a. Flowers monoecious; bract inserted at the base of the peduncle.....*M. charantia*1b. Flowers dioecious; bracts inserted at the tip of peduncle.....*M. dioica***Momordica charantia** L., Sp. Pl. 1009. 1753 var. *charantia*; Roxb., Fl. Ind. 3: 707. 1832; FBI 2: 616. 1879; FPM 1: 375. 1957; FTN 1: 173. 1983; FTC 3(1): 648. 1983; FEG 3: 101. 2007.

Vine, branchlets villose. Stem puberulous. Tendrils simple. Leaves 5-7 lobed, lobes ovate-oblong, apex acuminate, base cordate, margin dentate, pubescent below, petiole pubescent. Bracts reniform-orbicular on the base of the peduncle. Flowers, solitary, axillary. Calyx lobes ovate. Petals obovate, rounded. Stamens 3. Ovary fusiform, mucronate. Fruit oblong, tubercled. Seeds ovoid, compressed, sculptured.

Common in degraded forest areas and along road side bushes. **Fl. & Fr.:** Oct.-Jan. **VN:** Paaharkaai. **Sp.Ex.:** VS 19238 (FRC).

Momordica dioica Roxb. ex Willd., Sp. Pl. 4(1): 605. 1805; FBI 2: 617. 1879; FPM 1: 375. 1957; FTN 1: 173. 1983; FTC 3(1): 648. 1983; FEG 3: 101. 2007.

Slender climbers with tuberous roots. Tendrils simple. Leaves 5-lobed, lobes ovate, cordate at base, denticulate, obtusely acute. Bracts orbicular-reniform, cuculate. Flowers dioecious, solitary, axillary. *Male flowers:* calyx campanulate, lobes ovate; corolla campanulate, lobes oblong. *Female flowers:* few; stigma 3-lobed. Fruits ellipsoid with soft spines.

Occasional in moist deciduous forest. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** VN 79797 (MH).

MUKIA Arn., Madras J. Lit. Soc. 17: 50. 1840.

Key to the species1a. Seeds smooth; leaves villous below, margins strongly dentate.....*M. leiosperma*1b. Seeds pitted; leaves scabrid below, margins coarsely dentate-serrate.....*M. maderaspatana*

Mukia leiosperma (Wight & Arn.) Wight, Ann. Mag. Nat. Hist. 8: 208. 1842; FBI 2: 623. 1879; FTC 3(1): 649. 1983; FTN 3(1): 173. 1983; FEG 3: 102. 2007. *Melothria leiosperma* (Wight & Arn.) Cogn. in DC., Monogr. Phan. 3: 622. 1881; FSIHS 1: 244. t. 191. 1932; FPM 1: 380. 1957.

Villous climber. Tendrils simple. Stem densely pillose. Leaves scabrous, broadly ovate, hastately 3-5 angled, shallowly 5-lobed, acute, truncate to subcordate, dentate-serrate, acute-acuminate spinous serrate along the margins, coarsely scabrous above, densely tomentose below. Flowers in axillary fascicles. Calyx villous, lobes 5, linear. Petals villous, yellow. Stamens 3, staminodes 3. Fruits berry globose, glabrous, red when ripe. Seeds ovoid, compressed.

Occasional in moist localities. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** VN 79713 (MH).

Mukia maderaspatana (L.) M. Roem., Fam. Nat. Syn. Monogr. 2: 47. 1846; FTN 1: 173. 1983; FTC 3(1): 650. 1983; FEG 3: 103. 2007. *Melothria maderaspatana* (L.) Cogn. in A. DC., Monogr. Phan. 3: 623. 1881; FPM 1: 380. 1957.

Prostrate or climbing vine. Branchlets hispid. Tendrils simple. Leaves ovate-deltoid, angular or 3-5 lobed, cordate at base, margin denticulate, apex acuminate, mucronate. Flowers monoecious. *Male flowers:* 8-12 together, yellow, fascicled; calyx densely hairy outside, lobes subulate; petals obovate, yellow. *Female flowers:* solitary or 2-3 together. Berry small, globose. Seeds obovate, yellowish white, rugose.

Common in plains among the roadsides and wastelands. **Fl. & Fr.:** Throughout the year. **VN:** Musumusukki. **Sp.Ex.:** LP 2808 (SACON); KA & PB 1446 (SACONH); PSAT 187198 (MH).

SOLENA Lour., Fl. Cochinch. 477, 514. 1790.

Solena amplexicaulis (Lam.) Gandhi in Saldanha & Nicolson, Fl. Hassan Dist. 179. 1976; FTN 1: 173. 1983; FTC 3(1): 651. 1983; FEG 3: 104. 2007. *Melothria heterophylla* (Lour.) Cogn. in DC., Monogr. Phan. 3: 618. 1881; FPM 1: 380. 1957.

Climbers. Tendrils filiform. Leaves polymorphic, alternate, ovate, base cordate, margin sinuate, minutely denticulate, apex obtuse, apiculate, chartaceous. Flowers dioecious. *Male flowers*: subumbellate, bracts linear; calyx tube glabrous, lobes 5, triangular; corolla campanulate, lobes 5; stamens 3. *Female flowers*: solitary; ovary oblong; stigma 3-lobed. Fruits oblong-ovoid, turgid, smooth.

Common in foothills and scrub jungles. **Fl. & Fr.**: Throughout the year. **Sp.Ex.**: VS 19239 (FRC); KCJ 81470 (MH).

TRICHOSANTHES L., Sp. Pl. 1008. 1753.

Trichosanthes tricuspidata Lour., Fl. Cochinch. 589. 1790 var. *tricuspidata*; FTC 3(1): 653. 1983; FTN 1: 174. 1983; FEG 3: 107. 2007. *T. palmata* Roxb., Fl. Ind. 3: 704. 1832, non. Illegit., non L.; FBI 2: 606. 1879; FSIHS 1: 242. 1932; FPM 1: 374. 1957.

Vine. Branchlets lepidote, glabrous. Tendril robust. Leaves polymorphic, ovate or suborbicular, deeply 5-7 lobed, lobes oblong or ovate, cordate, margin subentire or distinctly denticulate, apex acuminate. *Male flowers*: in raceme, bracts obovate; calyx glabrous, lobes lanceolate; corolla white; stamens 3. *Female flowers*: solitary, ebracteate; calyx lobes lanceolate, lacinate; petals involute. Ovary globose.

Occasional in plains near fallow lands and disturbed grounds. **Fl. & Fr.**: Throughout the year. **Sp.Ex.**: CAB 22436, 22437 (MH); VN 78400, 78417 (MH).

ZEHNERIA Endl., Prodr. Fl. Norfolk. 1. 69. 1833.

Zehneria mysorensis Wight, Ann. Mag. Nat. Hist. 8: 268. 1842; FTC 3(1): 655. 1983; FTN 1: 174. 1983; FEG 3: 108. 2007. *Melothria perpusilla* var. *subtruncata* Cogn. in DC., Monogr. 3: 606. 1881; FPM 1: 380. 1957.

Monoecious slender climber. Leaves broadly ovate-subdeltoid, membranous, glabrescent, base truncate, margin denticulate, apex acuminate, apiculate. Flowers monoecious, male and female flowers in coxillary. *Male flowers*: 3-10 in clusters. Calyx lobes ovate; petals cream or yellowish, ovate; stamens 3. *Female flowers*: solitary. Ovary globose, oblong. Fruit globose, seeds ovoid.

Occasional in moist deciduous and evergreen forest. **Fl. & Fr.**: Dec.-May. **Sp.Ex.**: CECF 22745, 22746 (MH); VN 78255, 78414 (MH); SRN 80541 (MH); VS 19232 (FRC).

BEGONIACEAE C. Agardh, Aphor. Bot. 200. 1824.

BEGONIA L., Sp. Pl. 2: 1056. 1753.

Begonia malabarica Lam., Encycl. 1: 393. 1785; FBI 2: 655. 1879; FSIHS 1: 245. 1932; FPM 1: 386. 1957; FTC 3(1): 657. 1983; FTN 1: 175. 1983; FEG 3: 110. 2007.

Herbs, branchlets succulent, reddish. Stems succulent, branched, articulated, pale green to pale pink. Leaves unequally ovate-cordate, irregularly serrate along margins, glabrous or sparsely scatterly pubescent, pink below. Flowers in axillary or terminal dichotomous cymes, rose to pale pink. Tepals orbicular. Stamens many. Capsules white, wings subequal, veined.

Rare, near shady, moist places, especially around water-falls and along rocky boulders near streamlets in moist deciduous and evergreen forests. **Fl. & Fr.:** Throughout the year. **VN:** *Rathasoori*. **Sp.Ex.:** VS 18599 (FRC); EV 142106 (MH).

CACTACEAE Juss., Gen. Pl. 310. 1789.

Key to the genera

- 1a. Stem segments cylindric; flowers <4 cm across.....*Cylindropuntia*
- 1b. Stem segments bilaterally flattened or angled; flowers >4 cm across.....2
- 2a. Stem flat, angular; flowers more than 14 cm long; perianth funnel-like, united; stamens inserted on perianth.....*Cereus*
- 2b. Stem 3-9 angled; flowers less than 10 cm long; perianth rotate, free; stamens inserted on the receptacle.....*Opuntia*

CEREUS Mill., Gard. Dict. Abr. Ed. 4. 1754.

Cereus pterogonus Lem., Cact. Gen. Sp. Nov. 59. 1839; Curtis, Bot. Mag. t. 5360. 1863; Burkill, Rec. Bot. Surv. India 4: 294. 1911; FTC 3(1): 659. 1983; FEG 3: 111. 2007.

Shrub, stem profusely branched, green, fleshy, columnar, glabrous, 3-9 angled, latex milky, areoles echinate, without glochids, lanate, spines unequal. Flowers lateral, sessile. Perianth funnel shaped with a few scales below. Tepals α , outer ones greenish-white calycine, inner ones white petaloid, oblong-lanceolate. Stamens α , inserted at various levels on perianth. Ovules α . Fruits angular, red when ripe.

Common in disturbed dry deciduous forest and planted as hedge plant for gardens and agricultural areas. **Fl. & Fr.:** Mar.- July. **Sp.Ex.:** LP 1609 (SACONH).

CYLINDROPUNTIA (Engelm.) F.M. Knuth in Backeb. & Knuth., Kaktus-ABC. 410. 1935.

Cylindropuntia ramosissima (Engelm.) F.M. Knuth in C. Backeberg & F.M. Knuth, Kaktus - ABC. 122. 1935. *Opuntia ramosissima* Engelm., Amer. J. Sci. Arts ser. 2. 14: 339. 1852.

Shrubs, intricately branched. Stem segments attached; areoles deltate-linear. Spines 0-5 per areole. Flowers tepals orange to brownish, ovate. Anthers yellow. Style whitish to light green. Stigma lobes whitish. Fruits maturing tan, ellipsoid to stipitate-ellipsoid, tuberculate. Seeds pale yellow to tan-grey, angular.

Planted as hedge plant for gardens and agricultural areas. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** LP 1620 (SACONH).

OPUNTIA Mill., Gard. Dict. Abr., ed. 4. 1754.

Key to the species

- 1a. Areoles bristly at base; spines yellow.....*O. dillenii*
- 1b. Areoles woolly at base; spines brown or white.....2
- 2a. Spines slender, less than 3 cm long.....*O. elatior*
- 2b. Spines stout, more than 3 cm long.....*O. vulgaris*

Opuntia dillenii (Ker Gawl.) Haw., Suppl. Pl. Succ. 79. 1819; FBI 2: 657. 1879; FPM 1: 387. 1957; FTN 1: 176. 1983; FTC 3(1): 661. 1983. *O. stricta* (Haw.) Haw., Syn. Pl. Succ. 191. 1812. var. *dilleni* (Ker-Gawler) L. Benson, Cact. Succ. J. 41: 126. 1969; FEG 3: 113. 2007.

Shrubs, cladodes succulent, areoles woolly, yellowish sharp spines, stem flattened, pale green, spines 5-7 per areole. Leaves linear, deciduous. Flowers solitary, sessile. Calyx lobes

broadly ovate, acuminate. Perianth and stamens indefinite. Tepals many, outer calycine, petaloid, obovate, yellow tinged with orange. Stamens many. Ovary inferior, ovules many. Stigma branched. Berry pyriform, purple, sap pinkish, spiny. Seeds numerous.

Common in rocky areas of dry deciduous and moist deciduous forests. **Fl. & Fr.:** Nov.-Feb. **VN:** *Sappathikalli*. **Sp.Ex.:** VS 18600 (FRC); VN 78289 (MH).

Opuntia elatior Mill., Gard. Diet. ed. 8. no. 4. 1768; FPM 1: 387. 1957; FTN 1: 176. 1983; FEG 3: 112. 2007.

Succulent armed shrub. Leaves scale-like. Spines 1-4 in each areole. Flowers lateral, solitary. Calyx lobes many, pink tinged, adnate to ovary. Petals many, pinkish. Stamens numerous, yellow. Berry fleshy, obovate-oblong. Seeds compressed.

Occasional in dry open places and road sides. **Fl. & Fr.:** June-Sept. **Sp.Ex.:** KNS 8060 (FRC).

Opuntia ficus-indica (L.) Mill., Gard. Diet. ed. 8: 2. 1768. *O. vulgaris* Mill., Gard. Diet. (ed. 8) n. 1. 1768; FEG 3: 114. 2007. *Cactus indicus* Roxb., Fl. Ind. 2: 475. 1832; FPM 1: 387. 1957; FTN 1: 176. 1983; FTC 3(1): 660. 1983.

Shrubs, cladodes succulent, broadly obovate, areoles densely woolly, brownish-glochidiate, spines 1-3 per areole, very unequal, brown-tipped. Leaves scale-like, subulate, lanceolate, early deciduous. Perianth α , outer tepals greenish, inner tepals yellowish, pinkish tinged. Berries pyriform, truncate, depressed at apex, red when ripe. Seeds compressed.

Common in open dry lands and near foothills. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KCJ 81417 (MH).

AIZOACEAE Martinov, Tekhno-Bot. Slovar: 15. 1820.

Key to the genera

- 1a. Flowers 6-8 in a cluster; sepals pink; styles 2.....*Zeyleya*
1b. Flowers 1-3; sepals green; styles 1 or 3.....*Trianthema*

TRIANTHEMA L., Sp. Pl. 223. 1753.

Trianthema portulacastrum L., Sp. Pl. 223. 1753; FPM 1: 389. 1957; FTN 1: 177. 1983; FTC 3(1): 670. 1983; FEG 3: 119. 2007; FPI 1: 66. 2009.

Prostrate herbs, fleshy. Leaves unequal, broadly obovate to suborbicular, rounded at apex, cuneate at base, entire at margins, glabrous. Flowers axillary, solitary. Calyx lobes 5, triangular, purplish within. Stamens many. Style awl-shaped. Capsules bilobed, compressed.

Common along roadsides, cultivated fields and wastelands. **Fl. & Fr.:** Dec.-Mar. **VN:** *Pasalakeerai*. **Sp.Ex.:** LP 1419 (SACONH).

ZALEYA Burm. f., Fl. Indica 110. 1768.

Zaleyia decandra (L.) Burm. f., Fl. Ind. 110. t. 31. f. 3. 1768; FTN 1: Add. ii. 1983; FEG 3: 120. 2007; FPI 1: 66. 2009. *Trianthema decandra* L., Mant. Pl. 1: 70. 1767; FBI 2: 661. 1879; FPM 1: 389. 1957; FTN 1: 176. 1983; FTC 3(1): 670. 1983.

Much branched, glabrescent prostrate herbs. Leaves unequal, fleshy, oblong-elliptic, obtuse at apex, acute at base, entire at margins, glabrous. Flowers in axillary subumbellate clusters. Sepals 5, pink, oblong-obovate, scarious at margins. Stamens 10, unequal. Capsules circumscissile, operculum 2-valved. Seeds reniform, black, finely wrinkled.

Common in open wastelands and bunds of reservoirs. **Fl. & Fr.:** Jan.-April. **VN:** *Saranai*. **Sp.Ex.:** LP 1461 (SACONH); KCJ 81170 (MH); VS 18602 (FRC).

MOLLUGINACEAE Bartl. in Bartl. & Wend., Beitr. Bot. 2: 158. 1825.

Key to the genera

- 1a. Leaves radical and cauline; flowers in dichasial to polychasial cymes.....*Mollugo*
- 1b. Leaves all cauline; flowers in clusters, cymes or solitary.....2
- 2a. Flowers pink, in cymes; staminodes many, petaloid.....*Corbichonia*
- 2b. Flowers greenish-white, in clusters; staminodes 0.....*Glinus*

CORBICHONIA Scop., Introd. 264. 1777.

Corbichonia decumbens (Forssk.) Exell, J. Bot. 73: 80. 1935; FTN 1: 177. 1983; FTC 3(1): 663. 1983; FEG 3: 114. 2007. *Orygia decumbens* Forssk., Fl. Aegypt.-Arab. 103. 1775; FBI 2: 661. 1879; FPM 1: 389. 1957.

Prostrate herb. Branchlets glabrous. Leaves decussate and alternate, pairs unequal, ovate-suborbicular, flashy, glabrous, base cuneate or attenuate, margin entire, apex rounded-obtuse, mucronate. Flowers pink, leaf opposite or terminal, in cymes. Sepals 5, elliptic, mucronate, capsule subglobose, loculicidal.

Occasional in river banks and wastelands. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** KCJ 88436 (MH).

GLINUS L., Sp. Pl. 463. 1753.

Key to the species

- 1a. Branchlets hoary; staminodes 0; flowers > 1 cm across.....*G. lotoides*
- 1b. Branchlets glabrescent; staminodes bifid; flowers < 4 mm across.....*G. oppositifolius*

Glinus lotoides L., Sp. Pl. 463. 1753; FTN 1: 177. 1983; FTC 3(1): 664. 1983; FEG 3: 115. 2007. *Mollugo lotoides* (Loefl.) Kuntze, Revis. Gen. Pl. 214. 1891; FPM 1: 390. 1957.

Tomentose procumbent herb. Branchlets hoary. Leaves 3-5 in clusters, suborbicular or spatulate, unequal, chartaceous, stellate-tomentose, base subacute-cuneate, margin entire, apex obtuse-rotund. Flowers 5-10 in cluster. Sepals 5, oblanceolate, erecto-patent, mucronate. Stamens 5, subequal. Capsule globose. Seeds many.

Occasional in river banks and wastelands. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** CECF 13135 (MH); KCJ 81345 (MH); EV 142016, 142017 (MH).

Glinus oppositifolius (L.) Aug. DC., Bull. Herb. Boissier ser. 2. 1: 559. 1901; FTC 3(1): 665. 1983; FTN 1: 177. 1983; FEG 3: 116. 2007. *Mollugo oppositifolia* L., Sp. Pl. 89. 1753; FPM 1: 390. 1957.

A small prostrate herb. Branchlets glabrescent. Leaves 3-5 in whole, oblong-oblanceolate or elliptic to obovate, unequal, vase cuneate, margin entire. Flowers 5-7 in cluster. Sepals 5, green, oblong-lanceolate, glabrous membranous. Stamens 5. Staminodes bifid. Ovary 3-lobed. Capsule oblong.

Common in riverbanks and fallow fields. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** LP 2880 (SACONH).

MOLLUGO L., Sp. Pl. 463. 1753.

Key to the species

- 1a. Leaves all radical.....*M. nudicaulis*
- 1b. Leaves radical and cauline.....2
- 2a. Cymes in axillary umbels or whorls; leaves narrow-linear or acicular.....*M. cerviana*
- 2b. Cymes in elongate racemes; leaves obovate or elliptic.....*M. pentaphylla*

Mollugo cerviana (L.) Ser. in DC., Prodr. 1: 392. 1824; FBI 2: 663. 1879; FPM 1: 390. 1957; FTN 1: 177. 1983; FTC 3(1): 667. 1983; FEG 3: 116. 2007.

Slender herb with a stout root stock. Stem wiry, reddish. Radical leaves glaucous, rosulate, narrow, cauline leaves 5-7 in a cluster, narrowly linear or acicular, chartaceous, glaucous below, base attenuate, margin entire, apex obtuse, apiculate. Cymes terminal, polychasial, umbellate. Sepals 5, subequal, elliptic, obtuse. Stamens 5-8. Ovary 3-lobed. Capsule ellipsoid.

Common in riverbanks and fallow fields. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** LP 1560, 1690 (SACONH).

Mollugo nudicaulis Lam., *Encycl.* 4: 234. 1797; *FBI* 2: 664. 1879; *FPM* 1: 390. 1957; *FTC* 3(1): 667. 1983; *FTN* 1: 177. 1983; *FEG* 3: 117. 2007.

A small erect herb with rosette leaves. Leaves spatulate, membranous, glabrous, base attenuate, margin entire, apex obtuse-retuse. Cymes terminal, corymbose, polychasial. Sepals 5, white, elliptic. Stamens 3-5. Ovary oblong. Capsule ellipsoid.

Common in scrub jungles, fallow lands and waste lands. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** LP 3150 (SACONH); VS 19354, 19356 (FRC).

Mollugo pentaphylla L., *Sp. Pl.* 1: 89. 1753; *FPM* 1: 390. 1957; *FTN* 1: 178. 1983; *FTC* 3(1): 668. 1983; *FEG* 3: 118. 2007.

Erect or ascending herb. Branchlets glabrous. Radial leaves oblanceolate-spatulate, cauline ones 3-5 in a whorl, obovate or elliptic, chartaceous, base cuneate-attenuate, margin entire, apex obtuse-subacute, apiculate. Cymes leaf-opposed and/or terminal, polychasial. Sepals 5, white, ovate-oblong. Stamens 3. Ovary ellipsoid. Capsule oblong.

Occasional in hill slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2278 (SACONH); VS 18603, 19353, 19355 (FRC); *CECF* 23203, 23204, 23205 (MH); *KR* 138915, 138916 (MH).

APIACEAE Lindl., *Nat. Syst. Bot.*, ed. 2: 21. 1836, *nom. alt.: Umbelliferae*.

Key to the genera

- 1a. Prostrate herb, stoloniferous.....2
- 1b. Erect herb, not stoloniferous.....3
- 2a. Leaves 9-lobed, base not sheathing.....*Hydrocotyle*
- 2b. Leaves margin crenate, base sheathing.....*Centella*
- 3a. Flowers white.....*Pimpinella*
- 3b. Flowers greenish yellow.....4
- 4a. Leaves pinnately compound.....*Heracleum*
- 4b. Leaves simple.....*Bupleurum*

BUPLEURUM L., *Sp. Pl.* 236. 1753.

Key to the species

- 1a. Leaves linear-oblong, obtuse at apex.....*B. wightii*
- 1b. Leaves linear, acute at apex.....*B. virgatum*

Bupleurum virgatum Cav., *Descr. Pl.* 121. 1801; *FPM* 1: 394. 1957; *FTN* 1: 178. 1983. *B. mucronatum* Wight & Arn., var. *virgatum* (Wight & Arn.) Hook. f., *Fl. Brit. India* 2: 676. 1879; *FSIHS* 1: 251. 1932.

Erect herb. Leaves linear, distichous, acute and mucronate at apex, sub amplexicaul at base, entire or often inrolled at margins, crowded at base, lax towards apex. Flowers in terminal and axillary umbels, involucre bracts 5. Umbellules 7-12 flowered. Involucre bracteoles 5. Petals yellow, obovate. Stylopodium conical. Fruits ellipsoid, oblong or obovoid, winged, seeds terete.

Rare in open grassy slopes of high altitude. **Fl. & Fr.:** August-October. EV 142072, 142072 (MH). **Sp.Ex.:** EV 142072, 142072 (MH).

Bupleurum wightii Koso-Pol., Journ. Russe Bot. 1913: 6. 1913; FTC 3(1): 676. 1983; FTN 1: 178. 1983; FEG 3: 121. 2007; FPI 1: 105. 2009. *B. mucronatum* Wight & Arn., Prodr. Fl. Ind. Orient. 370. 1834; FBI 2: 676. 1879; FSIHS 1: 250. t. 198. 1932; FPM 1: 394. 1957.

Perennial erect herb. Leaves simple, sessile or subsessile, elliptic-lanceolate, linear-oblong, sheathing at base, obtuse, mucronate. Umbels compound, terminal and axillary. Bracts lanceolate. Sepals absent. Petals 5, obovate, yellow. Stamens 5. Mericarps 2, glossy, ellipsoid, ribbed, seeds solitary per mericarp.

Rare in moist shady places. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** CAB 23365, 23366, 23367 (MH); VS 18764 (FRC).

CENTELLA L., Sp. Pl. ed. 2: 1393. 1763.

Centella asiatica (L.) Urb. in Mart., Fl. Bras. 11: 287. t. 78. f. 1. 1879; FSIHS 1: 248. t. 195. 1932; FPM 1: 392. 1957; FTC 3(1): 676. 1983; FTN 1: 179. 1983; FEG 3: 124. 2007; FPI 1: 105. 2009.

Perennial prostrate herb, rooting at nodes. Stem terete, glabrous. Leaves simple, orbicular-reniform, deeply cordate, crenate-dentate, rotund or cordate at base. Petioles sheathed. Umbels simple, axillary, 3- or 4-flowered. Involucral bracts 2, hooded. Sepals 5, deltoid. Petals 5, purplish pink, ovate. Stylopodium depressed. Stamens 5. Ovary 2-carpellary, styles 2. Mericarps 2, laterally compressed, primary and secondary ridges 7-9 each, reticulate, villous, seed solitary.

Common in semi-evergreen forest floor and rare in moist deciduous forest. **Fl. & Fr.:** Throughout the year. **VN:** *Vallarai*. **Sp.Ex.:** LP 1317 (SACONH); KCJ 81140 (MH); PSAT 186939 (MH).

HERACLEUM L., Sp. Pl. 1: 249. 1753.

Heracleum rigens Wall, ex DC., Prodr. 4: 191. 1830, var. *rigens*; FBI 2: 715. 1879; FSIHS 1: 255. t. 202. 1932; FPM 1: 398. 1957; FTC 3(1): 679. 1983; FTN 1: 179. 1983; FEG 3: 125. 2007; FPI 1: 110. 2009.

Herb. Leaves oblong-ovoid. Leaflets ovate-obovate. Compound umbels in terminal or in upper axils. Involucre bracts ovate-lanceolate. Rays 10-30. Umbellules 15-flowered. Calyx teeth ovate. Petals ovate, yellow. Fruit elliptic-obovate.

Common in open grassland at high altitude. **Fl. & Fr.:** Sept.-Nov. **Sp.Ex.:** KA & PB 1406, 1622, 1662 (SACONH); CECF 23520 (MH); VS 19385 (FRC); SRN 80548 (MH); KNS 21564 (FRC).

HYDROCOTYLE L., Sp. Pl. 234. 1753.

Hydrocotyle javanica Thunb., Diss. Hydro. n. 17. t. 2. 1798; FBI 2: 667. 1879; FSIHS 1: 247. t. 192. 1932; FPM 1: 392. 1957; FTC 3(1): 681. 1983; FTN 1: 180. 1983; FEG 3: 126. 2007; FPI 1: 111. 2009.

Prostrate herbs, rooting at nodes, stems succulent, villous. Leaves 9-lobed, 9-ribbed from base, obtuse, crenate, glabrous or sparsely hairy. Umbels fascicled. Flowers 20-30 together, pedicellate. Petals ovate, acute. Mericarps compressed, hemispherical, smooth.

Undergrowth of evergreen forests in high altitude. **Fl. & Fr.:** Oct.-May. **Sp.Ex.:** VS 18813 (FRC).

PIMPINELLA L., Sp. Pl. 263. 1753.

Key to the species

- 1a. Involucre and involucre absent; fruits sparsely papillose.....*P. wallichiana*
- 1b. Involucre and involucre present; fruits densely papillose.....*P. candolleana*

Pimpinella candolleana Wight & Arn., Prodr. Fl. Ind. Orient. 1: 369. 1834; FBI 2: 687. 1879; FSIHS 1: 253. t. 200. 1932; FPM 1: 395. 1957; FTC 3(1): 682. 1983; FEG 3: 128. 2007; FPI 1: 116. 2009.

Erect or decumbent herbs, branchlets glabrous, stem terete. Leaves alternate, lower leaves orbicular, upper ones 3-lobed, cordate at base, toothed. Umbels terminal, paniced. Rays 10; secondary rays many. Flowers 9-16 in an umbellule, white. Calyx shortly 5-toothed. Petals 5, orbicular. Stamens 5. Fruit ovate, densely villous, rugose.

Occasional in hill slopes. **Fl. & Fr.:** June-July. **Sp.Ex.:** KA & PB 1550 (SACONH).

Pimpinella wallichiana (Miq.) Gandhi in C.J. Saldanha & Nicolson, Fl. Hassan dist. 417. 1976; FTN 1: 181. 1983; FTC 3(1): 683. 1983; FEG 3: 130. 2007; FPI 1: 117. 2009. *P. monoica* Dalzell, Hooker's J. Bot. Kew Gard. Misc. 3: 212. 1851; FBI 2: 687. 1879; FPM 1: 395. 1957.

Herbs, basal leaves simple, broadly ovate; upper ones 3-foliolate, leaflets ovate-cordate, or linear-oblong, obtuse-cordate at base, dentate, acute-abruptly acuminate, lateral leaflets unequal rarely lobulate. Umbels compound, rays 5-7, terminal and axillary. Petals 5, white, ovate. Fruits ovoid-ellipsoid, mericarps 2, papillose. Seed solitary per mericarp.

Rare in moist dense forest undergrowth. **Fl. & Fr.:** June-Nov. **Sp.Ex.:** CECF 23483, 23484 (MH).

ARALIACEAE Juss., Gen. Pl. 217. 1789.

SCHEFFLERA J.R. Forst. & G. Forst., Char. Gen. Pl. 45. 1776.

Key to the species

- 1a. Leaflets obovate, rounded or emarginate at apex.....*S. stellata*
1b. Leaflets ovate or elliptic, shortly and abruptly pointed at apex.....*S. venulosa*

Schefflera stellata Baill., Hist. Pl. 7: 161. 1879; FSIHS 2: 261. t. 208. 1932; FPM 1: 402. 1957; FTC 3(1): 685. 1983; FTN 1: 183. 1983; FEG 3: 137. 2007; FPI 1: 154. 2009.

Straggling shrubs, branchlets with persistent leaf scars. Leaves digitately 5- or 6-foliolate, obovate, rarely orbicular, subacute to acute, entire, obtuse, retuse, rarely emarginate. Panicles of umbels in terminal and axillary, pale green. Calyx campanulate, truncate. Corolla lobes 5-7, lanceolate-deltoid. Stamens 5-7. Ovary turbinate. Drupes globose, 5-7-angular. Seeds 5 or 7, compressed.

Rare in rocky crevices of semi-evergreen forests. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** VS 6954 (FRC); SRN 80576 (MH).

Schefflera venulosa (Wight & Arn.) Harms in Engl. & Prantl, Nat. Pflanzenfam. 3(8): 39. 1894, var. *venulosa*; FSIHS 2: 261. 1932; FPM 1: 403. 1957; FTN 1: 183. 1983; FEG 3: 137. 2007.

Spreading and climbing shrubs or small trees, sometimes epiphytic at earlier stages, branchlets like woody climbers. Leaves palmately compound, 5 or 6 foliolate. Leaflets ovate-oblong, abruptly acuminate, rounded at base. Stipule broad and black. Panicles glabrous. Flowers brown. Calyx truncate. Corolla lobes 5, triangular. Berry globose, 5-angled.

Rare in Semi-evergreen forests. **Fl. & Fr.:** March -July. **Sp.Ex.:** CECF 4340 (FRC).

ALANGIACEAE DC., Prodr. 3: 203. 1828.

ALANGIUM Lam., Encycl. 1: 174. 1783.

Alangium salviifolium (L. f.) Wangerin in Engl., Pflanzenr. IV. 220b (Heft 41): 9. 1910 subsp. *salviifolium*; FPM 1: 404. 1957; FTC 3(1): 687. 1983; FTN 1: 183. 1983; FEG 3: 139. 2007; FPI 1: 67. 2009.

Evergreen small tree, armed or unarmed, branchlets tomentose, bark greyish white. Leaves oblong to obovate, chartaceous. Flowers in axillary cymes or clusters, white-cream, fragrant, in pedunculate axillary fascicles. Calyx cupular, adnate to the ovary. Petals linear-oblong, white. Berries ovoid, blackish-purple when ripe, with persistent calyx. Common in scrub and disturbed dry deciduous forests. **Fl. & Fr.:** Mar.-June. **VN:** *Azhingi maram*. **Sp.Ex.:** LP 3028 (SACONH); PSAT 187376, 186617, 186618 (MH).

CAPRIFOLIACEAE Juss., Gen. Pl.: 210. 1789.

Key to the genera

- 1a. Corolla regular; style very short; stigma 3-lobed.....*Viburnum*
1b. Corolla irregular; style long, filiform; stigma capitate.....*Lonicera*

LONICERA L., Sp. Pl. 1: 173. 1753.

Lonicera leschenaultii Wall. in Carey & Wall., Fl. Ind. 2: 178. 1824; FBI 3: 10. 1880; FSIHS 2: 266. t. 213. 1932; FPM 1: 407. 1957; FTC 3(2): 689. 1983; FTN 1: 184. 1983; FEG 3: 140. 2007.

Vine, tender parts thinly pubescent. Leaves elliptic-ovate, chartaceous, pubescent below. Cymes 2-flowered, axillary. bracteoles 2, leafy obovate. Calyx-lobes 5, lanceolate, hirsute-strigose without. Corolla yellowish white, zygomorphic. Stamens 5, unequal. Ovary globose. Fruit a berry.

Occasional in hill slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18765, 18897 (FRC); EV 142060 (MH); PSAT 186963, 187464, 187465, 187466 (MH).

VIBURNUM L., Sp. Pl. 1: 267. 1753.

Viburnum punctatum Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 142. 1825; FBI 3: 5. 1880; FTC 3(2): 690. 1983; FTN 1: 184. 1983. *V. acuminatum* Wall. ex DC., Prodr. 4: 325. 1830; FSIHS 2: 263. t. 209. 1932; FPM 1: 575. 1957.

Tree. Leaves elliptic-obovate, (sub)coriaceous, punctate. Umbellate corymbs (sub)terminal. Bracts and bracteoles lanceolate, deciduous. Calyx-lobes 5, ovate, concave. Corolla cream, actinomorphic, lobes 5. Stamens 5. Ovary oblong. Stigma broadly 3-lobed. Drupe 1-seeded.

Common in hill slopes and moist deciduous forest. **Fl. & Fr.:** Aug.-Mar. **Sp.Ex.:** CECF 4356 (FRC); KNS 6854, 6855, 6856, 6857, 8063, 13401, 13402 (FRC); VS 18866, 19395 (FRC); CECF 23807, 23808, 23809 (MH); KCJ 81420 (MH); PSAT 187005, 187030, 187031 (MH).

RUBIACEAE Juss., Gen. Pl. 196. 1789.

Key to the genera

- 1a. Stipules modified into leaves.....*Rubia*
1a. Stipules not modified into leaves.....2
2a. Trees or shrubs.....3
2b. Herbs or undershrubs.....22
3a. Ovules more than 2, usually in each cell.....4
3b. Ovules single in each cell.....15
4a. Flowers in globose heads.....5
4b. Flowers not in globose heads.....7
5a. Fruit a syncarpium.....*Morinda*
5b. Fruit aggregated capsule.....6
6a. Peduncles axillary; leaves cordate below.....*Haldinia*

6b. Peduncles terminal; leaves truncate below.....	<i>Mitragyna</i>
7a. Fruit a capsule.....	8
7b. Fruit a berry or a drupe.....	9
8a. Corolla imbricate or compressed; seeds not winged.....	<i>Wendlandia</i>
8b. Corolla valvate; seeds winged.....	<i>Hymenodictyon</i>
9a. Flowers axillary, solitary.....	<i>Ceriscoides</i>
9b. Flowers axillary or terminal corymbose cymes.....	10
10a. Armed shrubs.....	11
10b. Unarmed trees or shrubs.....	13
11a. Berry below 1 cm long, smooth; seeds few.....	<i>Benkara</i>
11b. Berry above 2 cm long, ribbed; seeds many.....	12
12a. Spine short, one or two pairs at the end of arrested branches.....	<i>Tamilnadia</i>
12b. Spines long, axillary, solitary.....	<i>Catunaregam</i>
13a. Ovary one-celled.....	<i>Gardenia</i>
13b. Ovary two celled.....	14
14a. Corolla tube villose within.....	<i>Deccania</i>
14b. Corolla tube glabrous within.....	<i>Coffea</i>
15a. Corolla lobes contorted.....	16
15b. Corolla lobes valvate.....	19
16a. Calyculus present.....	<i>Psilanthus</i>
16b. Calyculus absent.....	17
17a. Stipules interpetiolar.....	<i>Ixora</i>
17b. Stipules intrapetiolar.....	18
18a. Flowers 4-merous; style glabrous.....	<i>Pavetta</i>
18b. Flowers 5-merous; style hairy.....	<i>Tarenna</i>
19a. Inflorescence axillary.....	20
19b. Inflorescence terminal.....	21
20a. Leaves coriaceous; style two or more times longer than the corolla.....	<i>Psydrax</i>
20b. Leaves membranous; style equal to the length of the corolla.....	<i>Canthium</i>
21a. Corolla straight.....	<i>Psychotria</i>
21b. Corolla curved.....	<i>Chassalia</i>
22a. Flowers 5-merous.....	<i>Dentella</i>
22b. Flowers 4-merous or 3-merous.....	23
23a. Ovules many in each cell.....	24
23b. Ovule single in each cell.....	25
24a. Ovary hemispheric.....	<i>Oldenlandia</i>
24b. Ovary globose.....	<i>Mitracarpus</i>
25a. Flowers dimorphic in terminal corymbs.....	<i>Knoxia</i>
25b. Flowers monomorphic in axillary fascicles.....	<i>Spermacoce</i>

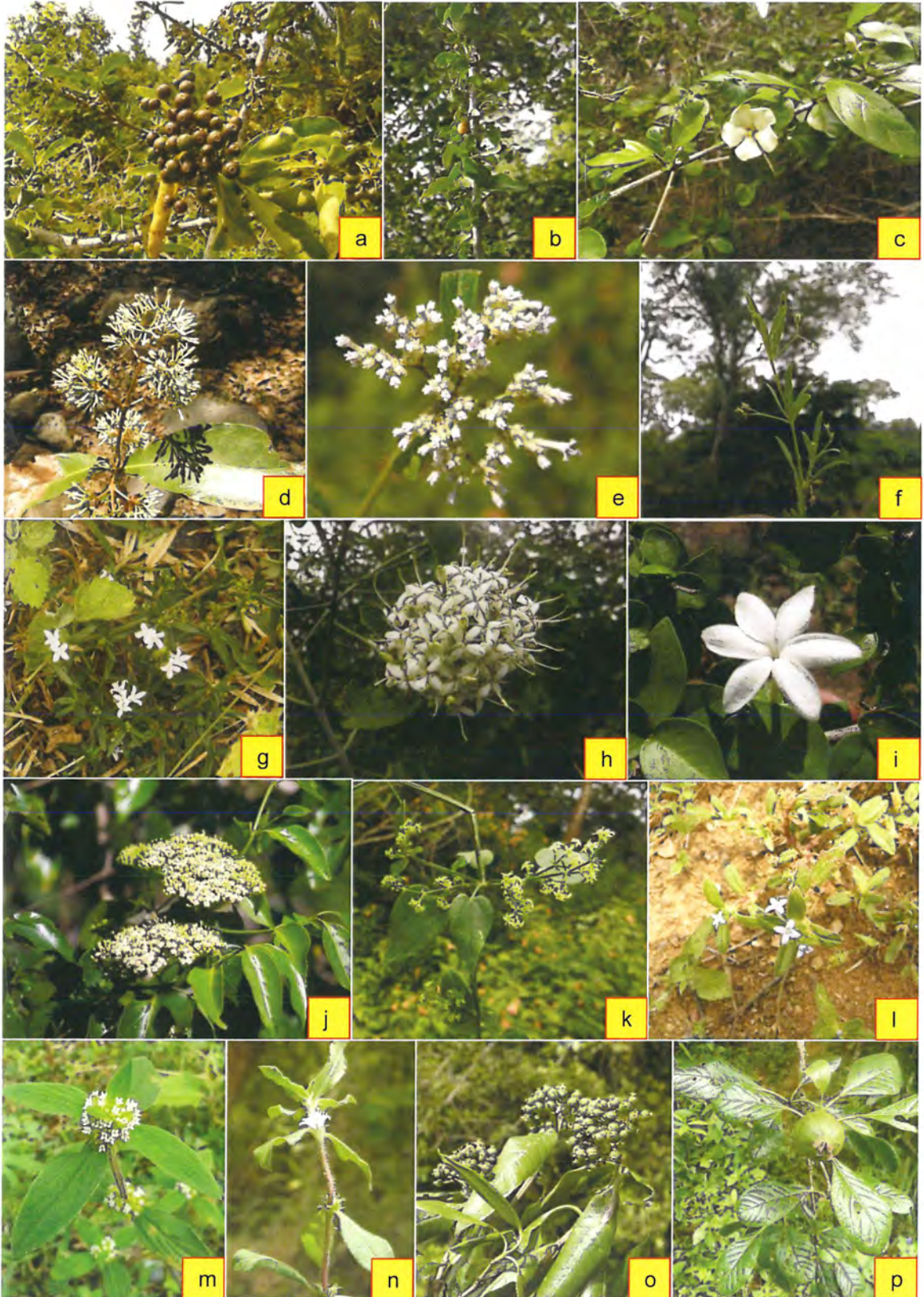
BENKARA Adens., Fam. Pl. 2: 85, 525. 1763.

Benkara malabarica (Lam.) Tirveng., Taxon 32: 440. 1983. *Randia malabarica* Lam., Encycl. 3: 25. 1789; FBI 3: 111. 1880; FPM 1: 435. 1957; FTC 3(2): 696. 1983; FTN 2: 1. 1987; FEG 3: 143. 2007.

Armed shrub, spines short. Leaves decussate or clustered, obovate-oblongate, coriaceous. Flowers in axillary, umbel-like corymbose cyme. Bracts and bracteoles free or connate. Calyx turbinate, teeth 5. Corolla white, salver-form, tube cylindric, lobes 5, oblong. Stamens 5. Stigma fusiform. Berry globose. Seeds conical or cubical.

Common in the scrub jungles and dry deciduous forest. **Fl. & Fr.:** Mar.-June. **VN:** Sirukarai. **Sp.Ex.:** KA & PB 1601 (SACONH); CECF 4466, 4467 (FRC); VS 18962 (FRC); CECF 25262, 25263 (MH); KCJ 81358 (MH); PSAT 186566, 186567, 186828, 186829, 186884, 186989 (MH).

PLATE 11 - RUBIACEAE



a) *Benkara malabarica*, b) *Canthium coromandelicum*, c) *Catunaregam spinosa*, d) *Ixora pavetta*, e) *Knoxia sumatrensis*, f) *Oldenlandia biflora*, g) *Oldenlandia corymbosa*, h) *Pavetta indica*, i) *Psilanthus wightianus*, j) *Psydrax dicoccos*, k) *Rubia cordifolia*, l) *Spermacoce articularis*, m) *Spermacoce ocymoides*, n) *Spermacoce hispida*, o) *Tarenna asiatica*, p) *Tamilnadia uliginosa*.

CANTHIUM Lam., Encycl. Meth. Bot. 602. 1785.

Canthium coromandelicum (Burm. f.) Alston in Trim., Hand-book Fl. Ceylon (Suppl.) 6: 152. 1931. *C. parviflorum* Lam., Encycl. 1: 602. 1785; FBI 3: 136. 1880; FTC 3(2): 699. 1983; FTN 2: 2. 1987.

Armed shrub, spines supra axillary. Leaves elliptic-ovate, chartaceous. Stipules linear. Flowers in decussate, lax cyme. Calyx cupular, 4-toothed. Corolla greenish, lobes 4, obovate. Stamens 4, (sub)sessile. Stigma capitate. Drupe globose.

Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** May-Aug. **VN:** Mullukarai. **Sp.Ex.:** LP 1646 (SACONH); PSAT 186915 (MH).

CATUNAREGAM Wolf, Gen. Pl. 75. 1776.

Catunaregam spinosa (Thunb.) Tirvengadam, Bull. Mus. Nat. (Paris) ser. 3. 35: 13. 1978 & Taxon 27: 515. 1978; FTN 2: 3. 1987; FEG 3: 148. 2007. *Randia dumetorum* (Retz.) Poir. in Lam., Encycl. Suppl. 2: 829. 1811; FBI 3: 110. 1880; FSIHS 2: 281. 1932; FPM 2: 434. 1957; FTC 3(2): 738. 1983. *R. longispina* DC., Prodr. 4: 386. 1830; FPM 2: 434. 1957; FTC 3(2): 739. 1983.

Armed shrub, spines straight. Leaves usually clustered, obovate, spatulate, chartaceous. Flowers in axillary solitary or in fascicles. Calyx cupular, lobes 5, imbricate. Corolla white turning yellow, lobes 5, (sub)orbicular. Stamens 5. Stigma obovoid. Berry globose.

Common in foothills, scrub jungles and dry deciduous forest. **Fl. & Fr.:** Jan-June. **VN:** Madhukkarai. **Sp.Ex.:** LP 1599, 2633 (SACONH); KNS 1854, 6858, 6862, 6863, 13383, 13384 (FRC); VS 18279 (FRC); VS 18963, 18964, 18965, 19063 (FRC); CAB 25179, 25180 (MH); CECF 25194, 25195 (MH); VN 79159 (MH) KCJ & JD 81318 (MH); KCJ 81400 (MH) PSAT 187475, 186476, 186944, 187243, 187333, 187334 (MH).

CERISCOIDES (Benth. & Hook. f.) Tirveng., Bull. Mus. Natl. Hist. Nat., sér. 3. Bot. 35: 13. 1978.

Ceriscoides turgida (Roxb.) Tirveng., Bull. Mus. Natl. Hist. Nat., Sér. 3. Bot. 35: 15. 1978; FTC 3(2): 700. 1983; FTN 2: 3. 1987; FEG 3: 150. 2007. *Gardenia turgida* Roxb., Fl. Ind. 2: 711. 1824; FBI 3: 118. 1880; FPM 2: 437. 1957.

Armed, deciduous tree, spines leaf bearing. Leaves decussate, dimorphic, thick coriaceous. Flowers 5-merous, pedicellate, solitary. Bracteoles lanceolate, free. Calyx urceolate, lobes 5, triangular. Corolla salver form, lobes 5, obovate. Stamens 5. Ovary turgid. Berry globose.

Occasional in fully sun-exposed dry hill slopes. **Fl. & Fr.:** Feb.-Mar. **Sp.Ex.:** CECF 25412, 25421 (MH).

CHASSALIA Comm. ex Poir., Lam., Encycl. Suppl. 2: 450. 1812.

Chassalia curviflora (Wall. ex Kurz) Thwaites, Enum. Pl. Zeyl. 150. 1859, var. **ophioxylodes** (Wall.) Deb & Krishna, Bull. Bot. Surv. India 24: 222. 1982 (1983); FTN 2: 3. 1987. *C. curviflora* Wall. ex Kurz, For. Fl. Burma 2: 14. 1877; FBI 3: 176. 1880, p.p; FPM 2: 453. 1957. *C. ophioxylodes* (Wall. ex Kurz) Craib, Gard. Bull. Straits Settlement. 6: 474. 1930; FEG 3: 150. 2007.

Shrub. Leaves decussate or palmately whorled, elliptic to oblanceolate. Cymes terminal. Flowers 5-merous. Calyx sub-globose, lobes 5, valvate. Corolla white, tinged with purple, curved, lobes 5, lanceolate. Stamens 5. Ovary globose. Disk annular. Drupe globose.

Occasional in foot hills and deciduous forest. **Fl. & Fr.:** May-Aug. **Sp.Ex.:** CECF 4527 (MH).

COFFEA L., Sp. Pl. 1: 172. 1753.

Coffea arabica L., Sp. Pl. 172. 1753; FBI 3: 153. 1880; FPM 2: 449. 1957; FTC 3(2): 701. 1983; FTN 2: 4. 1987.

Evergreen shrub. Leaves simple, elliptic, opposite to decussate, with interpetiolar stipule, margin entire. Flowers white in axillary clusters, fragrant. Berry oblong, reddish when mature, 2-seeded.

Cultivated and escaped. **Fl. & Fr.:** Mar.-May. **VN:** *Coffee*. **Sp.Ex.:** PSAT 187556, 187555 (MH).

DECCANIA Tirveng., Nordic J. Bot. 3: 456. 1983.

Deccania pubescens (Roth) Tirvengadam var. **candolleana** (Wight & Arn.) Tirvengadam, Nard. J. Bot. 3: 456. 1983; FTN 2: 4. 1987; FEG 3: 153. 2007. *Randia candolleana* Wight & Arn., Prodr. Fl. Ind. Orient. 399. 1834; FBI 3: 113. 1880 p.p.; FPM 1: 435. 1957; FTC 3(2): 701. 1983.

Unarmed deciduous tree, branchlets woody, terete, with scars of fallen leaves. Leaves decussate, rounded-orbicular, glabrous-tawny. Cymes axillary, dichasial. Bracts and bracteoles free or connate. Calyx turbinate, teeth 5, valvate, triangular. Corolla white turning yellow, salverform, lobes 5. Stamens 5. Stigma capitate. Berry globose to oblong.

Occasional in hill slopes. **Fl. & Fr.:** Mar.-May. **VN:** *Periyakarai*. **Sp.Ex.:** CECF 4463 (FRC); KNS 8162 (FRC); VN 79666 (MH).

DENTELLA J.R. Forst. & G. Forst., Char. Gen. Pl. 13. 1775.

Dentella repens (L.) J.R. Forst. & G. Forst., Char. Gen. 26. t. 13. 1776; FBI 3: 42. 1880 p.p.; FPM 1: 416. 1957; FTC 3(2): 702. 1983; FTN 2: 4. 1987; FEG 3: 153. 2007.

Strigose prostrate herb. Leaves opposite, distichous, ovate, elliptic or rhomboid. Flowers 5-merous, (sub)sessile, axillary, solitary. Calyx campanulate, lobes 5, equal, valvate, linear. Corolla white, campanulate, lobes 5, twisted. Stamens 5. Ovary globular, 2-locular. Capsule dry globular. Seeds angular, punctate.

Common along the river banks. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18967 (FRC).

GARDENIA J. Ellis, Philos. Trans. 51: 935. 1761.

Key to the species

- 1a. Leaves petiolate, secondary nerves slender, parallel, very prominent beneath.....*G. resinifera*
- 1b. Leaves sessile or subsessile, secondary nerves other than above.....2
- 2a. Flowers pedicellate; calyx-lobes linear-lanceolate.....*G. latifolia*
- 2b. Flowers sessile; calyx-lobes triangular, stamens exserted.....*G. gummifera*

Gardenia gummifera L. f., Suppl. Pl. 164. 1781; FBI 3: 116. 1880; FPM 2: 436. 1957; FTC 3(2): 704. 1983; FTN 2: 5. 1987; FEG 3: 154. 2007.

Tree. Leaves obovate-oblong. Calyx truncate, lobes triangular. Corolla lobes 5, obovate. Stamens 5. Ovary terete to 5-gonous. Stigma fusiform. Berry oblong. Seed rugose.

Common in degraded hill slopes. **Fl. & Fr.:** Jan.-April. **VN:** *Kambili*. **Sp.Ex.:** LP 2832, 2197, 1689 (SACONH); VS 18821, 18966 (FRC); CECF 25318, 25335 (MH); KCJ 81404 (MH); PSAT 18678, 186781 (MH).

Gardenia latifolia Aiton, Hort. Kew, ed. 1. 1: 294. 1789; FBI 3: 116. 1880; FPM 2: 436. 1957; FTN 2: 5. 1987; FTC 3(2): 705. 1983; FEG 3: 156. 2007.

Tree. Leaves broadly elliptic. Calyx tubular-campanulate, lobes 7(9), lanceolate. Corolla lobes 7(9). Ovary oblong. Stigma 2-lamellate. Berry globose. Seeds rugose.

Common in dry deciduous forest. **Fl. & Fr.:** Feb.-April. **VN:** *Kombai*. **Sp.Ex.:** LP 1689, 1555 (SACONH); CECF 25379, 25386, 84989 (MH); VN 79697 (MH).

Gardenia resinifera Roth, Nov. Pl. Sp. 150. 1821; FTC 3(2): 705. 1983; FTN 2: 5. 1987; FEG 3: 156. 2007. *G. lucida* Roxb., Fl. Ind. 2: 553. 1824; FBI 3: 115. 1880; FPM 2: 436. 1957.

Tree. Leaves elliptic. Flowers fragrant. Calyx tubular, lobes 5, equal or unequal, triangular. Corolla lobes 5, obovate. Stamens 5. Ovary terete. Berry ellipsoid. Seeds rugose.

Common in deciduous forest. **Fl. & Fr.:** Mar.-June. **VN:** *Kambi maram*. **Sp.Ex.:** LP 1232 (SACONH); PSAT 187185, 187398 (MH).

HALDINA Ridsdale, Blumea. 24: 360. 1979.

Haldina cordifolia (Roxb.) Ridsdale, Blumea 24: 361. 1978; FTC 3(2): 707. 1983; FTN 2: 5. 1987; FEG 3: 159. 2007. *Adina cordifolia* (Roxb.) Hook. f. & Benth. in Brandis, Forest Fl. N.W. India 263. t. 33. 1874; FBI 3: 24. 1880; FPM 2: 412. 1957.

Tree, tender parts pubescent. Leaves cordate, orbicular, thick-coriaceous. Flowers 5-merous, (sub)sessile, in axillary, globose. Calyx cupular, lobes 5, equal. Corolla cream, funnel-shaped, lobes 5, oblong. Stamens 5, Ovary (sub)truncate. Stigma capitate. Capsule clustered.

Common in foot hills. **Fl. & Fr.:** Dec.-May. **VN:** *Manjakadambai*. **Sp.Ex.:** VS 19084 (FRC); VN 75945, 79031 (MH).

HYMENODICTYON Wall., Fl. Ind. 2: 148. 1824.

Hymenodictyon orixense (Roxb.) Mabb., Taxon 31: 66. 1982; FTC 3(2): 709. 1983; FTN 2: 10. 1987; FEG 3: 171. 2007. *H. excelsum* (Roxb.) Wall., Fl. Ind. 2: 149. 1824; FBI 3: 35. 1880; FPM 2: 416. 1957.

Deciduous tree, tender parts pubescent. Leaves decussate, elliptic-ovate to oblanceolate, chartaceous. Inflorescence a panicle racemes, terminal and axillary. Bracts 2, leafy. Flowers 5-merous. Calyx (sub)truncate-globose, lobes 5. Corolla greenish, salver-form, lobes 5. Stamens 5. Ovary 2-locular. Capsule obovoid. Seeds circular, winged,

Occasional in dry deciduous forest. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** PSAT 187092, 187210 (MH).

IXORA L., Sp. Pl. 1: 110. 1753.

Key to the species

- 1a. Calyx teeth longer than ovary.....2
- 1b. Calyx teeth equal or shorter than ovary.....5
- 2a. Corolla tube more than 2 cm long.....3
- 2b. Corolla tube less than 2 cm long.....4
- 3a. Corolla reddish.....*I. coccinia*
- 3b. Corolla whitish.....*I. finlaysonian*
- 4a. Corolla-lobes linear, about as long as tube.....*I. notoniana*
- 4b. Corolla-lobes tooth-like, much shorter than tube.....*I. pavetta*
- 5a. Corolla tube less than 1 cm long; flower bud globose.....*I. brachiata*
- 5b. Corolla tube more than 1 cm long; flower bud ellipsoid.....*I. undulata*

Ixora brachiata Roxb., Fl. Ind. 1: 381. 1820; FBI 3: 142. 1880; FPM 2: 445. 1957; FTN 2: 10. 1987; FEG 3: 173. 2007.

Evergreen trees. Leaves simple, opposite, decussate, elliptic-oblanceolate, obovate, margin entire, glabrous, coriaceous. Flowers bisexual, white, fragrant, in terminal. Calyx tube minute, 4 toothed. Corolla slender, lobes 4, oblong, recurved. Stamens 4. Stigma bifid. Fruit berry, red-purple, globose.

Occasional in evergreen forest. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** VS 18705 (MH); PSAT 186603, 186604, 186641, 186642, 186806, 18687, 187135, 187166 (MH).

Ixora coccinea L., Sp. Pl. 110. 1753; FBI 3: 145. 1880; FPM 2: 445. 1957; FTC 3(2): 711. 1983; FTN 2: 10. 1987.

Shrub. Leaves elliptic-ovate to oblong, coriaceous. Inflorescence cyme. Calyx (sub)truncate, 4-teethed, teeth triangular. Corolla deep red, lobes 4. Stamens 4.

Plains. Planted as ornamental. **Fl. & Fr.:** Throughout the year. **VN:** *Idlipoo*. **Sp.Ex.:** LP 1421 (SACONH).

Ixora finlaysonian Wall. ex G. Don, Gen. Hist. 3: 572. 1834; FPM 2: 444. 1957; FTC 3(2): 711. 1983; FTN 2: 11. 1987; FEG 3: 173. 2007.

Tree. Leaves elliptic-ovate to obovate, coriaceous. Inflorescence corymbs. Calyx cupular, lobes 4, lanceolate. Corolla white, lobes 4. Stamens 4.

Plains. Planted as ornamental in gardens and roadsides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2557 (SACONH).

Ixora notoniana Wall. ex G. Don, Gen. Syst. 3: 571. 1834; FBI 3: 139. 1880; FSIHS 2: 284. t. 231. 1932; FPM 2: 444. 1957; FTC 3(2): 712. 1983; FTN 2: 11. 1987; FEG 3: 176. 2007.

Tree. Leaves elliptic-obovate to oblanceolate, coriaceous. Inflorescence lax. Calyx truncate, lobes 4, linear, Corolla white, lobes 4, obovate. Stamens 5.

Occasional in the hill station. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KA & PB 1668 (SACONH); KNS 6865 (FRC).

Ixora pavetta Andrews, Bot. Repos. t. 78. 1799; FTC 3(2): 712. 1983; FTN 2: 11. 1987. *I. parviflora* Vahl, Symb. Bot. 3: 11. t. 52. 1794, non Lam. 1791; FBI 3: 142. 1880; FPM 2: 445. 1957. *I. arborea* Roxb. ex J.E. Smith in Rees, Cycl. 19: n. 5. 1811; FEG 3: 172. 2007.

Tree. Leaves elliptic-oblong to oblanceolate, coriaceous. Inflorescence cymes, ultimate corymbs. Calyx truncate, 4-teethed. Corolla white, lobes 4, obtuse. Stamens 4. Drupe didymous.

Common in deciduous forest. **Fl. & Fr.:** Mar.-May. **VN:** *Guruvagamara*. **Sp.Ex.:** LP 2892 (SACONH); KNS 2063 (FRC); VS 18828 (FRC); CECF 25968 (MH); VN 79672 (MH); KCJ 81185 (MH); PSAT 186546, 186547; 186798, 186799, 187317, 187318, 187376 (MH).

Ixora undulata Roxb., Fl. Ind. 1: 385. 1820. FBI 3: 147. 1880; FPM 2: 445. 1957; FEG 3: 176. 2007.

Large shrubs. Leaves opposite, elliptic-lanceolate. Stipules ovate. Cymes peduncled. Bracts leafy. Bracteoles lanceolate. Inflorescence branches and flowers articulated. Calyx lobes 4. Corolla pink, lobes 4. Berry didymous, subglobose, calyx tube persistent in fruits.

Occasional in evergreen forest. **Fl. & Fr.:** April-June. **Sp.Ex.:** PSAT 187230 (MH).

KNOXIA L., Sp. Pl. 1: 104. 1753.

Knoxia sumatrensis (Retz.) DC., Prodr. 4: 569. 1830, var. *sumatrensis*; FTC 3(2): 714. 1983; FBI 11. 128. 1987; FTN 2: 11. 1987; FEG 3: 177. 2007. *K. corymbosa* Willd., Sp. Pl. 1: 582. 1798; FBI 3: 128. 1880; FSIHS 2: 282. 1932; FPM 2: 439. 1957.

Herb. Leaves linear-lanceolate to oblanceolate. Cymes laxly branched. Calyx lobes 4. Corolla violetish, lobes 4. Stamens 4.

Common in hills slopes. **Fl. & Fr.:** April-Dec. **Sp.Ex.:** VS 19077 (FRC); CECF 25451, 25479 (MH); VN 78396 (MH); KCJ 81383 (MH); CAB 86215 (MH); PSAT 187028, 187029, 187428, 187429, 187499, 187500 (MH).

MITRACARPUS Zucc., Mant. 3: 210, 399. 1827.

Mitracarpus hirtus (L.) DC., Prodr. 4: 572. 1830. *M. villosus* (Sw.) Cham. & Schltdl. ex DC., Prodr. 4: 572. 1830; FTN 2: 14. 1987; FEG 3: 181. 2007.

Erect pubescent herbs. Leaves ovate or ovate-lanceolate. Stipule pectinate. Flowers white, verticillate in axillary fascicles, 4-merous. Bracteoles filiform. Calyx-tube small, unequally 4-lobed. Corolla funnel-shaped, lobes 4. Stamens 4. Ovary 2-locular. Capsule ovoid. Occasional in degraded moist deciduous forests and wastelands. **Fl. & Fr.:** July. **Sp.Ex.:** PSAT 186880 (MH).

MITRAGYNA Korth., Obs. Naocl. Indic. 19. 1839.

Mitragyna parvifolia (Roxb.) Korth., Obs. Naocl. Ind. 19. 1839; FPM 2: 413. 1957; FTC 3(2): 717. 1983; FTN 2: 14. 1987; FEG 3: 181. 2007.

Deciduous tree. Leaves oblong-(sub)orbicular, (sub)coriaceous. Stipules interpetiolar, foliaceous. Inflorescence a globose head, terminal and/or axillary. Bracteoles many, linear. Flowers 5-merous. Calyx truncate. Corolla cream, salver-form, lobes 5. Stamens 5. Ovary obconic. Capsules aggregated into a globular head.

Common in foothills. **Fl. & Fr.:** April-June. **VN:** *Neerkadambu*. **Sp.Ex.:** LP 1671, 3097 (SACONH); CECF 4379 (FRC); VS 18636 (FRC); CECF 23979, 24005 (MH); TRN 78659 (MH); VN 79012 (MH); KCJ 81274 (MH); PSAT 187581, 187582 (MH).

MORINDA L., Sp. Pl. 1: 176. 1753.

Key to the species

- 1a. Trees or large shrubs; flowers in simple or panicles peduncled head; corolla tube elongate....2
- 1b. Climbing shrubs; flowers in umbellate peduncled head; corolla tube short.....*M. umbellata*
- 2a. Leaves pubescent or tomentose; stipules usually bifid or very large, linear; seeds not winged.....*M. pubescens*
- 2b. Leaves glabrous; stipules not bifid; seeds winged below.....*M. citrifolia*

Morinda citrifolia L., Sp. Pl. 176. 1753; FBI 3: 155. 1880; FPM 2: 459. 1957; FTN 2: 14. 1987; FEG 3: 183. 2007.

Small crooked trees, bark shallowly fissured, branchlets quadrangular. Leaves simple, opposite, elliptic-lanceolate. Flowers bisexual, fragrant, in dense globose heads. Calyx tube hemispheric, limb truncate. Corolla funnel-shaped, lobes 5 lanceolate. Stamens 5. Ovary 2-celled, ovule solitary. Stigma bilobed. Fruit an ovoid syncarp of pyramidal. Seeds black.

Occasional in plains. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** PSAT 186824, 186825 (MH).

Morinda pubescens Sm. in Rees, Cycl. 24: n. 3. 1813, var. *pubescens*; FTN 2: 14. 1987; FEG 3: 183. 2007. *M. tinctoria* Roxb., Fl. Ind. 2: 197. 1824; FBI 3: 156. 1880; FPM 2: 459. 1957. *M. coreia* Buch.-Ham., Trans. Linn. Soc. London 13: 537. 1822; FTC 3(2): 718. 1983.

Tree. Leaves simple, opposite, elliptic-lanceolate. Flowers in a simple head, terminal axillary or leaf-opposed. Calyx tube hemispheric, limb truncate. Corolla white, lobes 5, oblong. Stamens 5. Fruits a syncarpium. Seeds oblong or obovoid.

Common in plains. **Fl. & Fr.:** Mar.-June. **VN:** *Mancha Naval, Nuna, Manchakadambu*. **Sp.Ex.:** KA & PB 1599 (SACONH); VN 78934, 79638 (MH); KCJ & JD 81199 (MH).

Morinda umbellata L., Sp. Pl. 176. 1753; FBI 3: 157. 1880; FPM 2: 460. 1957; FTC 3(2): 719. 1983; FTN 2: 14. 1987; FEG 3: 184. 2007.

Liana. Leaves simple, opposite, elliptic-lanceolate. Flowers in umbellate head, 4-merous. Calyx tube hemispheric, limb truncate. Corolla white, lobes 4, oblong. Stamens 4. Stigma 2-lobed. Fruits a syncarpium. Seeds oblong.

Common in hill station. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** KA & PB 1448 (SACONH); CECF 26555, 26567 (MH); KCJ 81252 (MH); EV 142058, 142059 (MH).

OLDENLANDIA L., Sp. Pl. 119. 1753.

Key to the species

- 1a. Flowers in axillary or terminal racemes.....*O. biflora*
- 1b. Flowers in axillary or terminal paniculate cymes.....2
- 2a. Capsule indehiscent or dehiscing only loculicidally.....*O. trinervia*
- 2b. Capsule dehiscing septically.....3
- 3a. Peduncles 1-4 flowered.....4
- 3b. Peduncles many flowered.....5
- 4a. Crown of the capsule protruding.....*O. herbacea*
- 4b. Crown of the capsule flat.....*O. corymbosa*
- 5a. Inflorescence an umbel or a capitates cluster.....*O. umbellata*
- 5b. Inflorescence a racemose panicle.....*O. affinis*

Oldenlandia affinis (Roem. & Schul.) DC., Prodr. 4: 428. 1830; FTC 3(2): 723. 1983. *Hedyotis affinis* Roem. & Schult., Syst. Veg. 3: 194. 1818; FTN 2: 5. 1987; FEG 3: 162. 2007.

Erect herbs, branches filiform, glabrous. Leaves linear, entire, sessile. Stipule ovate, entire or 2-3 toothed. Flowers in terminal dichotomous cymes. Pedicel and peduncles filiform. Calyx lobes 4, scabrid. Corolla white, tube villous inside, lobes 4. Capsule obovoid.

Common in moist deciduous forest. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** LP 1411 (SACONH); VN 79232 (MH).

Oldenlandia biflora L., Sp. Pl. 119. 1753; FBI 3: 70. 1880; FPM 2: 602. 1957; FTC 3(2): 724. 1983. *Hedyotis biflora* (L.) Lam., Tabl. Encycl. 1: 272. 1792; FEG 3: 163. 2007. *Thecagomum biflorum* (L.) Babu, Bull. Bot. Surv. India 11: 214. 1971; FTN 2: 26. 1987.

Glabrous erect herb. Leaves decussate, elliptic-oblong. Inflorescence racemose panicles. Flowers (sub)sessile. Calyx truncate, 4-angled, lobes triangular. Corolla white, campanulate, lobes 4, obovate. Stamens 4. Stigma fusiform. Capsule loculicidal, 4-angled. Seeds pitted.

Common in plains, river banks and water course areas. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2276 (SACONH); VS 18824, 18969, 19074 (FRC).

Oldenlandia corymbosa L., Sp. Pl. 119. 1753; FBI 3: 64. 1880, p.p.; FPM 2: 423. 1957; FTC 3(2): 727. 1983. *Hedyotis corymbosa* (L.) Lam., Encycl. 1: 272. 1792; FTN 2: 7. 1987; FEG 3: 164. 2007.

Spreading herb with many ascending branches. Leaves decussate, linearly obovate to lanceolate, chartaceous. Flowers usually 3, rarely in pairs. Calyx lobes 4, lanceolate. Corolla white and pinkish, lobes 4, lanceolate. Stamens 4. Stigma fusiform. Capsule loculicidal. Seeds 3-gonous, reticulate.

Common in scrub jungles and along the roadsides. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VS 18639 (FRC); CECF 24443, 24465, 24466 (MH).

Oldenlandia herbacea (L.) Roxb., Hort. Bengal. 11. 1814 & Fl. Ind. 1: 445. 1820; FPM 2: 424. 1957; FTC 3(2): 728. 1983. *O. heynei* R. Br. ex G. Don, Gen. Syst. 3: 531. 1834; FBI 3: 65. 1880; FSIHS 2: 272. t. 216. 1932. *Hedyotis herbacea* L., Sp. Pl. 102. 1753; FTN 2: 8. 1987; FEG 3: 166. 2007.

Erect herb, branchlets 4-winged. Leaves decussate, linear-lanceolate, chartaceous, margin revolute. Flowers solitary or 2 or 4 in per nodes. Calyx tubular, lobes 5, ovate, lanceolate. Corolla white, lobes ovate. Stamens 4. Stigma linearly 2-fid. Capsule loculicidal, crown protruded. Seeds reticulate.

Occasional in plains especially in shallow soil by exposed rocks. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** LP 2526, 3050 (SACONH); VS 19072, 19083, 19088 (FRC); CECF 24556, 24634, 24657 (MH); KCJ 81146 (MH); PSAT 187206 (MH).

Oldenlandia trinervia Retz., *Observ. Bot.* 4: 23. 1786; *FBI* 3: 66. 1880; *FPM* 2: 421. 1957. *Hedyotis trinervia* (Retz.) Roem. Schult., *Syst.* 3: 197. 1819; *FTN* 2: 10. 1987; *FEG* 3: 170. 2007.

Annual herb, prostrate or creeping, stem acutely angular to winged. Leaves opposite, orbicular, broadly ovate or elliptic, setulose at margin. Flowers in axillary clusters of 2-6 flowers or solitary. Calyx lobes 4, ovate-lanceolate. Corolla lobes 4. Stamens 4. stigma capitate, bilobed. Capsule globose, laterally compressed, seeds many, triangular.

Occasional in wastelands. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** PSAT 186882 (MH).

Oldenlandia umbellata L., *Sp. Pl.* 119. 1753; *FBI* 3: 66. 1880; *FSIHS* 2: 272. 1932; *FPM* 2: 424. 1957; *FTC* 3(2): 730. 1983. *Hedyotis puberula* (G.Don) Arn., *Pug. Pl. Ind. Or.* 24. 342. 1836; Roxb., *Pl. Coromandel t.* 3: 1795; *FTN* 2: 8. 1987; *FEG* 3: 169. 2007.

Erect herb. Leaves decussate or clustered in axillary, linear-lanceolate. Flowers 3-12, dimorphic, pedicellate. Calyx (sub)truncate, lobes 4, lanceolate. Corolla pinkish white, campanulate, lobes 4, lanceolate. Stamens 4. Stigma 2-fid. Capsule loculicidal.

Common in plains along the river banks. **Fl. & Fr.:** Nov.-May. **Sp.Ex.:** LP 2114 (SACONH); CECF 24553, 24623 (MH); SRR 81053 (MH).

PAVETTA L., *Sp. Pl.* 1: 110. 1753.

Key to the species

- 1a. Leaves and inflorescence tomentose.....*P. tomentosa*
- 1b. Leaves and inflorescence glabrous.....2
- 2a. Corolla-tube 7-10 cm long.....*P. indica*
- 2b. Corolla-tube 10-15 cm long.....*P. blanda*

Pavetta blanda Bremek., *Repert. Spec. Nov. Regni. Veg.* 37: 94. 1934. *P. indica* var. *montana* Thwaites ex Hook., *Fl. Brit. India* 3: 10 1880; *FPM* 2: 446. 1957; *FTC* 3(2): 732. 1983; *FTN* 2: 19. 1987.

Shrub. Leaves elliptic to oblong, chartaceous, drying black. Inflorescence in terminal or axillary trichomously branched corymbose lax cymes. Calyx-teeth subulate, recurved. Corolla cream, salver-form, tube cylindric, lobes 5. Stamens 4, exserted. Ovary 2-locular. Berry globose. Occasional in moist deciduous forest. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** CECF 26036, 26049 (MH); VN 79670 (MH).

Pavetta indica L., *Sp. Pl.* 110. 1753, var. *indica*; Wight, *Icon. Pl. Ind. Orient.* t. 148. 1839; *FBI* 3: 150. 1880; *FPM* 3: 446. 1957; *FTC* 3(2): 732. 1983, var. *indgga*; *FTN* 2: 20. 1987; *FEG* 3: 190. 2007.

Shrub or small tree. Leaves oblong-obovate to lanceolate. Calyx truncate, lobes 4. Corolla lobes 5, obovate. Stamens 4. Ovary 2-locular. Berry globose.

Common in the Evergreen forest floor. **Fl. & Fr.:** May-Aug. **Sp.Ex.:** LP 2867, 2816, 3111 (SACONH); VS 19087 (FRC); SRN 80561 (MH).

Pavetta tomentosa Roxb. ex Sm. in Rees, Cyclop. 26: 52. 1813; FTC 3(2): 733. 1983; FTN 2: 21. 1987; FEG 3: 191. 2007. *P. indica* L. var. *tomentosa* (Roxb. ex J.E. Smith) Hook., Fl. Brit. India 3: 150. 1880; FPM 2: 446. 1957.

Shrub or small tree, tender parts softly tomentose. Leaves broadly elliptic to oblanceolate. Cymes much branched. Calyx lobes 4. Corolla lobes 5, oblong. Stamens 5. Ovary 2-locular. Stigma fusiform. Berry globose.

Common in hill station especially evergreen forest. **Fl. & Fr.:** June-Sept. **Sp.Ex.:** LP 1332 (SACONH); VS 19075 (FRC).

PSILANTHUS J.D.Hook., Hooker's Icon. Pl. 1129. 1873.

Psilanthus wightianus (Wight & Arn.) J.-F. Leroy, Bull. Mus. Hist. Nat., ser. 4. 3. Sect. B. Adansonia 3: 252. 1981; FTC 3(2): 734. 1983; FTN 2: 21. 1987; FEG 3: 192. 2007. *Coffea wightiana* Wight & Arn., Prodr. Fl. Ind. Orient. 436. 1834; FBI 3: 154. 1880; FPM 2: 449. 1957.

Deciduous shrub, branchlets horizontal. Leaves decussate, elliptic-obovate, chartaceous. Flowers 5-merous, usually solitary at the end of branchlets, calyculus, biseriate. Calyx truncate, teeth 15 in a group of 3. Corolla white, salver-form. Stamens 5. Berry oblong.

Occasional in scrub jungles. **Fl. & Fr.:** Jan.-July. **Sp.Ex.:** CECF 4516 (FRC); VS 18965, 19084 (FRC); VN 79201 (MH); PSAT 186677, 186678 (MH).

PSYCHOTRIA L., Syst. Nat., ed. 10. 2: 906, 929, 1364. 1759.

Psychotria nilgiriensis Deb & M. Gangop, Taxon 31: 546. 1982 var. *nilgiriensis*; FTN 2: 22. 1987. *P. congesta* (Wight & Arn.) Hook. f., Fl. Brit. India 3: 162. 1880, non Spreng. ex DC., 1830; FSIHS 2: 287. t. 233. 1932; FPM 2: 451. 1957.

Shrubs. Leaves obovate, obtuse, green when dried, domatia glandular, ovate. Cymes terminal, congested. Flowers fragrant, 5-merous. Calyx cupular, lobes obtuse, ciliate. Corolla tube shorter than lobes, villous along a transverse line inside. Fruit ellipsoidal, glabrous. Common in the evergreen forest. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** VS 18822 (FRC).

PSYDRAX Gaertn., Fruct. Sem. Pl. 1: 125. 1788.

Key to the species

- 1a. Flowers in cymes; fruits globose.....*P. dicoccos*
1b. Flowers in umbels; fruits obovoid.....*P. umbellata*

Psydrax dicoccos Gaertn., Fruct. Fruct. Sem. Pl. 1: 125, t. 26, f. 2. 1788, var. *dicoccos*. *Canthium dicoccum* (Gaertn.) Teijsm. & Binn., Cat. Hort. Bog. 113. 1866, var. *dicoccum*; FTC 3(2): 697. 1983; FTN 2: 2. 1987; FEG 3: 145. 2007.

Unarmed evergreen tree, tender parts pubescent. Leaves elliptic-ovate, coriaceous. Stipule lanceolate. Cymes laxly dichasial or densely umbellate. Calyx 5(6)-lobed. Corolla cream, lobes 5(6), oblong. Stamens 5(6). Stigma capitate. Drupe ellipsoid-globose.

Common in deciduous forest scrub jungles and road sides. **Fl. & Fr.:** Dec.-Sept. **VN:** *Payira maram*. **Sp.Ex.:** LP 3052, 3069, 1505 (SACONH); KA & PB 1605 (SACONH); KNS 2733 (FRC); VS 18885, 18937 (FRC); VN 79676 (MH); KCJ & JD 81242 (MH); PSAT 186639, 186640, 186978, 187118, 187283, 187284, 187448, 187449, 187469, 187469 (MH).

Psydrax umbellatum (Wight) Bridson, Kew Bull. 48: 762. 1993. *Canthium dicoccum* (Gaertn.) Teijsm. & Binn., var. *umbellatum* (Wight) Sant. & Merch., Bull. Bot. Surv. India 3: 107. 1961; FTC 3(2): 698. 1983; FTN 2: 2. 1987; FEG 3: 146. 2007.

Unarmed evergreen tree. Leaves oblanceolate drying black or brownish green above dull green below. Cymes dense, umbellate, subsessile.

Common in evergreen forest. The high-altitude replacement of *Psydrax dicoccum*, **Fl. & Fr.:** Jan.-May. **VN:** *Alamba maram*. **Sp.Ex.:** LP 3161 (SACONH); KNS 1872, 13043 (FRC); CECF 4484 (FRC); VS 18640, 19078 (FRC); VN 79126 (MH); KCJ 81166, 81372 (MH).

RUBIA L., Sp. Pl. 1: 109. 1753.

Rubia cordifolia L., Syst. Nat. (ed. 12) 3: 229. 1768 & Mant. Pl. 197. 1771; FBI 3: 202. 1880; FSIHS 2: 294. t. 239. 200. 1932; FPM 2: 462. 1957; FTC 3(2): 741. 1983; FTN 2: 23. 1987; FEG 3: 196. 2007.

Rugose vine, branchlets 4-gonous. leaves whorled, simple, ovate, obovate, chartaceous, margin entire. Cyme dichasial, lax, terminal or axillary. Calyx truncate, glabrous. Corolla white. Stamens 5, Ovary depressed, globose. Drupe globose, fleshy. Seed 1.

Common in hill station **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 1100 (SACONH); KA & PB 1626 (SACONH); KNS 1728, 13424, 13425 (FRC); VS 18638 (FRC); CECF 26717 (MH); SRN 80571 (MH); KCJ 81264 (MH); PSAT 187025, 187177 (MH).

SPERMACOCE L., Sp. Pl. 1: 102. 1753.

Key to the species

- 1a. Erect slender herb; leaves linear-lanceolate or elliptic oblong.....2
- 1b. Diffuse or prostrate herb; leaves elliptic or ovate-obovate.....3
- 2a. Leaves decussate, thinly pubescent; flowers white.....*S. ocymoides*
- 2b. Leaves whorled, rugose; flowers pink.....*S. pusilla*
- 3a. Stem terete, with densely pilose hairs.....*S. hispida*
- 3b. Stem 4-angled, with minutely appressed hairs.....*S. articularis*

Spermacoce articularis L. f., Suppl. Pl. 119 1782; FEG 3: 198. 2007. *Borreria articularis* (L. f.) F.N. Williams, Bull. Herb. Boiss. Ser. 2. 5: 956. 1905; IFTC t. 327. 1982.

A diffuse or prostrate herb. Stem 4-angular with minute, rusty brown, appressed hairs. Leaves elliptic-oblong or obovate, subsessile. Stipule membranous with few bristles. Flowers in axillary, few flowered, clustered. Calyx lobes 4. Corolla pinkish, lobes 4, ovate-triangular. Capsule hispid, obovoid. Seeds oblong.

Common in dry deciduous forest. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2003 (SACONH).

Spermacoce hispida L., Sp. Pl. 102. 1753; FBI 3: 200. 1881; FTC 3(2): 742. 1983; FTN 2: 24. 1987; FEG 3: 199. 2007. *Borreria articularis* (L. f.) F.N. Williams. var. *hispida* (L.) Sivar. & Manilal., New Botanist 2: 88. 1975; FBI 3: 200. 1881; FPM 2: 461. 1957; FTN 2: 24. 1987.

Hispid, diffuse herb. Leaves decussate, elliptic-ovate. Flowers in axillary fascicles. Calyx oblong-globose, lobes 4, equal. Corolla pinkish white, tinged purple, lobe 4, oblong. Stamens 4. Ovary oblong. Stigma recurved. Capsule globose. Seeds oblong.

A common in plains. **Fl. & Fr.:** Almost throughout the year. **VN:** *Nathaisoori*. **Sp.Ex.:** LP 2054, 3095 (SACONH); VS 19076, 19081, 19082 (FRC); CECF 26678, 26679 (MH); SRR 81029 (MH).

Spermacoce ocymoides Burm. f., Fl. Indica 34: t. 13. f. 1. 1768, var. *ocymoides*; FBI 3: 200. 1881; FSIHS 2: 293. t. 238. 1932; FTC 3(2): 743. 1983; FTN 2: 24. 1987; FEG 3: 199. 2007. *Borreria ocymoides* (Burm. f.) DC., Prodr. 4: 544. 1830; FPM 2: 461. 1957.

Sparsely pubescent erect herb. Leaves decussate, elliptic-oblong to linear-lanceolate. Axillary whorls or in terminal, sessile heads. Calyx truncate, lobes 4, unequal, linear. Corolla white, lobes 4, ovate. Stamens 4. Ovary depressed-globose. Stigma linear.

Common along the roadsides. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 1607 (SACONH); VS 19079, 19080 (FRC); VN 79129 (MH).

Spermacoe pusilla Wall., Fl. Ind. 1: 379. 1820; FTC 3(2): 743. 1983; FTN 2: 25. 1987; FEG 3: 200. 2007. *Borreria stricta* auct. non (L. f.) K. Schum. 1891; FPM 2: 461. 1957.

Rugose, erect herb. Leaves whorled, linear-lanceolate. Flowers in axillary whorls or in terminal, sessile heads. Calyx truncate, lobes 4, equal, linear. Corolla white, tube narrowly cylindric, lobes 4, oblanceolate. Stamens 4. Ovary oblong. Capsule oblong.

Common in foothills. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VS 19070 (FRC).

TAMILNADIA Tirveng. & Sastry, Mauritius Inst. Bull. 8(4): 84 (1979).

Tamilnadia uliginosa (Retz.) Tirveng. & Sastry, Mauritius Inst. Bull. 8: 85. 1979; FTN 2: 25. 1987. *Gardenia uliginosa* Retz., Observ. Bot. 2: 14. 1781; FEG 3: 202. 2007. *Randia uliginosa* (Retz.) DC., Prodr. 4: 386. 1830; FBI 3: 110. 1880; FPM 2: 434. 1957.

Deciduous trees, branchlets 4 angled, terminating with one or two pair of sharp thorns. Leaves simple, opposite, decussate, obovate-oblanceolate. Stipule interpetiolar. Flowers bisexual, white, solitary. Calyx tube turbinate, lobes 5. Corolla tube short, lobes 5, orbicular. Stamens 5. Ovary 2-celled. Stigma thick, 2 lobed. Fruit a berry, ovoid or ellipsoid.

Common in deciduous forest. **Fl. & Fr.:** Aug.-Mar. VN: *Kaarai*. **Sp.Ex.:** LP 1693 (SACONH).

TARENNA Gaertn., Fruct. Sem. Pl. 1: 139. 1788.

Tarenna asiatica (L.) Kuntze ex K. Schum., Bot. Tidsskr. 24: 332. 1902; FTN 2: 25. 1987; FTC 3(2): 744. 1983; FTN 2: 25. 1987. *Chomelia asiatica* (L.) Kuntze, Revis. Gen. Pl. 1: 278. 1891; FSIHS 2: 279. t. 227. 1932; FPM 2: 432. 1957; FEG 3: 151. 2007.

Key to the varieties

- 1a. Calyx deciduous; corolla white, c. 1 cm across.....2
- 1b. Calyx persistent; corolla yellow, c.1.5 cm across.....var. *montana*
- 2a. Leaves oblong-lanceolate, margins not revolute; ovary hemispheric.....var. *asiatica*
- 2b. Leaves elliptic-ovate or obovate, margins revolute; ovary oblong....var. *asiatica*, forma *rigida*

var. *asiatica*

Shrub. Leaves oblong-oblanceolate, coriaceous. Stipules interpetiolar, scaly. Cymes 3-chotomous, corymbose, terminal. Bracts linear. Bracteolate minute. Calyx campanulate, lobes 5, valvate. Corolla cream, salver-form, lobes 5, twisted, oblong. Stamens 5. Ovary hemispheric. Stigma fusiform. Berry globose.

Common in deciduous forests. **Fl. & Fr.:** Dec.-April. VN: *Theranai*. **Sp.Ex.:** LP 2651, 2658, 2289 (SACONH); KNS 6853 (FRC); VS 18637, 18936, 19071, 20776, 20777, 20778 (FRC); CECF 25097, 25130 (MH); VN 78250, 79675 (MH); KCJ & JD 81102 (MH); PSAT 186543, 186544, 186715, 186716, 186822, 186823, 186965, 187116, 187287, 187288 (MH).

var. *asiatica*, forma *rigida* (Wight) Raju, Sci. & Cult. 32: 554. 1966; FTN 2: 25. 1987. *Chomelia asiatica* (L.) Kuntze var. *rigida* (Wight) Gamble, Fl. Madras 613. 1921 & 2: 432. 1957.

Small tree. Leaves elliptic-ovate, or obovate slightly revolute at margin. Flowers in terminal corymbose cyme. Calyx lobes 5, ovate, ciliate along margin. Corolla cream, 5 lobed, lobes oblong. Stamens 5. Ovary 2-locular, oblong. Stigma capitate. Berry globose. Seeds minute.

Occasional in Evergreen forest. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** PB & MM 1328, 1662 (SACONH); KA & PB 1610 (SACONH); VS 18189 (FRC).

var. **montana** (Thw.) Raju, Sci. & Cult. 32: 554. 1966; FTN 2: 25. 1987. *Chomelia asiatica* (L.) Kuntze var. *montana* (Thw.) Gamble, Fl. Madras 613. 1921 & 2: 432. 1957.

Shrubs. Leaves elliptic-oblong, drying black. Stipules ovate. Flowers on terminal corymbose cymes, 5-merous, white. Calyx lobes 5, campanulate. Corolla salver-shaped, lobes 5, twisted, white turning yellow. Stamens 5. Ovary 2-locular. Berry globose, black.

Occasional in moist deciduous forests. **Fl. & Fr.:** Feb.-July. **Sp.Ex.:** VS 18196 (FRC).

WENDLANDIA Bartl. ex DC., Prodr. 4: 411. 1830.

Wendlandia thyrsoides (Roem. & Schul.) Steudel, Nomencl. ed. 2. 2: 786. 1841; FTC 3(2): 745. 1983; FTN 2: 27. 1987. *W. notoniana* Wall. ex Wight & Arn., Prodr. Syst. Nat. 403. 1834; FSIHS 270. t. 215. 1932; FBI 3: 40. 1880; FSIHS 2: 270. t. 215. 1932; FPM 2: 415. 1957.

Shrub, branchlets terete to angular, hispid, nodose. Leaves decussate, rarely ternate, elliptic-obovate, (sub)coriaceous. Stipule interpetiolar. Panicles dense, terminal. Bracts and bracteoles lanceolate. Flowers 5-merous. Calyx sub-globose, pubescent, lobes 5. Corolla white, funnel shaped, lobes 5. Stamens 5. Ovary depressed-globose. Capsule loculicidal.

Common in hill slopes. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** LP 3159 (SACONH); KA & PB 1616, 1645 (SACONH); KNS 6860 (FRC); VS 19073, 19086 (FRC); CECF 24090 (MH); KCJ 81282 (MH).

ASTERACEAE Bercht. & J.Presl, Přir. Rostlin: 254. 1820, *nom. alt.: Compositae*.

Key to the genera

1a. Plants scapigerous.....	2
1b. Plants not scapigerous.....	3
2a. Leaves entire; heads with leafy bracts.....	<i>Elephantopus</i>
2b. Leaves pinnatifid; heads without leafy bracts.....	<i>Launaea</i>
3a. Involucre glandular pubescent.....	<i>Sigesbeckia</i>
3b. Involucre not glandular pubescent.....	4
4a. Achenes with spines.....	5
4b. Achenes without spines.....	6
5a. Leaves palmately lobed; heads unisexual; achenes with many spines.....	<i>Xanthium</i>
5b. Leaves entire; heads bisexual; achenes with 2 spines.....	<i>Acanthospermum</i>
6a. Bracts spinescent; heads solitary.....	<i>Dicoma</i>
6b. Bracts not spinescent; heads many.....	7
7a. Stem climbing.....	8
7b. Stem erect.....	9
8a. Leaves subsucculent; achenes glandular; pappus red.....	<i>Mikania</i>
8b. Leaves membranous; achenes eglandular; pappus white.....	<i>Senecio</i>
9a. Involucre wooly.....	10
9b. Involucre glabrous or pubescent.....	12
10a. Leaves ribbed; bracts yellow.....	<i>Helichrysum</i>
10b. Leaves not ribbed; bracts white or pink.....	11
11a. Bisexual florets sterile.....	<i>Anaphalis</i>
11b. Bisexual florets fertile.....	<i>Gnaphalium</i>
12a. Heads compound.....	13
12b. Heads simple.....	14
13a. Plant a herb; glandular hairy; leaves decurrent.....	<i>Sphaeranthus</i>
13b. Plant a shrub, glabrous; leaves not decurrent.....	<i>Blepharisperrum</i>
14a. Ray florets present.....	15

14b. Ray florets absent.....	29
15a. Heads sessile.....	<i>Synedrella</i>
15b. Heads peduncled.....	16
16a. Plants above 2 m tall; peduncles hollow; heads above 5 cm across.....	<i>Tithonia</i>
16b. Plants below 1.5 m tall; peduncles solid; heads below 2 cm across.....	17
17a. Leaves simple, not lobed.....	18
17b. Leaves compound, pinnatifid or pinnatisect.....	24
18a. Disc florets white.....	19
18b. Disc florets yellow.....	21
19a. Peduncles glandular-pubescent.....	<i>Galinsoga</i>
19b. Peduncles not glandular-pubescent.....	20
20a. Stems decumbent; pappus scaly.....	<i>Eclipta</i>
20b. Stems erect; pappus bristly.....	<i>Blainvillea</i>
21a. Heads conical.....	<i>Acmella</i>
21b. Heads flat.....	22
22a. Leaves auricled at base.....	<i>Sonchus</i>
22b. Leaves not auricled at base.....	23
23a. Stem prostrate.....	<i>Wedelia</i>
23b. Stem erect.....	<i>Pentanema</i>
24a. Heads in panicles, below 5 mm across.....	<i>Parthenium</i>
24b. Heads not in panicles, above 1 cm across.....	25
25a. Leaves compound.....	<i>Bidens</i>
25b. Leaves pinnatifid or pinnatisect or unlobed.....	26
26a. Herbs prostrate; leaves pinnatisect; achenes with 2 bristles at top; pappus absent.....	27
26b. Herbs erect or decumbent; leaves pinnatifid or lobed; achenes without bristles; pappus present.....	28
27a. Phyllaries 2-4 seriate.....	<i>Glossocardia</i>
27b. Phyllaries 1-seriate.....	<i>Tagetes</i>
28a. Leaves petioled, serrate, scabrous; achenes hirsute.....	<i>Tridax</i>
28b. Leaves sessile or subsessile, entire, not scabrous; achenes glabrous.....	<i>Erigeron</i>
29a. Plants above 1 m tall.....	30
29b. Plants below 1 m tall.....	34
30a. Leaves 3-5-lobed; heads below 4 mm across.....	<i>Artemisia</i>
30b. Leaves not lobed; heads above 6 mm across.....	31
31a. Leaves subsucculent; bracts 1-seriate; florets yellow.....	32
31b. Leaves not subsucculent; bracts 2-manyseriate; florets blue or purple.....	33
32a. Leaves petiolate, entire; pappus barbellate.....	<i>Kleinia</i>
32b. Leaves sessile or subsessile, serrate; pappus smooth.....	<i>Gynura</i>
33a. Plant a tree; leaves alternate.....	<i>Vernonia</i> (p.p)
33b. Plant a shrub; leaves opposite.....	<i>Chromolaena</i>
34a. Stem prostrate.....	<i>Grangea</i>
34b. Stem erect.....	35
35a. Heads globose, below 3 mm across.....	<i>Dichrocephala</i>
35b. Heads not globose, above 5 mm across.....	36
36a. Branchlets angled.....	37
36b. Branchlets not angled.....	38
37a. Leaves ovate to linear-lanceolate; heads below 0.7 mm.....	<i>Tricholepis</i>
37b. Leaves elliptic to ovate or lanceolate; heads 1-1.6 cm.....	<i>Phyllocephalum</i>
38a. Branchlets glabrous or glabrescent.....	39
38b. Branchlets pubescent or glandular-hairy.....	41
39a. Heads solitary; bracts ovate, hirsute, leafy.....	<i>Lagascea</i>
39b. Heads many; bracts linear, glabrous, not leafy.....	40

40a. Leaves lobed; bracts below 8 mm long; florets pink, heads 6-8 mm across.....	<i>Erechtites</i>
40b. Leaves not lobed; bracts above 10 mm long. florets yellowish orange, heads 1-1.5 cm across.....	<i>Crassocephalum</i>
41a. Leaves cauline, lobed, amplexicaul; bracts 1-seriate.....	<i>Emilia</i>
41b. Leaves not cauline, lobed or amplexicaul; bracts 2-many-seriate.....	42
42a. Leaves opposite.....	43
42b. Leaves alternate.....	45
43a. Heads in lax cymes; pappus shorter than corolla-tube.....	44
43b. Heads in dense corymbs; pappus equal to corolla-tube.....	<i>Ageratum</i>
44a. Achenes curved, verrucose.....	<i>Adenostemma</i>
44b. Achenes straight, ribbed or angled.....	<i>Ageratina</i>
45a. Achenes pubescent.....	<i>Conyza</i>
45b. Achenes glabrous.....	46
46a. Anthers tailed at base.....	47
46b. Anthers not tailed at base.....	48
47a. Stem woody; involucre bracts broad, ridged.....	<i>Blumea</i>
47b. Stem herbaceous; involucre bracts narrow, slender.....	<i>Pluchea</i>
48a. Branchlets not winged.....	<i>Vernonia</i> (p.p)
48b. Branchlets winged.....	<i>Laggera</i>

ACANTHOSPERMUM Schrank, Pl. Rar. Hort. Monac. 2: 53. (1819) 1820.

Acanthospermum hispidum DC., Prodr. 5: 522. 1836; FPM 2: 495. 1957; FTC 3(2): 758. 1983; FTN 2: 28. 1987; FEG 3: 214. 2007; FPI 1: 184. 2009.

Hispid herb. Leaves opposite, simple, obovate-oblongate, chartaceous, decurrent, margin coarsely serrate. Capitulum solitary, axillary, heterogamous. Phyllaries 2-seriate. Outer 5, lanceolate. Outer florets female, inner bisexual. Disc floret corolla yellowish. Ray floret corolla cream to white. Achenes of ray florets compressed, smooth.

Common waste lands and fallow lands. **Fl. & Fr.:** Jan.-June. **VN:** *Kombumullu*. **Sp.Ex.:** VS 18642, 19226 (FRC).

ACMELLA Rich. ex Pers., Syn. Pl. 2: 472. 1807.

Key to the species

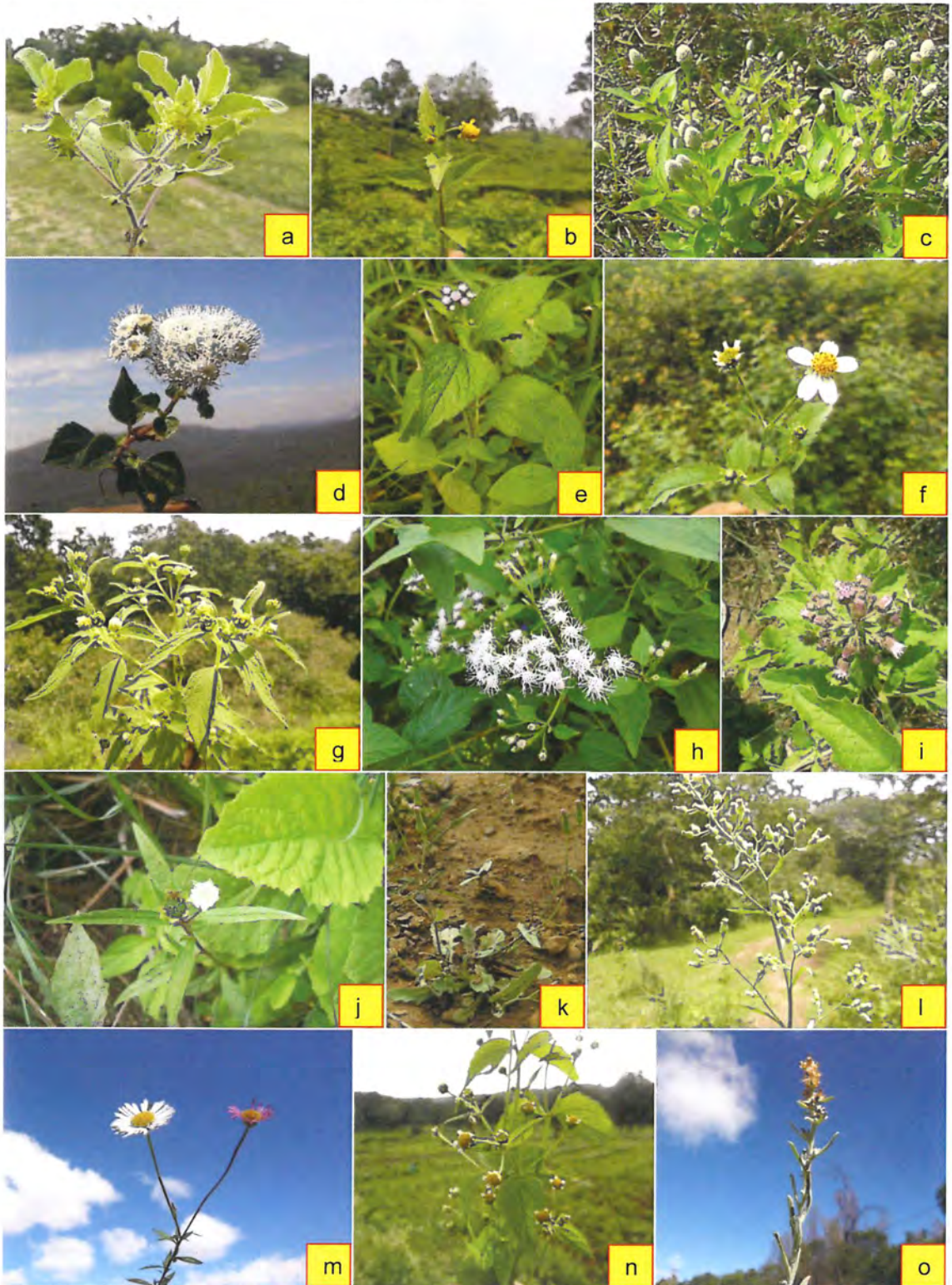
1a. Corolla white, greenish white or with purple tinge.....	<i>A. radicans</i>
1b. Corolla pale yellow, yellow or orange yellow.....	2
2a. Pappus absent; stems decumbent, rooting at nodes.....	<i>A. calva</i>
2b. Pappus of 2-3 bristles; stems erect without nodal roots.....	3
3a. Mature achenes with cork-like margin, surface tuberculate.....	<i>A. paniculata</i>
3b. Mature achenes without cork-like margin, surface not tuberculate.....	<i>A. oleracea</i>

Acmella calva (DC.) R.K. Jansen, Syst. Bot. Monogr. 8: 41. 1985; FPI 1: 184. 2009. *Spilanthes calva* DC. in Wight, Contrb. 19. 1834; FTC 3(2): 817. 1983; FTN 2: 50. 1987; FEG 3: 298. 2007. *S. acmella* sensu Hook. f., Fl. Brit. India 3: 307. 1881, non Murray, 1774; FSIHS 2: 338. 1932; FPM 2: 498. 1957.

Procumbent scabrid herbs. Leaves ovate, base truncate, chartaceous. Heads solitary, conical. Flowers bisexual. Corolla yellow, tubular, campanulate above, lobes ovate, glabrous. Achenes obovate, biconvex, dark brown, glandular.

Occasional in moist localities in evergreen forest. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** KA & PB 1457 (SACONH); VS 18960 (FRC).

PLATE 12- ASTERACEAE



a) *Acanthospermum hispidum*, b) *Acnella calva*, c) *Acnella radicans*, d) *Ageratina adenophora*, e) *Ageratum conyzoides*, f) *Bidens pilosa*, g) *Blainvillea acmella*, h) *Chromolaena odorata*, i) *Conyza leucantha*, j) *Eclipta prostrata*, k) *Emilia sonchifolia*, l) *Erigeron bonariensis*, m) *Erigeron karvinskianus*, n) *Galinsoga parviflora*, o) *Gnaphalium polycaulon*.

Acmella paniculata (Wall. ex DC.) R.K. Jansen, Syst. Bot. Monogr. 8: 67. 1985; FPI 1: 184. 2009. *Spilanthes paniculata* DC., Prodrum 5: 625. 1836; FEG 3: 298. 2007. *S. acmella* var. *paniculata* (Wall. ex DC.) C.B. Clarke, Compos. Ind. 139. 1876; FBI 3: 307. 1881.

Procumbent herbs, stem scabrid. Leaves ovate, apex acute. Heads solitary, conical. Bracts ovate, obtuse, glandular. Receptacle spicate, paleaceous. Flowers similar. Corolla tubular, campanulate above, lobes ovate. Achenes obovate, biconvex, dark brown, glandular. Occasional in degraded forest areas and road sides of the high altitudes. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** LP 2691 (SACONH).

Acmella oleracea (L.) R.K. Jansen, Syst. Bot. Monogr. 8: 65. 1985. *Spilanthes acmella* var. *oleracea* (L.) Hook. f., Fl. Brit. India 3: 307. 1881. *S. oleracea* L., Syst. Nat. ed. 12. 2: 534. 1767; FPI 1: 278. 2009.

Prostrate or erect herb. Leaves broadly ovate to triangular, margin toothed. Head in terminal, solitary, elongated conical. Disc florets many, yellowish brown. Achenes black. Planted in gardens. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 28217, 28234 (MH); SRN 80562 (MH); KCJ 81386 (MH).

Acmella radicans (Jacq.) R.K. Jansen, Syst. Bot. Monogr. 8: 69. 1985. *Spilanthes radicans* Jacq., Collectanea 3: 229-230. (1789) 1791; FEG 3: 300. 2007; FPI 1: 278. 2009.

Erect or prostrate herb. Leaves ovate to lanceolate, margin entire. Heads globose in terminal or axillary, solitary or paired cones. Disc florets many, whitish. Common in moist localities of high altitude and along road sides. **Fl. & Fr.:** June-Oct. **Sp.Ex.:** VS 18644 (FRC).

ADENOSTEMMA J.R. Forst. & G. Forst., Char. Gen. Pl. 89. 1776.

Adenostemma lavenia (L.) Kuntze, Revis. Gen. Pl. 1: 304. 1891, var. *lavenia*; FSIHS 2: 315. t. 255. 1932; FPM 2: 476. 1957; FTC 3(2): 759. 1983; FTN 2: 28. 1987; FPI 1: 185. 2009. *A. angustifolium* Arn. Nova. Acta Phys. Med. Acad. Caes. Leop. eCarol. Nat. Cur. 18: 347. 1836; FEG 3: 215. 2007.

Glabrous to pubescent herb. Leaves opposite, simple, broadly ovate to obovate, thin-chartaceous, margin irregularly serrate. Inflorescence a lax, cymose panicle. Capitula homogamous, disciform. Involucre campanulate. Receptacle flat. Phyllaries 2-seriate. Florets white, bisexual. Corolla lobes 5. Stamens 5. Ovary turbinate. Achenes curved, angled. Occasional in evergreen forest floor. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** CECF 4587 (FRC).

AGERATINA Spach, Hist. Nat. Veg. 10: 286. 1841.

Ageratina adenophora (Spreng.) R.M. King & H. Robin., Phytologia 19: 211. 1970; FTC 3(2): 760. 1983; FTN 2: 29. 1987; FEG 3: 218. 2007; FPI 1: 186. 2009. *Eupatorium glandulosum* Kunth in Humb., Nov. Gen. Sp. 4 (ed. folio): 96. t. 346. 1820 non Michx., 1803; FSIHS 2: t. 316. 1932.

Subshrubs, glandular hairy, stem violet-blue. Leaves, ovate, apex acute, serrate. Heads packed, in terminal corymbose panicle. Bracts 3-seriate, lanceolate, strongly 3-ribbed. Outer florets *bisexual*. Corolla white, 5-lobed, hispid. Inner florets *female*. Achenes curved, ellipsoid, 5-angled, brown, smooth. Common in high altitude. **Fl. & Fr.:** Feb.-June. **Sp.Ex.:** LP 2131 (SACONH).

AGERATUM L., Sp. Pl. 839. 1753.

Ageratum conyzoides L., Sp. Pl. 839. 1753; FBI 3: 243. 1881; FSIHS 2: 315. t. 256. 1932; FPM 2: 476. 1957; FTC 3(2): 761. 1983; FTN 2: 29. 1987; FEG 3: 215. 2007; FPI 1: 186. 2009.

Herb. Leaves puberulous, margin bluntly serrate. Peduncle laxly branched. Phyllaries oblong-lanceolate, scarious. Florets 50-75, white to blue. Corolla with glistening, sessile glands. Stamens 5. Ovary slightly curved. Stigma obtuse. Achenes slightly curved. Common in deciduous forest. **Fl. & Fr.:** Dec.-May. **Sp.Ex.:** LP 1692, 1685 (SACONH); KA & PB 1521 (SACONH).

ANAPHALIS DC., Prodr. 6: 271. (1837) 1838.

Key to the species

- 1a. Capitula peduncled.....*A. leptophylla*
1b. Capitula sessile.....*A. subdecurrens*

Anaphalis leptophylla (DC.) DC., Prodr. 6: 273. (1837) 1838; FBI 3: 285. 1881; FSIHS 2: 333. 1932; FPM 2: 490. 1957; FTN 2: 30. 1987; FPI 1: 189. 2009.

Slender herbs, profusely branched from base. Leaves linear lanceolate. Heads grouped into dense corymbs. Involucre bracts many seriate. Corolla tube slender, 5-lobed, pale yellow. Stamens 5. Achenes angled and slightly compressed.

Occasional in evergreen forest. **Fl. & Fr.:** June-Oct. **Sp.Ex.:** VS 18649 (FRC).

Anaphalis subdecurrens (DC.) Gamble, Fl. Madras 695. 1921 & 2: 489. 1957; FTC 3(2): 764. 1983; FTN 2: 30. 1987; FPI 1: 191. 2009. *Gnaphalium subdecurrens* DC. in Wight, Contrib. 21. 1834; FEG 3: 220. 2007.

Erect herb. Leaves oblong-spathulate, pilose above. Panicles much branched. Phyllaries pink, outer oblanceolate, inner lanceolate. *Bisexual florets:* Corolla lobes 5, equal; stamens 5; style linearly 2-fid. *Female florets:* Corolla toothed above. Achenes thinly pubescent.

Occasional in high altitude grasslands. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** LP 2196 (SACONH); VS 19213 (FRC).

ARTEMISIA L., Sp. Pl. 845. 1753.

Key to the species

- 1a. Non aromatic; leaves linear-oblong, green below; disk florets sterile.....*A. japonica*
1b. Aromatic; leaves oblong-lanceolate, white tomentose below; disk florets fertile.....*A. vulgaris*

Artemisia japonica Thunb., Fl. Jap. 310. 1784; FEG 3: 221. 2007; FPI 1: 195. 2009. *A. parviflora* Roxb.-Ham. ex Roxb., Hort. Bengal. 61. 1814; FBI 3: 322. 1881; FSIHS 2: 342. t. 285. 1932; FPM 2: 501. 1957; FTC 3(2): 766. 1983; FTN 2: 31. 1987.

Subshrub. Leaves linear-oblong, with stipule like basal lobes. Panicles terminating the branchlets. Capitula cream. Outer phyllaries ovate. *Disc florets:* Corolla lobes 5; stamens 5; ovary sterile; style-arms linear. *Ray florets:* style linearly 2-fid. Achenes ellipsoid.

Occasional in evergreen forest borders. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** VS 18867, 19214 (FRC); KCJ 81352 (MH).

Artemisia vulgaris L., Sp. Pl. 848. 1753; FSIHS 2: 342. 1932; FPM 2: 713. 1957. *A. nilagirica* (C.B. Clarke) Pampan. Nuovo. Giorn., Bot. Ital. 33: 452. 1926; FTC 3(2): 765. 1983; FTN 2: 31. 1987; FEG 3: 221. 2007; FPI 1: 196. 2009.

Erect, pubescent herb. Leaves oblong-lanceolate, thick chartaceous. Panicles axillary and terminal. Capitula white. Outer phyllaries ovate to oblong, ciliate. *Disc florets:* Corolla lobes 5; stamens 5; ovary oblong. *Ray florets:* Corolla with glistening, sessile glands without; ovary oblong, stigma stout, obtuse. Achenes oblong.

Occasional high-altitude grasslands. **Fl. & Fr.:** April-Sept. **Sp.Ex.:** VS 19223 (FRC).

BIDENS L., Sp. Pl. 831. 1753.

Key to the species

- 1a. Leaves with 3-5 deeply dentate or pinnatifid leaflets; rays 3, yellow.....*B. biternata*
 1b. Leaves ternate, leaflets simple; rays 4-7, white.....*B. pilosa*

Bidens biternata (Lour.) Merr. & Sherff, Bot. Gaz. (Crawfordsville) 88: 293. 1929; FPI 1: 202. 2009.

Erect subshrubs. Stem ribbed. Leaves pinnate or bipinnate. Leaflets ovate, serrate. Heads oblong, in loose corymbose cymes or solitary. Bracts 2-seriate, oblong. Flowers outer whorl ligulate, limb oblong, 3-lobed, white. Inner flowers *bisexual*. Corolla tubular, 5-lobed, yellow. Achenes linear, glabrous, spinescent.

A common in high-altitude. **Fl. & Fr.:** April-Oct. **Sp.Ex.:** VS 19229 (FRC); CECF 28313, 28333 (FRC); VN 79709 (MH); SRN 80550 (MH); KCJ 81308 (MH); PSAT 186896 (MH).

Bidens pilosa L., Sp. Pl. 832. 1753; FBI 3: 309. 1881; FSIHS 2: 339. t. 282. 1932; FTC 3(2): 766. 1983; FTN 2: 31. 1987; FEG 3: 223. 2007; FPI 1: 203. 2009.

Herb, branchlets striate. Leaves opposite, 3-foliate, terminal leaflet obovate to lanceolate, chartaceous. Capitula solitary or paired. Phyllaries 2-4 seriate. Outer florets female or neuter, 1-seriate. Inner florets bisexual. Palea linear-lanceolate. *Disc florets:* corolla yellow. Stamens 5. Ovary oblong, 4-angled. Achenes 4-angled. *Ray florets:* Corolla white; Stigma oblong. Achenes linear.

A common weed in high altitude. **Fl. & Fr.:** Oct.-April. **Sp.Ex.:** KA & PB 1539 (SACONH); VS 18643, 19218, 19225 (FRC).

BLAINVILLEA Cass. in F. Cuvier's, Dict. Sci. Nat. ed. 2. 29: 493. 1823.

Blainvillea acmella (L.) Philipson, Blumea 6: 350. 1950; FTC 3(2): 767. 1983; FTN 2: 31. 1987; FEG 3: 223. 2007; FPI 1: 203. 2009. *B. rhomboidea* Cass. in F. Cuvier's, Dict. Sci. Nat. ed. 2. 29: 494. 1823; FPM 2: 496. 1957.

Herb, branchlets scabrid. Leaves opposite or upper alternate, obovate to lanceolate, chartaceous, margin serrate. Inflorescence solitary, axillary, terminal. Capitula heterogamous, radiate. Phyllaries multi-seriate. Outer florets female, inner florets bisexual. Disc florets: corolla white, rarely yellow, tubular-campanulate; stamens 5; ovary oblong, compressed. *Ray-florets:* corolla narrowly tubular, ray 2-lobed; ovary oblong, compressed. Achenes truncate.

A common weed in wastelands and fallow field of the plains. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** VS 19209, 19210 (FRC); CECF 28155, 28169 (MH); KCJ 81333, 81383 (MH).

BLEPHARISPERMUM DC., Wight, Contr. Bot. India 11. 1834.

Blepharispermum subsessile DC. in Wight, Contr. Bot. India 12. 1834; FBI 3: 276. 1881; FTN 2: 32. 1987; FEG 3: 225. 2007; FPI 1: 203. 2009.

Erect herb, stem striate. Leaves simple, alternate, subsessile, broadly elliptic. Heads many, whitish, aggregated into globose clusters. Female florets 2, tubular, 3-4 lobed, lobes ovate. Bisexual florets 4, lobes 4, stamens 5, style recurved. Achenes obovoid, trigonous.

Occasional in open forests. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** VN 79650, 79661 (MH).

BLUMEA DC., Arch. Bot. (Paris) 2: 514. 1833.

Key to the species

- 1a. Capitula yellow/white.....*B. membranacea*
 1b. Capitula rose, pink/purple.....2
 2a. Leaf base acute, lower ones stem-clasping; capitula >5.....*B. axillaris*
 2b. Leaf base semi-amplexicaul; capitula 1 or 2.....*B. obliqua*

Blumea axillaris (Lam.) DC., Prodr. 5: 434. 1836; FPI 1: 204. 2009. *B. mollis* (D. Don) Merr., Philipp. J. Sci 5: 395. 1910; FSIHS 2: 323. 1932; FEG 3: 235. 2007.

Herb, branchlets thinly glandular-pubescent. Leaves obovate margin irregularly serrate. Heads in pedunculate corymbs. Capitula campanulate. Phyllaries linear-lanceolate. Corolla rose to pink, lobes 5. Stamens 5. Stigma subulate. Achenes compressed, ciliate along margins and apex, brown.

Rare along the evergreen forest borders. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** VN 78266 (MH); KCJ 81256 (MH).

Blumea membranacea DC., Prodr. 5: 440. 1836, var. *membranacea*; FBI 3: 265. 1881; FPM 2: 483. 1957; FTN 2: 34. 1987; FEG 3: 234. 2007.

Herbs, branchlets hirsute. Leaves obovate to oblanceolate, cuneate and decurrent at base, acute-acuminate at apex, toothed along margins, pubescent. Heads in corymbose panicles. Phyllaries linear-lanceolate. Florets yellow. Corolla lobes 5. Stamens 5. Achenes brown.

Occasional in along the streamlets. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** KCJ 81432 (MH).

Blumea obliqua (L.) Druce, Bot. Soc. Exch. Club Brit. Isles 4: 609. 1917; FTC 3(2): 772. 1983. *B. amplexans* DC. in Wight, Contr. Bot. India 13. 1834; FBI 3: 260. 1881; FPM 2: 482. 1957; FTN 2: 34. 1987; FEG 3: 238. 2007; FPI 1: 206. 2009.

Profusely branched, branchlets hispid. Leaves oblong-spathulate. Capitula usually solitary, rarely 2, axillary and terminal. Phyllaries oblong-lanceolate. Bisexual florets: corolla pink to purple to purple, lobes 5; stamens 5; ovary oblong. Female florets: Corolla lobes 5; ovary oblong, glandular-pubescent; style filiform.

Occasional in wastelands and scrub jungles forest floor. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** VS 19228 (FRC).

CHROMOLAENA DC., Prodr. 5: 133. 1836.

Chromolaena odorata (L.) R.M. King & H. Rob., Phytologia 20: 204. 1970; FTC 3(2): 776. 1983; FTN 2: 35. 1987; FEG 3: 242. 2007; FPI 1: 212. 2009. *Eupatorium odoratum* L., Syst. Nat. ed. 10. 2: 1205. 1760; FBI 3: 244. 1881; FSIHS 2: 317. 1932.

Aromatic, erect, viscid pubescent Shrub. Leaves opposite, simple, obovate to deltoid-ovate, chartaceous. margin coarsely serrate. Panicle corymbose, much branched. Capitula stalked, homogamous. Florets bisexual, blue-purple. Pappus 1-seriate. Corolla tubular, campanulate. Stamens 5. Ovary linear, angular. Achenes angles thickened.

Very aggressive colonies of the deciduous forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** KNS 12889 (FRC).

CONYZA Less., Syn. Gen. Compos. 203. 1832, nom. cons.

Key to the species

- 1a. Corymbs dense; achenes with few scattered hairs.....*C. japonica*
- 1b. Corymbs loose; achenes minutely villous.....*C. leucantha*

Conyza japonica (Thunb.) DC. in DC., Prodr. 5: 382. 1836; FBI 3: 258. 1881; FSIHS 2: 322. t. 265. 1932; FPM 2: 480. 1957; FTN 2: 35. 1987; FEG 3: 247. 2007; FPI 1: 217. 2009. *Erigeron japonicum* Thunb., Fl. Jap. 312. 1784.

Sericeous herb. Leaves linear-lanceolate margin entire to sparingly serrate. Panicle terminal, lax, racemose. Capitula cream stalked. Phyllaries purple -tinged, linear-lanceolate. *Bisexual florets:* Corolla tube narrowly cylindric, lobes 5; stamens 5; ovary oblong; stigma hairy. *Female flowers:* corolla cream; ovary oblong, compressed. Achenes sparsely silky.

Common weed in road sides. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** KCJ 81354 (FRC); KNS 12999 (MH); VS 18647 (FRC); KCJ 81367 (MH); PSAT 186975 (MH).

Conyza leucantha (D. Don) Ludlow & P.H. Raven, Kew Bull. 17: 71. 1963; FTC 3(2): 778. 1983; FTN 2: 36. 1987; FEG 3: 249. 2007; FPI 1: 217. 2009. *Erigeron leucanthus* D. Don., Prodr. 5: 383. 1836; FBI 3: 258. 1881; FPM 2: 480. 1957.

Subshrub, branchlets sparsely pubescent. Leaves obovate to spatulate, viscid. Inflorescence a lax, terminal, corymbose panicle. Capitula cream. Outer phyllaries purple-tinged. Bisexual florets: corolla lobes 5, obovate; stamens 5; ovary oblong. Female florets: Corolla faintly rose coloured, lobes minute; ovary oblong. Achenes sparsely villous.

Occasional in hill station along the road sides and wastelands. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** KA & PB 1630 (SACONH).

CRASSOCEPHALUM Moench, Methodus 516. 1794.

Crassocephalum crepidioides (Benth.) S. Moore, J. Bot. 50: 211. 1912; FTN 2: 37. 1987; FEG 3: 252. 2007; FPI 1: 219. 2009.

Herbs, stems angled, hispid-hairy. Leaves elliptic-lanceolate, narrowed at base, irregularly dentate along margins, glabrescent, upper leaves spatulate. Heads drooping. Achenes ribbed.

Common along the marshy places. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** KNS 10357 (FRC); KCJ 81425 (MH).

DICHROCEPHALA L'Her. ex DC., Arch. Bot. (Paris) 2: 517. 1833.

Dichrocephala integrifolia (L. f.) Kuntze, Revis. Gen. Pl. 1: 333. 1891; FTC 3(2): 781. 1983; FEG 3: 255. 2007; FPI 1: 224. 2009. *D. latifolia* (Pers.) DC., Arch. Bot. 2(6): 518. 1833; FBI 3: 245. 1881; FSIHS 2: 317. 1932; FPM 2: 477. 1957.

Erect, pubescent herb. Leaves alternate, simple or pinnatifid, ovate, chartaceous. Capitula yellow, globose, heterogamous. Phyllaries biseriate. Outer florets female, inner bisexual. Calyx tubular-campanulate, lobes 4 in bisexual florets. Stamens 5. Ovary compressed.

Occasional in hill station along the banks of ponds and moist localities. **Fl. & Fr.:** Dec.-May. **Sp.Ex.:** KA & PB 1484 (SACONH); CECF 27332, 27340 (MH); KCJ 81484 (MH).

DICOMA Cass., Bull. Sci. Soc. Philom. 1817: 12. 1817.

Dicoma tomentosa Cass., Bull. Sci. Soc. Philom. Paris 1817: 12. 1817; FBI 3: 387. 1881; FPM 2: 512. 1957; FTC 3(2): 782. 1983; FTN 2: 37. 1987; FEG 3: 257. 2007; FPI 1: 225. 2009.

Rigid herb, branchlets densely pilose. Leaves alternate, clustered, simple, linear-lanceolate. Capitulum solitary, axillary, homogamous. Phyllaries multi-seriate, spatulate. Florets whitish, bisexual. Corolla lobes 5, deeply cleft. Stamens 5. Ovary obovoid. Achenes turbinate, densely brown-villous.

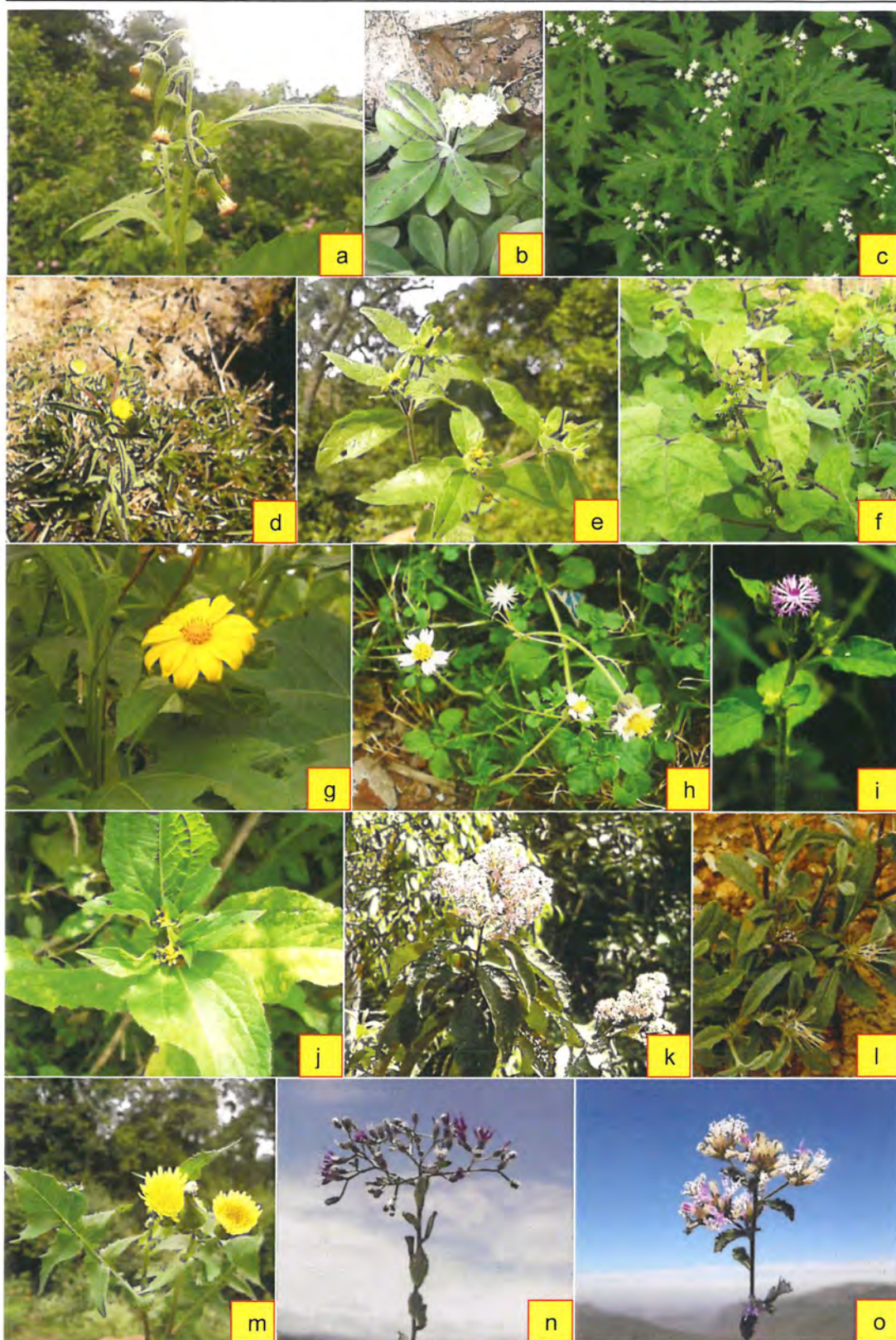
Occasional in dry habitats in plains. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** LP 2883 (SACONH).

ECLIPTA L., Mant. Pl. Altera 2: 286. 1771.

Eclipta prostrata (L.) L., Mant. Pl. Altera 2: 286. 1771; FTC 3(2): 783. 1983; FTN 2: 37. 1987; FEG 3: 258. 2007; FPI 1: 227. 2009. *E. alba* (L.) Hassk., Pl. Jav. Rar. 528. 1848; FBI 3: 304. 1881.

Herb, ascending branches. Leaves opposite simple, lanceolate, chartaceous, margin irregularly serrate-dentate. Capitula 1-3, axillary or terminal, heterogamous. Phyllaries 2-seriate. Outer florets female, inner bisexual. Achenes oblong-triquetrous.

PLATE 13 - ASTERACEAE



a) *Crassocephalum crepidioides*, b) *Kleinia grandiflora*, c) *Parthenium hysterophorus*, d) *Pentanema indicum*, e) *Sigesbeckia orientalis*, f) *Xanthium strumarium*, g) *Tithonia diversifolia*, h) *Tridax procumbens*, i) *Vernonia albicans*, j) *Synedrella nodiflora*, k) *Vernonia arborea*, l) *Dicoma tomentosa*, m) *Sonchus oleraceus*, n) *Vernonia cinerascens*, o) *Vernonia divergens*.

Common in clayey moist ground. **Fl. & Fr.:** Dec.-May. **Sp.Ex.:** CECF 28103, 28122 (MH); VN 79023, 79623 (MH); KCJ 81207 (MH); PSAT 187263, 187264 (MH).

ELEPHANTOPUS L., Sp. Pl. 814. 1753.

Elephantopus scaber L., Sp. Pl. 814. 1753; FBI 3: 242. 1881; FPM 2: 476. 1957; FTC 3(2): 784. 1983; FTN 2: 38. 1987; FEG 3: 258. 2007; FPI 1: 227. 2009.

Scapigerous, strigose herb. Leaves subradical, closely alternate, simple, obovate-oblongate, margin serrate. Capitula homogamous, disciform. Phyllaries 2-seriate. Florets 3-5, purple, bisexual. Corolla tube cylindric, lobes 5, equal. Stamens 5. Ovary oblong. Occasional in moist localities in high altitudes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 19215 (FRC).

EMILIA Cass., Bull. Sci. Soc. Philom. Paris 1817: 68. 1817.

Emilia sonchifolia (L.) DC. ex DC., Wight, Contr. Bot. India 24. 1834; FBI 3: 336. 1881; FPM 2: 503. 1957; FTC 3(2): 787. 1983; FTN 2: 38. 1987; FEG 3: 260. 2007; FPI 1: 228. 2009.

Glabrescent herb. Leaves both radical and cauline. Phyllaries oblong-lanceolate. Corolla purple. Stamens 5. Stigma hispid.

Common in moist place in plains. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** VS 19224 (FRC); CECF 28459, 28472 (MH); KCJ 81336 (MH).

ERECHTITES Raf., Fl. Ludov. 65. 1817.

Erechtites valerianifolius (Link ex Spreng.) DC., Prodr. 6: 295. (1837) 1838; FPM 2: 1302. 1957; FTN 2: 39. 1987; FPI 1: 229. 2009.

Annual herbs. Stems erect. Leaves long petiolate, petiole narrowly winged. Leaf blade oblong to elliptic, glabrous, margin irregularly serrate, lobes 12-16, lanceolate. Capitula numerous in terminal and upper axillary dense corymbose panicles. Phyllaries uniseriate. Florets numerous, yellowish purplish. Corolla filiform. Central florets minutely tubular-funnelform. Achenes cylindric.

Occasional in moist deciduous forest and road sides. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KNS 2014, 12489, 12490 (FRC).

ERIGERON L., Sp. Pl. 863. 1753.

Key to the species

- 1a. Panicles in racemes.....*E. bonariensis*
- 1b. Panicles in corymbs.....2
- 2a. Pappus hairs whitish.....*E. karvinskianus*
- 2b. Pappus hairs reddish.....*E. trilobus*

Erigeron bonariensis L., Sp. Pl. 2: 863. 1753. *Conyza bonariensis* (L.) Cronquist, Bull. Torrey Bot. Club 70: 632. 1943; FTC 3(2): 777. 1983; FTN 2: 39. 1987; FEG 3: 246. 2007; FPI 1: 217. 2009. *C. ambigua* DC., Fl. Franc. 6: 468. 1815; FSIHS 2: t. 264. 1932; FPM 2: 480. 1957.

Sericeous herb. Leaves linear-lanceolate, hirsute, margin entire to sparingly serrate. Panicles terminal, lax, racemose. Capitula cream, stalked. Phyllaries purple-tinged, linear-lanceolate. *Bisexual florets:* Corolla tube narrowly cylindric, lobes 5. Stamens 5. Ovary oblong, compressed. Achenes sparingly silky.

Common weed of cultivated lands in high altitude. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** LP 1316 (SACONH); KCJ 81483 (MH).

Erigeron karvinskianus DC., Prodr. 5: 285. 1826; FPM 2: 480. 1957; FTC 3(2): 788. 1983; FTN 2: 39. 1987; FPI 1: 230. 2009. *E. mucronatus* DC., Prodr. Pl. Ind. Orient. 8: 285. 1826; FSIHS 2: 261. 1932; FPM 2: 480. 1957.

Glabrous herb, branches ascending. Leaves alternate, lower ones pinnatifid, 3-7 lobed. Capitulum stalked, axillary, solitary, heterogamous. *Disc florets*: Corolla tubular campanulate, lobes 5, linear-lanceolate. Stamens 5. Ovary oblong. *Ray florets*: corolla shortly tubular below, ray linear-oblong. Achenes hardly enlarged, minutely pubescent.

Common in high altitude grasslands and rocky slopes. **Fl. & Fr.**: Feb.-May. **Sp.Ex.**: LP 1274 (SACONH).

Erigeron trilobus (Decne.) Boiss., Fl. Orient. 3: 168. 1875.

Thinly pubescent herb. Leaves oblanceolate to spatulate, margin entire to coarsely serrate. Panicles lax, terminal. Capitula bright yellow. Phyllaries linear-lanceolate. *Bisexual florets*: Corolla lobes 5, equal, linear-ovate; stamens 5. *Female florets*: Corolla tube narrowly cylindric, lobes linearly oblong; ovary obovoid, truncate. Achenes puberulous.

Rare in exposed slopes of the high altitude. **Fl. & Fr.**: Sept.-Jan. **Sp.Ex.**: LP 3040 (SACONH).

GALINSOGA Ruiz & Pav., Fl. Peruv. Prodr. 110. 1794.

Galinsoga parviflora Cav., Icon. 3: 41. t. 281. 1794; FBI 3: 311. 1881; FSIHS 2: 340. t. 284. 1932; FPM 2: 500. 1957; FTC 3(2): 791. 1983; FTN 2: 40. 1987; FEG 3: 265. 2007; FPI 1: 233. 2009.

Herb. leaves lanceolate, glabrescent, margin entire to serrate. Phyllaries ovate. *Bisexual florets*: palea linear-lanceolate, 3-fid; corolla lobes 5; stamens 5; stigma dilated. *Ray florets*: palea 2 or 3-fid; corolla tube pubescent; stigma linear.

Common weed in gardens and road sides. **Fl. & Fr.**: Dec.-April. **Sp.Ex.**: PSAT 187253 (MH).

GLOSSOCARDIA Cass., Bull. Sci. Soc. Philom. Paris 1817: 138. 1817.

Key to the species

- 1a. Phyllaries 2-4 seriate.....*G. bosvallia*
- 1b. Phyllaries 1-seriate.....*G. bidens*

Glossocardia bidens (Retz.) Veldkamp, Blumea 35: 468 (1991) 468. 1991. *Glossogyne bidens* (Retz.) Alston in Trim., Handb. Fl. Ceylon 6: 168. 1931; FTC 3(2): 795. 1983; FTN 2: 40. 1987; FEG 3: 266. 2007; FPI 1: 234. 2009. *G. pinnatifida* DC. in Wight., Contrib. 19. 1934; FBI 3: 310. 1881; FPM 2: 499. 1957.

Erect herb, scape-like stem and branches. Leaves radical and cauline, upper alternate, lower opposite. Capitula in lax corymbs, stalked, heterogamous, radiate. Florets yellow. Outer one female, inner bisexual. *Disc florets*: corolla 5-lobed; stamens 5; ovary compressed. *Ray florets*: corolla shortly tubular. Achenes linear.

Occasional in deciduous forest. **Fl. & Fr.**: Throughout the year. **Sp.Ex.**: CECF 28349 (MH).

Glossocardia bosvallia (L. f.) DC., Wight, Contrib. 19. 1834; FPM 2: 499. 1957; FTN 2: 40. 1987; FEG 3: 265. 2007; FPI 1: 234. 2009.

Ascending herb. Leaves alternate, pinnatisect. Capitulum solitary, axillary or leaf-opposed, heterogamous. Outer foliate female, inner bisexual. *Bisexual florets*: corolla yellow, tubular-campanulate, lobes 4; stamens 4; ovary compressed. *Ray florets*: Corolla shortly radiate; ovary 3-triquetrous. Achenes compressed.

Occasional in scrub jungles. **Fl. & Fr.**: Oct.-Feb. **Sp.Ex.**: CECF 28195, 28278, 28294 (MH).

GNAPHALIUM L., Sp. Pl. 850. 1753.

Gnaphalium polycaulon Pers., Syn. Pl. 2: 421. 1807, "*policaulon*"; FTC 3(2): 795. 1983; FTN 2: 41. 1987; FEG 3: 267. 2007; FPI 1: 235. 2009. *G. indicum* sensu Hook. f., Fl. Brit. India 3: 289. 1881 non L., 1753; FSIHS 2: 335. 1932; FPM 2: 491. 1957.

Densely white-pilose herb. Leaves alternate, oblong-spathulate, margin entire. Capitula cream, heterogamous, disciform. Phyllaries biseriate. Outer florets female, inner bisexual. *Bisexual florets*: corolla tubular-campanulate; stamens 5; ovary obovoid. *Female florets*: corolla minutely 2-4 toothed; ovary obovoid. Achenes shortly beaked.

Common in arable lands and road sides. **Fl. & Fr.**: Nov.-May. **Sp.Ex.**: LP 2002 (SACONH).

GRANGEA Adans., Fam. Pl. 2: 121.563. 1763.

Grangea maderaspatana (L.) Poir. in Lam., Encycl. suppl. 2: 825. 1812; FBI 3: 247. 1881; FPM 2: 491. 1957; FTC 3(2): 796. 1983; FTN 2: 41. 1987; FEG 3: 268. 2007; FPI 1: 235. 2009.

Prostrate herb, branchlets pubescent. Leaves alternate, oblong-lanceolate, pinnatifid. Capitulum yellowish, axillary, solitary and terminal, heterogamous. Phyllaries biseriate, oblong. Outer florets female, inner bisexual. *Bisexual florets*: corolla tubular-campanulate, lobes 5; stamens 5. *Female florets*: corolla tube filiform, lobes 2-4-cleft; stigma linear. Achenes 3-5-gonous, oblong.

Common in fallow lands and banks of ponds. **Fl. & Fr.**: Dec.-April. **Sp.Ex.**: CECF 27356 (MH).

GYNURA Cass, in F.Cuvier's Dict. Sci. Nat. ed. 2. 34: 391. 1825.

Key to the species

- 1a. Leaves obovate, entire or shortly toothed.....*G. pseudochina*
- 1b. Leaves rhomboid, serrate.....*G. lycopersifolia*

Gynura lycopersifolia DC., Prodr. 6: 300. (1837) 1838; FBI 3: 334. 1881; FPM 2: 502. 1957; FTN 2: 41. 1987; FEG 3: 272. 2007; FPI 1: 236. 2009.

Annual erect herb, stem angular, branched. Leaves alternate, pinnatisect. Heads orange-yellow. Phyllaries 13-14, uniseriate. Pappus of slender silky hairs, ovary ribbed, hairy. Occasional in open forest of high altitude. **Fl. & Fr.**: Nov.-Feb. **Sp.Ex.**: VS 18646 (FRC).

Gynura pseudochina (L.) DC., Prodr. 6: 299. (1837) 1838; FBI 3: 334. 1881; FPM 2: 502. 1957; FTN 2: 41. 1987; FPI 1: 236. 2009. *Senecio pseudochina* L., Sp. Pl. 867. 1753. *G. purpurascens* Wall. ex DC., Prodr. 6: 299. (1837) 1838; FBI 3: 335. 1881.

Perennial, erect herb, semi-succulent with unpleasant musky smell. Leaves rosette, simple, often shallowly lobed. Leaf oblong-elliptic or ovate. Capitula homogamous. Corolla lobes 5, yellowish. Stamens 5. Fruit is an achene.

Occasional in moist localities. **Fl. & Fr.**: Nov.-Dec. **Sp.Ex.**: KA & PB 1596, 1660 (SACONH); VS 19212, 19217 (FRC).

HELICHRYSUM Mill., Gard. Dict. Abr. ed. 4. 1754.

Helichrysum indicum (L.) Grierson, Notes Roy. Bot. Gard. Edinburgh 31(1): 138. 1971. *Gnaphalium indicum* L. Sp. Pl. 2: 852. 1753; FBI 3: 289. 1881; FSIHS 2: 335. 1932; FPM 2: 491. 1957.

Prostrate or decumbent herb. Leaves simple, alternate, sessile, oblanceolate-spathulate. Head in spikes, terminal or axillary, yellow-white, heterogamous. Receptacle flat. *Female flowers* ca. 80; corolla minutely lobed. *Bisexual florets* 5, corolla 5-lobed; stamens 5. Achenes oblong.

Occasional in wet places of the forest. **Fl. & Fr.**: Nov.-Feb. **Sp.Ex.**: KCJ 81169 (MH).

KLEINIA Mill., Gard. Dict. Aabr. ed. 4. 44. 1754.

Kleinia grandiflora (DC.) N. Rani in K.M. Matthew, Fl. Tamilnadu Carnatic 3: 801. 1983; FTN 2: 43. 1987; FEG 3: 273. 2007; FPI 1: 242. 2009. *Notonia grandiflora* DC. in Wight, Contr. Bot. India 24. 1834; DC., Prodr. 6: 442. (1837) 1838; FBI 3: 337. 1881; FPM 2: 504. 1957.

Subshrub, branchlets angled above and with numerous prominent leaf scars below. Leaves closely alternate, simple, obovate to oblanceolate. Capitula 5-7, stalked, in terminal corymb, homogamous. Phyllaries 1-seriate. Flowers yellowish bisexual. Corolla lobes 5. Stamens 5. Ovary oblong. Stigma papillose. Achenes faintly ribbed.

Common in dry deciduous forest and scrub jungles. **Fl. & Fr.:** Feb.-May. **VN:** *Muyalkaathu chedi*. **Sp.Ex.:** KNS 6867, 12067 (FRC); VS 18651, 19221 (FRC); PSAT 186792, 186793, 187366 (MH).

LAGASCEA Cav., Anales Ci. Nat. 6: 331. 1803.

Lagascea mollis Cav., Anales Ci. Nat. 6: 332. t. 44. 1803, "*Lagasca*"; FBI 3: 302. 1881; FPM 2: 494. 1957; FTC 3(2): 804. 1983; FTN 2: 43. 1987; FEG 3: 273. 2007; FPI 1: 244. 2009.

Erect, white pubescent herb. Leaves opposite or alternate, ovate-lanceolate, chartaceous, Cyathula 1-flowered, solitary, terminal, homogamous. Phyllaries 4-5, linear-lanceolate. Flowers white, bisexual. Corolla tubular-campanulate. Stamens 5. Achenes 3-angled.

Common in plains. **Fl. & Fr.:** Sept.-Mar. **Sp.Ex.:** VS 18648, 19220, 19222 (FRC).

LAGGERA Sch.Bip. ex K. Koch, Linnaea 19: 391. (1846) 1847.

Key to the species

- 1a. Stems not winged; corolla of bisexual florets pink; achenes subcompressed.....***L. aurita***
- 1b. Stems winged; corolla of bisexual florets bluish purple; achenes faintly ribbed.....2
- 2a. Wings broad, entire and continuous; pappus 6-7 mm long.....***L. alata***
- 2b. Wings narrow, toothed and interrupted; pappus 4-5 mm long.....***L. crispata***

Laggera alata (D. Don) Sch. Bip. ex Oliv., Trans. Linn. Soc. London 29: 94. 1873; FBI 3: 271. 1881; FPM 2: 485. 1957; FSIHS 2: 325. t. 269. 1932; FTC 3(2): 805. 1983; FTN 2: 32. 1987; FEG 3: 276. 2007; FPI 1: 245. 2009.

Pubescent herb, wings continuous, broad. Leaves lanceolate, thick-coriaceous, margin denticulate. Outer Phyllaries pubescent. *Bisexual florets:* corolla purplish, lobes 5, ovate; stamens 5; ovary oblong. *Female florets:* Corolla minutely toothed; style filiform; Achenes oblong, faintly ribbed.

Common high-altitude hill slopes. **Fl. & Fr.:** July-Aug. **Sp.Ex.:** LP 2850 (SACONH); KA & PB 1486, 1642 (SACONH); VS 19216 (FRC); KCJ 81446 (MH).

Laggera aurita (DC.) Sch.Bip. ex Schweinf., Beitr. Fl. Aethiop. 151. 1867; FBI 3: 271. 1881; FPM 2: 485. 1957; FEG 3: 279. 2007. *Blumea aurita* (L. f.) DC. in Wight., Contrib. Bot. Ind. 16. 1834; FTN 2: 32. 1987.

Erect aromatic herb, stem striated. Leaves simple, alternate, sessile, elliptic-oblanceolate. Head 3-8, in corymbs, terminal or axillary, pinkish tinged, heterogamous. *Female florets:* glabrous, 3-lobed. *Bisexual florets:* cylindrical, 5-lobed; stamens 5. Achenes oblong.

Occasional in wet places of the forest area. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** KCJ & JD 81159 (MH).

Laggera crispata (Vahl) Hepper & J.R.I. Wood, Kew Bull. 38: 83. 1983; FTN 2: 43. 1987; FEG 3: 279. 2007; FPI 1: 245. 2009. *L. pterodonta* (DC.) Sch. Bip. ex Oliv. & Hiern in Oliv., Fl. Trop. Afr. 3: 324. 1877; FBI 3: 271. 1881; FSIHS 2: 326. 1932; FPM 2: 485. 1957.

Erect aromatic herb, stem striated, densely winged, wings lobed. Leaves simple, alternate, sessile, elliptic-lanceolate. Heads 1-3, terminal, purple, heterogamous. *Female florets*: in many rows, corolla 3-4 lobed. *Bisexual florets*: cylindrical, 5-lobes; stamens 5. Achenes oblong-obovate. Rare in forest edges. **Fl. & Fr.**: Nov-Feb. **Sp.Ex.**: VS 18961 (FRC).

LAUNAEA Cass., F. Cuvier's Dict. Sci. Nat. ed. 2, 25: 61,321. 1822.

Launaea acaulis (Roxb.) Babc. ex Kerr. in Craib, Fl. Siam. 2: 299. 1936; FTN 2: 43. 1987; FPI 1: 245. 2009. *Crepis acaulis* (Roxb.) Hook. f., Fl. Brit. India 3: 396. 1881; FPM 2: 485. 1957.

Scapigerous herbs with thick rootstock. Leaves all basal, oblong, margin entire or finely toothed, glabrous. Heads cylindrical, 10-15 together, cymose, on elongated scapes. Scapes 3-5, branched, glabrous. Bracts uniseriate. Flowers all ligulate. Corolla bright yellow, glabrous. Achenes compressed, yellowish brown.

Occasional in deciduous forest. **Fl. & Fr.**: Mar.-Sept. **Sp.Ex.**: KCJ 81435 (MH).

MIKANIA Willd., Sp. Pl. 3: 1742. 1803.

Mikania micrantha Kunth in Humb. Bonpl. & Kunth, Nov. Gen. Sp. 4 (ed. folio): 105 & (ed. quarto) 134. 1820; R.R. Rao & Razi, Syn. Fl. Mysore dist. 547. 1981; FPI 1: 252. 2009.

Climbers, stem glandular-hispid. Leaves opposite, ovate, margin crenate, glabrate. Heads in axillary panicles. Bracts biseriate. Flowers 3-5, similar, bisexual. Corolla tubular, lobes 5, glandular, white. Stamens 5. Achenes 5-ribbed, black, glabrous.

Occasional in plantations and forest margins. **Fl. & Fr.**: Feb.-April. **Sp.Ex.**: LP 2121 (SACONH).

PARTHENIUM L., Sp. Pl. 988. 1753.

Parthenium hysterophorus L., Sp. Pl. 988. 1753; FTC 3(2): 809. 1983; FTN 2: 45. 1987; FEG 3: 285. 2007; FPI 1: 255. 2009.

Puberulous, erect herb. Leaves alternate, pinnatifid, lanceolate-oblong, chartaceous. Panicles terminal, lax, dichotomous. Capitula heterogamous. Phyllaries 1-seriate. *Disc florets*: palea tubular; corolla lobes 5; stamens 5; Ovary linear. *Ray florets* 5; palea concave; ovary broadly obovoid, compressed. Achenes compressed.

A common aggressive weed. **Fl. & Fr.**: Nov.-Mar. **VN**: *Vesapoodu*. **Sp.Ex.**: KA & PB 1500 (SACONH); PSAT 186898 (MH).

PENTANEMA Cass., Bull. Sci. Soc. Philom. Paris 1818: 74. 1818.

Pentanema indicum (L.) Y. Ling, Acta Phytotax. Sin. 10: 179. 1965; FEG 3: 285. 2007; FPI 1: 255. 2009. *Vicoa indica* (L.) DC. in Wight, Contr. Bot. India 10. 1834; FPM 2: 493. 1957; FTN 2: 43. 1987.

Erect herb, stem striate, reddish, sparsely puberulous. Leaves simple, alternate, sessile, lanceolate, linear, oblong-lanceolate. Heads few, paniculate, terminal, yellow, heterogamous. Ray florets around 27, tube cylindrical. Bisexual florets around 150; corolla 5-lobed, glabrous. Stamens 5. Common in open forest edges. **Fl. & Fr.**: Sept.-Dec. **Sp.Ex.**: SRN 80254 (MH); KCJ & JD 81187 (MH); PSAT 187151, 187241 (MH).

PHYLLOCEPHALUM Blume, Bijdr. Fl. Ned. Ind. 888. 1826.

Phyllocephalum scabridum (DC.) K. Kirkman, Rhodora 83: 10. 1981; FTN 2: 45. 1987; FPI 1: 257. 2009. *Centratherum molle* (DC.) Benth. in Benth. & Hook. f., Gen. Pl. 2: 225. 1873; FBI 3: 227. 1881; FPM 2: 469. 1957.

Fleshy herbs. Leaves elliptic, deeply serrate. Peduncles tomentose. Heads few. Bracts white-tomentose, ciliate along the margins. Flowers 12-15. Corolla lobes oblong, glabrous. Occasional in Road sides. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** PSAT 187267, 187268 (MH).

PLUCHEA Cass., Bull. Sci. Soc. Philom. Paris 31. 1817.

Pluchea tomentosa DC. in Wight, Contr. Bot. India 16. 1834; FBI 3: 272. 1881; FPM 2: 485. 1957; FTN 2: 45. 1987; FEG 3: 286. 2007; FPI 1: 259. 2009.

Erect, woody sub-shrub, stem striated. Leaves simple, alternate, sessile, elliptic or ovate-elliptic. Heads in corymbs, terminal and axillary, heterogamous. *Female florets* filiform, tubular, 3-lobed. *Bisexual florets* 5-lobed; stamens 5. Achenes oblong, ribbed.

Rare in stream banks of the forests. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** CECF 27697 (MH).

SENECIO L., Sp. Pl. 2: 866. 1753.

Key to the species

- 1a. Erect herbs or shrubs.....*S. tenuifolius*
1b. Climbing or scandent herbs or undershrubs.....*S. candicans*

Senecio candicans Wall. ex DC. in Wight, Contr. Bot. India 22. 1834; FBI 3: 352. 1881; FSIHS 2: 351. 1932; FPM 2: 508. 1957; FTN 2: 47. 1987; FPI 1: 270. 2009.

Erect herb, subsucculent. Leaves both radical and cauline; radical leaves obovate-oblong to spatulate, irregularly serrate; cauline leaves oblong-oblongeolate. Head radiate, in terminal corymb, bracteolate. Involucre broadly campanulate. *Ray florets* oblong. *Disc florets* numerous, tubular. Achenes pale-brown, ellipsoidal.

Occasional. **Fl. & Fr.:** Mar.-Oct. **Sp.Ex.:** KCJ 81353 (MH).

Senecio tenuifolius Burm. f., Fl. Indica 181. t. 60. f. 4. 1768; FBI 3: 345. 1881; FPM 2: 508. 1957; FTC 3(2): 811. 1983; FTN 2: 48. 1987; FEG 3: 291. 2007; FPI 1: 274. 2009.

Erect herb. Leaves pinnatifid, glabrescent, margin reflexed. Capitula stalked. Phyllaries oblanceolate, margin scarious. *Disc florets*: corolla lobes 5; stamens 5; ovary obovoid; stigma puberulous. *Ray florets*: ovary linear, sterile.

Occasional in hills. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** VS 19211 (FRC); CECF 28596, 28613 (MH).

SIGESBECKIA L., Sp. Pl. 900. 1753.

Sigesbeckia orientalis L., Sp. Pl. 900. 1753; FBI 3: 304. 1881; FSIHS 2: 338. t. 280. 1932; FPM 2: 495. 1957; FTC 3(2): 812. 1983; FTN 2: 48. 1987; FEG 3: 293. 2007; FPI 1: 275. 2009.

Viscid-pubescent herb. Leaves opposite, simple, obovate-lanceolate, chartaceous, margin irregularly serrate. Panicles lax, terminal and axillary, leafy. Capitula yellow, solitary, stalked, heterogamous. Phyllaries 2-4 seriate. Outer female and inner bisexual florets. *Disc florets*: corolla tubular-campanulate, lobes 5, ovate; stamens 5; ovary oblong, 4-angled. *Ray florets*: ovary oblong, curved; stigma acute, recurved. Achenes angled.

Occasional in moist deciduous forest and road sides. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** VS 18650 (FRC); CECF 28094 (MH); VN 78267 (MH); KCJ 81150 (MH).

SONCHUS L., Sp. Pl. 793. 1753.

Key to the species

- 1a. Leaf auricles obtuse.....*S. brachyotus*
1b. Leaf auricles at least in upper ones acute.....*S. oleraceus*

Sonchus brachyotus DC., Prodr. 7: 186. 1838; FEG 3: 293. 2007. *Sonchus chinensis* Fisch., Cat. Jard. Pl. (ed. 2) 33. 1812.

Erect herb. rhizomatous, stem fistular. Leaves simple or lyrate pinnatisect, sessile, cauline and resolute. Heads in terminal corymbs, homogamous. Involucral bracts 4-seriate. Corolla lobes 5. Stamens 5. Ovary brown, ribbed. Achenes oblong-elliptic.

Common along the roadsides. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** CECF 28904 (MH).

Sonchus oleraceus (L.) L., Sp. Pl. 794. 1753; FBI 3: 414. 1881; FPM 2: 732. 1957; FTC 3(2): 814. 1983; FTN 2: 49. 1987; FEG 3: 295. 2007; FPI 1: 276. 2009.

Erect herb, stem fistular, striated. Leaves cauline and radical, sessile. Heads cymose in upper axils or cymose umbellate and terminal, homogamous. Involucral bracts 28, 3-4 seriate. Florets 5-lobed. Stamens 5. Achenes obovoid, flat, 4-ribbed.

Common in hills, also weed of cultivation lands. **Fl. & Fr.:** Oct.-April. **VN:** *Oosithagarai*. **Sp.Ex.:** LP 2263 (SACONH); VN 78253 (MH); KCJ & JD 81154 (MH); PSAT 186897, 187257, 187265, 187266 (MH).

SPHAERANTHUS L., Sp. Pl. 927. 1753.

Sphaeranthus indicus L., Sp. Pl. 927. 1753; FBI 3: 275. 1881; FPM 2: 487. 1957; FTC 3(2): 816. 1983; FTN 2: 49. 1987; FEG 3: 297. 2007; FPI 1: 234. 2009.

Herb, branchlets winged. Leaves alternate, oblong-spathulate, chartaceous, margin coarsely serrate. Capitula pink to purple, few flowered, heterogamous. Phyllaries few, linear-lanceolate. Outer florets female, inner bisexual. *Bisexual florets:* corolla tubular-campanulate; stamens 5; ovary angled. *Female florets:* ovary oblong. Achenes smooth or angled.

Occasional in plains. **Fl. & Fr.:** Jan.-April. **VN:** *Kottaikaranthai*. **Sp.Ex.:** KCJ 81161 (MH).

SYNEDRELLA Gaertn., Fruct. Sem. Pl. 2: 456. 1791.

Synedrella nodiflora (L.) Gaertn., Fruct. sem. Pl. 2: 456. 1. 171. f. 7. 1791; FBI 3: 308. 1881; FPM 2: 498. 1957; FTC 3(2): 818. 1983; FTN 2: 50. 1987; FEG 3: 301. 2007; FPI 1: 278. 2009.

Herb. Leaves opposite, simple, elliptic-ovate, margin serrulate. Capitulum solitary, axillary, heterogamous. Phyllaries 2-seriate. Outer florets female, inner bisexual. *Disc florets:* corolla yellow, lobes 5; stamens 5; ovary lanceolate, compressed. *Ray florets:* corolla yellow; ovary oblong-obovoid, lanceolate, winged. Achenes compressed, 3-quetrous.

Common in plains, foothills and wastelands. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** LP 1898 (SACONH).

TAGETES L., Sp. Pl. 887. 1753.

Tagetes erecta L., Sp. Pl. 887. 1753; FTC 3: 819. 1983; FTN 2: 50. 1987; FPI 1: 281. 2009.

Subshrub, branchlets angular, ribbed. Leaves aromatic when bruised, alternate, pinnate. Capitulum solitary, terminal or axillary, heterogamous. Phyllaries 1-seriate. Out florets female, many seriate; inner bisexual. *Disc florets:* corolla narrowly tubular; stamens 5; ovary linear-lanceolate, compressed. *Ray florets:* corolla orange to yellow, ray broadly oblong; ovary lanceolate, compressed.

Common. Cultivated for flowers. **Fl. & Fr.:** Throughout the year. **VN:** *Thurukkasamanthi*. **Sp.Ex.:** LP 2899 (SACONH).

TITHONIA Desf. ex Juss., Gen. Pl. 189. 1789.

Tithonia diversifolia (Hemsl.) A. Gray, Proc. Amer. Acad. Arts 19: 5. 1883; FTC 3(2): 820. 1983; FTN 2: 50. 1987; FEG 3: 303. 2007; FPI 1: 289. 2009.

Shrub. Stem cylindrical, hollow. Leaves simple alternate. Phyllaries biseriate. Capitula terminal, solitary, heterogamous, showy. Outer florets female, inner bisexual. *Disc florets*: corolla yellowish, lobes 5; stamens 5; ovary oblong. *Ray florets*: corolla deep yellow to brown; ovary oblong, compressed.

Common along roadsides in high altitude. Also cultivated as ornamental. **Fl. & Fr.**: Almost throughout the year. **Sp.Ex.**: LP 2118 (SACONH).

TRICHOLEPIS DC. in Guillem., Arch. Bot. (Paris) 2: 515. 1833.

Tricholepis radicans (Roxb.) DC. in Wight, Contr. Bot. India 25. 1834; FBI 3: 381. 1881; FTC 3(2): 821. 1983; FTN 2: 51. 1987; FEG 3: 304. 2007; FPI 1: 290. 2009.

Glabrescent herb, branchlets angled. Leaves alternate, simple, lanceolate, chartaceous, margin minutely toothed. Capitula solitary, terminal, globose, homogamous. Phyllaries multi seriate. Flowers purple to violetish. Stamens 5. Ovary oblong. Achenes truncate.

Occasional in hill slopes. **Fl. & Fr.**: Dec.-Feb. **Sp.Ex.**: CECF 28734, 28744 (MH).

TRIDAX L., Sp. Pl. 900. 1753.

Tridax procumbens L., Sp. Pl. 900. 1753; FBI 3: 311. 1881; FPM 2: 500. 1957; FTC 3(2): 821. 1983; FTN 2: 51. 1987; FEG 3: 304. 2007; FPI 1: 290. 2009.

Procumbent hirsute herb. Leaves opposite, simple, lanceolate blade entire to pinnatisect, margin coarsely serrate. Capitulum long stalked, heterogamous. Phyllaries multi seriate. Outer florets female; inner bisexual, several. *Disc florets*: corolla yellow, lobes 5, oblong; stamens 5; ovary oblong. *Ray florets* corolla yellow, ray broadly oblong, 3-lobed; ovary oblong-truncate, 4-angled. Achenes margined.

Common in plains. **Fl. & Fr.**: Throughout the year. **VN**: *Vettukayapoondur*. **Sp.Ex.**: KNS 6861 (FRC); KCJ 81327 (MH).

VERNONIA Schreb., Gen. Pl. 2: 541. 1791.

Key to the species

- 1a. Trees.....*V. arborea*
- 1b. Herbs or shrubs.....2
- 2a. Branchlets ashy; leaves sessile, spatulate.....*V. cinerascens*
- 2b. Branchlets not ashy; leaves petioled, not spatulate.....3
- 3a. Achenes ribbed.....*V. divergens*
- 3b. Achenes not ribbed.....4
- 4a. Leaves obtuse, densely tomentose.....*V. albicans*
- 4b. Leaves acute, glabrous or thinly pubescent.....*V. cinerea*

Vernonia albicans DC. in Wight, Contrib. Bot. Ind. 6. 1834; FPM 2: 475. 1957; FTC 3(2): 824. 1983; FTN 2: 51. 1987; FEG 3: 304. 2007; FPI 1: 291. 2009.

Tomentose herb. Leaves ovate-rhomboid, thickly chartaceous, pubescent, margin irregularly crenate. Panicles lax, cymose, terminal. Capitula stalked. Phyllaries herbaceous. Corolla lobes 5, lanceolate. Stamens 5. stigma subulate. Achenes villous.

Common in hill station and bare slopes. **Fl. & Fr.**: July-Oct. **Sp.Ex.**: LP 2836, 3031 (SACONH); KA & PB 1413 (SACONH); VN 79687 (MH); SRN 80532 (MH); PSAT 186506, 186507 (MH).

Vernonia arborea Buch.-Ham., Trans. Linn. Soc. London 14: 218. 1825; FBI 3: 239. 1881; FTC 3(2): 826. 1983; FTN 2: 51. 1987; FEG 3: 308. 2007; FPI 1: 291. 2009. *V. monosis* Benth. ex C.B. Clarke, Compos. Ind. 24. 1876; FSIHS 2: 308. t. 247. 1932; FPM 2: 473. 1957.

Evergreen tree, tender parts pubescent. Leaves broadly elliptic to obovate, thin coriaceous. Panicles dense, much branched, terminal and axillary. Capitula 1-flowered. Phyllaries thick scarious. Corolla lobes cylindric, lobes lanceolate. Stamens 5. Ovary oblong. Achenes ribbed, glandular.

Occasional in evergreen forest. **Fl. & Fr.:** Mar.-May. **VN:** *Sadigaimara*. **Sp.Ex.:** KNS 6866 (FRC).

Vernonia cinerascens Sch.-Bip. in Schweinf., Beitr. Fl. Aethiop. 162. 1867; FBI 3: 237. 1881; FPM 2: 474. 1957; FTN 2: 52. 1987; FPI 1: 292. 2009.

Shrubs. Leaves entire or few dentate in the upper half, punctate on both the surfaces, pubescent. Capitula in corymbose panicles, or solitary. Involucral bracts 3-4 seriate, oblong, hairy on the dorsal side, oblong-ob lanceolate. Achenes silky, 5-angled.

Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** LP 3004 (SACONH); EV 70944, 70945 (MH); PSAT 187082 (MH).

Vernonia cinerea (L.) Less., Linnaea 4: 291. 1829; FBI 3: 233. 1881; FPM 2: 475. 1957; FTC 3(2): 827. 1983; FTN 2: 52. 1987; FEG 3: 304. 2007.

Herb. Leaves ovate-elliptic to oblanceolate, chartaceous. Panicles lax, corymbose, terminal. Capitula 10-15 flowered, homogamous. Phyllaries herbaceous. Corolla lobes linear. Stamens 5. Achenes villous.

Common in plains and weeds of wastelands. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** LP 2239, 2537, 2902, 2269, 3026, 2027 (SACONH); KA & PB 1427 (SACONH); VS 19219 (FRC); CECF 27119 (MH); VN 79710 (MH).

Vernonia divergens (DC.) Edgew., J. Asiat. Soc. Bengal. 21: 172. 1853; FBI 3: 234. 1881; FPM 2: 473. 1957; FTC 3(2): 828. 1983; FTN 2: 52. 1987; FEG 3: 310. 2007; FPI 1: 292. 2009.

Shrub. tender parts thinly pubescent. Leaves elliptic-obovate, chartaceous, margin deeply serrate. Inflorescence a dense, terminal, corymbose cyme. Capitula subsessile, 5-flowered. Phyllaries thick-scarious. Corolla lobes 5, lanceolate. Stamens 5. Ovary oblong. Achenes 10-ribbed.

Common in hill slopes. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** LP 1226, 2232 (SACONH); KNS 2013 (FRC); CAB 26981, 26992, 26993 (MH); KCJ 81397 (MH); SRR 83207 (MH).

WEDELIA Jacq., Enum. Pl. Carib. 8. 1760.

Wedelia urticifolia (Blume) DC. in Wight, Contrib. Bot. Ind. 18. 1834; FBI 3: 306. 1881; FPM 2: 497. 1957; FTC 3(2): 832. 1983; FTN 2: 54. 1987; FEG 3: 312. 2007; FPI 1: 296. 2009.

Well branched, erect herb. Leaves elliptic-ovate, margin serrate. Capitula heterogamous. *Disc florets:* corolla lobes 5, yellowish; stamens 5; ovary compressed; stigma linear. *Ray florets:* ray broadly oblong; ovary 4-angled; stigma linear, recurved.

Common in evergreen forest floor. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** SRN 80538 (MH).

XANTHIUM L., Sp. Pl. 2: 987. 1753.

Xanthium strumarium L., Sp. Pl. 987. 1753; FBI 3: 303. 1881; FPM 2: 494. 1957; FPI 1: 297. 2009. *X. indicum* J. Koenig ex Roxb., Fl. Ind. 3: 601. 1832; FTC 3(2): 833. 1983; FTN 2: 54. 1987; FEG 3: 314. 2007.

Subshrub, tender parts spinulose, hispid-pubescent. Leaves alternate, simple, broadly 3-or 5-lobed, chartaceous. Capitula monoecious, male above female below in axillary clusters. Male capitula 1-flowered. Flowers unisexual, numerous; corolla lobes 5, lanceolate, free; stamens 5; ovary sterile. Female capitula solitary, 2-flowered. Corolla 0. ovary obovoid. Achenes 2, enlarged, enclosing in prickly.

Common in wastelands of plains. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18645 (FRC).

CAMPANULACEAE Juss. Gen. Pl. 163. 1789.**ASYNEUMA** Griseb. & Schenk, Arch. Naturgesch. 18: 335. 1852.**Asyneuma fulgens** (Wall.) Briq., Candollea 4: 334. 1931; FTC 3(2): 836. 1983; FTN 2: 55. 1987; FEG 4: 2. 2011. *Campanula fulgens* Wall., Cat. 1783; FBI 3: 442. 1881; FSIHS 2: 362. t. 308. 1932; FPM 2: 521. 1957.

Herb, branchlets hirsute-pubescent. Leaves rosulate below, cauline above. Racemes terminal. Calyx lobes 5, lanceolate to triangular. Corolla campanulate, lobes 5, elliptic to obovate. Stamens 5. Stigma 3-lobed, dilated, ciliate. Capsule truncate, 9-angled. Occasional in evergreen forest. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** VS 19389 (FRC).

LOBELIACEAE Juss. ex A.J.A. Bonplond, Descr. Pl. Malmaison: 19, t. 1813.**LOBELIA** L., Sp. Pl. 929. 1753.**Key to the species**

- 1a. Leaf-base rounded to attenuate.....*L. alsinoides*
 1b. Leaf-base truncate to decurrent.....*L. heyneana*

Lobelia alsinoides Lam., Encycl. 3: 588. 1792; FTC 3(2): 837. 1983; FTN 2: 56. 1987; FEG 4: 6. 2011. *L. trigona* Roxb., Fl. India 2: 111. 1824; FBI 3: 423. 1881; FSIHS 2: 359. t. 303. 1932; FPM 2: 518. 1957.

Prostrate herb. Leaves elliptic-ovate, subsessile. Calyx lobes lanceolate-subulate, herbaceous, glabrous or sparsely strigose. Corolla deep blue. Stamens 5. Ovary turbinate to obconic. Stigma shortly 2-fid. Capsule turbinate to obconic, 5-ribbed. Seeds trigonous. Occasional in moist localities. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 28989 (MH).

Lobelia heyneana Schult. in Roem. & Schult., Syst. Veg. 5: 50. 1819; FTC 3(2): 838. 1983; FTN 2: 57. 1987, "heyneana"; FEG 4: 6. 2011. *L. zeylanica* auct. non L. 1753; FBI 3: 425. 1881; FPM 2: 518. 1957.

Erect herb. Leaves ovate, margin serrate to dentate. Calyx lobes triangular-subulate. Corolla pinkish white with dark pink throat. Stamens 5. Ovary turbinate to hemispheric. Stigma capitate. Capsule cupular to obconic. Seeds ellipsoid, biconvex, brownish. Occasional in foothills and road sides. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** VN 79036 (MH).

PLUMBAGINACEAE Juss., Gen. Pl. 92. 1789.**PLUMBAGO** L., Sp. Pl. 1: 151. 1753.

Plumbago zeylanica L., Sp. Pl. 151.1753; FBI 3: 480. 1882; FPM 2: 524. 1957; FTC 3(2): 845. 1983; FTN 2: 59. 1987; FEG 4: 9. 2011.

Scandent shrub. Leaves alternate, simple, elliptic-ovate. Racemes terminal and/or axillary, Calyx-tubular, 10-ribbed. Corolla white, salver form. Stamens 5. Ovary ellipsoid, 5-gonous. Capsule membranous. Seeds flattened, dark brown.

Common in hill slopes and dry deciduous forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** LP 2552 (SACONH); VS 19406, 20668, 18652 (FRC); CECF 29261, 29274 (MH); KCJ 81343 (MH); EV 142038, 142039 (MH); CAB 29251, 29254, 29266 (MH); PSAT 187054, 186665, 186666 (MH).

PRIMULACEAE Batsch ex Borkh., Bot. Wörterb. 2: 240. 1797.**ANAGALLIS** L., Sp. Pl. 1: 148. 1753.

Anagallis arvensis L., Sp. Pl. 148. 1753; FBI 3: 506. 1882; FSIHS 2: 372. 1932; FPM 2: 525. 1957; FTC 3(2): 846. 1983; FTN 2: 59. 1987; FEG 4: 10. 2011.

Erect or ascending herb, branchlets 4-winged. Leaves decussate, elliptic-ovate. Calyx-lobes 5, lanceolate. Corolla blue, rotate, lobes 5, glandular hairy. Stamens 5. Ovary globose, ovules many. Capsule globose.

Common in fallow lands. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2115 (SACONH).

MYRSINACEAE R. Br., Prodr. Nov. Holl. 532. 1810.

Key to the genera

- 1a. Corolla more than 2 cm long, pinkish; lobes contorted in bud.....*Ardisia*
- 1b. Corolla less than 0.7 cm across, white or greenish; lobes imbricate in bud.....2
- 2a. Leaf margin serrate; bracteoles 2; seeds numerous.....*Maesa*
- 2b. Leaf margin entire; bracteoles absent; seed 1.....3
- 3a. Erect shrub or trees.....*Myrsine*
- 3b. Straggling or climbing vines.....*Embelia*

ARDISIA Sw., Prodr. Veg. Ind. Occ. 3: 48. 1788.

Ardisia solanacea (Poir.) Roxb., Pl. Coromandel 27. 1795 & Fl. Ind. 1: 580. 1832; FPM 2: 531. 1957; FTC 3(2): 850. 1983; FTN 2: 61. 1987; FEG 4: 14. 2011. *A. humilis* sensu Wight, Icon. Pl. Ind. Orient. t. 1212. 1848, non Vahl. 1794; FBI 3: 529. 1882; FSIHS 2: 376. 1932.

Evergreen shrub. Leaves waxy, alternate, opposite at apices, broadly lanceolate to obovate, coriaceous, margin entire. Umbels extra axillary, simple. Bracts concave deciduous. Calyx lobes 5, semi-circular. Corolla bright rose, lobes 5. Stamens 5. Ovary globose. Stigma pointed. Drupe globose. Seeds globose.

Common in evergreen forest floor. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** KA & PB 1415 (SACONH); KNS 7980, 7981 (FRC); VS18901 (FRC); CECF 29570 (MH); KCJ 81385 (MH).

EMBELIA N. L. Burm. f., Fl. Ind. 62. Pl. 23. 1768.

Key to the species

- 1a. Flowers in large terminal panicles.....*E. ribes*
- 1b. Flowers in short axillary racemes.....2
- 2a. Plant a shrub.....3
- 2b. Plant a climber.....*E. basaal*
- 3a. Petals hairy inside.....*E. tsjeriam-cottam*
- 3b. Petals glandular granulose inside.....*E. frondosa*

Embelia basaal (Roem. & Schult.) A. DC., Trans. Linn. Soc. Bot. London 17: 131. 1834; FSIHS 2: 376. t. 318. 1932; FPM 2: 529. 1957; FTC 3(2): 851. 1983; FTN 2: 61. 1987; FEG 4: 16. 2011.

Straggler, stem with white elongated lenticels. Leaves broadly obovate to oblong. Racemes axillary, 4-merous, rarely 5 or 6-merous. Calyx orange, lobes 4(5). Stamens 4(5), yellowish. Ovary globose. Stigma pointed. Drupe crowned with persistent style.

Occasional in forest border. **Fl. & Fr.:** **Sp.Ex.:** KCJ 81280 (MH); PSAT 186755 (MH).

Embelia frondosa (King ex Gamble) D.G. Long, Edinburgh J. Bot. 56: 307. 1999. *E. gamblei* Kurz ex C.B. Clarke, Fl. Brit. India 3: 516. 1882.

Scandent shrub, branchlets angled, rusty stellate tomentose. Leaves elliptic, lanceolate, or obovate, leathery, margin entire. Racemes puberulent, glabrescent. Bracts narrowly lanceolate. Flowers dull yellowish green, (4 or)5-merous. Calyx ovate to oblong, glandular. Corolla free, elliptic or obovate. Ovary glabrous. Stigma 2- or 3-lobed. Fruit red, globose.

Rare in evergreen forest border. **Fl. & Fr.:** May-June. **Sp.Ex.:** PSAT 187170 (MH).

Embelia ribes Burnt. f., Fl. Ind. 62. t. 23. 1768; FBI 3: 513. 1882; FSIHS 2: 375. t. 317. 1932; FPM 2: 529. 1957; FTC 3(2): 852. 1983; FTN 2: 61. 1987; FEG 4: 16. 2011.

Vine or liana. Leaves narrowly elliptic to oblong with scattered, minute, sunken glands. Panicle terminal or upper axils. Flowers greenish. Calyx lobes 5, (sub) coriaceous. Corolla greenish white, lobes 5. Stamens 5. Ovary ribbed. Drupe globose.

Occasional in Evergreen forest border. **Fl. & Fr.:** Mar.-Aug. **Sp.Ex.:** CECF 4748 (FRC).

Embelia tsjeriam-cottam (Roem. & Schult.) DC., Trans. Linn. Soc. London 17: 131. 1834; FPM 2: 529. 1957; FTN 2: 61. 1987; FEG 4: 16. 2011. *E. villosa* Wall., Fl. Ind. 2: 289. 1824; FPM 2: 753. 1957.

Straggler. Leaves ovate or oblong, rounded or cuneate at base. Flowers in axillary racemes. Calyx-lobes 4 or 5 coriaceous, ciliate without. Corolla orange, lobes 4 or 5. Stamens 4 or 5. Ovary globose. Drupe globose 1-seeded.

Rare in evergreen forest border. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** KNS 6974 (FRC).

MAESA Forssk., Fl. Aegypt.-Arab. 66. 1775.

Maesa indica (Roxb.) A.DC., Trans. Linn. Soc. London 17(1): 134. 1834; FTC 3(2): 852. 1983; FTN 2: 62. 1987; FEG 4: 17. 2011. *M. dubia* (Wall.) A. DC., Trans. Linn. Soc. London 17: 134. 1834; FBI 3: 510. 1882; FPM 2: 527. 1957. *M. perrottetiana* A. DC. in Wight, Icon. Pl. Ind. Orent. t. 1209. 1848; FBI 3: 513. 1882; FSIHS 2: 375. t. 315. 1932; FPM 2: 527. 1957.

Small tree. Leaves alternate, elliptic to obovate, subcoriaceous, margin serrate. Panicles axillary and/or terminal. Calyx lobes 5, ovate. Corolla white, lobes 5, campanulate. Stamens 5. Ovary half-inferior. Drupe fleshy with swollen cupule, globose. Seeds angular.

Common in evergreen forest border. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** LP 1107, 1294, 1897, 2041 (SACONH); VS 18896, 19366, 19367 (FRC); CECF 29353 (MH); VN 79743 (MH); KCJ 81423 (MH).

MYRSINE L., Sp. Pl. 1: 196. 1753.

Key to the species

- 1a. Flowers sessile; leaves obtusely acute at apex.....*M. capitellata*
1b. Flowers with pedicellate; leaves rounded or emarginate at apex.....*M. thwaitesii*

Myrsine capitellata Wall., Fl. Ind., ed. 1820 (2): 295. 1824; FBI 3: 512. 1882; FTC 3(2): 853. 1983. *Rapanea capitellata* Mez in Engler, Pflanzenr. 9: 356. 1902; FPM 2: 528. 1957; FTN 2: 62. 1987; FEG 4: 18. 2011. *R. wightiana* (Wall. ex DC.) Mez in Engler, Pflanzenr. 9: 360. 1902; FSIHS 2: 374. t. 316. 1932; FPM 2: 528. 1957; FTN 2: 62. 1987.

Tree. Leaves alternate below, opposite above, elliptic to lanceolate, margin entire. Flowers shortly stalked in umbellate fascicles, axillary or around branchlets. Calyx lobes 5, conical. Corolla white, lobes 5, oblanceolate. Stamens 5. Ovary conical. Drupe globose.

Occasional in evergreen forest border. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** LP 3170, 2152 (SACONH); KCJ 81469 (MH).

Myrsine thwaitesii (Mez) Wadhwa in M.D. Dessanayake & W.D. Clayton, Revised. Handb. Fl. Ceylon 13: 159. 1999; FTN 2: 62. 1987. *Rapanea thwaitesii* Mez, Pflanzenr. IV 236 (Heft 9): 257. 1902; FSIHS 2: 375. 1932; FPM 2: 528. 1957; FEG 4: 19. 2011.

Trees. Leaves simple, alternate, estipulate, ovate or oblanceolate, margin entire. Flowers polygamous or dioecious in umbels. Calyx lobes 4-5. Corolla tube short, lobes 4-5, sparsely gland dotted, spreading. Ovary free, globose. Fruit a berry, purple, globose.

Occasional in evergreen forest border. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** LP 3171 (SACONH).

SAPOTACEAE Juss., Gen. Pl. 151. 1789.

Key to the genera

- 1a. Calyx-lobes 1-seriate; stamens 5-6.....*Xantolis*
 1b. Calyx-lobes 2-3-seriate; stamens 8 or more.....2
 2a. Petals with petaloid appendages; staminodes present.....3
 2b. Petals without petaloid appendages; staminodes absent.....4
 3a. Sepals 4, staminodes pilose.....*Mimusops*
 3b. Sepals 6, staminodes glabrous.....*Manilkara*
 4a. Flowers pedicelled; stamens 16 or more.....*Madhuca*
 4b. Flowers sessile or subsessile; stamens 8.....*Isonandra*

ISONANDRA Wight, Icon. Pl. Ind. Orient. 2: 4. 1840.

Key to the species

- 1a. Leaves broadly ovate, rounded or emarginated at apex.....*I. villosa*
 1b. Leaves oblanceolate, acuminate at apex.....*I. perrottetiana*

Isonandra perrottetiana A. DC. in DC., Prodr. 8: 188. 1844; FBI 3: 539. 1882; FPM 2: 535. 1957; FSIHS 2: 379. 1932; FTN 2: 63. 1987. *I. candolleana* Wight, Icon. Pl. Ind. Orient. t. 1220. 1850; FBI 3: 539. 1882; FSIHS 2: 379. t. 320. 1932; FPM 2: 535. 1957.

Trees, bark smooth, brown. Leaves simple, alternate, spiral, stipulate, elliptic, oblanceolate, margin entire, recurved, glabrous. Flowers bisexual, dull-white, axillary fascicles. Sepals 2+2, broadly ovate. Corolla deeply 4-partite, lobes obovate-oblong. Stamens 8. Ovary superior, densely hairy. Fruit a berry, obovoid, cuspidate, glabrous.

Occasional in evergreen forest. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** CECF 4768 (FRC).

Isonandra villosa Wight, Icon. Pl. Ind. Orient. t. 360. 1840; FBI 3: 538. 1882; FPM 2: 535. 1957; FTN 2: 63. 1987; FEG 4: 20. 2011.

Densely foliaceous, medium sized, deciduous tree. Branchlets with milky latex, terete. Leaves alternate, rarely clustered at apex, broadly ovate. Inflorescence rusty, sessile, ca.6 flowered. Flowers creamy. Calyx lobes 4, 2-seriate, ovate or oblong. Corolla tubular-campanulate, lobes 4. Stamens 8. Ovary globose to ellipsoid. Berry ovoid-oblong.

Rare in slopes of deciduous forest. **Fl. & Fr.:** Mar.-June. **Sp.Ex.:** PB & MM 1471 (SACONH).

MADHUCA Hamilton ex J.F.Gmelin, Syst. Nat. 2: 799. 1791.

Madhuca longifolia (J. Koenig ex L.) J.F. Macbr., Contr. Gray Herb. n.s., 53: 17. 1918. var. **latifolia** (Roxb.) A. Chev. Rev. Bot. Appl. Agric. Trop. 23: 149. 1943; FTC 3(2): 858. 1983; FTN 2: 63. 1987; FEG 4: 21. 2011. *Bassia longifolia* L., Mant. Pl. Altera 563. 1879; FBI 3: 544. 1882; FPM 2: 537. 1957.

Tree, bark dark brown. Leaves alternate, clustered at the end of branchlets, elliptic-oblong or elliptic. Flowers cream coloured, in axillary fascicles. Calyx lobes triangular. Corolla lobes 5. Stamens in 18 in 2 series. Ovary 8-locular. Berry ellipsoid. Seed 1, brown.

Common in plains planted along the roadsides and temples. **Fl. & Fr.:** Jan.-June. **Sp.Ex.:** LP 1556 (SACONH); PSAT 186643 (MH); CECF 29726 (MH); KCJ 81504 (MH).

MANILKARA Adens., Fam. Pl. 2: 166. 1763.

Key to the species

- 1a. Petal appendages absent.....*M. zapota*
 1b. Petal appendages present.....2

- 2a. Flower small; outermost sepals 3–6 x 2–3 mm.....*M. hexandra*
 2b. Flower large; outermost sepals 6-17x2-4 mm.....*M. roxburghiana*

Manilkara hexandra (Roxb.) Dubard, Ann. Inst. Bot. Geol. Colon. Marseille 3(3): 9, f. 2. 1915; FTC 3(2): 859. 1983; FTN 2: 64. 1987. *Mimusops hexandra* Roxb., Pl. Coromandel t. 15. 1795; FBI 3: 549. 1882; FPM 2: 538. 1957; FEG 4: 23. 2011.

Tree. Leaves broadly ovate. Flowers few in leaf axils. Calyx lobes 6, in 2 series. Corolla white, brownish red when dry, lobes 18, in 3-series, oblong, valvate. Stamens 6. Berry ellipsoid, slightly curved. Seed usually 1.

Occasional dry deciduous forest. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** LP 1832 (SACONH); PSAT 187307, 187308 (MH).

Manilkara roxburghiana (Wight) Dubard, Ann. Inst. Bot. Geol. Colon. Marseille 3(3): 10, f. 3. 1915; FTN 2: 64. 1987; FEG 4: 24. 2011. *Mimusops roxburghiana* Wight, Icon. Pl. Ind. Orient. t. 1588. 1850; FBI 3: 548. 1882; FPM 2: 538. 1957.

Evergreen trees. Leaves simple, alternate spiral, estipulate, oblong, elliptic, margin entire, glabrous, coriaceous. Flowers bisexual, white, axillary or terminal, 2-5 together. Calyx lobes 6, sepals ovate, hirsute. Corolla lobes 18-24. Stamens 6. Ovary superior. Berry globose.

Occasional in deciduous forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** LP 1829, 1831 (SACONH); KNS 6975 (FRC).

Manilkara zapota (L.) P. Royen, Blumea 7: 410. 1953; FTC 3(2): 859. 1983; FTN 2: 64. 1987; FEG 4: 24. 2011. *Achras zapota* L., Sp. Pl. 1190. 1753; FBI 3: 534. 1882; FPM 2: 533. 1957.

Densely foliaceous tree. Leaves lanceolate to oblong. Flowers white. Calyx lobes 6 or 8, in 2-series. Corolla white, lobes 16, in 2-series. Stamens 8. Stigma 8-lobed. Berry globose.

Plains and lower hills also cultivated for edible fruits. **Fl. & Fr.:** Feb.-April. **VN:** *Sapota*. **Sp.Ex.:** LP 1422 (SACONH).

MIMUSOPS L., Sp. Pl. 349. 1753.

Mimusops elengi L., Sp. Pl. 349. 1753; FBI 3: 548. 1882; FPM 2: 538. 1957; FTC 3(2): 860. 1983; FTN 2: 64. 1987; FEG 4: 25. 2011.

Densely foliaceous evergreen tree. Leaves elliptic-ovate to lanceolate, subcoriaceous. Flowers solitary or a few in upper axils. Calyx lobes 8, in 2-series. Corolla cream, lobes 24, in 3-series, imbricate. Stamens 8. Ovary oblong-globose. Berry ovoid. Seed usually 1.

Occasional in deciduous forest. Commonly planted along the roadsides and temples as sacred tree. **Fl. & Fr.:** Mar.-April. **VN:** *Mahilamaram*. **Sp.Ex.:** KNS 2066, 7581, 21609, 21610 (FRC); VN 79033 (MH); KCJ 81503 (MH).

XANTOLIS Raf., Sylva Tellur. 36. 1838.

Xantolis tomentosa (Roxb.) Raf., Sylva Tellur. 35. 1833, var. *tomentosa*; FTN 2: 64. 1987; FEG 4: 26. 2011. *Sideroxylon tomentosum* Roxb., Pl. Coromandel t. 28. 1795; FBI 3: 538. 1882; FPM 2: 534. 1957.

Trees. Bark light reddish brown, cracked, shallowly and vertically fissured. Leaves simple, alternate, estipulate, elliptic-obovate or obovate, margin entire. Flowers bisexual, white or yellowish white, fragrant, fascicled at leafless nodes. Sepals 3+3, ovate. Corolla lobes 5-6, campanulate, tube globose. Stamens 6. Ovary 5 celled, superior. Berry ovoid.

Occasional in evergreen forest. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** SRN 89567 (MH).

EBENACEAE Gürcke in Engler & Prantl, Nat. Pflanzenfam. IV, 1: 153. 1891.

DIOSPYROS L., Sp. Pl. 2: 1057. 1753.

Key to the species

- 1a. Flowers 3-merous; ovary 3-locular.....*D. vera*
- 1b. Flowers 4-5-merous; ovary 6-8 locular.....2
- 2a. Pistillode present; calyx-lobes 4, obtuse, nearly glabrous.....3
- 2b. Pistillode absent; calyx-lobes (4)5, acute, appressed-hairy.....5
- 3a. Leaves oblong-lanceolate; fruit > 5 cm across.....*D. malabarica*
- 3b. Leaves ovate-elliptic; fruit < 3 cm across.....4
- 4a. Leaves thin coriaceous; pistillode 4-lobed.....*D. chloroxylon*
- 4b. Leaves thick coriaceous; pistillode conical.....*D. montana*
- 5a. Leaves thin coriaceous, base gradually narrowed.....*D. ovalifolia*
- 5b. Leaves coriaceous, base broadly acute to rounded.....*D. melanoxylon*

Diospyros chloroxylon Roxb., Pl. Coromandel t. 49. 1795; FBI 3: 560. 1882; FPM 2: 546. 1957; FTC 3(2): 864. 1983; FTN 2: 65. 1987; V. Singh, Monogr. *Diospyros* 68. 2005; FEG 4: 31. 2011.

Tree. Branchlets sericeous-pubescent. Leaves elliptic or oblong, thin coriaceous. Flowers unisexual. *Male flowers*: axillary fascicles; calyx cupular, lobes 4, ovate; corolla tubular-campanulate, lobes 4, ovate. Stamens 16, biseriate. *Female flowers*: solitary, axillary; calyx cupular, lobes 5, ovate; ovary 8-locular. Fruit a berry.

Occasional in deciduous forest. **Fl. & Fr.**: April-June. **Sp.Ex.**: PSAT 186864, 187045, 187046 (MH).

Diospyros malabarica (Daertr.) Gurke., Alig. Med. Pharm. Fl. 3: 1099. 1834; FTN 2: 66. 1987; FEG 4: 34. 2011. *D. peregrina* acut. non. Guerke, 1891; FPM 2: 566. 1957.

Evergreen tree. Leaves distichous, oblong or narrowly oblong, glossy green, subacute or obtuse, coriaceous, smooth, glabrous. Flowers 4-merous, white or green coloured. *Male flowers* in clusters while *female* one solitary. Fruit globose, yellowish when ripe.

Occasional in along the river banks. **Fl. & Fr.**: Nov.-Mar. **Sp.Ex.**: LP 1634 (SACONH).

Diospyros melanoxylon Roxb., Pl. Coromandel t. 36. 1795; FBI 3: 564. 1882; FPM 2: 543. 1957; FTC 3(2): 866. 1983; FTN 2: 66. 1987; V. Singh, Monogr. *Diospyros* 149. 2005; FEG 4: 35. 2011.

Tree, tender parts rusty tomentose. Leaves broadly elliptic to oblong, coriaceous. Flowers unisexual. *Male flowers*: in umbellate clusters, axillary; calyx lobes 5, ovate; corolla white, tubular; stamens 10-12. *Female flowers*: solitary, axillary; ovary globose, tomentose. Berry rusty tomentose.

Common in dry deciduous forest. **Fl. & Fr.**: April-June. **VN**: *Beedi elai*. **Sp.Ex.**: PSAT 187299, 187300 (MH).

Diospyros montana Roxb., Pl. Coromandel 1: 37. t. 48. 1795; FBI 3: 555. 1882; FSIHS 2: 380. 1932; FPM 2: 545. 1959 (repr.ed.); FTC 3(2): 867. 1983; FTN 2: 67. 1987; V. Singh, Monogr. *Diospyros* 166. 2005; FEG 4: 36. 2011.

Tree. Leaves elliptic-ovate to oblong, thick chartaceous. Flowers unisexual. *Male flowers*: in axillary umbels, usually 3-flowered; calyx lobes 4, ovate; corolla greenish tubular-campanulate, lobes 4; stamens 16. *Female flowers*: Usually solitary, axillary; calyx and corolla same as male flower; ovary globose, 8-(9) locular. Berry ovoid to obconical.

Common in deciduous forest. **Fl. & Fr.**: Mar.-April. **VN**: *Vakkanai*. **Sp.Ex.**: LP 1822 (SACONH); PSAT 186481. 186482. 187193 (MH).

Diospyros ovalifolia Wight, Icon. Pl. Ind. Orient.: 1. 1227. 1848; FBI 3: 559. 1882; FPM 2: 546. 1957; FTC 3(2): 868. 1983; FTN 2: 67. 1987; V. Singh, Monogr. *Diospyros* 102. 2005; FEG 4: 38. 2011.

Tree. Leaves broadly oblong to lanceolate, thin coriaceous, glabrous. Flowers yellowish white, unisexuals in short fascicles. *Male flowers*: calyx lobes (4)5, ovate; corolla tubular-campanulate, lobes 4; stamens 8-12 (16). *Female flowers*: calyx and corolla same as male flowers; ovary globose, 4-locular. Berry globose.

Occasional in moist deciduous forest. **Fl. & Fr.**: April-July. **VN**: *Karimaram*. **Sp.Ex.**: VN 79137 (MH).

Diospyros vera (Lour.) A. Chev., Cat. Pl. Jard. Bot. Saigon 31. 1919. *D. ferrea* (Willd.) Bakh., Gard. Bull. S.S. 7: 162. 1933; V. Singh, Monogr. *Diospyros* 102. 2005. *D. ferrea* (Willd.) Bakh. var. *buxifolia* (Rottb.) Bakh., Bull. Jard. Bot. Buitanzorg Ser. 3. 15, 57. 1936; FTN 2: 66. 1987. *Maba buxifolia* (Rottb.) Juss., Ann. Mus. Nat. Hist. Nat. Paris 5: 418. 1804; FBI 3: 551. 1882; FPM 2: 539. 1957; FTC 3(2): 871. 1983; FEG 4: 40. 2011. *D. microphylla* Bedd., Icon. Pl. Ind. Orient. t. 133. 1868-1874; FBI 3: 559. 1882; FPM 2: 776. 1957.

Tree. Leaves oblong, thick coriaceous. Flowers unisexual, solitary or a few in axillary clusters, yellowish. Male flowers: calyx lobes 4, ovate; corolla lobes ovate-urceolate, lobes 4; stamens 20-30. Female flowers: calyx-lobes 4, ovate; corolla lobes 4, ovate; ovary globose, 4-lobed. Berry ovoid-globose.

Common in dry deciduous forest and scrub jungles. **Fl. & Fr.**: Mar.-May. **Sp.Ex.**: CECF 4783 (FRC); EV 142104, 142105 (MH); PSAT 186533, 186534, 186558, 186559, 187124 (MH); KCJ 81269 (MH).

SYMPLOCACEAE Desf., Mém. Mus. Hist. Nat. 6: 9. 1820.

SYMPLOCOS N.J. Jacq., Enum. Pl. Carib. 5: 24. 1760.

Symplocos cochinchinensis (Lour.) S. Moore, J. Bot. 52(6): 148-149 1914, subsp. *laurina* (Retz.) Noot., Leiden Bot. Ser. 1: 156. 1975; FTC 3(2): 874. 1983; FTN 2: 68. 1987; FEG 4: 43. 2011. *S. spicata* Roxb., Flora Indica 2: 542. 1832; FBI 3: 573. 1882; FSIHS 2: 381. t. 321. 1932. *S. spicata* Roxb. var. *laurina* (Retz.) Hook. f., Fl. Brit. India 3: 573. 1882; FPM 2: 549. 1957.

Evergreen tree, branchlets generally glabrous. Leaves elliptic-obovate, coriaceous, margin crenate-serrate. Bract 1. Bracteoles 3. Inflorescence in spike. Calyx-lobes 5, lobes 5. Corolla white, lobes 5, shortly tubular, lobes recurved. Stamens many. Ovary (sub)globose. Stigma capitate. Drupe ampulliform. Seeds oblong.

Common in evergreen forest. **Fl. & Fr.**: June-Sept. **VN**: *Kambilivetti*. **Sp.Ex.**: LP 3152, 1572, 1512 (SACONH); CECF 4824 (FRC); VS 19397 (FRC).

OLEACEAE Hoffmanns. & Link, Fl. Portug. 1: 62. 1809.

Key to the genera

- 1a. Corolla tubular, lobes imbricate, above 10 mm across.....2
- 1b. Corolla free, lobes valvate, below 7 mm across.....3
- 2a. Plant a climber; fruit a berry, smooth; seeds 1-2, globose, not winged.....*Jasminum*
- 2b. Plant a tree; fruit a capsule, pustulate; seeds 3-4, flat, winged.....*Schrebera*
- 3a. Inflorescence terminal; fruit a berry.....*Ligustrum*
- 3b. Inflorescence terminal and axillary; fruit a drupe.....4
- 4a. Corolla-lobes free or united; style present.....*Chionanthus*
- 4b. Corolla-lobes not united; style absent.....*Olea*

CHIONANTHUS D. Royen., Sp. Pl. 1: 8. 1753.**Key to the species**

- 1a. Leaves oblong to obovate; panicles below 5 cm long; calyx hairy.....2
 1b. Leaves elliptic-lanceolate; panicles above 6 cm long; calyx glabrous.....*C. ramiflorus*
 2a. Leaves acute-acuminate at apex, nerves 10-15 pairs; calyx 4-lobed.....*C. mala-elengi*
 2b. Leaves obtuse to subacute at apex, nerves 4-6 pairs; calyx 4-toothed.....*C. zeylanicus*

Chionanthus mala-elengi (Dennst.) P.S. Green, Bull. Bot. Surv. India 26: 124. 1984 (1985), subsp. *mala-elengi*; FTN 2: 70. 1987; FEG 4: 45. 2011. *Linociera malabarica* Wall. ex G. Don, Gen. Hist. 4: 53. 1837-1838; FBI 3: 607. 1882; FPM 2: 558. 1957; FTC 3(2): 888. 1983.

Tree. Leaves obovate to oblong. Inflorescence in panicles. Flowers bisexual. Calyx 4-lobed, lobes ovate. Corolla cream, shortly lobed, lobes 7, lanceolate. Stamens 2. Ovary pubescent. Drupe ellipsoid.

Occasional in moist deciduous forest. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KA & PB 1609, 1698 (SACONH).

Chionanthus ramiflorus Roxb., Fl. Ind. 1: 106. 1820; FTN 2: 70. 1987 "*ramiflora*", *Linociera ramiflora* (Roxb.) Wall. ex G. Don, Gen. Hist. 4: 52. 1837- 1838; FTC 3(2): 889. 1983. *L. macrophylla* Wall. & G. Don, Gen. Hist. 4: 53. 1838; FBI 3: 609. 1882; FPM 2: 558. 1957.

Densely foliaceous tree. Leaves elliptic to oblanceolate, margin undulate or serrate. Inflorescence panicle. Flowers bisexual. Calyx 4-toothed. Corolla cream to yellowish, lobes 4, oblong. Stamens 2. Drupe ellipsoid.

Occasional in evergreen forest border. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** KNS 1855, 6976 (FRC); CECF 31111, 31112, 31132 (MH); KCJ 81251, 81378, 81411 (MH); PSAT 187545, 187546 (MH).

Chionanthus zeylanicus L., Sp. Pl. 8. 1753; FEG 4: 46. 2011. *Linociera zeylanica* (L.) Gamble, Fl. Madras 2: 794. 1957; FTC 3(2): 890. 1983; FTN 2: 70. 1987. *L. purpurea* Vahl, Enum. Pl. 1: 47. 1804; FBI 3: 608. 1882; FPM 2: 558. 1957.

Tree. Leaves ovate-obovate. Inflorescence panicle. Flowers bisexual. Calyx 4-toothed, tawny pubescent. Corolla cream, lobes 4, lanceolate. Stamens 2. Drupe obovoid, apex mucronate. Occasional in hills slopes. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** LP 2896 (SACONH).

JASMINUM L., Sp. Pl. 1: 7. 1753.**Key to the species**

- 1a. Leaves simple.....2
 1b. Leaves compound.....7
 2a. Calyx lobes > three forth the length of corolla tube.....3
 2b. Calyx lobes < half as long as corolla tube.....4
 3a. Corolla lobes lanceolate.....*J. arborescens*
 3b. Corolla lobes oblong.....*J. sambac*
 4a. Shrubs; leaves coriaceous.....*J. cuspidatum*
 4b. Vines; leaves chartaceous.....5
 5a. Calyx lobes triangular, shorter than calyx-tube.....*J. trichotomum*
 5b. Calyx lobes linear, as long as, or longer than calyx-tube.....6
 6a. Corolla lobes linear, longer than corolla-tube.....*J. ritchiei*
 6b. Corolla lobes obovate, shorter than corolla-tube.....*J. angustifolium*
 7a. Leaves imparipinnate.....*J. bignoniaceum*
 7b. Leaves trifoliate.....8
 8a. Lateral leaflets < one-fourth the size of terminal leaflet.....*J. auriculatum*
 8b. Lateral leaflets > three-fourth the size of terminal leaflet.....*J. azoricum*

Jasminum angustifolium (L.) Willd., Sp. Pl. 1: 36. 1797; FBI 3: 598. 1882; FPM 2: 555. 1957; FTC 3(2): 879. 1983; FTN 2: 70. 1987; FEG 4: 48. 2011.

Key to the varieties

- 1a. Calyx-lobes below 5 mm long, twisted; pedicels above 10 mm long.....var. *angustifolium*
 1b. Calyx-lobes above 10 mm long, straight; pedicels below 8 mm long.....var. *sessiliflorum*
 var. *angustifolium*

Climbing shrub. Leaves simple, elliptic-ovate, chartaceous. Cymes 1-3 flowered, terminal. Bracts linear. Calyx-lobes 5(6), unequal, linear. Corolla lobes 5-9, oblanceolate. Stamens 2. Stigma 2-fid. Berry globose.

Common in dry deciduous forest. **Fl. & Fr.:** April-July. **VN:** Kattumalli. **Sp.Ex.:** LP 1452 (SACONH).

var. *sessiliflorum* (Vahl) P.S. Green, Kew Bull. 40: 227. 1985; FTN 2: 70. 1987. *J. sessiliflorum* Vahl, Enum. Pl. 1: 29. 1804; FBI 3: 597. 1882; FPM 2: 555. 1957; FTC 3(2): 885. 1983; FEG 4: 56. 2011.

Climbing shrub. Leaves simple, elliptic-oblong, (sub)coriaceous. Cyme corymboid, sessile. Bracts linear. Calyx lobes 5-7, linear-subulate. Corolla lobes 5-8, oblanceolate. Stamens 2. Stigma 2-fid. Berry globose.

Occasional in foothills. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** VS 18655 (FRC).

Jasminum arborescens Roxb., Fl. Ind. 1: 94. 1820; FBI 3: 594. 1882; FPM 2: 789. 1957; FTN 2: 71. 1987; FEG 4: 48. 2011.

Large shrub, suberect, branchlets hairy. Leaves opposite, simple. Flowers fragrant, in lax trichotomous cymes. Bracts linear. Calyx teeth 5-6, sometimes more, linear. Corolla white, lobes usually 9, lanceolate, acute. Berry mostly simple, ellipsoid, black when ripe.

Occasional in moist deciduous forest. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** CECF 4881 (FRC); VS 18657, 18658, 19314 (FRC); PSAT 186868 (MH).

Jasminum auriculatum Vahl, Symb. Bot. 3: 1. 1794; FBI 3: 600. 1882; FPM 2: 555. 1957; FTC 3(2): 879. 1983; FTN 2: 71. 1987; FEG 4: 48. 2011.

Glabrous to pubescent vine. Leaves 3-foliolate, leaflet deltoid, chartaceous. Cymes 3-chotomous, (sub)terminal. Calyx lobes 5, triangular. Corolla lobes 5-7, obovate. Stamens 2. Berry globose, clustered.

Common in foot hills. **Fl. & Fr.:** July-Dec. **VN:** Kodimullai or Kodimalli. **Sp.Ex.:** LP 1878, 1595 (SACONH); KA & PB 1624 (SACONH); KNS 1856 (FRC); VS 19313 (FRC); CECF 30850 (MH); VN 78303, 79635 (MH); EV 142036, 142037 (MH); PSAT 186516, 186517 (MH).

Jasminum azoricum L., Sp. Pl. 7. 1753, var. *azoricum*; FTC 3(2): 880. 1983; FTN 2: 71. 1987. *J. flexile* Vahl, Symb. Bot. 3: 1. 1794; FBI 3: 601. 1882; FPM 2: 556. 1957.

Scandent shrub. Leaves 3-foliolate, leaflets deltoid-obovate, (sub)coriaceous. Cymes dichasial, terminal or axillary. Calyx lobes 5, triangular. Corolla lobes 5, oblong. Stigma linearly fusiform. Berry oblong.

Occasional in evergreen forests. Also planted as ornamental in gardens. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** KA & PB 1637 (SACONH); CECF 4851 (FRC); VN 79108 (MH); KCJ 81422 (MH).

Jasminum bignoniaceum Wall. ex G. Don, Gen. Syst. Hist. 4: 63. 1837; FSIHS 2: t. 327. 1932; FPM 2: 556. 1957; FTN 2: 71. 1987.

Erect undershrub. Leaves odd-pinnate, leaflets 4 or 5 pairs, elliptic, recurved, sessile. Cymes leaf-opposed, subumbellate, ca. 5-flowered. Calyx lobes 5, triangular. Corolla yellow, lobes 5, ovate. Stamens 2. Berry paired, subglobose, black when ripe.

Rare in evergreen forest. **Fl. & Fr.:** May-June. **Sp.Ex.:** LP 1210 (SACONH).

Jasminum cuspidatum Rottl. & Willd., Neue Schrifteu Ges. Naturf. Freunde Berlin 4: 192. 1803; FTC 3(2): 882. 1983; FTN 2: 71. 1987; FEG 4: 50. 2011. *J. rigidum* Zenk., Pl. Ind. 5. t. 6. 1835; FBI 3: 598. 1882; FSIHS 2: 387. 1932; FPM 2: 555. 1957.

Shrub. Leaves simple, obovate, coriaceous. Cymes 3-7 flowered, corymboid, terminal and axillary. Calyx lobes (4)5, linear-subulate. Corolla lobes 5-7, obovate. Stamens 2. Ovary oblong. Stigma forked. Berry oblong-globose.

Common in hill slopes. **Fl. & Fr.:** Jan.-Mar. **VN:** *Oosimalli*. **Sp.Ex.:** LP 1303, 2667, 1567 (SACONH); KNS 2075 (FRC); VS 18654, 18959 (FRC); CECF 30766, 30796 (MH); CAB 30797, 30798, 30799 (MH); KCJ & JD 81215 (MH); PSAT 186971 (MH).

Jasminum ritchiei C.B. Clarke in Hook. f., Fl. Brit. India 3: 598. 1882; FPM 2: 555. 1957; FTC 3(2): 884. 1983; FEG 4: 54. 2011.

Climbing shrub. Leaves simple, elliptic, chartaceous. Cymes 3-7 flowered, terminal. Bracts linear-subulate. Calyx lobes 6. Corolla lobes 5-8, linear. Stamens 2. Ovary oblong-globose. Stigma 2-fid.

Rare in hillslopes. **Fl. & Fr.:** Sept. **Sp.Ex.:** VS 18865, 19316 (FRC); VN 78378 (MH).

Jasminum sambac (L.) Aiton, Hort. Kew. 1: 8. 1789; FBI 3: 591. 1882; FSIHS 2: 386. 1932; FPM 2: 554. 1957; FTC 3(2): 885. 1983; FTN 2: 72. 1987; FEG 4: 55. 2011.

Erect or scandent shrub. Leaves simple, elliptic to obovate-oblong, chartaceous. Cymes 3-flowered, terminal. Bracts linear-subulate. Calyx lobes 5-7, curled. Corolla lobes oblong, mucronate. Stamens 2. Stigma forked. Berry globose. Seed globose.

Occasional in moist deciduous. Also cultivated for fragrant flowers. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KNS 6972 (FRC).

Jasminum trichotomum B. Heyne ex Roth, Nov. Pl. Sp. 6: 1821; FBI 3: 599. 1882; FPM 2: 555. 1957; FTC 3(2): 886. 1983; FTN 2: 72. 1987.

Climbing shrub. Leaves simple, elliptic-oblong, chartaceous, base truncate. Cymes dichasial, terminal and axillary. Calyx lobes (4)5, triangular. Corolla lobes 5-7, ovate-oblong. Stamens 2. Ovary globose. Stigma unequally 2-fid. Seeds oblong-globose.

Occasional in foot hills. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** KNS 8240, 8289 (FRC); VS 18956 (FRC).

LIGUSTRUM L., Sp. Pl. 1: 7. 1753.

Key to the species

- 1a. Panicles below 8 cm long; corolla-tube longer than lobes.....*L. perrottetii*
- 1b. Panicles above 10 m long; corolla-tube equal to lobes.....2
- 2a. Peduncles puberulous; berries obovoid.....*L. robustum* subsp. *walkeri*
- 2b. Peduncles pubescent; berries oblong.....*L. gamblei*

Ligustrum gamblei Ramamoorthy in Saldanha & Nicolson, Fl. Hassan Dist. 513. 1976; FTC 3(2): 886. 1983; FTN 2: 73. 1987; FEG 4: 57. 2011. *L. roxburghii* C.B. Clarke in Hook. f., Fl. Brit. India 3: 615. 1882, non Blume, 1850; FSIHS 2: 391. 1932; FPM 2: 560. 1957.

Tree. Leaves elliptic-obovate to oblong. Inflorescence in panicles. Bract oblong. Flowers fragrant. Calyx 4-toothed. Corolla cream, lobes 4, curled on bend back, obovate. Stamens 2.

Occasional in evergreen forest. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** LP 997 (SACONH); KNS 8059 (FRC); VS 18958, 19318 (FRC); CECF 31240, 31254, 31255 (MH); KCJ 81356 (MH); PSAT 187008, 187026, 187027, 187172, 187418, 187419 (MH).

Ligustrum perrottetii A. DC. ex DC., Prodr. 8: 294. 1844; FBI 3: 615. 1882; FSIHS 2: 390. t. 329. 1932; FPM 2: 560. 1957; FTC 3(2): 887. 1983; FTN 2: 73. 1987; FEG 4: 57. 2011. *L. neilgherrense* Wight, Icon. Pl. Ind. Orient. t. 1243. 1848; FBI 3: 615. 1882.

Tree. Leaves elliptic-obovate to oblong, Inflorescence in panicle. Bract oblong-obovate. Calyx obscurely 4-toothed. Corolla cream, lobes 4, recurved. Stamens 2.

Common in moist deciduous and evergreen forest. **Fl. & Fr.:** Almost throughout the year. **VN:** *Kolimara & Kolippayirai*. **Sp.Ex.:** LP 1423, 2011, 1280 (SACONH); KA & PB 1604 (SACONH); KNS 11844, 11845 (FRC); PSAT 186747, 186748, 186984 (MH).

Ligustrum robustum (Roxb.) Blume, Mus. Bot. 1: 313. 1851, subsp. *walkeri* (Decne.) P.S. Green, Kew Bull. 40: 130. 1985; FTN 73. 1987. *L. walkeri* Decne., Nuov. Arch. Mus. Hist. Nat. Paris ser. 2. 2: 27. 1879; FBI 3: 614. 1882; FPM 2: 560. 1957; FEG 4: 57. 2011.

Small tree, branchlets lenticellate. Leaves lanceolate or ovate-lanceolate, glabrous, coriaceous. Flowers on terminal thyrroid panicles. Calyx shortly toothed, glabrescent. Corolla lobes reflexed, valvate. Drupe 1 or 2 celled.

Rare in evergreen forest. **Fl. & Fr.:** May-Sept. **Sp.Ex.:** CECF 4884 (FRC); VS 18957 (FRC); VN 78252, 78410 (MH); PSAT 186762, 186763, 187168, 187169, 187442, 187443 (MH).

OLEA L., Sp. Pl. 1: 7. 1753.

Key to the species

- 1a. Leaves chartaceous; flowers hermaphrodite; corolla deeply lobed.....*O. paniculata*
- 1b. Leaves coriaceous; flowers polygamo-dioecious; corolla shortly lobed.....*O. dioica*

Olea dioica Roxb., Fl. Ind. 1: 105. 1820; FBI 3: 612. 1882; FPM 2: 559. 1957; FTC 3(2): 891. 1983; FTN 2: 74. 1987; FEG 4: 59. 2011.

Tree. Leaves elliptic-obovate. Inflorescence in panicle at the axils of fallen leaves. Flowers pedicellate. Calyx 4-toothed. Corolla tubular-campanulate, lobes 4, triangular. Stamens 2.

Common in moist deciduous forest. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** LP 2645, 1510, 2817 (SACONH); VS 18656, 19315, 19317 (FRC); SRR 83196, 83200 (MH).

Olea paniculata R. Br., Prodr. Fl. Nov. Holl. 528. 1810. *O. glandulifera* Wall. ex G. Don, Gen. Hist. 4: 49. 1838; FBI 3: 612. 1882; FSIHS 2: 389. t. 328. 1932; FPM 2: 559. 1957; FTC 3(2): 892. 1983; FTN 2: 74. 1987; FEG 4: 59. 2011.

Densely foliaceous tree. Leaves ovate to obovate, margin entire or undulate. Panicles in terminal or axillary. Flowers bisexual. Calyx 4-toothed. Corolla greenish to cream, lobes 4, obovate. Stamens 2.

Occasional in evergreen and moist deciduous forest. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** LP 2609 (SACONH); VN 79097 (MH); KCJ 81359, 81467 (MH).

SCHREBERA Roxb., Pl. Coromandel 2: 1. 1799.

Schrebera swietenoides Roxb., Pl. Coromandel 2: 1. t. 101. 1799; FBI 3: 604. 1882; FPM 2: 557. 1957; FTC 3(2): 893. 1983; FTN 2: 74. 1987; FEG 4: 60. 2011.

Tree. Leaves imparipinnate. Leaflets opposite, elliptic-ovate, coriaceous. Cymes 3-chotomous, terminal and axillary. Bracts caducous. Flowers bisexual. Calyx truncate, unequally 4-7-toothed. Corolla white with brown centre, salver form, lobes 5-8. Stamens 2. Ovary depressed. Capsule obovoid. Seeds winged.

Occasional in deciduous forest. **Fl. & Fr.:** April-May. **Sp.Ex.:** VN 79085. 79698 (MH).

SALVADORACEAE Lindl., Nat. Syst. Bot., ed. 2: 269. 1836.**Key to the genera**

- 1a. Plant a shrub, armed; branchlets 4-angled; flowers unisexual; petals free.....*Azima*
 1b. Plant a tree, unarmed; branchlets terete; flowers bisexual; petals tubular.....*Salvadora*

AZIMA Lam., Encycl. 1: 343. 1783.

Azima tetracantha Lam., Encycl. 1: 343. 1783; FBI 3: 620. 1882; FPM 2: 562. 1957; FTC 3(2): 894. 1983; FTN 2: 74. 1987; FEG 4: 62. 2011.

Dioecious, armed, scrambling shrub. Branchlets divaricate, 4-gonous, tender parts pubescent. Spines axillary. Leaves elliptic-obovate. Flowers zygomorphic, unisexual, subsessile, in axillary clusters. Calyx campanulate, lobes 4-teethed. Corolla cream, lobes 4, free, oblong. Stamens 4, free. Ovary ellipsoid-globose. Berry globular. Seeds 2, compressed.

Common in thorny forests and scrub jungles. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** KNS 6946, 6947 (FRC); CECF 31358 (MH); KCJ & JD 81201 (MH).

SALVADORA Garcin ex L., Sp. Pl. 122. 1753.

Salvadora persica L., Sp. Pl. 122. 1753, var. ***wightiana*** (Planch, ex Thw.) Verde, Kew Bull. 19: 150. 1964; FTC 3(2): 895. 1983; FTN 2: 74. 1987. *S. persica* L., Sp. Pl. 122. 1753; Roxb., Fl. Ind. 1: 389. 1832; FBI 3: 619. 1882; FPM 2: 562. 1957; FEG 4: 62. 2011.

Tree. Leaves elliptic-oblong, thick chartaceous. Flowers actinomorphic, bisexual, in axillary or terminal panicles. Bracts 2. Calyx cupular, lobes 4, valvate. Corolla cream, shortly tubular, lobes 4, recurved. Stamens 4, epipetalous. Ovary 4-lobed. Drupe globular.

Common in dry deciduous forest and scrub jungles. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** LP 1612, 1621 (SACONH); KNS 753 (FRC); KNS 1718 (FRC).

APOCYNACEAE Juss., Gen. Pl. 143. 1789.**Key to the genera**

- 1a. Armed; fruit a berry.....*Carissa*
 1b. Unarmed; fruit a follicle, drupe or capsule.....2
 2a. Corolla-lobes overlapping to right.....3
 2b. Corolla-lobes overlapping to left.....7
 3a. Cymes dichasial.....*Vallaris*
 3b. Cymes paniculate.....4
 4a. Leaves whorled; latex watery.....*Nerium*
 4b. Leaves decussate; latex milky.....5
 5a. Erect; mericarps > (20) 25 cm long.....*Holarrhena*
 5b. Scandent or climbing; mericarps < 15(20) cm long.....6
 6a. Corolla lobes linear-lanceolate, longer than corolla-tube.....*Aganosma*
 6b. Corolla lobes ovate, shorter than corolla-tube.....*Ichnocarpus*
 7a. Stamens exserted, attached at the mouth of corolla-tube.....*Wrightia*
 7b. Stamens included, inserted in corolla-tube.....8
 8a. Leaves decussate.....9
 8b. Leaves either verticillate or alternate.....11
 9a. Mericarps smooth; seeds arillate.....*Tabernaemontana*
 9b. Mericarps ribbed; seeds not arillate.....*Catharanthus*
 11a. Pistil 1, bilocular; fruit an indehiscent drupe.....12
 11b. Pistil 2, unilocular; fruit a dehiscent follicular mericarp.....13
 12a. Leaves alternate; drupe turbinate.....*Cascabela*
 12b. Leaves whorled; drupe 2-lobed.....*Rauvolfia*

- 13a. Leaves alternate; mericarp pustulate.....*Plumeria*
 13b. Leaves verticillate; mericarp smooth.....*Alstonia*

AGANOSMA (Blume) G. Don, Gen. hist. 4: 69, 77. 1837.

Aganosma cymosa (Roxb.) G. Don, Gen. Hist. 4: 77. 1837; FBI 3: 665. 1882; FTC 3(2): 900. 1983, "*cymosum*"; FTN 2: 75. 1987; FPI 1: 127. 2009; FEG 4: 65. 2011. *A. doniana* Wight, Icon. Pl. Ind. Orient. t. 1306. 1848.

Extensive straggler, latex milky, tender parts pubescent. Leaves broadly elliptic-oblong, subcoriaceous. Cymes in dense, terminal. Calyx lobes 5, nearly free, linear-lanceolate. Corolla yellowish white, salver form. Stamens 5. Ovaries 2, free. Mericarp paired.

Occasional along the forest border. **Fl. & Fr.:** June-Aug. **Sp.Ex.:** VS 18660, 19323 (FRC).

ALSTONIA R. Br., Mem. Wern. Nat. Hist. Soc. 1: 75. 1809.

Alstonia venenata R. Br., Mem. Wern. Nat. Hist. Soc. 1: 77. 1809; FBI 3: 642. 1882; FPM 2: 569. 1957; FTC 3(2): 904. 1983; FTN 2: 74. 1987; FPI 1: 129. 2009; FEG 4: 67. 2011.

Shrubs or small trees. Leaves 12-20 x 1.2-3 cm, linear-oblong, acuminate at both ends, 5 at each node, lateral nerves many, very close. Cymes terminal, to 20 cm across, corymbose. Flowers many; pedicels stout; sepals 1 mm long, ovate, acute, ciliate; corolla tube slender, hairy inside, lobes 13 mm long, oblong, acute, white. Follicle 2-angled, acute; seeds smooth.

Occasional in evergreen and moist deciduous forest. **Fl. & Fr.:** Feb.-Aug. **Sp.Ex.:** CECF 4910 (FRC).

CARISSA L., Syst. Nat. Ed. 12. 2: 189. 1767.

Key to the species

- 1a. Leaves obovate-oblongate, apex obtuse-emarginate; berry ellipsoid.....*C. carandas*
 1b. Leaves elliptic-ovate, apex acute; berry globose.....*C. spinarum*

Carissa carandas L., Mant. Pl. 1: 52. 1767; FBI 3: 630. 1882; FPM 2: 565. 1957; FTC 3(2): 905. 1983; FTN 2: 76. 1987; FPI 1: 130. 2009; FEG 4: 69. 2011.

Spinous shrub. Leaves obovate or oblanceolate. Inflorescence 2-3-chomatous, terminal or axillary. Calyx lobes 5, linear to lanceolate. Corolla lobes 5, elliptic to oblong. Stamens 5. Stigma pointed. Berry ellipsoid.

Common in Scrub jungles. **Fl. & Fr.:** Mar.-April. **VN:** *Kilakkai*. **Sp.Ex.:** CECF 4889 (FRC); VN 79028 (MH); KCJ 81217 (MH); PSAT 186520, 186521, 186593, 18594, 186910, 187367 (MH).

Carissa spinarum L., Mant. Pl. Altera 2: 559. 1771, var. *spinarum*; FBI 3: 631. 1882; FPM 2: 565. 1957; FTC 3(2): 906. 1983; FTN 2: 76. 1987; FPI 1: 131. 2009; FEG 4: 71. 2011.

Shrub, spines straight sometimes forked. Leaves elliptic-ovate, apex mucronate. Inflorescence in terminal rarely axillary. Calyx lobes 5, lanceolate. Corolla lobes oblong. Stamens 5. Stigma forked. Berry globose.

Common in scrub jungles and dry deciduous forests. **Fl. & Fr.:** Feb.-April. **VN:** *Sirukilakkai*. **Sp.Ex.:** LP 1559 (SACONH); CECF 31447 (MH); VS 18955 (FRC); PSAT 186584, 186585 (MH).

CASCABELA Raf., Sylva. Tellur. 162. 1838.

Cascabela thevetia (L.) Lippold, Feddes Repert. 91: 52 1980; FTC 3(2): 907. 1983; FTN 2: 76. 1987; FEG 4: 71. 2011. *Thevetia peruviana* (Pers.) Merr., Philipp. J. Sci. 9: 130. 1914; FPI 1: 139. 2009.

Shrub to small tree. Leaves alternate, linear-lanceolate, subcoriaceous, margin recurved. Inflorescence a terminal cyme, overtopped by axillary branches. Calyx lobes 5, unequal. Corolla yellow, funnel shaped, lobes 5, ovate. Stamens 5. Ovary depressed. Drupe turbinate. Common along the river banks and foothills. Also planted in temple premises. **Fl. & Fr.:** Throughout the year. **VN:** *Ponnarali*. **Sp.Ex.:** PSAT 187349, 187350 (MH).

CATHARANTHUS G. Don, Gen. hist. 4: 71, 95. 1837.

Key to the species

- 1a. Annual; corolla <1 cm across; mericarps glabrous.....*C. pusillus*
1b. Perennial; corolla >3cm across; mericarps puberulous.....*C. roseus*

Catharanthus pusillus (Murray) G. Don, Gen. Hist. 4: 95. 1837; FTC 3(2): 908. 1983; FTN 2: 76. 1987; FPI 1: 131. 2009; FEG 4: 72. 2011. *Vinca pusilla* Murray in Comment. Soc. Regiae Sci. Act. Goett. 3: 66. t. 2. f. 1. 1773; FBI 3: 640. 1882.

Annual herb, branchlets terete below, subquadrangular above. Leaves elliptic-lanceolate. Corymbs 5-7 flowered, subsessile, terminal or axillary. Calyx lobes 5, unequal. Corolla white, lobes 5. Stamens 5.

Common weed in cultivated lands. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** LP 1615 (SACONH).

Catharanthus roseus (L.) G. Don, Gen. Hist. 4: 95. 1837; FTC 3(2): 909. 1983; FTN 2: 77. 1987; FPI 1: 132. 2009; FEG 4: 72. 2011. *Vinca rosea* L., Syst. Nat. Ed. 10. 2: 944. 1759; FBI 3: 640. 1882.

Perennial herb or subshrub. Leaves elliptic-obovate to oblong. Flowers axillary or paired. Calyx lobes 5, subequal. Corolla white or pink, lobes 5, ovate-triangular. Stamens 5.

Common in wastelands and along the riverbanks. **Fl. & Fr.:** Throughout the year. **VN:** *Sudukattu mali* & *Nithyakalyani*. **Sp.Ex.:** LP 2879 (SACONH).

HOLARRHENA R. Br., Mem. Wern. Nat. Hist. Soc. 1: 62. 1809.

Holarrhena pubescens (Buch.-Ham.) Wall. ex G. Don, Gen. Hist. 4: 78. 1837; FPI 1: 133. 2009; FTC 3(2): 910. 1983; FEG 4: 74. 2011. *H. antidysenterica* Wall. ex A. DC. in DC., Prodr. (ed. A. DC.) 8: 413. 1844; FBI 3: 664. 1882; FPM 2: 570. 1957; FTN 2: 77. 1987.

Large shrub. Leaves elliptic-oblong, chartaceous, cymes paniculate or corymbose, terminal and axillary. Calyx cupular, lobes 5, unequal, lanceolate. Corolla white, salver form, lobes 5. Stamens 5. Ovaries 2, free. Mericarps paired, terete, slender, curved.

Occasional in hill slopes. **Fl. & Fr.:** Almost throughout the year. **VN:** *Kuthuppalai*. **Sp.Ex.:** CECF 84999 (MH).

ICHNOCARPUS R. Br., Asclepiadeae 50. 1810.

Ichnocarpus frutescens (L) R. Br. in W.T. Aiton, Hortus Kew. ed. 2. 2: 69. 1811; FBI 3: 669. 1882; FPM 2: 576. 1957; FTC 3(2): 912. 1983; FTN 2: 77. 1987; FPI 1: 134. 2009; FEG 4: 76. 2011. *Chonemorpha malabarica* (Lam.) G. Don, Gen. Hist. 4: 76. 1837; FBI 3: 662. 1882.

Straggling shrub, tender parts rusty-pubescent. Leaves oblong or elliptic-obovate, (sub)coriaceous. Cymes paniculate, axillary and terminal. Calyx cupular, lobes 5, subequal, ovate. Corolla cream, salver form, lobes 5. Stamens 5. Mericarps paired, cylindric.

Common in deciduous forests and scrub jungles. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** PSAT 186552, 186553, 186562, 186563 (MH).

NERIUM U., Sp. Pl. 209. 1753.

Nerium oleander L., Sp. Pl. 209. 1753; FTC 3(2): 914. 1983; FTN 2: 78. 1987; FPI 1: 135. 2009; FEG 4: 75. 2011. *N. odorum* Soland. in Alton, Hort. Kew. ed. 1. 1: 297. 1789; FBI 3: 655. 1882; FPM 2: 577. 1957.

Erect shrub. Leaves ternate in whorls. Cymes paniculate, terminal. Flowers bisexual. Calyx cupular. Corolla pinkish to white or yellowish, tubular, lobes 5, ovate. Mericarp paired, cylindric.

Commonly planted along the road sides, gardens and planted in temple premises. **Fl. & Fr.:** Throughout the year. **VN:** *Sevvarali*. **Sp.Ex.:** LP 1631 (SACONH).

PLUMERIA L., Sp. Pl. 209. 1753.**Key to the species**

- 1a. Leaves fiddle or spoon shaped.....*P. pudica*
1b. Leaves broadly ovate-spathulate.....*P. rubra*

Plumeria pudica Jacq., Enum. Syst. Pl. 13. 1760.

Shrub. Leaves dark green, unique fiddle shaped or spoon shaped, crowded at terminal branches. Flowers whitish with yellowish tinge in middle. Calyx campanulate. Corolla tubular, lobes 5, overlapping left. Stamens 5.

Commonly planted in gardens and temple premises. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1628 (SACONH).

Plumeria rubra L., Sp. Pl. 209. 1753; FTC 3(2): 915. 1983; FTN 2: 78. 1987; FPI 1: 136. 2009; FEG 4: 76. 2011. *P. acutifolia* Poir. in Lam., Encycl. Suppl. 2: 667. 1812; FBI 3: 641. 1882; FPM 2: 577. 1957.

Tree. Leaves alternate, broadly ovate-spathulate, sub-coriaceous. Inflorescence of terminal or corymbose, overtopped by axillary branches. Calyx cupular, lobes 5. Corolla cream with yellow or reddish in centre, lobes 5, overlapping to left. Stamens 5. Ovaries globose. Follicles paired. Seeds flat, winged.

Occasional in hill slopes and also planted along the road sides, gardens and temple premises. **Fl. & Fr.:** April-June. **VN:** *Malaiarali*. **Sp.Ex.:** LP 1429 (SACONH).

RAUVOLFIA L., Sp. Pl. 208. 1753.

Rauvolfia tetraphylla L., Sp. Pl. 208. 1753; FTC 3(2): 917. 1983; FTN 2: 79. 1987; FPI 1: 137. 2009; FEG 4: 77. 2011. *R. canescens* L., Sp. Pl. ed. 2. 303. 1762; FPM 2: 568. 1957.

Shrub, tender parts puberulous. Leaves 4 in nodes, elliptic-ovate, Inflorescence an axillary or terminal, 5-7 flowered corymb. Calyx cupular, lobes 5, (sub)equal, ovate. Corolla lobes ovate-rounded. Stamens 5. Ovary globose. Stigma depressed-capitate.

Occasional in deciduous forest borders. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 1428 (SACONH).

TABERNAEMONTANA L., Sp. Pl. 210. 1753.**Key to the species**

- 1a. Corolla lobes twisted to left.....*T. divaricata*
1b. Corolla lobes twisted to right.....*T. gamblei*

Tabernaemontana divaricata (L.) R. Br. ex Roem. & Schult., Syst. Veg. 4: 427. 1819; FTN 2: 79. 1987; FPI 1: 138. 2009. *Ervatamia divaricata* (L.) Burkill, Rec. Bot. Surv. India 10: 320. 1925; FTC 3(2): 909. 1983; FEG 4: 74. 2011.

Shrub. Leaves oblanceolate to oblong, sub-coriaceous. Inflorescence a lax, divaricate cyme, terminal. Calyx cupular, lobes 5, ovate. Corolla white, salver form, lobes 5, broadly oblong. Stamens 5. Mericarps lanceolate.

Commonly planted along the road sides and temple premises. **Fl. & Fr.:** Almost throughout the year. **VN:** *Nathiyavattai*. **Sp.Ex.:** LP 1426 (SACONH).

Tabernaemontana gamblei Subr. & A.N. Henry, Bull. Bot. Surv. India 12: 1. 1970; FTN 2: 79. 1987; FPI 1: 138. 2009. *Ervatamia caudata* Gamble, Bull. Misc. Inform. 1921: 310. 1921 & Fl. Madras 2: 571. 1957 non *T. caudata* Merr., 1909.

Shrub, branchlets white, subterete. Leaves opposite, often unequal, elliptic. Cymes terminal. Flowers white. Sepals 5, ovate, obtuse. Corolla tube cylindrical, lobes 5, oblong, obtuse. Capsule not curved.

Occasional in evergreen forest. **Fl. & Fr.:** Sept.-April. **Sp.Ex.:** PSAT 187242 (MH).

VALLARIS Burm. f., Fl. Ind. 51. 1768.

Vallaris solanacea (Roth) Kuntze, Revis. Gen. Pl. 2: 147. 1891; FPM 2: 573. 1957; FTC 3(2): 918. 1983; FTN 2: 79. 1987; FPI 1: 141. 2009; FEG 4: 79. 2011. *V. heynii* Spreng., Syst. Veg. ed. 16. 1: 635. (1824) 1825; FBI 3: 650. 1882.

Liana, tender parts puberulous. Leaves decussate, elliptic or oblong, chartaceous. Cymes dichasial, extra axillary. Calyx cupular, lobes 5, unequal, lanceolate. Corolla white, salverform, lobes 5. Stamens 5, sagittate. Ovaries 2, free. Stigma obconic. Mericarp cylindric.

Occasional along the river banks. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** LP 2828 (SACONH).

WRIGHTIA R. Br., Asclepiadeae 762. 1810.

Wrightia tinctoria (Roxb.) R. Br., Mem. Wern. Nat. Hist. Soc. 1: 74. 1811, var. *tinctoria*; FBI 3: 653. 1882; FPM 2: 573. 1957; FTC 3(2): 921. 1983; FTN 2: 80. 1987; FPI 1: 142. 2009; FEG 4: 82. 2011.

Tree. Leaves sparsely hispid. Calyx lobes 5, ovate. Corolla lobes 5, oblong. Stamens 5. Mericarps paired, apically joined, cylindric, curved.

Common in dry deciduous forest and planted along road sides. **Fl. & Fr.:** **VN:** *Veppalai*. **Sp.Ex.:** KNS 1715, 6938 (FRC); VS 18721, 18954, 19321 (MH); VN 79231 (MH); KCJ 81117 (MH); PSAT 186867, 187200 (MH).

ASCLEPIADACEAE Borkh., Bot. Wörterb. 1: 31. 1797.

Key to the genera

- 1a. Erect herbs or shrubs.....2
- 1b. Climbers or straggling vine or lianas.....5
- 2a. Mature stem succulent, angular; leafless.....*Caralluma*
- 2b. Mature stem woody, terete; leafy.....3
- 3a. Plant with underground tubers.....*Brachystelma*
- 3b. Plant without underground stem.....4
- 4a. Leaves elliptic to oblong, base auriculate.....*Calotropis*
- 4b. leaves linear to lanceolate, base acute.....*Asclepias*
- 5a. Leaf 0 or caduceus; branchlets jointed fleshy.....6
- 5b. Leaves well developed; branchlets not jointed, woody or wiry.....7

- 6a. Branchlets tinged brown; corolla brownish purple, tubular.....*Ceropegia* (p.p)
 6b. Branchlet green; corolla cream, rotate.....*Sarcostemma*
 7a. Leaves cordiform, as long as, or less than twice as long as, broad.....8
 7b. Leaves other than cordiform, nearly twice, or more, as long as broad.....10
 8a. Corolla base cylindric, lobes ovate; leaf base truncate or cordate, sinus broad.....*Dregea*
 8b. Corolla base inflated, lobes oblong; leaf base sagittate, sinus narrow.....9
 9a. Flowers greenish, foetid; corolla double.....*Pergularia*
 9b. Flowers yellowish, fragrant; corolla single.....*Telosma*
 10a. Corolla-tube inflated basally; ovules in 2 vertical rows.....*Ceropegia* (p.p)
 10b. Corolla-tube when present, not inflated; ovules in many series.....11
 11a. Inflorescence an umbel.....12
 11b. Inflorescence other than an umbel.....15
 12a. Leaf-base cordate or hastate.....13
 12b. Leaf-base other than cordate or hastate.....14
 13a. Stipular leaves 2.....*Cynanchum*
 13b. Stipular leaves 0.....*Tylophora*
 14a. Latex watery; leaf apex apiculate or mucronate.....*Pentatropis*
 14b. Latex milky; leaf apex acute.....*Gymnema*
 15a. Leaf cordate to hastate; corona reduced to a fleshy annulus.....*Holostemma*
 15b. leaf base acute to truncate; corona well developed.....16
 16a. Leaves oblong to linear-lanceolate, apex gradually acute, apiculate.....17
 16b. Leaves elliptic to obovate, apex abruptly acute or acuminate.....*Toxocarpus*
 17a. Cymes or fascicles shorter than leaves; corona single.....*Secamone*
 17b. Racemes longer than leaves; corona double.....*Oxystelma*

ASCLEPIAS L., Sp. Pl. 214. 1753.

Asclepias curassavica L., Sp. Pl. 215. 1753; FBI 4: 18. 1883; FSIHS 2: 404. 1932; FPM 2: 585. 1957; FTC 3(2): 929. 1983; FTN 2: 80. 1987; FPI 1: 157. 2009; FEG 4: 86. 2011.

Herb. Leaves decussate or whorled, lanceolate, chartaceous. Calyx lobes 4, lanceolate, valvate, ciliate. Corolla red, rotate, lobes reflexed, obovate, valvate. Pollinia pendulous, yellow. Ovaries 1. Follicle tapering at both ends. Seeds flattened, winged.

Common along the marshy lands and along the river banks. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KA & PB 1450 (SACONH); VS 18667 (FRC).

BRACHYSTELMA R. Br., Bot. Mag. t. 2343. 1822.

Brachystelma rangacharii Gamble, Kew Bull. 1922: 120. 1922 & Fl. Madras 2: 599. 1957; FTN 2: 80. 1987; FPI 1: 158. 2009.

Erect herb with underground tubers. Leaves narrowly linear-lanceolate, (sub)sessile. Inflorescence of lateral peduncled cyme or solitary. Corolla campanulate with corona, lobes lanceolate, valvate, softly pubescent. Staminal column short, pollina 2. Carpals free.

Rare in grasslands. **Fl. & Fr.:** June. Type locality of the species is Hassanur. **Sp.Ex.:** KCJ 10654 (MH).

CALOTROPIS R. Br., Asclepiadeae 28.1810.

Calotropis gigantea (L.) W.T. Aiton., Hortus Kew. ed. 2.2: 78. 1811; FBI 4: 17. 1883; FPM 2: 585. 1957; FTC 3(2): 929. 1983; FTN 2: 81. 1987; FPI 1: 158. 2009; FEG 4: 92. 2011.

Shrub, latex white. Leaves elliptic to oblong, coriaceous. Inflorescence an umbellate panicle. (sub)terminal. Bract and bracteoles lanceolate. Calyx lobes ovate, valvate, ciliate. Corolla purple or white, lobes ovate, valvate. Pollinia pendulous. Corona single, staminal, laterally compressed. Follicle oblong. Seeds oblong to ovate, plano-convex.

Common along the roadsides and wastelands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18661 (FRC); KCJ & JD 81475 (MH); PSAT 187357, 187358 (MH).

CARALLUMA R. Br., Asclepiadeae 14.1810.

Key to the species

- 1a. Flowers solitary or in pairs.....2
- 1b. Flowers in terminal umbels.....4
- 2a. Corolla-lobes narrow.....3
- 2b. Corolla lobes broad.....*C. stalagmifera*
- 3a. Flowers yellow; corolla-lobes glabrous.....*C. adscendens* var. *adscendens*
- 3b. Flowers purple; corolla-lobes ciliate.....*C. adscendens* var. *attenuata*
- 4a. Corolla glabrous within; peduncle unbranched.....*C. umbellata*
- 4b. Corolla hairy within; peduncle branched.....*C. diffusa*

Caralluma adscendens (Roxb.) R. Br., Mem. Wern. Nat. Hist. Soc. 1: 25 1809; FBI 4: 76. 1883; FPM 2: 605. 1957; FTC 3(2): 932. 1983; FTN 2: 81. 1987; FPI 1: 159. 2009; FEG 4: 94. 2011.

var. adscendens

Erect, succulent herb, stem and branches angled, latex watery. Leaves along the angles. Racemes subterminal, flower(s) distant, solitary or paired. Calyx lobes 5, ovate equal. Corolla lobes oblong, apex folded back. Corona subequal. Follicle cylindric, apically beaked.

Common in foothills and scrub jungles. **Fl. & Fr.:** July-Sept. **VN:** *Muyal kombu chadi*. **Sp.Ex.:** VS 19306 (FRC).

var. **attenuata** (Wight) Gravely & Mayur., Bull. Madras Gov. Mus. s.n., 4: 13 1931; FPI 1: 159. 2009; FEG 4: 95. 2011. *C. attenuata* Wight, Icon. Pl. Ind. Orient. t. 1268. 1848; FBI 4: 76. 1883; FPM 2: 605. 1957; FTC 3(2): 932. 1983; FTN 2: 81. 1987.

Erect, succulent herb. Stem and branches angled, latex watery. Branchlets gradually tapering into terminal racemes. Leaves along the angles. Calyx lobes equal, lanceolate. Corolla brown to dark purple, lobes oblong, with concentric bands as base within, apex with purple hairs. Follicle oblong-linear, apically beaked. Seeds oblong-obovoid.

Common in scrub jungles and foot hills. **Fl. & Fr.:** July-Sept. **VN:** *Kallimulaiyan*. **Sp.Ex.:** LP 3156, 3172 (SACONH).

Caralluma diffusa (Wight.) N.E. Br., Gard. Chron. 2: 369. 1892; FPM 2: 606. 1957; FTN 2: 81. 1987. *Boucerosia diffusa* Wight, Icon. Pl. Ind. Orient. t. 1599. 1850; FBI 4: 78. 1883; FEG 4: 88. 2011.

Erect, succulent herb. Stem and branches angled, latex watery. Leaves absent, leaf scars present. Flowers in terminal umbellate cymes, many-flowered. Calyx 5-lobed, lobes lanceolate. Corolla campanulate, lobes 5, ovate. Corona biseriate. Pollinia 5.

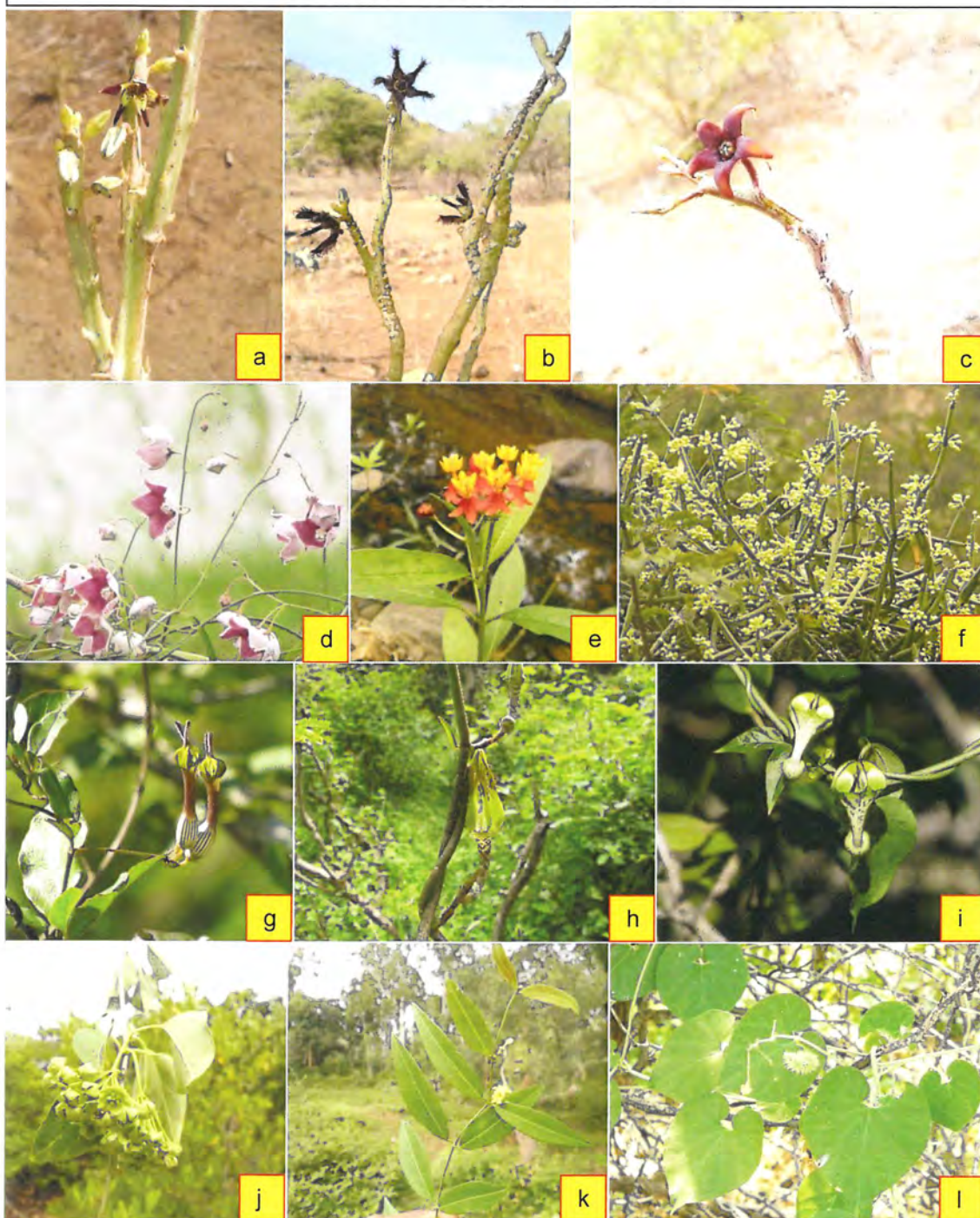
Occasional in hill slopes and foothills. **Fl. & Fr.:** April-Sept. **Sp.Ex.:** LP 2285 (SACONH).

Caralluma stalagmifera C.E.C. Fischer, Bull. Misc. Inform. 1925: 430. 1925, var. *longipetala* Karupp. & Pull., Rheedeia 17: 42. f. 2. a-d. 2007; FPI 1: 160. 2009.

Erect, succulent herb. Stem and branches angled, latex watery. Leaves early cauducous. Flowers dark purple, axillary, solitary. Calyx 5-partite, lobes ovate-lanceolate. Corolla dark purple, deeply divided, rotate, spindle shaped hairs are sparsely present along the margins and apex. Corona staminal, biseriate. Follicles paired, purplish streaked. Seeds discoid.

Occasional in scrub jungles. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** LP 3155 (SACONH).

PLATE 14 -ASCLEPIADACEAE



a) *Caralluma adscendens* var. *attenuata*, b) *Caralluma adscendens* var. *adscendens*, c) *Caralluma stalagmifera* var. *longipetala*, d) *Oxystelma esculentum*, e) *Asclepias curassavica*, f) *Sarcostemma acidum*, g) *Ceropegia candelabrum*, h) *Ceropegia juncea*, i) *Ceropegia elegans*, j) *Dregea volubilis*, k) *Secamone emetica*, l) *Pergularia daemia*.

Caralluma umbellata Haw., Syn. Pl. Succ. 47. 1812; FPM 2: 605. 1957; FTC 3(2): 933. 1983; FTN 2: 82. 1987. *C. campanulata* (Wight) N.E. Br., Gard. Chron. 2: 369. 1892; FPM 2: 606. 1957; FPI 1: 159. 2009.

Erect, succulent herb. Stem and branches angled, latex watery. Leaf-scars spine-like. Umbels in terminal. flower(s) in solitary or paired. Calyx lobes 5-7, subequal, lanceolate. Corolla purplish brown with yellow bands, recurved. Ovaries 2, rarely 4. Follicle cylindric. Occasional in foothills. **Fl. & Fr.:** Mar.-April. **VN:** *Sirukalli*. **Sp.Ex.:** VS 18718, 18950, 23981 (FRC); KCJ 81517, 81518 (MH).

CEROPEGIA L., Sp. Pl. 211. 1753.

Key to the species

- 1a. Stem fleshy, green tinged brown; leaves absent or caducous.....*C. juncea*
- 1b. Stem not fleshy, green tinged pink; leaves well-developed.....2
- 2a. Leaves and peduncles glabrous.....3
- 2b. Leaves and peduncles hirsute.....*C. ciliata*
- 3a. Corolla-tube broadly funnel-form above.....*C. elegans*
- 3b. Corolla-tube subcylindric, rarely dilated above.....*C. candelabrum*

Ceropegia candelabrum L., Sp. Pl. 211. 1753, var. *candelabrum*; FBI 4: 70. 1883; FPM 2: 603. 1957; FTC 3(2): 935. 1983; FTN 2: 82. 1987; FPI 1: 161. 2009; FEG 4: 99. 2011.

Twiner. Leaves elliptic-obovate, chartaceous. Bracts linear. Calyx lobes 5, Corolla tube greenish yellow, lobes 5, purplish green. Pollinia spheric. Outer corona membranous, inner corona spatulate.

Common in dry deciduous forest. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** LP 2906, 3101, 3130, 3131 (SACONH); CECF 32747, 32746 (MH); VS 19294, 20729 (FRC).

Ceropegia ciliata Wight, Icon. Pl. Ind. Orient. 4. t. 1262. 1848; FBI 4: 72. 1883; FPM 2: 603. 1957; FTN 2: 83. 1987; FPI 1: 161. 2009.

Twiner. Tubers globose. Leaves opposite, linear-lanceolate, obtuse to acute at apex, hirsute. Inflorescence many flowered umbelliform. Calyx lobes 5, narrow. Corolla white, blotched with purple, lobes 5, falcate, glabrous. Outer corona short ciliate. Inner corona hooked. Follicle short, slender.

Rare in grassy slopes. **Fl. & Fr.:** July-Aug. **Sp.Ex.:** VS 19295 (FRC).

Ceropegia elegans Wall. in Curtis, Bot. Mag. (Ed. Hook.) 57: t. 3015. 1830; FBI 4: 68. 1883; FSIHS 2: 402. t. 341. 1932; FPM 2: 602. 1957; FTC 3(2): 936. 1983; FTN 2: 83. 1987; FPI 1: 161. 2009; FEG 4: 102. 2011. *C. mysorensis* Wight, Icon. Pl. Ind. Orient. t. 846. 1844-1845; FBI 4: 69. 1883; FPM 2: 602. 1957.

Twiner. Leaves elliptic-lanceolate. Bracts linear. Calyx lobes 5, linear-lanceolate. Corolla tube greenish, lobes dark green or black, throat a broadly conical like. Pollinia subsheric. Outer corona lobes 5, deeply 2-fid, linear. Inner corona lobes 5, linear.

Occasional in deciduous forest. **Fl. & Fr.:** Dec. **Sp.Ex.:** LP 1824 (SACONH); VN 79093 (MH); PSAT 187539, 187540 (MH).

Ceropegia juncea Roxb., Pl. Coromandel 1: 12. t. 10. 1795; FBI 4: 68. 1883; FPM 2: 602. 1957; FTC 3(2): 937. 1983; FTN 2: 83. 1987; FPI 1: 162. 2009; FEG 4: 103. 2011.

Twiner. Leaves lanceolate, subsessile, deciduous. Flower(s) solitary or in cyme. Bracts linear. Calyx-lobes 5, linear-lanceolate. Corolla brownish, purple, tube curved, lobes 5, linear-lanceolate. Pollinia oblong. Outer corona lobes 10, inner corona lobes 5.

Occasional in deciduous forest. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** LP 2827 (SACONH); VS 18663 (FRC).

CYNANCHUM L., Sp. Pl. 212. 1753.

Key to the species

- la. Leaf base cordate; flowers above 15 per umbel; follicles winged.....*C. callialatum*
 lb. Leaf base hastate; flowers below 15 per umbel; follicles not winged.....*C. tunicatum*

Cynanchum callialata Buch.-Ham. ex Wight, Contr. Bot. India 56. 1834; FBI 4: 24. 1883; FPM 2: 588. 1957; FTC 3(2): 942. 1983; FTN 2: 84. 1987; FPI 1: 165. 2009; FEG 4: 105. 2011.

Twiner. Leaves elliptic-oblong, glaucous below, base cordate, stipular leaves cordiform. Calyx lobes acute, obtuse. Corolla lobes 5, acute. Ovaries unequal in size and position. Follicle winged. Seeds circular.

Occasional in hills. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** KCJ 81371 (MH).

Cynanchum tunicatum (Retz.) Alston in Trim., Handb. Fl. Ceylon 6 (Suppl.): 194. 1931; FTC 3(2): 942. 1983; FTN 2: 85. 1987; FPI 1: 166. 2009; FEG 4: 106. 2011. *C. pauciflorum* R. Br., Mem. Wern. Nat. Hist. Soc. 1: 45. 1811; FBI 4: 23. 1883; FPM 2: 587. 1957.

Twiner. Leaves narrowly cordiform to hastate. Calyx lobes obtuse, ciliate. Corolla lobes 5. Follicle apically beaked, not winged.

Occasional in hills. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** VN 78413, 19143 (MH); KCJ 81106 (MH).

DREGEA E. Mey., Comm. Pl. Afr. Austr. 199. (1837) 1838.

Dregea volubilis (L. f.) Benth. ex Hook. f., Fl. Brit. India 4: 46. 1883; FPI 1: 168. 2009. *Marsdenia volubilis* (L. f.) T. Cooke, Fl. Bombay 2: 166. 1904 (repr.ed.); FSIHS 2: 399. t. 338. 1932; FPM 2: 595. 1957. *Wattakaka volubilis* (L. f.) Stapf in Curtis, Bot. Mag. (Ed. Stapf) 148: subt. 8976. 1923; FTC 3(2): 963. 1983; FTN 2: 90. 1987; FEG 4: 126. 2011.

Leaves cordiform, base truncate to rounded, Umbels axillary, ca. 25-flowered. Calyx lobes lanceolate, imbricate, coriaceous. Corolla greenish, rotate, lobes ovate, overlapping to right. Pollinial bags sessile. Corona single, staminal. Follicles oblong. Seeds obovoid, flattened.

Common in deciduous forest. **Fl. & Fr.:** July-Nov. **VN:** *Kattu aavarankodi*. **Sp.Ex.:** KNS 6945 (FRC); VS 18720 (FRC); CECF 32609, 32610 (MH); PSAT 187105 (MH).

GYMNEMA R. Br., Asclepiadeae 22. 1810.

Gymnema sylvestre (Retz.) R. Br. ex Sm., Cycl. 17(1): no. 4. 1811 & FBI 4: 29. 1883; FPM 2: 590. 1957; FTC 3(2): 963. 1983; FTN 2: 85. 1987; FPI 1: 171. 2009; FEG 4: 107. 2011.

Straggler. Leaves elliptic-obovate. Calyx lobes obovate, scabrous without, obtuse. Corolla lobes 4, equal, cream to yellow, campanulate, subcoriaceous. Corona with 5, fleshy processes in the sinuses of the lobes. Stigma obconic. Follicles paired, linear. Seeds obovate, marginal.

Common in dry deciduous forest. **Fl. & Fr.:** Aug.-Mar. **VN:** *Sirukurinja*. **Sp.Ex.:** LP 3178, 1563 (SACONH); KNS 2010 (FRC); VS 18665, 18666, 18717, 18952, 19304 (FRC); CECF 32458, 32459 (MH); VN 79098 (MH); KCJ 81219 (MH); PSAT 186537, 186538, 186876, 187440, 187441 (MH).

HOLOSTEMMA R. Br., Asclepiadeae 31. 1810.

Holostemma ada-kodien Schult., Syst. Veg. 6: 95. 1820; FTC 3(2): 949. 1983; FTN 2: 86. 1987; FPI 1: 173. 2009; FEG 4: 110. 2011. *H. rheedei* Wall., Pl. Asiat. Rar. 2: 51. 1831; FBI 4: 21. 1883.

Twining. Leaves narrowly cordiform to oblong, hastate or cordate at base. Flowers 5-7 in axillary clusters. Calyx-lobes ovate, imbricate, ciliate. Corolla purple, lobes ovate. Pollinia

pendulous, pollinial bags oblong, flat. Corona single, staminal. Ovary subglobose. Stigma conic, 5 or 10-angled.

Common in scrub jungles. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** CECF 32309, 32310 (MH).

OXYSTELMA R. Br., Asclepiadeae 29. 1810.

Oxystelma esculentum (L. f.) Sm. in Rees, Cycl. 1: 25. 1813; FBI 4: 17. 1883; FPM 2: 586. 1957; FTC 3(2): 954. 1983; FPI 1: 177. 2009; FEG 4: 113. 2011. *Sarcostemma secamone* (L.) Bennet, Indian Forester 95: 692. 1969; FTN 2: 88. 1987.

Leaves oblong to linear, subcoriaceous. Flower(s) usually paired, axillary, solitary or in lax racemes. Calyx cupular, lobes equal, ovate, imbricate. Corolla purplish pink within, lobes triangular, valvate. Pollinia pendulous, pollinial bags oblong. Corona double. Ovaries globose. Follicle inflated, mucronate. Seeds ovate.

Occasional in along the water bodies. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** LP 2826 (SACONH).

PENTATROPIS R.Br. ex Wight & Arn. in Wight, Contr. Bot. India 52. 1834.

Pentatropis capensis (L. f.) Bullock, Kew Bull. 1955: 284. 1955; FTC 3(2): 955. 1983; FTN 2: 87. 1987; FPI 1: 177. 2009; FEG 4: 114. 2011. *P. microphylla* (Roxb.) Wight & Arn., Wight, Contr. Bot. India 52. 1834; FBI 4: 20. 1883; FPM 2: 587. 1957.

Twiner. Leaves elliptic, chartaceous when dry. Umbels in axillary, 7-9 flowered. Calyx-lobes equal, lanceolate, imbricate. Corolla purple, lobes lanceolate, valvate. Pollinia pendulous, pollinial bags elliptic. Corona single, staminal. Follicle basely inflated. Seeds ovate, winged.

Occasional in scrub jungles. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 19301, 23975, 23976 (FRC).

PERGULARIA L., Syst. Nat. Ed. 12.2: 191. 1767 & Mant. Pl. 1: 8. 53. 1767.

Pergularia daemia (Forssk.) Chiov., Res. Sci. Somalia ital. 1: 115. 1916; FTC 3(2): 955. 1983; FTN 2: 87. 1987; FPI 1: 178. 2009; FEG 4: 114. 2011. *Daemia extensa* (Jacq.) R. Br. ex Schult., Syst. Veg. 6: 112. 1820; FBI 4: 20. 1883.

Leaves cordiform, thick-chartaceous. Racemes umbelliform. Bracts and bracteoles linear. Calyx lobes subequal, lanceolate, imbricate. Corolla greenish, campanulate. lobes slightly lanceolate. Pollinia pendulous. Corona double. Follicle paired, curved. Seed obovate.

Common in plains, wastelands, scrub jungles and along the roadsides. **Fl. & Fr.:** July-Jan. **VN:** *Vaelipparuthi*. **Sp.Ex.:** KNS 1714 (FRC); VS 20699 (FRC); VN 78261 (MH); SRR 81026 (MH); KCJ & JD 81212 (MH); PSAT 186909, 187323, 187324 (MH).

SARCOSTEMMA R. Br., Mem. Wern. Nat. Hist. Soc. 1: 50. 1811.

Key to the species

- 1a. Umbels terminal, pedicels glabrous; flowers > 1 cm across.....*S. acidum*
- 1b. Umbels axillary, pedicels villous; flowers < 1 cm across.....*S. viminale* subsp. *brunonianum*

Sarcostemma acidum (Roxb.) Voigt, Hort. Suburb. Calcutt. 542. 1845; FTN 2: 87. 1987. *S. brevistigma* Wight & Arn. in Wight, Contrib. Bot. 59. 1834; FBI 4: 26. 1883; FSIHS 2: 396. t. 334. 1932; FPM 2: 589. 1957.

Leafless straggler, branchlets succulent. Flower cream-coloured, in umbels. Bract ovate-deltoid. Sepals 5, ovate, valvate. Corolla rotate, 5-lobed. Anthers 5, pollinia 5, pendulous, pollinial bags oblong, caudicle minute, filiform. Corona processes in 2 rows of 5. Ovaries oblong. Stigma shortly conical.

Occasional in dry deciduous forest and scrub jungles. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** VS 18948, 19298 (FRC); PSAT 186611, 186612, 187084 (MH).

Sarcostemma viminalis Wall. ex Decne., Prodr. 8: 538. 1844, subsp. **brunonianum** (Wight & Arn.) P.I. Forst., Austral. Syst. Bot. 5: 63. 1992. *S. brunonianum* Wight & Arn. in Wight, Contr. Bot. India 59. 1834; FBI 4: 27. 1883; FPM 2: 589. 1957; FTC 3(2): 957. 1983; FTN 2: 88. 1987; FPI 1: 179. 2009; FEG 4: 115. 2011.

Leafless straggler. Umbels terminal, 10-15 flowered. Calyx lobes 5, ovate-lanceolate. Corolla lobes 5, oblong, obtuse. Pollinia 5. Outer corona 10-lobed, wavy. Inner corona fleshy. Stigma obtuse. Follicles smooth, oblong. Seeds oblong.

Common in scrub jungles. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** VS 18664, 18951 (FRC); VN 79659, 79757 (MH); KCJ 81502 (MH).

SECAMONE R. Br., Asclepiadeae 44. 1810.

Secamone emetica (Retz.) R. Br. ex Schult, Syst. Veg. 6: 124. 1820; FBI 4: 13. 1883; FPM 2: 583. 1957; FTC 3(2): 958. 1983; FTN 2: 88. 1987; FPI 1: 180. 2009; FEG 4: 117. 2011.

Profusely branched straggler. Leaves linear-lanceolate, chartaceous. Cymes 3-chotomous, axillary. Bracts and bracteoles lanceolate. Calyx cupular, subequal, triangular, valvate. Corolla yellowish, campanulate, lobes oblong. Pollinia erect. Corona single. Follicle paired.

Common in foothills and dry deciduous forest. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** VS 18662, 19292, 19293 (FRC); CECF 32212, 32214 (MH); VN 79230 (MH); KCJ 81137 (MH); EV 142041 (MH); PSAT 186528, 186529, 186535, 186536, 186889, 186912, 187043, 187044 (MH).

TELOSMA Coville, Contr. U.S. Natl. Herb. 9: 384. 1905.

Telosma pallida (Roxb.) W.G. Craib, Bull. Misc. Inform. 1911: 418. 1911; FPM 2: 593. 1957; FTN 2: 88. 1987; FPI 1: 180. 2009; FEG 4: 119. 2011. *Pergularia pallida* (Roxb.) Wight & Arn. in Wight, Contr. Bot. India 42. 1834; FBI 4: 38. 1883.

Twiner. Leaves ovate, cordate at base, membranous, glabrous. Flowers in umbellate cymes, yellowish green. Calyx lobes lanceolate. Corolla tubular, campanulate, lobes equal. Pollinia erect. Corona single, membranous. Follicles linear-lanceolate, curved at apex, glabrous.

Occasional in dry deciduous forest borders. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** VS 19297 (FRC).

TOXOCARPUS Wight & Arn. in Wight, Contr. Bot. India 61. 1834.

Toxocarpus kleinii Wight & Arn. in Wight, Contr. Bot. India 61. 1834; FBI 4: 14. 1883; FPM 2: 584. 1957; FTC 3(2): 960. 1983; FTN 2: 89. 1987; FPI 1: 181. 2009; FEG 4: 119. 2011.

Twiner. Leaves elliptic-obovate, subcoriaceous, glabrous. Inflorescence a lax, dichotomous cyme. Bracts lanceolate. Calyx lobes 5, lanceolate, imbricate. Corolla white, shortly tubular, lobes 5, oblong to lanceolate. Stamens 5. Corona adnate to stamens. Ovaries conic. Follicles paired, cylindric.

Occasional in hilly areas. **Fl. & Fr.:** May-July. **Sp.Ex.:** LP 1579 (SACONH).

TYLOPHORA R. Br., Asclepiadeae 17.1810.

Key to the species

- 1a. Stem procumbent; leaves rotund.....*T. rotundifolia*
- 1b. Stem twining; leaves not rotund.....*T. indica*

Tylophora indica (Burm. f.) Merr., Philipp. J. Sci. 19: 373. 1921; FTC 3(2): 962. 1983; FTN 2: 89. 1987; FPI 1: 182. 2009; FEG 4: 123. 2011. *T. asthmatica* (L. f.) Wight & Arn. in Wight, Contr. Bot. India 51. 1834; FBI 4: 44. 1883; FPM 2: 583. 1957.

Twiner. Branchlets pubescent. Leaves cordiform, oblong to lanceolate, subcoriaceous. Umbels compound. Calyx lobes linear-lanceolate. Corolla lobes 5. Corona single. Ovaries obconic. Follicle cylindric. Seeds ovate.

Common in deciduous forest and along the road sides. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** VS 19302 (FRC).

Tylophora rotundifolia Buch.-Ham. ex Wight, Contr. Bot. India 50. 1834; FBI 4: 43. 1883; FPM 2: 593. 1957; FTN 2: 89. 1987; FPI 1: 183. 2009; FEG 4: 125. 2011.

Trailing herbs. Stems covered with curved hairs. Leaves broadly ovate or orbicular, cordate at base, irregular. Umbels erect, axillary, peduncled. Flowers creamy. Sepals linear, hirsute. Corolla lobes ovate, obtuse. Corona process globose. Follicle ellipsoid, glabrous.

Occasional in evergreen forest. **Fl. & Fr.:** May-Sept. **Sp.Ex.:** VN 79693 (MH); PSAT 187430, 187431 (MH).

PERIPLOCACEAE Schltr., Nachtr. Fl. Schutzgeb. Südsee: 351. 1905.

Key to the genera

- 1a. Corona staminal, 2-seriate.....*Decalepis*
- 1b. Corona coralline, uniseriate.....2
- 2a. Flowers pale yellow.....*Cryptolepis*
- 2b. Flowers yellowish-brown to dark purple.....*Hemidesmus*

CRYPTOLEPIS R. Br., Asclepiadeae 58.1810.

Key to the species

- 1a. Lateral nerves 10-15 pairs, horizontal, closely parallel.....*C. dubia*
- 1b. Lateral nerves 5 or 6 pairs, curved upwards, distantly parallel.....*C. grandiflora*

Cryptolepis dubia (Burm. f.) M.R. Almeida, Fl. Maharashtra 3A: 221. 2001. *T. buechananii* Roem. & Schult., Syst. Veg. 4: 409. 1819; FBI 4: 5. 1883; FPM 2: 580. 1957; FTC 3(2): 939. 1983; FTN 2: 90. 1987; FPI 1: 164. 2009; FEG 4: 127. 2011.

Twiner, latex milky. Leaves oblong to elliptic, coriaceous. Inflorescence axillary racemes. Calyx lobes 5, ovate-lanceolate. Corolla lobes oblong-lanceolate, greenish yellow. Stamens 5. Follicles paired. Seeds obovoid.

Comm in foothills and deciduous forest. **Fl. & Fr.:** Mar.-May. **VN:** *Paalkodi*. **Sp.Ex.:** VS 19296, 20684 (FRC); VN 78310 (MH); PSAT 187019, 187020, 187182 (MH).

Cryptolepis grandiflora Wight, Icon. Pl. Ind. Orient. t. 831. 1844- 45; FBI 4: 5. 1883; FPM 2: 580. 1957; FTC 3(2): 940. 1983; FTN 2: 90. 1987; FPI 1: 164. 2009; FEG 4: 127. 2011.

Twiner, latex milky. Leaves elliptic to obovate, subcoriaceous. Inflorescence an axillary, umbellate racemes. Calyx lobes 5, ovate. Corolla tube cream turning yellow, lobes 5, oblong. Stamens 5. Follicles paired, cylindric. Seeds nearly obovoid.

Occasional in foothills and scrub jungles. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VS 19297 (FRC); VN 79656 (MH).

DECALEPIS Wight & Arn., Contr. Bot. India 64. 1834.

Decalepis hamiltonii Wight & Arn. in Wight, Contr. Bot. India 64. 1834; FBI 4: 11. 1883; FPM 2: 582. 1957; FTC 3(2): 944. 1983; FTN 2: 90. 1987; FPI 1: 166. 2009; FEG 4: 130. 2011.

Straggler, latex milky. Branchlets terete with swollen, winged nodes. Leaves ovate, subcoriaceous, longitudinally folded. Cymes 3-chotomous. Bracts and bracteoles lanceolate. Calyx lobes oblong, tinged brown. Corolla cream, campanulate, lobes spreading. Stamens connivent. Corona double. Follicle oblong or lanceolate, cylindric.

Occasional in hill slopes. **Fl. & Fr.:** May-July. **VN:** *Maahaali kizhangu*. **Sp.Ex.:** VN 78310, 79663 (MH).

HEMIDESMUS R. Br., *Asclepiadeae* 45. 1810.

Hemidesmus indicus (L.) R. Br. ex Schult., *Syst. Veg.* 6: 126. 1820, var. *indicus*; FBI 4: 5. 1883; FPM 2: 580. 1957; FTC 3(2): 947. 1983; FTN 2: 91. 1987; FPI 1: 172. 2009; FEG 4: 131. 2011.

Straggler, latex milky. Leaves elliptic to broadly oblong, glabrous to pubescent. Calyx lobes 5, ovate-lanceolate. Corolla dark purple to yellow, lobes 5, ovate to obovate. Stamens 5. Follicles paired, tip incurved.

Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Nov.-Feb. **VN:** *Nannari & Nannarivear*. **Sp.Ex.:** VS 18830, 19305 (FRC); VN 78283 (MH).

LOGANIACEAE R. Br. ex Mart., *Nov. Gen. Sp. Pl.* 2: 133. 1827.

Key to the genera

- 1a. Scandent shrubs; petioles dilate below; flowers < 6 cm across.....*Fagraea*
1b. Trees; petiole simple; flowers >1 cm across.....*Strychnos*

FAGRAEA Thunb., *Kongl. Vetensk. Acad. Nya. Handl.* 3: 132. 1782.

Fagraea ceilanica Thunb in *Kongl., Vetensk. Acad. Nya. Handl.* 3: 132. t. 4. 1782; FBI 4: 83. 1883 "*zeylanica*"; FPM 2: 608. 1957; FTN 2: 91. 1987. *F. obovata* Wall., *Fl. Ind.* 2: 33. 1824; FBI 4: 83. 1883; FSIHS 2: 406. t. 345. 1932; FPM 2: 608. 1957.

Small trees, usually epiphytic on tree trunks. Leaves fleshy, obovate or oblanceolate, entire. Inflorescence terminal or axillary, few-flowered corymbose cymes. Flowers creamy white. Calyx deeply 5-lobed, lobes obovate. Corolla funnel shaped, lobes 5, broad. Stamens 5. Stigma capitate. Berry globose or ellipsoid. Seeds many.

Occasional in moist deciduous forest. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KA & PB 1572, 1658 (SACONH); CECF 5006 (FRC); KCJ 81471 (MH).

STRYCHNOS L., *Sp. Pl.* 189. 1753.

Key to the species

- 1a. Leaves 3-ribbed; corolla-tube equal to lobes; berries black when ripe.....*S. potatorum*
1b. Leaves 5-ribbed; corolla-tube longer than lobes; berries orange when ripe.....*S. nux-vomica*

Strychnos nux-vomica L., *Sp. Pl.* 189. 1753; FBI 4: 90. 1883; FPM 2: 610. 1957; FTC 3(2): 966. 1983; FTN 2: 92. 1987; FEG 4: 137. 2011.

Tree. Leaves orbicular to ovate, coriaceous. Calyx lobes 5. Corolla greenish, lobes 5. Stamens 5. Berry thick shelled, orange when ripe. Seeds to 4, globose or compressed.

Common in foothills and dry deciduous forests. **Fl. & Fr.:** Mar.-April. **VN:** *Yetti maram*. **Sp.Ex.:** PSAT 186645, 186646, 186659, 186660, 187247 (MH).

Strychnos potatorum L. f., *Suppl. Pl.* 148. 1782; FBI 4: 90. 1883; FPM 2: 610. 1957; FTC 3(2): 967. 1983; FTN 2: 92. 1987; FEG 4: 138. 2011.

Tree. Leaves ovate, chartaceous. Calyx lobes 5(6). Stamens 5(6). Ovary glabrous, ovules a few. Stigma obscurely 2-fid. Berry thin-shelled, deep blue when ripe. Seed usually 1. Common in foothills and dry deciduous forests. **Fl. & Fr.:** April-June **VN:** *Thettham kottai*. **Sp.Ex.:** VS 18947, 20757, 20758 (FRC); VN 78946 (MH); KCJ 81188 (MH); PSAT 186943 (MH).

GENTIANACEAE Juss., Gen. Pl. 141. 1789.

Key to the genera

- 1a. Corolla-lobes unequal; styles present.....*Canscora*
- 1b. Corolla-lobes equal; styles shorter or absent.....2
- 2a. Petals with 1 or 2 glandular nectaries at base.....*Swertia*
- 2b. Petals without glandular nectaries.....3
- 3a. Flowers pedicellate, above 1 cm across, blue; ovary 2-locular.....*Exacum*
- 3b. Flowers sessile, below 8 mm across, white or yellow; ovary 1-locular.....*Enicostema*

CANSCORA Lam., Encycl. 1: 601. 1785.

Canscora diffusa (Vahl) R. Br. ex Roem. & Schult., Syst. Veg. 3: 301. 1818; FBI 4: 103. 1883; FPM 2: 617. 1957; FTC 3(2): 972. 1983; FTN 2: 93. 1987; FEG 4: 141. 2011.

Herb, stem narrowly 4-winged. Leaves ovate-lanceolate. Panicles lax, terminal and axillary. Bracts ovate. Calyx lobes 4, equal. Corolla tube pink to whitish, lobes 4. Stamens 4. Stigma 2-lamellate. Capsule oblong-compressed. Seeds rounded or angular. Occasional in moist and shady places. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KA & PB 1540 (SACONH).

ENICOSTEMA Blume, Bijdr. Fl. Ned. Ind. 14: 848. 1826.

Enicostema axillare (Poir. ex Lam.) A. Raynal, Adansonia 9: 75. 1969; FTC 3(2): 973. 1983; FTN 2: 93. 1987; FEG 4: 146. 2011. *E. littorale* auct. non Blume 1826; FBI 4: 101. 1883; FPM 2: 615. 1957.

Erect herb, stem 4-angular. Leaves lanceolate-oblong. Flowers 5-merous in axillary, (sub)sessile. Calyx cupular, lobes 5, oblong, unequal. Corolla white, salver-form, lobes 5, twisted. Stamens 5. Ovary globose. Capsule septically 2-valved. Common in plains especially in gravelly wetlands, fallow lands and riverbanks. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 18831 (FRC); PSAT 187376 (MH); KR 138926 (MH).

EXACUM L., Sp. Pl. 1: 112. 1753.

Exacum tetragonum Roxb., Fl. Ind. 1: 413. 1820; FBI 4: 95. 1883; FPM 2: 613. 1957; FTN 2: 94. 1987; FEG 4: 148. 2011. *E. bicolor* Roxb., Fl. Ind. 1: 413. 1820; Wight, Icon. Pl. Ind. Orient. t. 1321. 1848; FSIHS 2: 408. t. 348. 1932; FPM 2: 613. 1957. *E. perrottetii* Griseb. in DC., Prodr. 9: 45. 1845; FSIHS 2: 409. 1932; FPM 2: 613. 1957; FTC 3(2): 975. 1983.

Herb, branchlets 4-angled and winged. Leaves elliptic, glabrous, Cymes terminal, corymbose. Bracts linear. Flowers many. Calyx blue to pale pink, lobes ovate-oblong. Capsule globose. Occasional in marshy grassy slopes. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** KA & PB 1655 (SACONH); VS 19362 (FRC).

SWERTIA L., Sp. Pl. 1: 226. 1753.

Key to the species

- 1a. Inflorescence elongate paniculate; corolla-lobes obtuse.....*S. angustifolia* var. *pulchella*
- 1b. Inflorescence corymbose; corolla-lobes elliptic-obovate.....*S. corymbosa*

Swertia angustifolia Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 127. 1825, var. *pulchella* (Buch. - Ham ex D. Don) Burkill, J. Asiat Soc. Bengal 2: 375. 1906; FPM 2: 619. 1957; FTN 2: 95. 1987. *S. pulchella* Buch.-Ham. ex. D. Don, Prodr. Fl. Bep. 127. 1825; FBI 4: 125. 1883.

Erect herb, branchlets 4-angled. Leaves lanceolate, sessile. Panicles axillary and terminal. Calyx lobes 4, linear-lanceolate. Corolla white with blue spots on the lobes, lobes 4, obtuse. Stamens 4-5. Ovary globose. Stigma 2-lobed. Capsule oblong, glabrous. Occasional in grasslands. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** CECF 33546, 33549 (MH); SRN 80552 (MH).

Swertia corymbosa Wight ex Griseb., Gen. Sp. Gent. 317. 1839; FSIHS 2: 410. t. 350. 1932; FTC 3(2): 976. 1983; FEG 4: 150. 2011. *S. corymbosa* (Griseb.) Wight ex Clarke var. *grisebachiana* (Wight) FBI 4: 126. 1883; FPM 2: 619. 1957; FTN 2: 96. 1987.

Herb, branchlets 4-angled. Leaves decussate, oblanceolate to elliptic, subsessile. Cymes corymbose, terminal. Calyx lobes 4-5, elliptic-ovate. Stamens 4-5. Ovary 1-locular. Stigma 2-lobed. Capsule dehiscent.

Occasional in grasslands. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** VS 19361 (FRC).

HYDROPHYLLACEAE R. Br., Bot. Reg. 3: ad t. 242. 1817.

HYDROLEA L., Sp. Pl., ed. 2. 1: 328. 1762.

Hydrolea zeylanica (L.) Vahl, Symb. Bot. 2: 46. 1791; FBI 4: 133. 1883; FPM 2: 621. 1957; FTC 3(2): 981. 1983; FTN 2: 97. 1987; FEG 4: 152. 2011. *Nama zeylanica* L., SP. Pl. 226. 1753.

Spreading subsucculent herb, rooting at nodes, branchlets decumbent. Leaves elliptic-oblong, chartaceous. Racemes lax, axillary or terminal. Calyx lobes 5, elliptic-lanceolate. Corolla deep blue, lobes 5, ovate, obtuse. Stamens 5. Ovary oblong-globular. Capsule globose, septicidal. Common in clayey, low-lying moist places, rivers and canal banks. **Fl. & Fr.:** Dec.-May. **Sp.Ex.:** KCJ 81168 (MH).

BORAGINACEAE Juss., Gen. Pl. 128. 1789.

Key to the genera

- 1a. Plant a herb or subshrub.....2
- 1b. Plant a shrub or a tree.....5
- 2a. Flowers solitary.....3
- 2b. Flowers in spikes or in racemes.....4
- 3a. Stems prostrate; leaves dentate; flowers below 2 mm across, white.....*Coldenia*
- 3b. Stems erect; leaves entire; flowers above 7 mm across, blue to pale pink.....*Trichodesma*
- 4a. Petals glandular, blue; styles gynobasic; ovary 4-lobed.....*Cynoglossum*
- 4b. Petals eglandular, white; styles terminal; ovary not lobed.....*Heliotropium*
- 5a. Calyx-lobes connate below, accrescent; stylar arms 4.....*Cordia*
- 5b. Calyx-lobes divided below, not accrescent; stylar arms 2.....*Ehretia*

COLDENIA L., Sp. Pl. 125. 1753.

Coldenia procumbens L., Sp. Pl. 125. 1753; FBI 4: 144. 1883; FPM 2: 627. 1957; FTC 3(2): 983. 1983; FTN 2: 97. 1987; FEG 4: 155. 2011.

Prostrate scabrid herb, branchlet densely pilose, closely appressed to substratum. Leaves alternate, elliptic-ovate, thick herbaceous, margin coarsely serrate-crenate. Flower(s) axillary solitary, 4-(5) merous. Calyx lobes 4(5), ovate. Corolla cream, tubular, lobes 5. Stamens 4(5). Ovary conic, 4-lobed. Drupe of 4, (sub)connate pyrenes.

Occasional in fallow lands, wastelands and river banks. **Fl. & Fr.:** June-Aug. **Sp.Ex.:** CECF 33967, 84994 (MH).

CORDIA L., Sp. Pl. 190. 1753.**Key to the species**

- 1a. Flowers large, orange or orange-scarlet.....*C. sebestena*
- 1b. Flowers white.....2
- 2a. Filaments villous at the base.....3
- 2b. Filaments glabrous at the base.....*C. monoica*
- 3a. Fruiting calyx ribbed.....*C. macleodii*
- 3b. Fruiting calyx not ribbed.....*C. dichotoma*

Cordia dichotoma G. Forst., Fl. Ins. Austr. 18. 1786; FEG 4: 175. 2011. *C. obliqua* Willd., Phytographia 4: t. 4. 1794, non. Willd., Sp. Pl. 1: 1072. 1798; FBI 4: 137. 1883; FPM 2: 623. 1957; FTC 3(2): 1000. 1983; FTN 2: 98. 1987.

Tree. Leaves elliptic to ovate, glabrescent. Inflorescence lax. Calyx lobes 5. Corolla lobes 5, recurved. Stamens 5. Ovary globose. Drupe ovoid.

Common in deciduous forest. **Fl. & Fr.:** Feb.-Oct. **VN:** *Chellamaram*. **Sp.Ex.:** KNS 6961 (FRC); VN 78301 (MH); KCJ 81237, 81366 (MH); VS 18970 (FRC); PSAT 186484, 186485, 186488, 186489, 187187, 187394 (MH); CECF 33754, 33755, 33756 (MH).

Cordia macleodii Hook. f. & Thomson, J. Proc. Linn. Soc., Bot. 2: 128. 1858; FBI 4: 139. 1883; FPM 2: 624. 1957; FTN 2: 97. 1987; FEG 4: 179. 2011.

Small tree. Leaves are broad ovate, scabrous, margin crenate, alternate to sub-opposite. Flowers white in colour and polygamous, in short terminal axillary corymbs. Calyx densely tomentose. Corolla lobes oblong. Drupes ovoid.

Occasional in deciduous forest. **Fl. & Fr.:** Feb.-Aug. **Sp.Ex.:** KNS 8164 (FRC); PSAT 186709, 186710, 186788, 186789 (MH).

Cordia monoica Roxb., Pl. Coromandel 1: 43. t. 58. 1796; FBI 4: 137. 1883; FPM 2: 624. 1957; FTC 3(2): 999. 1983; FTN 2: 98. 1987; FEG 4: 179. 2011.

Tree. Leaves elliptic-ovate, scabrous and spotted with whitish points. Inflorescence dense. Flowers yellowish, fragrant. Calyx tomentose, lobes 5. Corolla lobes 5. Stamens 5. Drupe ellipsoid.

Common in deciduous forest. **Fl. & Fr.:** June-July. **Sp.Ex.:** LP 1570, 2262 (SACONH); KA & PB 1438, 1606 (SACONH); KNS 2005, 6962, 11952, 11953 (FRC); VS 18886 (FRC); VN79037, 79091 (MH); PSAT 186512, 186513, 186526, 186527, 187075 (MH).

Cordia sebestena L., Sp. Pl. 190. 1753; FPM 2: 625. 1957; FTN 2: 98. 1987. *C. juglandifolia* Jacq., Enum. Syst. Pl. 14. 1760.

Tree. leaves broadly ovate-orbicular, fulvous-tomentose. Cymes in terminal. Calyx lobes 5, lanceolate, pubescent. Corolla tubular-campanulate, lobes 5. Stamens 5. fruiting calyx ribbed.

Commonly planted along the road sides. **Fl. & Fr.:** April-July. **Sp.Ex.:** LP 1672 (SACONH).

CYNOGLOSSUM L., Sp. Pl. 134. 1753.

Cynoglossum zeylanicum (Vahl) Thunb. ex Brand., Pflanzenr. IV, 252: 134. 1921; FTC 3(2): 983. 1983; FTN 2: 98. 1987; FEG 4: 157. 2011. *C. denticulatum* A. DC., Prodr. 10: 150. 1846, var. *zeylanicum* (Wall, ex Hornem.) FBI 4: 157. 1883; FPM 2: 632. 1957.

Herb. Branchlets coarsely or softly strigose. Leaves alternate, broadly lanceolate, chartaceous, strigose. Inflorescence a furcate, paniculate 1-sided racemes. Calyx lobes 5, obovate. Corolla blue, campanulate, lobes 5. Stamens 5. Ovary 4-lobed. Fruit a depressed pyramid.

Common in hills along roadsides, river banks and fallow lands. **Fl. & Fr.:** Jan.-May & Aug.-Nov. **Sp.Ex.:** LP 2117 (SACONH); KA & PB 1428 (SACONH); KNS 11829, 11830 (FRC); VN 78273, 79731 (MH); PSAT 187231 (MH).

EHRETIA L., Syst. Ed. 10. 936. 1759.

Key to the species

- 1a. Leaves serrate.....*E. acuminata*
 1b. Leaves entire.....2
 2a. Style 2, bifid to near the base; Calyx-lobes large, spatulate with white bristles..*E. microphylla*
 2b. Style 1, bifid less than half-way down; calyx-lobes small, oblong, ovate or lanceolate, glabrous or pubescent.....3
 3a. Inflorescence lax; calyx lobe linear-oblong.....*E. ovalifolia*
 3b. Inflorescence dense; calyx lobe ovate-lanceolate.....*E. laevis*

Ehretia acuminata R. Br., Prodr. Fl. Nov. Holl. 497. 1810; FEG 4: 184. 2011. *E. dichotoma* Blume, Bijdr. Fl. Ned. Ind. 842. 1826.

Tree with more or less fluted stem. Bark grey with vertical fissures, fibrous. Leaves elliptic to elliptic-oblong, sharply serrate, glabrescent. Flowers small, white with an unpleasant smell, in terminal dense panicles. Fruit small, ellipsoid, with 2-celled pyrenes, 4-seeded. Occasional along the river sides. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** LP 1688 (SACONH).

Ehretia laevis Roxb., Pl. Coromandel 1: t. 56. 1796 & Fl. Ind. 2: 341. 1824; FBI 4: 144. 1883; FPM 2: 626. 1957; FTC 3(2): 1001. 1983; FTN 2: 98. 1987; FEG 4: 186. 2011. *E. aspera* Willd., Phytographia 4. 1794; FEG 4: 184. 2011.

Tree, tender parts hirsute-pubescent. Leaves broadly ovate-oblong, chartaceous, sparsely hirsute above. Inflorescence terminal, cymose clusters unilateral. Calyx lobes 5, lanceolate, thick herbaceous, Corolla lobes 5, broadly oblong. Stamens 5. Drupe globose.

Common in foothills. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** LP 2237 (SACONH); VS 18946 (FRC); TRN 78661 (MH); PSAT 186913, 187591, 187592 (MH).

Ehretia microphylla Lam., Tabl. Encycl. 1: 425. 1792; FPM 2: 626. 1957. *Carmona retusa* (Vahl) Masam., Trans. Nat. Hist. Soc. Taiwan 30: 61. 1940; FTC 3(2): 996. 1983; FTN 2: 97. 1987; FEG 4: 172. 2011.

Sub shrub. Leaves alternate, clustered with axillary leaves, obovate-spathulate, thick, white glandular above, apex 3-7 toothed. Flowers (4)5, unequal, axillary, solitary. Calyx lobes (4)5, unequal, elliptic-oblong. Corolla cream, lobes 5, oblong-elliptic, imbricate, Stamens (4)5. Ovary globose. Drupe globose.

Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Jan.-Mar. **VN:** *Kurangu vethailai*. **Sp.Ex.:** LP 3037 (SACONH); VN 78940 (MH); PSAT 186928 (MH).

Ehretia ovalifolia Wight, Icon. Pl. Ind. Orient. t. 1383. 1848; FBI 4: 143. 1883; FPM 2: 626. 1957; FTC 3(2): 1002. 1983; FTN 2: 99. 1987; FEG 4: 187. 2011.

Tree. Leaves broadly elliptic-ovate, subcoriaceous, thinly-pubescent. Cymes dichotomous. Calyx lobes 5, oblong. Corolla lobes 5, oblong. Stamens 5. Ovary divided from near the middle.

Occasional in deciduous forest. **Fl. & Fr.:** Aug. **Sp.Ex.:** LP 1858 (SACONH); KNS 8163 (FRC); VS 18945 (FRC).

HELIOTROPIUM L., Sp. Pl. 130. 1753.

Key to the species

- 1a. Fruiting calyx woolly, enclosing nutlets; nutlets tuberculate.....*H. supinum*
 1b. Fruiting calyx not woolly, not enclosing nutlets; nutlets not tuberculate.....2
 2a. Leaves above 7 x 5 cm; nutlets connate in pairs, beaked.....*H. indicum*

- 2b. Leaves below 5x 2 cm; nutlets free, obtuse.....3
 3a. Bracts conspicuous; spikes below 5 cm long.....*H. maritolum*
 3b. Bracts inconspicuous; spikes above 5 cm long.....*H. strigosum*

Heliotropium indicum L., Sp. Pl. 130. 1753; FBI 4: 152. 1883; FPM 2: 630. 1957; FTC 3(2): 988. 1983; FTN 2: 99. 1987; FEG 4: 160. 2011.

Subshrub, tender parts hirsute. Leaves broadly elliptic-ovate, chartaceous, sparsely strigose along nerves. Spikes terminal or leaf-opposed, often furcate. Calyx lobes 5, lanceolate. Corolla salver form, tube cylindric, lobes 5, broadly ovate. Stamens 5. Ovary globose.

Common in plains especially in wastelands, roadsides. **Fl. & Fr.:** Dec.-Mar. & July-Sept. VN: *Thaekodukku poondu*. **Sp.Ex.:** VS 19409 (FRC).

Heliotropium marifolium J. Koenig ex Retz., Observ. Bot. 2: 8. 1781, subsp. *marifolium*; Kazmi, J. Arnold Arbor. 51: 154. 1970; FBI 4: 152. 1883. *H. scabrum* Retz., Observ. Bot. 2: 8. 1781; FBI 4: 152. 1883; FPM 2: 630. 1957; FTC 3(2): 989. 1983; FTN 2: 99. 1987; FEG 4: 163. 2011.

Spreading or procumbent herb, branchlets strigose hairy, closely appressed to substratum. Leaves elliptic-oblong, chartaceous. racemes (sub)terminal. Bracts lanceolate. Calyx lobes 5, obovate to lanceolate. Corolla salver-form, lobes 5, broadly ovate. Stamens 5. Ovary globose. Occasional in foothills. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** SRR 81051 (MH).

Heliotropium strigosum Willd., Sp. Pl. 1: 743. 1798, subsp. *brevifolium* (Wall.) Kazmi, J. Arnold Arbor. 51: 153. 1970; FTC 3(2): 990. 1983; FTN 2: 100. 1987. *H. brevifolium* Wall., Fl. Ind. 2: 2. 1824; FPM 2: 630. 1957.

Procumbent or prostrate perennial herb, strigose hispid. Leaves oblong-lanceolate, reflexed along margins. Flowers white in axillary spicate racemes. Bracts inconspicuous. Stamens cohering at tip. Nutlets ovoid, appressed grey hairy.

Occasional along open dry places near foothills. **Fl. & Fr.:** June-Oct. **Sp.Ex.:** LP 2540 (SACONH); PSAT 187410, 187411 (MH).

Heliotropium supinum L., Sp. Pl. 130. 1753; FBI 4: 149. 1883; FPM 2: 629. 1957; FTC 3(2): 990. 1983; FTN 2: 100. 1987; FEG 4: 166. 2011.

Ascending herb. Branchlets softly hispid-pubescent. Leaves elliptic-ovate, chartaceous, softly white woolly on either side. Spike axillary, (sub)terminal. Calyx lobes 5. Oblong-lanceolate. Corolla tube white, lobes 5, broadly ovate, Stamens 5. Ovary globose. Nutlets tuberculate.

Occasional in hill slopes. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** LP 1674 (SACONH).

TRICHODESMA R. Br., Prodr. Fl. Nov. Holl. 496. 1810.

Key to the species

- 1a. Corolla tube longer than lobes, not recurved; stamens included.....*T. inaequale*
 1b. Corolla tube as long as, or shorter than lobes, recurved; stamens exerted.....2
 2a. Calyx hastate or cordate glandular spots on corolla lobes.....*T. indicum*
 2b. Calyx rounded glandular spots absent on corolla lobes.....*T. zeylanicum*

Trichodesma indicum (L.) Lehm., Pl. Fam. Asperif. 193. 1818, non, R. Br, Prodr. 496. 1810; FBI 4: 153. 1883; FPM 2: 631. 1957; FTC 3(2): 993. 1983; FTN 2: 101. 1987; FEG 4: 169. 2011.

Herb. Leaves hirsute-pubescent below, base auriculate. Calyx lobes 5, hastate at base. Corolla tube blue, lobes 5, broadly ovate to rounded. Stamens 5, exerted. Nutlets smooth on the outer, rugosely pitted.

Common weed in arable lands, fallow land and waste lands. **Fl. & Fr.:** Sept.-Mar. **VN:** *Kasithumbai* & *Kavilthumbai*. **Sp.Ex.:** LP 2286, 2295 (SACONH); VS 18668, 18833 (FRC); CECF 34222 (MH); KCJ 81293 (MH); PSAT 186857, 186988, 187134, 187258, 187511, 187512 (MH).

Trichodesma inaequale Edgew., J. Asiat. Soc. Bengal 21: 175. 1853. *T. amplexicaule* sensu A. DC. in DC., Prodr. 10: 172. 1846 p.p.; FBI 4: 153. 1883 p.p., non. Roth., 1821; FPM 2: 631. 1957. *T. sedgewickianum* S.P. Banerjee, Bull. Bot. Soc. Bengal 16: 10. 1964; FTC 3(2): 994. 1983; FTN 2: 101. 1987; FEG 4: 170. 2011.

Herb. Leaves broadly oblong-lanceolate, base cordate. Flowers(s) axillary, solitary. Calyx lobes 5. Corolla pinkish white, salver form, throat with 4 unequal spots, lobes 5, broadly ovate. Stamens 5, included. Nutlets smooth.

Occasional in plains especially in arable lands. **Fl. & Fr.:** Nov. **Sp.Ex.:** VN 79641 (MH).

Trichodesma zeylanicum (Burm.f.) R. Br., Prodr. Nov. Holland. 496. 1810, “*zeylanica*”; FBI 4: 154. 1883; FPM 2: 632. 1957; FTC 3(2): 994. 1983; FEG 4: 170. 2011.

Herb. Leaves white-hirsute. Flowers solitary, (extra)axillary, gradually passing on to lax, terminal racemes by the reduction of leaves. Calyx lobes 5, 3-ribbed. Corolla tube, bluish, lobes 5, broadly ovate-cordate. Stamens 5. Nutlets 5, smooth.

Occasional in hill stations. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** VS 18669 (FRC); KCJ 81160 (MH); PSAT 186625, 186626 (MH).

CONVOLVULACEAE Juss., Gen. Pl. 132. 1789.

Key to the genera

- 1a. Style 1.....1
- 1b. Style 2 or more.....8
- 2a. Pollen grains spinulose.....3
- 2b. Pollen grains smooth or colpate.....6
- 3a. Stigma linearly oblong.....*Rivea*
- 3b. Stigma capitate or biglobse.....4
- 4a. Calyx accrescent, larger than fruit.....*Stictocardia*
- 4b. Calyx not accrescent, smaller than fruit.....5
- 5a. Fruit indehiscent, epicarp fleshy; seeds embedded in nearly pulp.....*Argyreia*
- 5b. Fruits dehiscent, epicarp thin, fragile; seeds not embedded in nearly pulp.....*Ipomoea*
- 6a. Ovary imperfectly 2-locular; stigma lobes oblong.....*Hewittia*
- 6b. Ovary perfectly 2- or 4-locular; stigma lobes capitate or globose.....7
- 7a. Capsule circumscissile or irregularly dehiscent; branchlets winged.....*Operculina*
- 7b. Capsule 2-4-valved; branchlets not winged.....*Merremia*
- 8a. Corolla-tube with fimbriate scales; leafless.....*Cuscuta*
- 8b. Corolla-tube without scales; leafy.....9
- 9a. Small prostrate herb; leaf base rounded or acute.....*Evolvulus*
- 9b. Tomentose climber; leaf base cordate.....*Bonamia*

ARGYREIA Lour., Fl. Cochinch. 95, 134. 1790.

Key to the species

- 1a. Peduncle more than 5 cm long.....*A. elliptica*
- 1b. Peduncle less than 5 cm long.....2
- 2a. Erect shrubs.....*A. cuneata*
- 2b. Climbing shrubs.....3
- 3a. Leaves glabrous on the upper surface.....*A. populifolia*
- 3b. Leaves hairy on the upper surface.....4

- 4a. Sepals acuminate or acute.....*A. pilosa*
 4b. Sepals ovate, obtuse.....*A. pomacea*

Argyreia cuneata (Willd.) Ker Gawl., Bot. Reg. 8: t. 661. 1822; FBI 4: 191. 1883; FSIHS 2: 415. t. 354. 1932; FPM 2: 638. 1957; FTC 3(2): 1007. 1983; FTN 2: 102. 1987; FEG 4: 197. 2011.

Erect shrub, branchlets glaucous. Leaves oblong, subcoriaceous, strigose above, sericeous below. Cyme lax. Bracteoles leafy, oblong. Calyx lobes 5, unequal. Corolla purple, Stamens 5. Ovary 4-locular. Fruit berry, fruiting calyx spreading or reflexed.

Occasional clumps on the deciduous forest and scrub jungles. **Fl. & Fr.:** Aug.-Feb. **VN:** *Kanvalippoo*. **Sp.Ex.:** KA & PB 1575 (SACONH); KNS 8766, 8767 (FRC); VS 18943, 19249, 19255 (FRC); CECF 34493, 34505 (MH); CAB 34506 (MH); KCJ & JD 81231 (MH); EV 142028, 142029 (MH); PSAT 186893, 186950, 187161, 187432, 187433 (MH).

Argyreia elliptica Roth. ex Choisy, Convolv. Orient. 35. 1834; FTC 3(2): 1010. 1983; FTN 2: 102. 1987; FEG 4: 201. 2011. *Lettsomia elliptica* (Roth) Wight, Icon. Pl. Ind. Orient. t. 1356. 1848; FBI 4: 192. 1883; FPM 2: 640. 1957.

Vine, branchlets sparsely pubescent. Leaves elliptic-ovate to obovate, chartaceous. Cymes lax, corymbose. Calyx lobes 5, subequal, ovate. Corolla pink to rose. Stamens 5. Ovary 2-locular. Berry orange.

Common in deciduous forest border. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** LP 2912 (SACONH); CECF 8181 (FRC); VS 18673, 18888 (FRC); VN 78263 (MH); KCJ & JD 81247, 81108 (MH); SRR 83202 (MH); CECF 86109 (MH); PSAT 186903, 187218 (MH).

Argyreia pilosa Wight & Arn., Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur. 18(1): 356c. 1836; FBI 4: 189. 1883; FPM 2: 638. 1957; FTC 3(2): 1012. 1983; FTN 2: 103. 1987; FEG 4: 207. 2011.

Vine. Branchlets densely hirsute. Leaves deltoid-ovate to lanceolate, subcoriaceous, hirsute above, strigose below. Cymes corymbose. Bracts linear-ob lanceolate. Calyx lobes 5, subequal, obovate to oblanceolate. Corolla tube rose, sericeous without. Stamens 5. Ovary 4-locular.

Occasional in deciduous forest. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** VS 18719, 19253 (FRC); PSAT 186888 (MH).

Argyreia pomacea Choisy, Convolv. Orient. 32. 1834; FBI 4: 188. 1883; FPM 2: 638. 1957; FTN 2: 103. 1987; FEG 4: 207. 2011. *Lettsomia pomacea* Roxb., Fl. Ind. 2: 83. 1824.

Vine, branchlets with reddish brown trichomes. Leaves ovate, chartaceous, densely strigose below, sparsely above. Cymes axillary, compact. Calyx lobes 5, unequal. Corolla tube purplish within, limb white. Stamens 5, included. Ovary ovoid. Berry ovoid. Seeds 3.

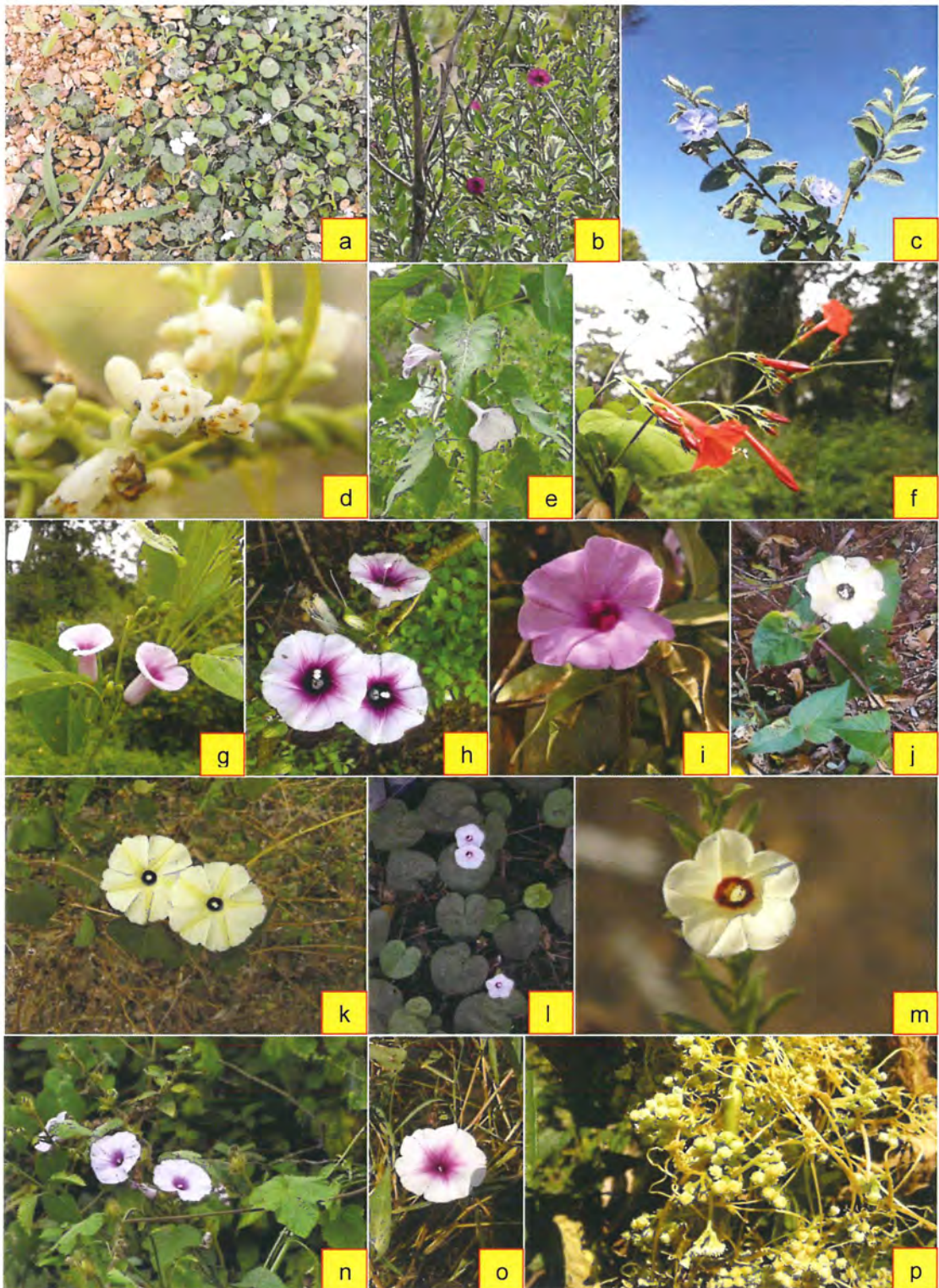
Occasional in deciduous forest borders. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** CECF 7976 (FRC); VS 19248 (FRC).

Argyreia populifolia Choisy, Convolv. Orient. 32. 1834; FBI 4: 187. 1883; FPM 2: 637. 1957; FTN 2: 103. 1987; FEG 4: 208. 2011.

Climbing shrubs, stem glabrous. Leaves alternate, broadly ovate. Flowers in dense axillary corymbose many-flowered cymes. Bracts leafy, ovate to linear lanceolate. Sepals 5, sparsely hairy without. Corolla funnel-shaped, pinkish white. Berry globose. Seeds 2-4.

Occasional in dry localities of the plains. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** PSAT 187255 (MH).

PLATE 15 - CONVULVULACEAE



a) *Evolvulus nummularius*, b) *Argyreia cuneata*, c) *Evolvulus alsinoides*, d) *Cuscuta reflexa*, e) *Ipomoea carnea* subsp. *fistulosa*, f) *Ipomoea hederifolia*, g) *Argyreia elliptica*, h) *Ipomoea staphylina*, i) *Argyreia populifolia*, j) *Hewittia malabarica*, k) *Ipomoea obscura*, l) *Ipomoea marginata*, m) *Merremia tridentata*, n) *Ipomoea wightii*, o) *Ipomoea aquatica*, p) *Cuscuta chinensis*.

BONAMIA Thouars, Hist. Veg. Afr. 1: 33. 1804.

Bonamia semidigyna (Roxb.) Hallier f., Bot. Jahrb. Syst. 16: 528. 1893; FTN 2: 104. 1987; FEG 4: 211. 2011. *Breweria cordata* sensu Hook. f., Fl. Brit India 4: 223. 1883; FPM 2: 638. 1957, acut. nom. Blume, 1826.

Tomentose climbers. Leaves ovate-cordate. Flowers 2-5, in umbellate cymes, 5-merous. Bracts oblanceate. Sepals subequal, elliptic-ovate to ovate-oblong. Corolla white, funnel-form, pilose without. Stamens included. Ovary 2-locular. Style 2-fid. Capsule subglobose. Seed black, glabrous.

Occasional in moist deciduous forest. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** PSAT 186996, 186997 (MH).

CUSCUTA L., Sp. Pl. 124. 1753.

Key to the species

- 1a. Slender twiners on low thickets; inflorescence a fascicle; calyx-lobes scarious.....*C. chinensis*
- 1b. Stout twiners on trees; inflorescence a raceme; calyx-lobes thick.....*C. reflexa*

Cuscuta chinensis Lam., Encycl. 2: 229 (1). 1786; FBI 4: 226. 1883; FPM 2: 654. 1957; FTC 3(2): 1013. 1983; FTN 2: 104. 1987; FEG 4: 262. 2011.

Leafless, twining, parasitic vines. Flowers shortly stalked in fascicles. Calyx lobes 5, scabrous. Corolla cream, campanulate, lobes 5, oblong. Stamens 5. Style 2 filiform, Stigma capitate. Capsule dry.

Common in foothills and deciduous forest. **Fl. & Fr.:** Jan.-Mar. & July-Sept. **Sp.Ex.:** VS 19247 (FRC).

Cuscuta reflexa Roxb., Pl. Coromandel 2: 3. t. 104. 1798; FBI 4: 225. 1883; FPM 2: 654. 1957; FTC 3(2): 1014. 1983; FTN 2: 105. 1987; FEG 4: 265. 2011.

Leafless, twining, parasitic vines. Flowers subsessile, in racemes. Calyx lobes 5, thick. Corolla cream, tubular-campanulate, lobes 5, oblong-lanceolate, chartaceous. Stamens 5. Capsules succulent.

Occasional in deciduous forests. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** PSAT 187015 (MH).

EVOLVULUS L. Sp. Pl. ed. 2. 391. 1762.

Key to the species

- 1a. Corolla cream, shortly tubular-campanulate; capsule 1-celled.....*E. nummularis*
- 1b. Corolla blue, rotate; capsule 2-celled.....*E. alsinoides*

Evolvulus alsinoides (L.) L., Sp. Pl. (ed. 2)1: 392. 1762; FBI 4: 220. 1883; FPM 2: 648. 1957; FTC 3(2): 1015. 1983; FTN 2: 105. 1987; FEG 4: 215. 2011. *Convolvulus alsinoides* L., Sp. Pl. 157. 1753.

Prostrate or ascending herb. Leaves elliptic, oblong to lanceolate, thinly sericeous. Flowers usually solitary. Calyx lobes 5, sericeous without. Corolla blue, lobes 5. Stamens 5, equal. Capsule 2-celled.

Common in plains on the forest floor of scrub jungles and dry deciduous forest. **Fl. & Fr.:** Almost throughout the year. **VN:** *Visnukaranthi*. **Sp.Ex.:** LP 2511 (SACONH); VS 18942 (FRC); CECF 34961 (MH); VN 78751 (MH); PSAT 186490, 186491, 186655, 186656, 186883 (MH).

Evolvulus nummularius (L.) L., Sp. Pl. (ed. 2) 391. 1762; FTC 3(2): 1016. 1983; FTN 2: 105. 1987; FTN 2: 105. 1987; FEG 4: 216. 2011. *Convolvulus nummularis* L., Sp. Pl. 157. 1753.

Prostrate or ascending herb. Leaves (sub)quadrate to suborbicular, glabrous or truncate. Flowers 1 or 2 per nodes. calyx lobes 5, ciliate. Corolla cream, shortly tubular-campanulate, lobes 5. Stamens 5. Capsule 1-celled.

Common in hill stations. **Fl. & Fr.:** June-Dec. **Sp.Ex.:** LP 2227 (SACONH).

HEWITTIA Wight & Arn., Madras J. Lit. Sci., ser. 1. 5: 22. 1837.

Hewittia malabarica (L.) Suresh in Nicolson *et. al.*, Interp. Van Rheede's Hort Malab. 88. 1988; FEG 4: 218. 2011. *H. sublobata* (L. f.) Kuntze, Revis. Gen. Pl. 2: 441. 1891; FTC 3(2): 1016. 1983; FTN 105. 1987. *H. bicolor* (Vahl) Wight & Arn., Madras J. Lit Sci. 5: 22. 1837; FBI 4: 220. 1883; FPM 2: 649. 1957.

Vine. Leaves broadly or narrowly cordiform, chartaceous, puberulous, base cordate, margin entire or broadly angled. Flower(s) axillary, usually solitary. Bracts linear-lanceolate. calyx lobes 5, unequal, ovate. Corolla yellowish, lobes silky pubescent. Stamens 5. Ovary globose. Stigmas 2, oblong. Capsule globose, 4-valved. Seeds trigonous.

Occasional in plains on forest border. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** PSAT 186550, 186551, 187444, 187445 (MH).

IPOMOEA L. Sp. Pl. 159. 1753.

Key to the species

- 1a. Erect shrub.....*I. carnea* subsp. *fistulosa*
- 1b. Creepers or twiners.....2
- 2a. Aquatic rooting at nodes.....*I. aquatica*
- 2b. Terrestrial.....3
- 3a. Corolla salver-form, lobes triangular; stamens and style exerted.....4
- 3b. Corolla funnel-form, lobes indehiscent; stamens and style included.....6
- 4a. Leaves pinnatifid.....*I. quamoclit*
- 4b. Leaves ovate-cordiform.....5
- 5a. Corolla red; persistent septum white membranous.....*I. hederifolia*
- 5b. Corolla other than red; persistent septum not so.....*I. marginata*
- 6a. Flowers subsessile, aggregated in capitate clusters.....*I. wightii*
- 6b. Flowers stalked, solitary or in cymes or panicles.....7
- 7a. Calyx-lobes linear-lanceolate, acuminate > 1 cm long.....*I. nil*
- 7b. Calyx-lobes otherwise, apex obtuse-apiculate, < 0.7 cm long.....8
- 8a. Panicle; leaf base truncate to subcordate.....*I. staphylina*
- 8b. Umbellate cyme; leaf base deeply cordate.....*I. obscura*

Ipomoea aquatica Forssk, Fl. Aeg.-Arab. 44. 1775; FBI 4: 210. 1883; FTC 3(2): 1021. 1983; FTN 2: 105. 1987; FEG 4: 223. 2011. *I. reptans* Poir. in Lam., Encycl. Suppl. 3: 460. 1814, non L. 1753; FPM 2: 643. 1957.

Profusely branched creeper, rooting at nodes. Leaves lanceolate to hastate, chartaceous. Flower(s) solitary or in cymes. Calyx lobes 5, subequal. Corolla pinkish, funnel form. Stamens 5. Ovary oblong. Capsule with persistent calyx embracing the fruit.

Common in plains on irrigation canals, river banks etc., **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 1625 (SACONH).

Ipomoea carnea Jacq., Enum. Syst. Pl. 13. 1760, subsp. *fistulosa* (Mart. ex Choisy) D.F. Austin, Taxon 26: 237. 1977; FTC 3(2): 1024. 1983; FEG 4: 226. 2011. *I. fistulosa* Mart, ex Choisy in DC., Prodr. 9: 349. 1845; FPM 2: 645. 1957.

Erect shrub, branchlets hollow, puberulous to glaucous. Leaves broadly ovate, deltoid to hastate, chartaceous. Panicles axillary, rarely subterminal. Calyx lobes 5, subequal. Corolla pink to rose. Stamens 5. Ovary conical. Seeds hairy, brownish woolly.

Occasional in wetlands, along riverbanks and irrigation canals. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** PSAT 186774, 186775, 187509, 187510, 187364 (MH).

Ipomoea hederifolia L., Syst. Nat. ed. 10. 925. 1759; FTC 3(2): 1027. 1983; FTN 2: 107. 1987; FEG 4: 233. 2011. *Quamoclit phoenicea* (Roxb.) Choisy, Convolv. Orient. 51. 1834; FPM 2: 645. 1957.

Well branched vine, branchlets pubescent. Leaves broadly ovate-cordiform, chartaceous. Cymes lax. Calyx lobes 5, subequal. Corolla reddish, salver-form. Stamens 5, unequal. Ovary conical. Seeds oblong.

Occasional in disturbed areas and plantations. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** LP 2229, 2268 (SACONH); SRR 83214 (MH); PSAT 187220, 187360 (MH).

Ipomoea marginata (Desr.) Verdc., Kew Bull. 42(3): 658. 1987. *I. sepiaria* J. Koenig. ex Roxb., Fl. Ind. 2: 90. 1824; FBI 4: 209. 1883; FPM 2: 643. 1957; FTC 3(2): 1032. 1983; FTN 2: 108. 1987; FEG 4: 235. 2011.

Slender vine, branchlets hirsute, Leaves triangular-cordiform, chartaceous, glabrous. Flowers solitary, pedicellate. Calyx lobes 5, subequal, obovate. Corolla cream with purple throat, salver form. Stamens 5. Ovary conical. Capsule globose. Seeds white-velvety.

Occasional in arable lands. **Fl. & Fr.:** Dec.-Jan. **VN:** Thazhakkodi. **Sp.Ex.:** LP 2539 (SACONH).

Ipomoea nil (L.) Roth, Catal. Bot. 1: 36. 1797; FTC 3(2): 1028. 1983; FTN 2: 107. 1987; FEG 4: 237. 2011. *I. hederacea* auct. non (L.) Jacq. 1787; FBI 4: 199. 1883; FPM 2: 644. 1957.

Vine. Leaves 3-lobed, rarely entire, chartaceous. Flower(s) solitary or in cymes. Calyx lobes 5, subequal, linear-lanceolate. Corolla pink-purple, funnel form. Stamens 5. Ovary conical. Occasional in deciduous forest. **Fl. & Fr.:** Sept.-Jan. **Sp.Ex.:** LP 2033 (SACONH); CECF 5118 (FRC); VN 79094 (MH).

Ipomoea obscura (L.) Ker Gawl., Bot. Reg. 3: t. 239. 1817; FBI 4: 207. 1883; FPM 2: 643. 1957; FTC 3(2): 1030. 1983; FTN 2: 107. 1987; FEG 4: 238. 2011.

Slender twiner. Leaves cordiform, chartaceous, puberulous. Flower(s) solitary or in subumbellate cyme. Calyx lobes 5, unequal, oblong-obovate. Corolla yellowish, tinged pink, funnel-form. Stamens 5. Ovary conical. Stigma capitate. Capsule sub-globose.

Common in along roadsides, foothills and wastelands. **Fl. & Fr.:** Throughout the year. **VN:** Siruthalikodi. **Sp.Ex.:** VS 18672, 18674 (FRC); CECF 34694, 34691, 34698, 34699, 34708 (MH); KCJ & JD 81163 (MH).

Ipomoea quamoclit L., Sp. Pl. 159. 1753; FBI 4: 199. 1883; FTC 3(2): 1031. 1983; FTN 2: 108. 1987. *Quamoclit pinnata* (Desr.) Bojer, Hort. Maurit. 224. 1837; FPM 2: 645. 1957. "*pinnata*".

Vine, branchlets slender, twining. Leaves pinnatifid, lobes linear. Stipular leaves small pinnatifid. Flower(s) solitary, rarely in cymes. Calyx lobes 5, free. Corolla deep red, salver form. Stamens 5. Ovary conic, 4-locular. Stigma biglobose. Seeds oblong.

Occasional in roadsides, also planted along the road sides. **Fl. & Fr.:** Throughout the year. **VN:** Mayilmanikkam. **Sp.Ex.:** LP 2548 (SACONH).

Ipomoea staphylina Roem. & Schult., Syst. Veg. 4. 249. 1819; FBI 4: 210. 1883; FPM 2: 643. 1957; FTC 3(2): 1033. 1983; FTN 2: 108. 1987; FEG 4: 242. 2011.

Extensive liane. Leaves deltoid, elliptic to broadly ovate, chartaceous. Panicles rarely subterminal. Bracts deciduous. Calyx lobes 5, subequal, broadly ovate to suborbicular. Corolla pink with a deeper throat, funnel-form. Stamens 5. Ovary conical. Seeds oblong.

Common and gregarious in plains as weed. **Fl. & Fr.:** Dec.-Mar. **VN:** *Onaan kodi*. **Sp.Ex.:** KNS 6911, 6940 (FRC); VS 18670, 18671 (FRC); KCJ & JD 81120 (MH); PSAT 186607, 186608, 187139, 187387, 187388 (MH).

Ipomoea wightii (Wall.) Choisy, Mem. Soc. Phys. Geneve 6: 470. 1834; FBI 4: 203. 1883; FPM 2: 644. 1957; FTC 3(2): 1033. 1983; FTN 2: 109. 1987; FEG 4: 247. 2011.

Vine, branchlets hirsute. Leaves simple, broadly ovate, margin entire to irregularly toothed. Flowers subsessile, aggregated in capitate clusters. Bracts lanceolate. Calyx lobes 5, subequal. Corolla pinkish to purple, funnel form. Stamens 5. Ovary conical.

Rare in hill station. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** SRR 80594 (MH); KCJ 81438 (MH); PSAT 187250 (MH).

MERREMIA Dennst. ex Endl., Gen. Pl. 1403. 1841.

Key to the species

- 1a. Leaves palmately compound.....*M. aegyptica*
- 1b. Leaves simple.....2
- 2a. Leaf-apex obtuse or retuse.....*M. tridentata*
- 2b. Leaf-apex acute to acuminate.....*M. hederacea*

Merremia aegyptica (L.) Urban, Symb. Antill. 4: 505. 1910; FPM 2: 652. 1957; FTC 3(2): 1036. 1983; FTN 2: 109. 1987; FEG 4: 246. 2011. *Ipomoea aegyptica* L., Sp. Pl. 162. 1753.

Vine. Branchlets sericeous. Leaves palmately compound, leaflets 5, obovate. Cymes dichasial, become monochasial. Calyx lobes 5, unequal. Corolla white. Stamens 5. Ovary conic, stigma globose. Capsule covered by silky, sericeous calyx-lobes.

Occasional in deciduous forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** VS 19251 (FRC).

Merremia hederacea (Burm. f.) Hallier f., Bot. Jahrb. Syst. 18: 118. 1893; FTC 3(2): 1037. 1983; FTN 2: 110. 1987; FEG 4: 248. 2011. *M. chryseides* Hallier f., Bot. Jahrb. Syst. 16: 552. 1893; FPM 2: 652. 1957.

Profusely branched twiner. Branchlets puberulous. Leaves simple, 3-lobed or cordiform. Cymes dichasial becoming monochasial. Calyx lobes 5, unequal, thick. Corolla yellow. Stamens 5. Ovary conical. Stigma (sub)globose. Seeds pubescent.

Occasional along the river banks and tanks. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** KCJ 81439 (MH).

Merremia tridentata (L.) Hallier. f., Bot. Jahrb. Svst. 16: 552. 1893, var. *tridentata*; FPM 2: 652. 1957; FTC 3(2): 1038. 1983; FTN 2: 110. 1987; FEG 4: 258. 2011. *Ipomoea tridentata* (L.) Roth in Roem., Arch. Bot. 1(2): 38. 1797; FBI 4: 205. 1883.

Prostrate herb. Leaves simple, spatulate, oblong to pandurate, chartaceous. Flower(s) solitary rarely racemose. Calyx lobes 5, subequal, ovate. Corolla cream to yellowish with purple throat. Stamens 5. Ovary globose. Stigma capitate. Seeds glabrous.

Occasional in plains on the floor of scrub jungles and bare wastelands. **Fl. & Fr.:** Dec.-Jan. **Sp.Ex.:** LP 2666 (SACONH); KA & PB 1685 (SACONH); CECF 35152, 35174 (MH); SRR 81032 (MH).

OPERCULINA Silva Manso, Enum. Subst. Bras. 16. 1836.

Operculina turpethum (L.) Silva Manso, Enum. Subst. Braz. 16: 49. 1836; FPM 2: 653. 1957; FEG 4: 254. 2011. *Merremia turpethum* (L.) G.L. Shah & R.G. Bhat, J. Bombay. Nat. Hist. Soc. 74(3): 567. 1978; FTC 3(2): 1039. 1983.

Branchlets winged. Leaves simple, broadly ovate to cordate, chartaceous, margin entire. Cymes lax, corymbose. Bracts large, oblong. Calyx lobes 5, unequal, ovate. Corolla white funnel-form. Stamens 5. Ovary globose. Seeds solitary. Occasional in along the river banks. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** KCJ 81389 (MH); PSAT 187362 (MH).

RIVEA Choisy, Mem. Soc. Phys. Geneve. 6: 408. 1833.

Rivea hypocrateriformis Choisy, Mem. Soc. Phys. Geneve. 6: 408. 1833; FBI 4: 184. 1883; FPM 2: 635. 1957; FTC 3(2): 1042. 1983; FTN 2: 111. 1987; FEG 4: 256. 2011.

Vine. Leaves simple cordiform, subcoriaceous. Flower(s) axillary, solitary or in cymes. Bracts lanceolate. Calyx lobes 5, ovate. Corolla white, salver-form. Stamens 5, unequal. Ovary oblong. Capsule conical, indehiscent.

Common in scrub jungles. **Fl. & Fr.:** Dec.-Feb. **VN:** *Musuttaikodi*. **Sp.Ex.:** VS 18944, 19254 (FRC); VN 79622, 79628 (MH).

STICTOCARDIA Hallier. f., Bot. Jahrb. Syst. 18: 159. 1894.

Stictocardia tiliifolia (Desr.) Hallier. f., Bot. Jahrb. Syst. 18 (1-2): 159. 1894, "*tilliaefolia*"; FPM 2: 635. 1957; FTC 3(2): 1042. 1983; FTN 2: 111. 1987. *Argyreia tiliifolia* (Desr.) Wight, Icon. Pl. Ind. Orient. t. 1358. 1848; FBI 4: 184. 1883.

Vine. Leaves broadly ovate to cordiform, chartaceous. Flower(s) axillary, solitary. Calyx lobes 5, unequal. Corolla pink, funnel-form. Stamens 5, unequal. Ovary conical. Stigma biglobose. Capsule indehiscent.

Occasional in along the river banks. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** KNS 12051, 12052 (FRC); KCJ 81243 (MH); SRR 82215 (MH).

SOLANACEAE Juss., Gen. Pl. 124. 1789.

Key to the genera

- 1a. Fruit a capsule; corolla trumpet-shaped.....*Datura*
- 1b. Fruit a berry; corolla sub-rotate or campanulate.....2
- 2a. Fruiting calyx inflated, overtopping the berry.....3
- 2b. Fruiting calyx neither inflated nor overtopping the berry.....5
- 3a. Calyx-lobes cordate-ovate, 5-angled; corolla blue.....*Nicandra*
- 3b. Calyx-lobes triangular, not angled; corolla yellow.....4
- 4a. Flowers solitary; corolla broadly campanulate.....*Physalis*
- 4b. Flowers clusters; corolla narrowly campanulate.....*Withania*
- 5a. Stamens connivant in a cone; anthers longer than filaments.....6
- 5b. Stamens not connivant in a cone; anthers as long as, or shorter than filaments.....*Capsicum*
- 6a. Anthers dehiscence longitudinal; corolla yellow.....*Lycopersicon*
- 6b. Anthers dehiscence porous; corolla other than yellow.....7
- 7a. Branches straight; flowers in cymes or racemes.....*Solanum*
- 7b. Branches zig-zag; flowers in fascicles.....*Lycianthes*

CAPSICUM L., Sp. Pl. 1: 188. 1753.

Capsicum annum L., Sp. Pl. 188. 1753; FPM 2: 661. 1957; FTC 3(2): 1048. 1983; FTN 2: 112. 1987; FEG 4: 268. 2011. *C. frutescens* sensu C.B. Clarke in Hook. f., Fl. Brit. India 4: 239. 1883, non L. 1753.

Erect herbs. Leaves alternate, ovate, glabrous. Flower(s) in solitary or two in axillary. Calyx lobes 5. Corolla lobes 5, white, salver-form. Stamens 5. Berries ovoid, red when ripen.

Occasional in moist deciduous forest and river banks. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** LP 2599 (SACONH).

DATURA L., Sp. Pl. 1: 179. 1753.

Key to the species

- 1a. Plants glabrous or sparsely pubescent (hairs all eglandular).....2
- 1b. Plants tomentose (all or some hairs glandular).....*D. inoxia*
- 2a. Flowers less than 6 cm long; capsule with only 40-60 spines.....*D. ferox*
- 2b. Flowers more than 6 cm long; capsule with numerous sharp spines.....3
- 3a. Leaves angled; fruiting calyx large; capsule septifragal.....*D. metel*
- 3b. Leaves sinuate; fruiting calyx small; capsule septicidal.....*D. stramonium*

Datura ferox L., Demonstr. Pl. 6. 1753. *Datura laevis* Bertol., Fl. Ital. 4: 780 1841.

Herb. Leaves elliptic to angulate, margin frequently lobed, rarely entire. Calyx lobes 5, lanceolate. Corolla white, lanceolate. Stamens 5. Fruit a capsule, spines long, erect, strong, few. Occasional in along the roadsides. **Fl. & Fr.:** June-Oct. **Sp.Ex.:** LP 2829 (SACONH).

Datura inoxia Mill., Gard. Diet. ed. 8. no. 5. 1768; FTC 3(2): 1051. 1983; FTN 2: 113. 1987; FEG 4: 278. 2011. *D. metel* auct. non L. 1753; FBI 4: 243. 1883; FPM 2: 660. 1957.

Herb. Leaves elliptic-ovate, softly pubescent. Calyx lobes 5, lanceolate. Corolla white, teeth 10, lanceolate. Stamens 5. Fruit a capsule, spines many, long, weak. Occasional in foot hills and river beds. **Fl. & Fr.:** Throughout the year. **VN: Oomathai. Sp.Ex.:** LP 1694 (SACONH).

Datura metel L., Sp. Pl. 179. 1753; FTC 3(2): 1052. 1983; FTN 2: 113. 1987; FEG 4: 278. 2011. *D. fastuosa* L. var. *alba* (Nees) C.B. Clarke in Hook. f., Fl. Brit. India 4: 243. 1883; FPM 2: 660. 1957.

Subshrub. Leaves elliptic to angulate, margin frequently lobed. Calyx lobes 5, lanceolate. Corolla white, teeth 5, lanceolate. Stamens 5. Fruit a capsule, spines short, stout, blunt, sometime forked.

Common in river beds. **Fl. & Fr.:** Throughout the year. **VN: Karuoomathai. Sp.Ex.:** KNS 8370 (FRC); VS 18677, 18938 (FRC).

Datura stramonium L., Sp. Pl. 179. 1753; FBI 4: 242. 1883; FSIHS 424. 1932; FPM 2: 660. 1957; FEG 4: 280. 2011.

Subshrub. Leaves ovate, narrowed at base, acute-acuminate at apex, membranous, sparsely pubescent. Flowers solitary, axillary, white or dark violet. Calyx lobes 5, lanceolate. Corolla teeth 5, rarely 10, lanceolate. Stamens 5. Capsules sub-globose, c 3.5 cm. Seeds reniform, black.

Common in shady wastelands, along the riverbeds. **Fl. & Fr.:** July-Oct. **VN: Karuoomathai. Sp.Ex.:** KNS 11987, 11988 (FRC); KCJ 81313 (MH); PSAT 187277, 187278 (MH).

LYCIANTHES (Dunal) Hassl., Annuaire Conserv. Jard. Bot. Geneve. 20: 180. 1917.

Lycianthes bigeminata (Nees) Bitter, Abh. Naturwiss. Vereine Bremen Lycianthes 24: 480. 1920. *Solanum laeve* auct. non Dunal ex Poir, 1814; FBI 4: 231. 1883; FSIHS 419. t. 355. 1932; FPM 2: 657. 1957.

Subshrubs, branchlets glabrous. Leaves alternate or fascicled, elliptic-ovate. Flowers axillary, fascicled. Calyx cupular, toothed. Corolla rotate, lobes 5, oblong, whitish. Stamens 5. Ovary conical. Berry globose. Seeds many, reddish.

Occasional in evergreen forest borders. **Fl. & Fr.:** May-June. **Sp.Ex.:** VS 79786 (MH).

LYCOPERSICON Mill., Gard. Dict. Abr., ed. 4. 1754.

Lycopersicon esculentum Mill., Gard. Diet. ed. 8. n. 2. 1768; FBI 4: 237. 1883; FPM 2: 941. 1957; FTC 3(2): 1053. 1983; FTN 2: 113. 1987; FEG 4: 283. 2011. *Solanum lycopersicum* L., Sp. Pl. 185. 1753; Roxb., Fl. Ind. 1: 565. 1832.

Sticky pubescent herb. Leaves pinnatisect, chartaceous, lobes obliquely triangular-ovate. Flower(s) solitary, axillary, pedicellate. Calyx lobes 5, triangular-lanceolate, chartaceous. Corolla yellow, subrotate, lobes 5, triangular-lanceolate. Stamens 5. Ovary 2-locular. Berry irregularly 4-6 lobed, depressed globose. Seeds discoid.

Commonly cultivated species. Escaped, grown along the river beds. **Fl. & Fr.:** Throughout the year. **VN:** *Kuttihakkali*. **Sp.Ex.:** LP 1678 (SACONH).

NICANDRA Adens., Fam. Pl. 2: 219. 1763.

Nicandra physalodes (L.) Gaertn., Fruct. Sem. Pl. 2: 237. t. 131. f. 2. 1791 "*physaloides*"; FBI 4: 240. 1883; FSIHS 2: 423. t. 362. 1932; FPM 2: 661. 1957; FTC 3(2): 1054. 1983; FTN 2: 114. 1987; FEG 4: 284. 2011.

Subshrub, stem fleshy, angular, pale pink. Leaves ovate-elliptic. Flowers solitary or in few-flowered cymes. Corolla tube bluish white or violetish. Berries yellow when ripe.

Common weeds of cultivated lands in hills. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** KNS 8589, 8590, 9165, 18145 (FRC); CECF 35707, 35710 (MH); CAB 35708, 35709 (MH); VN 79000 (MH); KCJ 81334 (MH).

PHYSALIS L., Sp. Pl. 1: 182. 1753.**Key to the species**

- 1a. Fruiting calyx >3 cm long; corolla >1 cm across; berry >1 cm across.....*P. lagascae*
1b. Fruiting calyx <2 cm long; corolla <0.5 cm across; berry <0.7 cm across.....*P. angulata*

Physalis angulata L., Sp. Pl. 183. 1753; FBI 4: 238. 1883; FPM 2: 659. 1957. *P. minima* L., Sp. Pl. 183. 1753; FBI 4: 238. 1883; FPM 2: 659. 1957; FTC 3(2): 1056. 1983; FTN 2: 114. 1987; FEG 4: 286. 2011.

Herb. Leaves elliptic-ovate, chartaceous, sparingly strigose, margin coarsely toothed. Calyx lobes 5, triangular, chartaceous. Corolla lobes 5, triangular-ovate. Stamens 5, unequal. Fruit a berry.

Common in shady moist places. **Fl. & Fr.:** Nov.-Feb. & July-Oct. **VN:** *Sodakku thakkali*. **Sp.Ex.:** CECF 35630 (MH); VN 78785; KR 138917, 138918 (MH).

Physalis lagascae Roem. & Schult., Syst. Veg. 4: 679. 1819.

Herb. Leaves elliptic-ovate, chartaceous, margins toothed or lobed. Flower(s) greenish yellow in axillary or terminal solitary. Calyx lobes 5, triangular. Corolla greenish yellow, campanulate, lobes 5. Stamens 5. Fruit a berry.

Occasional in along the road sides of shady moist locations. **Fl. & Fr.:** Mar.-June. **Sp.Ex.:** VS 19019, 19126 (FRC).

SOLANUM L., Sp. Pl. 1: 184. 1753.**Key to the species**

- 1a. Stems climbing or scandent.....*S. trilobatum*
1b. Stems erect or diffusely prostrate.....2
2a. Plants unarmed.....3

2b. Plants armed with strong prickles.....	7
3a. Herbs.....	<i>S. americanum</i>
3b. Shrubs or small trees.....	4
4a. Flowers in racemes.....	<i>S. pubescens</i>
4b. Flowers in corymbose panicles.....	5
5a. Berries dark purple with greyish green spots.....	<i>S. asperolanatum</i>
5b. Berries yellow or reddish.....	6
6a. Plants densely stellate-tomentose; berries yellow.....	<i>S. erianthum</i>
6b. Plants glabrous to puberulous or scabrid; berries scarlet-red, shiny.....	<i>S. diphyllum</i>
7a. Prickles straight.....	<i>S. wrightii</i>
7b. Prickles curved.....	8
8a. Leaves with prickles.....	9
8b. Leaves without prickles.....	12
9a. Berry less than 1 cm diameter, orange-red.....	10
9b. Berry more than 1.5 cm diameter, yellow or white with greenish lines.....	11
10a. Racemes lax; pedicels to 2 cm.....	<i>S. anguivi</i>
10b. Racemes dense; pedicels to 0.7 cm.....	<i>S. violaceum</i>
11a. Leaves covered with simple hairs; prickles to 2 cm long.....	<i>S. virginianum</i>
11b. Leaves covered with stellate hairs; prickles to 1 cm long.....	<i>S. insanum</i>
12a. Flowers white; berry greenish-yellow.....	<i>S. torvum</i>
12b. Flowers violet; berry red.....	<i>S. giganteum</i>

Solanum anguivi Lam., Tabl. Encycl. 2: 23. 1794, var. *anguivi*; FTC 3(2): 1058. 1983; FTN 2: 115. 1987; FEG 4: 290. 2011. *S. indicum* auct. non L. 1753; FBI 4: 234. 1883; FPM 2: 658. 1957.

Armed shrub. Leaves sinuate, chartaceous. Racemes 8-10 flowered, extra-axillary. Calyx cupular, lobes 5, triangular, thick, prickly. Corolla blue-purple, lobes 5. Stamens 5. Stigma acute. Berry globose. Seeds minutely pitted.

Common in hills of degraded slopes and wastelands. **Fl. & Fr.:** Jan.-April. **VN:** *Mulluchundai*. **Sp.Ex.:** VS 18891, 18941 (FRC).

Solanum americanum Mill., Gard. Dict. (ed. 8) 5. 1768. *S. nigrum* L., Sp. Pl. 186. 1753; FBI 4: 229. 1883; FSIHS 2: 419. 1932; FPM 2: 657. 1957; FTC 3(2): 1062. 1983; FTN 2: 116. 1987; FEG 4: 298. 2011.

Unarmed shrub, branchlets sparsely scabrous, zigzag. Leaves broadly ovate-elliptic, chartaceous, margin bluntly toothed. Umbel ca. 7 flowered, extra axillary. Calyx cupular, herbaceous, lobes 5, oblong. Corolla white, lobes 5, oblanceolate. Stamens 5. Stigma capitellate. Berry juice.

Common in along the river banks and shady regions of the plains. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** LP 2964 (SACONH); VS 18678. 19125 (FRC); CECF 35353 (MH); VN 79001 (MH); KCJ & JD 81180 (MH).

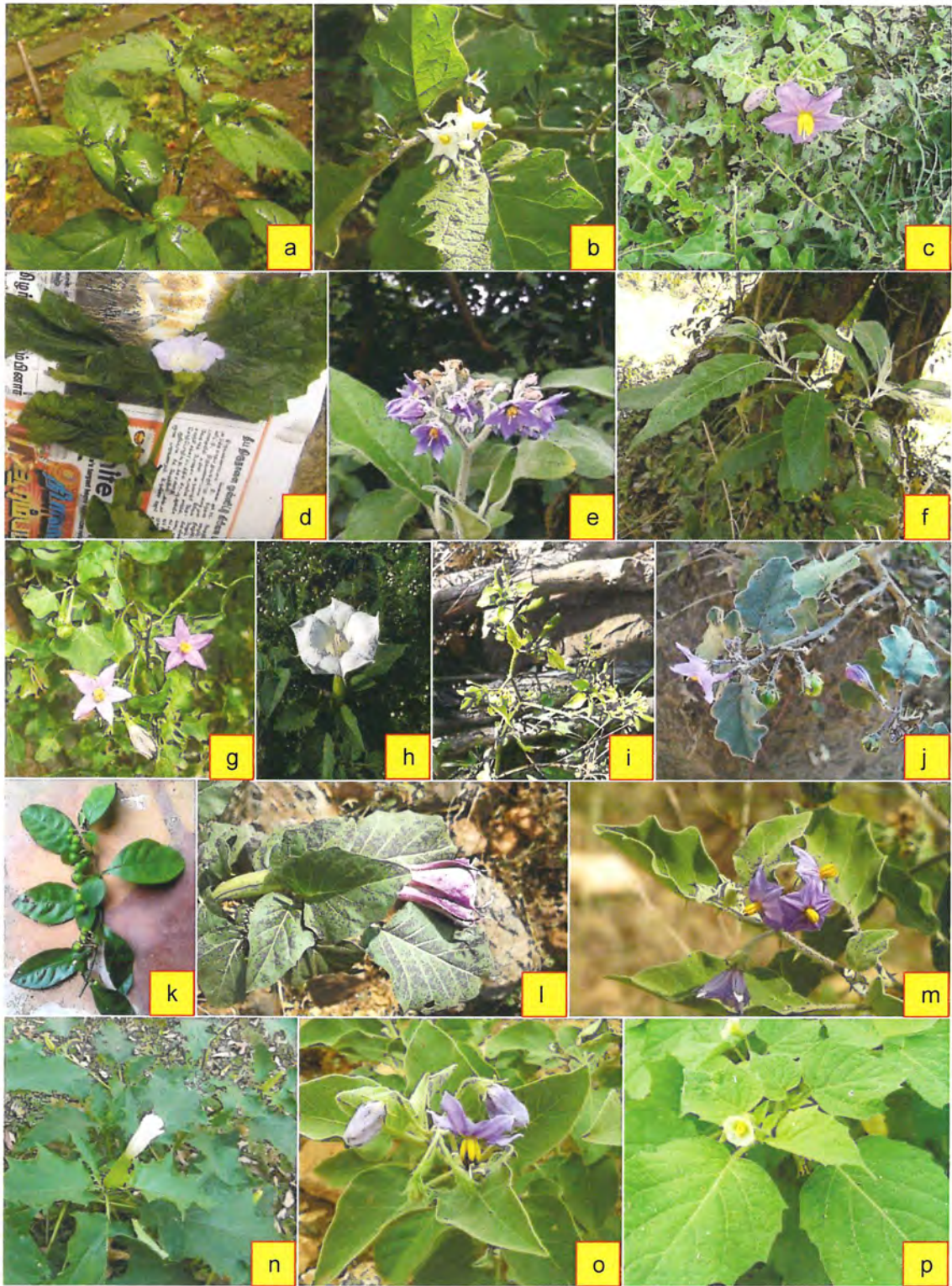
Solanum asperolanatum Ruiz & Pav., Fl. Peruv. 2: 39, Pl. 174, f. b 1799. *S. hispidum* Pers. Syn. Pl. 1: 228. 1805; FTC 3(2): 1060. 1983; FTN 2: 116. 1987.

Armed, stellate tomentose shrub, prickly along the branchlets and petioles. Leaves lacerate, thin coriaceous. Panicles umbellate, extra-axillary. Calyx lobe 5, almost free, linear-lanceolate. Corolla white lobes 5, triangular. Stamens 5. Ovary oblong-globose.

Occasional in hills. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** PSAT 187208 (MH).

Solanum erianthum D. Don, Prodr. Fl. Nepal 96. 1825; FTC 3(2): 1059. 1983; FTN 2: 115. 1987; FEG 4: 293. 2011. *S. verbascifolium* acut. non L. 1753; FBI 4: 230. 1883, non L. 1753; FPM 2: 657. 1957.

PLATE 16 -SOLANACEAE



a) *Solanum americanum*, b) *Solanum torvum*, c) *Solanum virginianum*, d) *Nicandra physalodes*, e) *Solanum erianthum*, f) *Solanum giganteum*, g) *Solanum trilobatum*, h) *Datura metel*, i) *Capsicum annum*, j) *Solanum incanum*, k) *Solanum diphyllum*, l) *Datura stramonium*, m) *Solanum anguivi*, n) *Datura ferox*, o) *Solanum pubescens*, p) *Physalis angulata*.

Shrub, branchlets fulvous-tomentose. Leaves elliptic-oblong, thick coriaceous. Panicles corymbose, terminal and axillary. Calyx cupular, lobes 5, unequal. Corolla white lobes 5. Stamens 5. Ovary globose. Berry globose. Seeds triangular or circular.

Common in hills especially along the road sides, evergreen forest borders, etc. **Fl. & Fr.:** Jan.-April & July-Oct. **VN:** *Aanaisundaikai*. **Sp.Ex.:** LP 2210 (SACONH); KNS 6943, 11887, 12073 (FRC); VS 18278, 19129 (FRC); CECF 35369, 35380 (MH); VN 79794 (MH); KCJ 81337 (MH); PSAT 187249 (MH).

Solanum giganteum Jacq., Coll. 4: 125. 1791; FBI 4: 233. 1883; FSIHS 2: 422. 1932; FPM 2: 657. 1957; FTC 3(2): 1060. 1983; FTN 2: 116. 1987; FEG 4: 293. 2011.

Armed, fulvous-tomentose shrub, prickly only the branchlets. Leaves broadly oblong-lanceolate, thick chartaceous. Panicles umbellate, extra-axillary. Calyx cupular, lobes 5, unequal. Corolla violet, lobes 5, oblong. Stamens 5. Ovary globose. Berry globose, red when ripening. Seeds compressed.

Common in hills along the road sides, forest borders, hill slopes, etc. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KNS 12074, 12075 (FRC); VS 18892, 19131 (FRC); CECF 35465, 35468 (MH); VN 78854, 79724 (MH); PSAT 186693, 186694, 187535, 187536 (MH).

Solanum incanum L., Sp. Pl. 1: 188. 1753; Dunal in DC., Prodr. 150. 1844; FBI 4: 235. 1883; FEG 4: 297. 2011. *S. melongena* L., Sp. Pl. 1: 186. 1753 var. *insanum* (L.) Prain, Bengal Pl: 746. 1903; FPM 2: 658. 1957; FTC 3(2): 1061. 1983.

Armed subshrub. Leaves angulate, thick, stellate pubescent. Flowers(s) 1-4, extra axillary. Calyx lobes 5, lanceolate. Corolla purple to violet, lobes 5, triangular. Stamens 5. Berry green with white dots, yellow when ripe.

Occasional in plains. **Fl. & Fr.:** Throughout the year. **VN:** *Mullukatthari*. **Sp.Ex.:** LP 1503 (SACONH); CECF 85529 (MH); CAB 86214 (MH); PSAT 187291, 187292 (MH).

Solanum melongena L., Sp. Pl. 1: 186. 1753, var. *melongena*; FBI 4: 235. 1883; FPM 2: 659. 1957; FTC 3(2): 1061. 1983; FTN 2: 116. 1987.

Armed subshrub. Leaves angulate, thick, prickly, stellate pubescent. Flower(s) 1-4, extra axillary. Calyx lobes 5, lanceolate, prickly. Corolla purple to violet, rarely white, lobes 5, triangular. Stamens 5. Berry globose.

Wildly cultivated for fruits. **Fl. & Fr.:** Throughout the year. **VN:** *Katthari*. **Sp.Ex.:** VS 18939, 19135 (FRC).

Solanum pubescens Willd., Phytographia 1: t. 5. 1794; FBI 4: 230. 1883; FPM 2: 657. 1957; FTC 3(2): 1062. 1983; FTN 2: 117. 1987; FEG 4: 298. 2011. *S. indicum* Willd., Phytographia 5: t. 3. 1794; FBI 4: 230. 1883; FPM 2: 658. 1957.

Shrub, branchlets fulvous-pubescent. Leaves deltoid to elliptic-ovate, chartaceous. Racemes axillary. Calyx-lobes lanceolate, herbaceous. Corolla purple to violet or white, lobes 5, lanceolate. Stamens 5. Stigma capitate. Berry globose. Seeds minutely scaly.

Common in scrub jungles and deciduous forest. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** LP 2607, 1574 (SACONH); KNS 1713 (FRC); VS 18675, 19130 (FRC); VN 79212 (MH); SRR 81014 (MH); KR 138931, 138932, 138933 (MH); PSAT 186486, 186487, 187384 (MH).

Solanum diphyllum L., Sp. Pl. 1: 184. 1753.

Shrub, minutely pubescent. Stem terete, green to brown. Leaves 2 at each node, unequal, elliptic, oblong-elliptic. Inflorescence a racemose fascicle, up to 10-flowered. Calyx cupular, 5-lobed. Corolla stellate, creamy white, 5-lobed. Stamens 5. Ovary globose. Berries globose.

Occasional in moist deciduous forest. **Fl. & Fr.:** Mar.-Oct. **Sp.Ex.:** LP 2830 (SACONH).

Solanum torvum Sw., Prodr. 47. 1788; FBI 4: 234. 1883; FPM 2: 658. 1957; FTC 3(2): 1064. 1983; FTN 2: 117. 1987; FEG 4: 300. 2011.

Armed shrub, prickles scattered. Leaves sinuate, chartaceous, sparsely stellate pubescent above. Corymbose cymes extra-axillary. Calyx cupular, lobes oblong. Corolla white, lobes 5, oblong. Stamens 5. Stigma obtuse. Berry globose. Seeds circular, smooth.

Occasional in hills, along the river banks and moist deciduous forest. Also cultivated for fruits.

Fl. & Fr.: Feb.-April & Aug.-Nov. **VN:** *Sundaikai*. **Sp.Ex.:** KNS 6941, 6942 (FRC); KCJ 81309 (MH); PSAT 186633, 186634, 187190 (MH).

Solanum trilobatum L., Sp. Pl. 188. 1753; FBI 4: 236. 1883; FPM 2: 659. 1957; FTC 3(2): 1065. 1983; FTN 2: 117. 1987; FEG 4: 303. 2011.

Armed, climbing undershrub. Leaves ovate-angular, sinuate, chartaceous, prickly on both sides. Racemes extra axillary. Calyx cupular, lobes 5, linear, prickly. Corolla purple, lobes 5, triangular. Stamens 5. Ovary oblong-globose. Berry globose, green with white spots.

Occasional in plains. **Fl. & Fr.:** **VN:** *Thudhuvalai*. **Sp.Ex.:** LP 2010 (SACONH); PSAT 186911 (MH).

Solanum violaceum Ortega, Nov. Pl. Descr. Dec. 56. 1798; Hepper, Dassan. & Fosb., Rev. Handb. Fl. Ceylon 6: 378. 1987; FEG 4: 305. 2011. *S. anguivi* Lam., Tabl. Encycl. 2: 23. 1794.

Key to the subspecies

1a. Racemes lax, 5-7 flowered; leaf indumentum lax, margin shallowly sinuate.....ssp. *violaceum*

1b. Racemes spicate, upto 20-flowered; leaf indumentum dense margin deeply sinuate.....
.....ssp. *multiflorum*

subsp. *violaceum*

Armed shrub. Leaves obliquely truncate at base, acute at apex. Racemes lax, 5-7 flowered. Calyx-lobes 5, triangular, densely tomentose without. Corolla rotate, lobes 5, bluish. Stamens 5. Ovary globose. Berry globose. Seeds pitted.

Common in foothills. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KNS 11831, 11832, 13411, 13412 (FRC); CAB 35540, 35567, 35568 (MH); JS 35548 (MH); SRN 80545 (MH); KCJ 81126, 81128 (MH); EV 142022, 142023 (MH); PSAT 186667, 186668, 186977, 187150, 187452, 187453 (MH).

ssp. *multiflorum* (C.B. Clarke) K.M. Matthew, Kew Bull. 46: 545. 1991; FTN 2: 115. 1987. *S. indicum* L. var. *multiflorum* Wight ex Hook. f., Fl. Brit. India 4: 235. 1883; FSIHS 421. t. 358. 1932; FPM 2: 658. 1957.

Armed shrub. Leaves densely woolly below, obliquely truncate at base, acute at apex. Racemes spicate, upto 20-flowered. Calyx lobes 5. Corolla rotate, lobes 5. Stamens 5. Ovary globose. Berry globose. Seeds pitted.

Occasional along the evergreen forest borders. **Fl. & Fr.:** April-Nov. **Sp.Ex.:** VS 19128 (FRC).

Solanum virginianum L., Sp. Pl. 187. 1753; FEG 4: 307. 2011. *S. surattense* Burm. f., Fl. Ind. 57. 1768; Deb, J. Econ. Tax. Bot. 1: 51. 1980; FTC 3(2): 1063. 1983; FTN 2: 117. 1987. *S. xanthocarpum* Schrad. & J.C. Wendl., Sert. Hannov. 1: 8. t. 2. 1795; FBI 4: 236. 1883; FPM 2: 658. 1957.

Armed, diffuse subshrub, prickles many, straight. Leaves lacerate, chartaceous. Cymes 4-5 flowered, extra axillary. Calyx lobes 5, almost free, obovate. Corolla purple, lobes 5, broadly ovate-triangular. Stamens 5. Berry globose, yellow when ripe.

Occasional in plains. **Fl. & Fr.:** Dec.-Mar. & July-Sept. **VN:** *Kandankathiri*. **Sp.Ex.:** LP 2616 (SACONH); KA & PB 1436 (SACONH); VS 18940 (FRC).

Solanum wrightii Benth., Fl. Hongk. 243-244. 1861; FPM 2: 658. 1957; FTN 2: 118. 1987.

Armed shrub, prickles straight. Leaves broadly ovate-oblong, truncate at base, margins spinous, acute at apex. Calyx-lobes 5, triangular, densely tomentose without. Corolla rotate, lobes 5, whitish. Stamens 5. Ovary globose. Berry globose.

Sp.Ex.: VS 18676 (FRC).

WITHANIA Pauquy, Belladone. 14. 1825.

Withania somnifera (L.) Dunal in DC., Prodr. 13(1): 453. 1852; FBI 4: 239. 1883; FPM 2: 660. 1957; FTC 3(2): 1066. 1983; FTN 2: 118. 1987; FEG 4: 310. 2011.

Subshrub, branchlets hoary-tomentose. Leaves elliptic-ovate, chartaceous, margin entire. Flowers in axillary fascicles. Calyx campanulate, lobes 5, lanceolate. Corolla yellow, narrowly campanulate, lobes 5, triangular-oblong, valvate. Stamens 5. Stigma capitate. Berry globose.

Occasional along the road sides. **Fl. & Fr.:** April-Aug. **VN:** Amukkirankizhangu. **Sp.Ex.:** TRN 78664 (MH); PSAT 187078, 187209 (MH).

SCROPHULARIACEAE Juss., Gen. Pl. 117. 1789.

Key to the genera

- 1a. Bracteoles present.....2
- 1b. Bracteoles absent.....8
- 2a. Plants semiparasite.....*Striga*
- 2b. Plants non-parasitic.....3
- 3a. Leaves alternate below, opposite above.....*Sopubia*
- 3b. Leaves opposite or whorled.....4
- 4a. Leaves entire; anther cells not stipitate.....*Bacopa*
- 4b. Leaves serrate, serrulate, crenate; anther cells stipitate.....5
- 5a. Bracteoles present at base of pedicel.....6
- 5b. Bracteoles present at base of calyx.....7
- 6a. Calyx-lobes dissimilar.....*Mecardonia*
- 6b. Calyx-lobes similar.....*Verbascum*
- 7a. Plants glandular-hairy; styles not deflexed; stigma 2-lobed; seeds not angled.....*Stemodia*
- 7b. Plants glabrous; styles deflexed; stigma 2-lamellate; seeds angled.....*Linnophilla* (p.p.)
- 8a. Stamens 4.....9
- 8b. Stamens 2.....10
- 9a. Corolla rotate, 4-lobed, white.....*Scoparia*
- 9b. Corolla tubular, 2-lipped, other than white.....*Linnophilla* (p.p.)
- 10a. Stems spongy; leaf base decurrent with stem; flowers solitary.....*Dopatrium*
- 10b. Stems not spongy; leaf base not decurrent with stem; flowers solitary or in racemes.....*Lindernia*

BACOPA Aubl., Hist. Pl. Guiane. 1: 128. 1775.

Bacopa monnieri (L.) Wettst., Nat. Pflanzenfam. 4(3b): 77. 1891; FTC 3(2): 1071. 1983; FTN 2: 119. 1987; FEG 4: 314. 2011.

Prostrate, succulent herb. Leaves decussate, simple, oblong, margin entire. Flower(s) axillary, solitary, ebracteate. Bracteoles 2, linear. Calyx-lobes 5, unequal. Corolla white with violet and green bands inside the throat, lobes 5. Stamens 4, didynamous. Ovary oblong-globose. Capsule oblong-globose.

Common weed in marshy places. **Fl. & Fr.:** Throughout the year. **VN:** *Brammii*. **Sp.Ex.:** LP 2230 (SACONH); VS 18679, 18845 (FRC); VN 78292, 79029 (FRC); KCJ 81222 (MH); EV 142046, 142047 (MH); PSAT 186621, 186622 (MH).

DOPATRIUM Buch.-Ham. ex Benth., B Scroph. Ind. 30. 1835.

Dopatrium junceum (Roxb.) Buch.-Ham. ex Benth., Scroph. Ind. 21: 1770. 1835; FBI 4: 274. 1884; FPM 2: 670. 1957; FTC 3(2): 1074. 1983; FTN 2: 120. 1987; FEG 4: 318. 2011.

Herb. Leaves oblong. Flowers decussate pairs. Calyx lobes obtuse. Corolla pink to blue or purple. Stamens 2. Ovary globose. Capsule globose.

Common in marshy lands. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** CECF 35939, 35942 (MH).

LIMNOPHILA R. Br., Prodr. Nov. Holland 442. 1810.

Key to the species

1a. Leaves 3-ribbed at base; lower leaves multifid.....*L. indica*

1b. Leaves not ribbed; lower leaves entire.....*L. aromatica*

Limnophila aromatica (Lam.) Merr., Interpr. Ruinph. Herb. Arnboin. 466. 1917; FTN 2: 120. 1987; FEG 4: 322. 2011. *L. gratissima* Blume, Bijdr. Fl. Ned. Ind. 749. 1826; FBI 4: 268. 1884; FPM 2: 667. 1957.

Erect fleshy glabrous herbs. Leaves opposite or in whorls of 3, oblong-lanceolate, rounded and semi-amplexicaul at base, margin serrulate. Flowers in many-flowered, terminal or axillary racemes. Calyx campanulate, glandular, lobes 5, lanceolate, acuminate. Corolla purple. Stamens 4. Ovary ellipsoid. Stigma white. Capsule subglobose. Seeds many, minute, angular, blackish-brown.

Occasional in marshy localities. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** PSAT 187378 (MH).

Limnophila indica (L.) Druce, Rep. Bot. Exch. Club. Soc. Brit. Isles 3: 420. 1914; FTC 3(2): 1080. 1983; FTN 2: 121. 1987; FEG 4: 324. 2011. *L. gratioloides* R. Br., Prodr. 442. 1810; FBI 4: 271. 1884; FPM 2: 667. 1957.

Prostrate herb. Leaves decussate to whorled, linear-lanceolate, lacinate below, submerged leaves capillaceo-multifid. Flower(s) axillary, solitary, in decussate pairs, bracteoles linear. Calyx lobes 5, (sub)equal, linear-lanceolate. Corolla cream-yellow with dark purple throat, lobes 5. Stamens 4. Ovary 2-lobed.

Occasional in moist localities. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** EV 142090, 142091 (MH).

LINDERNIA All., Melanges Philos. Math. Soc. Roy. Turin. 3: 178. 1766.

Key to the species

1a. Leaves aristate-dentate; staminodes prominent.....2

1b. Leaves serrate; staminodes reduced.....*L. oppositifolia*

2a. Leaves petiolate.....*L. crustacea*

2b. Leaves sessile.....*L. ciliata*

Lindernia ciliata (Colsm.) Pennell, Brittonia 2: 182. 1936; FTC 3(2): 1086. 1983; FTN 2: 122. 1987; FEG 4: 330. 2011. *Bonnaya brachiata* Link & Otto, Icon. Pl. Select. 25. t. 11. 1820; FBI 4: 284. 1884.

Erect herb. Leaves elliptic-obovate, margin aristate-dentate. racemes terminal. Bracts linear, scarious. Calyx lobes 5, lanceolate. Corolla white with pink throat, lobes 5. Stamens 2. Capsule linear-lanceolate.

Common along the banks of streams and rivers. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** KA & PB 1410 (SACONH).

Lindernia crustacea (L.) F. Muell., Syst. Census Austral. Pl. 97. 1887; FTC 3(2): 1088. 1983; FTN 2: 122. 1987; FEG 4: 331. 2011. *Vendelia crustacea* (L.) Benth., Scroph. Ind. 35. 1835; FBI 4: 279. 1884; FPM 2: 673. 1957

Erect herb, occasionally rooting at nodes. Leaves ovate, margin serrate, ciliate. Flowers 2 per nodes. Calyx lobes 5, equal. Corolla lobe rose to purple, lobes 5, emarginate. Stamens 4. Capsule obovoid.

Occasional along the banks of wastelands, riverbanks, fallow lands, etc. **Fl. & Fr.:** Nov. & Feb. **Sp.Ex.:** LP 3075 (SACONH).

Lindernia oppositifolia (Retz.) Mukerjee, J. Indian Bot. Soc. 24: 134. 1945; FTC 3(2): 1090. 1983; FTN 2: 123. 1987; FEG 4: 334. 2011. *Bonnaya oppositifolia* (Retz.) Spreng., Syst. Veg. 1: 41. 1825; FBI 4: 286. 1884.

Erect herb. Leaves decussate, alternate at apices. oblong-lanceolate, margin serrate. Flower(s) axillary or leaf opposed, solitary. Bracts linear. Calyx lobes 5, free, lanceolate. Corolla bluish or white with pink throat, lobes 5. Capsule lanceolate.

Occasional in scrub jungles. **Fl. & Fr.:** Nov. & Feb. **Sp.Ex.:** LP 3075 (SACONH); PSAT 186936 (MH).

MECARDONIA Ruiz & Pavan, Prodr. 95. 1794.

Mecardonia procumbens (Mill.) Small, Fl. S.E.U.S. 1065, 1338. 1903; FTC 3(2): 1097. 1983; FTN 2: 124. 1987.

Prostrate herb. Leaves decussate, simple, elliptic-ovate, chartaceous, margin serrulate. Flower(s) axillary, solitary, 2-per node. Calyx lobes 5, free, unequal, foliaceous. Corolla yellow, lobes 5 (2+3). Stamens 4, didynamous. Ovary oblong-cylindric. Seeds truncate.

Occasional clumps on plains. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** KA & PB 1696 (SACONH); PSAT 186733, 186734 (MH).

SCOPARIA L., Sp. Pl. 1: 116. 1753.

Scoparia dulcis L., Sp. Pl. 116. 1753; FBI 4: 289. 1884; FPM 2: 678. 1957; FTC 3(2): 1100. 1983; FTN 2: 125. 1987; FEG 4: 342. 2011.

Erect herb. Leaves decussate to whorled, simple, margin serrate. Flower(s) axillary, 1 or 2. Calyx lobes 4, free, oblong, imbricate. Corolla white, lobes 4, oblong. Stamens 4, equal. Ovary globose. Stigma truncate. Capsule ellipsoid-globose. Seeds truncate or 4-angled.

Common along the roadsides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 19245 (FRC); PSAT 186937 (MH).

SOPUBIA Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 88. 1825.

Sopubia trifida Buch.-Ham. ex D. Don, Prodr. Fl. Nepal 88. 1825; FBI 4: 302. 1884; FSIHS 2: 433. t. 373. 1932; FPM 2: 682. 1957; FTC 3(2): 1102. 1983; FTN 2: 125. 1987; FEG 4: 344. 2011.

Herb. Leaves 3-fid below, linear above, margin entire. Calyx campanulate, lobes 5, triangular. Corolla yellow with purple centre, lobes 5, rotate, equal. Stamens 4. Capsule (sub)globose, 2-valved. Seeds oblong, spirally striate.

Occasional in moist deciduous forest. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** CECF 36393 (MH); VN 79779 (MH).

STEMODIA L., Syst. Nat. ed. 10. 1091, 1118, 1374. 1765.

Stemodia viscosa Roxb., Pl. Coromandel 2: 33. t. 163. 1802; FBI 4: 265. 1884; FPM 2: 666. 1957; FTC 3(2): 1102. 1983; FTN 2: 125. 1987; FEG 4: 346. 2011.

Ascending herb with glandular hairy. Leaves decussate or ternate, elliptic-oblong. Flower(s) axillary, 1, 2 or 3 at a node, forming a leafy terminal raceme. Calyx lobes 5, unequal. Corolla blue to violet, lobes 5, unequal 2+3. Stamens 4, didynamous. Ovary oblong-cylindric.

Occasional in along the river banks, bunds of arable lands, fallow lands. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** CECF 35807, 35811 (MH); VN 79136 (MH).

STRIGA Lour., Fl. Cochinch. 1: 22. 1790.

Key to the species

- 1a. Calyx 5-ribbed.....*S. densiflora*
 1b. Calyx 10-15-ribbed.....2
 2a. Calyx-lobes with all ribs ending at apex.....*S. angustifolia*
 2b. Calyx-lobes with middle rib ending at apex.....*S. asiatica*

Striga angustifolia (D. Don) Saldanha, Bull. Bot. Surv. India 5: 70. 1963; FTC 3(2): 1103. 1983; FTN 2: 126. 1987; FEG 4: 346. 2011. *S. euphrasioides* Benth., Companion Bot. Mag. 1: 364. 1836; FBI 4: 299. 1884; FPM 2: 680. 1957.

Herb. Leaves narrowly oblong to pinnatifid. Calyx lobes 5, equal, lanceolate. Corolla white, lobes 5, (sub)equal. Stamens 4. Ovary oblong. Stigma entire, thick. Seeds oblong, cuneate. Occasional in gravelly soil in the scrub jungles. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KA & PB 1649 (SACONH).

Striga asiatica (L.) Kuntze, Revis. Gen. Pl. 2: 466. 1891, var. *asiatica*; FTC 3(2): 1104. 1983; FTN 2: 126. 1987; FEG 4: 348. 2011. *S. lutea* Lour., Fl. Cochinch. 1: 22. 1790; FBI 4: 299. 1884; FSIHS 2: t. 371. 1932; FPM 2: 680. 1957.

Herb. Leaves narrowly oblong, thick. Inflorescence in spike. Calyx lobes 5, unequal, linear. Corolla white or yellow. Stamens 4. Ovary globose. Stigma 2-lamellate. Seeds oblong. Occasional in foothills. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1667 (SACONH); KA & PB 1649 (SACONH); VS 19246 (FRC).

Striga densiflora (Benth.) Benth., Companion Bot. Mag. 1: 363. 1836; FBI 4: 299. 1884; FPM 2: 680. 1957; FTC 3(2): 1105. 1983; FTN 2: 126. 1987; FEG 4: 348. 2011.

Herb. Leaves narrowly oblong, recurved, margin entire to sparingly serrate. Spikes dense. Calyx lobes 5, (sub)equal. Corolla white, lobes 5. Stamens 4. Ovary globose. Stigma 2-lemellate. Seeds globose.

Occasionally found in plains. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 36258 (MH).

VERBASCUM L., Sp. Pl. 1: 177. 1753.

Verbascum chinense (L.) Santapau, Fl. Purandhar 90. 1957; FTC 3(2): 1106. 1983; FTN 2: 127. 1987; FEG 4: 350. 2011. *Celsia coromandelina* Vahl, Symb. Bot. 3: 79. 1794; FBI 4: 251. 1884; FPM 2: 663. 1957.

Erect herb. Leaves alternate, a few cauline, simple, oblanceolate-sinuate or pinnatifid, thick, margin crenate-serrate. Racemes terminal. Bracts leafy. Calyx lobes 5, unequal, ovate, valvate. Corolla yellow, lobes 5, unequal. Stamens 4, didynamous. Ovary globose. Capsule globose, septicidal, 2-valved.

Occasional in along the river beds. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** CECF 84992 (MH).

PLANTAGINACEAE Juss., Gen. Pl. 89. 1789.

PLANTAGO L., Sp. Pl. 1: 112. 1753.

Plantago asiatica Ledeb., Fl. Altaic. 1: 143. 1829, subsp. *erosa* (Wall.) Z. Yu Li, Fl. Reipubl. Popul. Sin. 70: 328. 2002. *P. erosa* Wall., Fl. Ind. 1: 423. 1820; FTN 2: 187. 1987; FEG 4: 594.

2011. *P. asiatica* acut. non. L. 1753; FSIHS 2: 485. t. 485. 1932; FBI 5: 250. 1887; FPM 2: 811. 1957; FTC 3(2): 1285. 1983.

Herb. Leaves in rosettes, elliptic-ovate, chartaceous. Scape terete. Bracts 2, lanceolate. Calyx lobes 4, ovate. Corolla cream, lobes 4, ovate-lanceolate. Stamens 4. Ovary globose. Capsule ellipsoid. Seeds peltate.

Occasional in moist places and drainages. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KCJ 81414 (MH).

CABOMBACEAE Rich. ex A. Rich. in Bory, Dict. Class. Hist. Nat. 2: 608. 1822.

CABOMBA Aubl., Hist. Pl. Guiane Franc. 1: 321. 1775.

Cabomba caroliniana A. Gray, Ann. Lyceum Nat. Hist. New York 4: 47 1837; R.L. Mitra in Nayar *et al.*, Fasc. Fl. India 20: 6. 1990 & B.D. Sharma *et al.*, Fl. India 1: 439. 1993.

Submerged aquatic herbs. Submerged leaves finely dissected, flabellate. Floating leaves linear-oblong to elliptic, peltate. Flowers axillary, solitary, pinkish. Sepals 3, elliptic. Petals obovate. Stamens 3-6. Carpels 2-4. Seeds ovoid, covered with hygroscopic hairs.

Occasional in fresh water canals. **Fl. & Fr.:** May-Aug. **Sp.Ex.:** LP 1592 (SACONH).

LENTIBULARIACEAE Rich., Poiteau & Turpin, Fl. Paris 1: ed. fol.: 23, ed. qu.: 26. 1808.

UTRICULARIA L., Sp. Pl. 1: 18. 1753.

Key to the species

- 1a. Flowers yellowish.....2
- 1b. Flowers blue, violet or white.....*U. uliginosa*
- 2a. Pedicels recurved in fruit; scapes erect.....*U. bifida*
- 2b. Pedicels suberect in fruit; scapes usually twining.....*U. scandens*

Utricularia bifida L., Sp. Pl. 1: 18. 1753; FBI 4: 332. 1884; FPM 2: 690. 1957; FTC 3(2): 1112. 1983; FTN 2: 129. 1987; FEG 4: 354. 2011.

Terrestrial herb. Rhizoids filiform. Foliar organs linear-subulate. Trapes reniform. Scape 2-5-flowered. Bracts ovate-lanceolate. Bracteoles linear-filiform. Calyx lobes 2, unequal, broadly ovate. Corolla yellow. Stamens 2. Ovary globose. Capsule ovoid-globose.

Occasional in marshy lands. **Fl. & Fr.:** Dec. **Sp.Ex.:** LP 2812 (SACONH).

Utricularia scandens Benj., Linnaea. 20: 309. 1847; FTC 3(2): 1120. 1983; FTN 2: 131. 1987; FEG 4: 356. 2011. *U. wallichiana* Wight, Icon. Pl. Ind. Orient. t. 1572. f. 1. 1850, non Benj. 1845; FBI 4: 332. 1884; FSIHS 2: 437. t. 378-B. 1932; FPM 2: 690. 1957.

Terrestrial herb. Rhizoids filiform. Foliar organs linear, cuneate. Trapes few, globose. Scape slender, green, twining, 5-8 flowered. Bracts basifixed. Calyx lobes 2, equal, obovate. Corolla yellow. Stamens 2. Capsule globose.

Occasional in moist localities. **Fl. & Fr.:** Dec. **Sp.Ex.:** LP 2986 (SACONH).

Utricularia uliginosa Vahl, Enum. Pl. 1: 204. 1804; FSIHS 2: 437. 1932; FPM 2: 689. 1957; FTN 2: 131. 1987. *U. affinis* Wight, Icon. Pl. Ind. Orient. t. 1580. f. 1. 1850; FBI 4: 330. 1884.

Terrestrial herbs. Foliar organs linear. Traps subglobose. Racemes erect, 1- 5- flowered. Bracts ovate-deltoid. Calyx-lobes subequal, broadly ovate. Corolla blue, lobes obovate to oblong. Ovary ovoid. Stigma bilipped. Capsules ovoid. Seeds subglobose, reticulate.

Occasional in moist rocks of the grasslands. **Fl. & Fr.:** Aug.-Nov. **Sp.Ex.:** KA PB 1553, 1654 (SACONH).

GESNERIACEAE Rich. & Juss., *Essai Propr. Méd. Pl.*, ed. 2: 192. 1816.**Key to the genera**

- 1a. Epiphytic herbs; leaves coriaceous, <3 cm across.....*Aeschynanthus*
 1b. Terrestrial scapigerous herbs; leaves chartaceous, >5 cm across.....*Didymocarpus*

AESCHYNANTHUS Jack, *Trans. Linn. Soc. London, Bot.* 14: 42. 1823 (1825).

Aeschynanthus perrottetii A. DC. in DC., *Prodr.* 9: 261 1845; FBI 4: 339. 1884, incl. vars; FSIHS 2: 440. t. 379. 1932; FPM 2: 692. 1957; FTN 2: 131. 1987.

Epiphytic pendulous herbs, stems terete, glabrous, scandent, woody. Leaves opposite, elliptic, succulent. Flowers axillary, solitary or rarely paired. Sepals free, lanceolate. Corolla red, tubular, curved, widening above, lobes 5, subequal, ovate. Stamens 4. Seeds many.

Occasional in river side of the evergreen forest. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** VN 79850 (MH).

DIDYMOCARPUS Wall., *Edinburgh Philos. J.* 1: 378. 1819.

Didymocarpus tomentosus Wight, *Icon. Pl. Ind. Orient.* 4: t. 1349. 1848; FBI 4: 353. 1884; FSIHS 2: 440. t. 380. 1932; FPM 2: 695. 1957; FTC 3(2): 1125. 1983; FTN 2: 133. 1987; FEG 4: 363. 2011.

Plants acaulescent. Leaves arising from a rosette, ovate to broadly elliptic, rugose, tawny and densely tomentose, margin crenate to irregularly lobed. Calyx lobes lanceolate, tomentose. Corolla white, pink, pale blue or purplish. Ovary linear. Capsule slender, slightly curved.

Common in hills of the crevices of rocks. **Fl. & Fr.:** Aug.-Sept. **Sp.Ex.:** KA & PB 1679 (SACONH); CECF 36703, 36704 (MH); VN 79447 (MH); PSAT 186981 (MH).

BIGNONIACEAE Juss., *Gen. Pl.* 137. 1789.**Key to the genera**

- 1a. Leaves digitately compound.....*Tabebuia*
 1b. Leaves pinnately compound.....2
 2a. Flowers orbicular; leaflets <1 cm long; flowers blue.....*Jacaranda*
 2b. Flowers elongate; leaflets > 3cm long; flowers other than blue.....3
 3a. Leaves 1-pinnate.....4
 3b. Leaves 2-3-pinnate.....9
 4a. Calyx spathaceous, lobes obscure.....5
 4b. Calyx cupular or campanulate, lobes 5.....7
 5a. Corolla bell-shaped.....6
 5b. Corolla funnel-shaped.....*Dolichandron*
 6a. Corolla reddish yellow to reddish brown, small.....*Markhamia*
 6b. Corolla reddish, large.....*Spathodea*
 7a. Leaf margin serrate or crenate; calyx cupular, 5-toothed.....*Tecoma*
 7b. Leaf margin entire or minutely toothed; calyx campanulate, bilabiate.....8
 8a. Fruit dehiscent, terete or angular; seeds winged.....*Stereospermum*
 8b. Fruit indehiscent, sausage-shaped; seeds not winged.....*Kigelia*
 9a. Corolla funnel shaped; capsule tuberculate.....*Radermachia*
 9b. Corolla tubular; capsule not tuberculate.....*Millingtonia*

CRESCENTIA L., *Sp. Pl.* 2: 626. 1753.

Crescentia cujete L., *Sp. Pl.* 2: 626. 1753; FTN 2: 134. 1987. *C. acuminata* Kunth in H.B.K., *Nov. Gen. Sp. Pl.* 3: 57. 1819.

Small tree. Leaves oblanceolate, alternate, subsessile. Flowers yellow with purple veins, solitary or sometimes paired. Fruit is a large, green globular berry. Commonly planted along the temple premises. **Fl. & Fr.:** Throughout the year. **VN:** *Thiruvottukai*. **Sp.Ex.:** LP 1622 (SACONH).

DOLICHANDRONE (Fenzl) Seem., Ann. Mag. Nat. Hist., ser. 3. 10: 31. 1862.

Key to the species

- 1a. Leaves elliptic to suborbicular, apex truncate; capsule compressed with striations...*D. falcata*
- 1b. Leaves elliptic to ovate, apex gradually narrowed; capsule subterete with speckles.....2
- 2a. Leaflets floccose-pubescent; leaf base rounded to acute.....*D. arcuata*
- 2b. Leaflets glabrescent; leaf base obliquely truncate.....*D. atrovirens*

Dolichandrone arcuata (Wight) C.B. Clarke, Fl. Brit. India 4: 380. 1884; FPM 2: 700. 1957; FTC 3(2): 1128. 1983; FTN 2: 134. 1987; FEG 4: 366. 2011.

Densely foliaceous tree. Leaflets 5-7, elliptic-ovate, thick-chartaceous. Calyx-spathe. Corolla white, lobes 5. Stamens 4. Capsule subterete, arcuate, with spickles. Occasional in foothills. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** CECF 36947, 36948 (MH); PSAT 186892, 187114 (MH).

Dolichandrone atrovirens (Roth) K.Schum., Nat. Pflanzenfam. 4(3a): 240. 1894; FPM 2: 700. 1957; FTC 3(2): 1128. 1983; FTN 2: 134. 1987; FEG 4: 366. 2011. *D. crispa* Seem, J. Bot. 8: 381. 1870, excl. syn.; FBI 4: 379. 1884.

Tree. Leaflets 3-5, broadly ovate, thin coriaceous. Calyx spathe acute with curved point. Corolla white, lobes 5. Stamens 4. Capsule subterete, acute with speckles. Occasional in hill station. **Fl. & Fr.:** July-Sept. **VN:** *Pamphathi*. **Sp.Ex.:** CAB 36819, 36820, 36821, 36822, 36823 (MH); VN 78762 (MH).

Dolichandrone falcata (Wall. ex DC.) Seem., J. Bot. 8: 381. 1870; FBI 4: 380. 1884; FPM 2: 700. 1957; FTC 3(2): 1128. 1983; FTN 2: 134. 1987; FEG 4: 367. 2011.

Tree. Leaflets 5-7, elliptic to suborbicular, chartaceous. Calyx spathe obtuse or emarginate. Corolla white, lobes 5, broadly ovate, obtuse. Stamens 4. Capsule compressed, falcate. Common in foothills and scrub jungles. **Fl. & Fr.:** Throughout the year. **VN:** *Kattunarai*. **Sp.Ex.:** KNS 1863 (FRC); VS 19325 (FRC); VN 79197, 79643 (MH); PSAT 187074 (MH).

JACARANDA Juss., Gen. 138. 1789.

Jacaranda mimosifolia D. Don, Bot. Reg. 8: t. 631. 1822; FTC 3(2): 1129. 1983; FTN 2: 135. 1987; FEG 4: 369. 2011.

Tree. Leaves bipinnately compound, deciduous in winter. Panicles terminal, showy. Flowers bluish. Calyx lobes 5. Corolla tubular, campanulate. Stamens 4. Occasionally planted along the roadsides as avenue and gardens. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** LP 1826 (SACONH).

KIGELIA DC., Prodr. 9: 247. 1845.

Kigelia africana (Lam.) Benth. in Hook., Niger. Fl. 463. 1849; FTC 3(2): 1130. 1983; FTN 2: 135. 1987; FEG 4: 369. 2011. *K. pinnata* (Jacq.) DC., Prodr. 9: 247. 1845; FPM 2: 703. 1957.

Tree. Leaves imparipinnate. Leaflets 5-7, elliptic-oblong, coriaceous, margin entire to minutely toothed. Panicles pendulous. Calyx campanulate, bilipped. Corolla dark purple with yellow stripes, bell shaped, bilabiate, lobes 5. Stamens 4. Capsule sausage-shaped.

Planted along the road sides and gardens. **Fl. & Fr.:** Mar.-April. **VN:** *Yaanaipudukken*. **Sp.Ex.:** PSAT 187577, 187578 (MH).

MARKHAMIA Seem. ex Baillon, Hist. Pl. 10: 47. 1888.

Markhamia stipulata (Wall.) Seem., J. Bot. 1: 226. 1863; FPM 2: 703. 1957; FTN 2: 135. 1987.

Deciduous tree with fissured bark. Leaves opposite, lower pairs of leaflets resemble stipules. Flowers in terminal, bisexual, corolla pale yellow to reddish brown. Fruit a long pod like capsule. Seeds many, winged.

Occasional in moist deciduous forest, common in *ittarai* and surroundings. **Fl. & Fr.:** April-Sept. **Sp.Ex.:** LP 2005 (SACONH).

MILLINGTONIA L. f., Suppl. Pl. 45. 1782.

Millingtonia hortensis L. f., Suppl. Pl. 291. 1781; FBI 4: 377. 1884; FPM 2: 699. 1957; FTC 3(2): 1131. 1983; FTN 2: 135. 1987; FEG 4: 369. 2011.

Tree. Leaves 2-pinnate. Leaflets elliptic-ovate, chartaceous, margin entire to coarsely toothed. Panicles corymbose. Calyx cupular, lobes 5, equal. Corolla white, tubular, lobes 5, bilabiate, throat widened. Stamens 4. Capsule terete.

Planted along the road sides and gardens. **Fl. & Fr.:** Throughout the year. **VN:** *Maramalli*. **Sp.Ex.:** LP 1677 (SACONH).

RADERMACHERA Zoll. & Moritzi in Zoll., Syst. Verz. 3: 53. 1855.

Radermachera xylocarpa (Roxb.) Roxb. ex K. Schum. in Engler & Prantl., Nat. Pflanzenf. 4(3b): 243. 1895; FPM 2: 702. 1957; FTC 3(2): 1132. 1983; FEG 4: 371. 2011. *Stereospermum xylocarpum* (Roxb.) Wight, Icon. Pl. Ind. Orient. tt. 1335 & 1336. 1848; FBI 4: 383. 1884.

Deciduous tree. Leaves 2 or 3-pinnate. Leaflets 7-11, elliptic-oblong, thin coriaceous, margin entire. Corymbose panicles axillary. Calyx campanulate, bilabiate, distinctly 5-toothed. Corolla white, funnel-shaped, lobes orbicular. Stamens 4. Capsule elongate, terete.

Occasional in dry deciduous forest and hill slopes. **Fl. & Fr.:** Mar.-April. **VN:** *Mankombu*. **Sp.Ex.:** KA & PB 1425, 1688 (SACONH); KNS 6949, 6950, 13397, 13398 (FRC); VS 18902, 19324 (FRC); KCJ 81424 (MH).

SPATHODEA P.Beauv., Fl. Oware 1: 46. 1805.

Spathodea campanulata P. Beauv., Fl. Owar. 1: 47. tt. 27 & 28. 1805; FPM 2: 703. 1957; FTC 3(2): 1133. 1983; FTN 2: 136. 1987.

Trees, branchlets tomentose. Leaves 1-pinnate. Leaflets many, opposite, oblong-obovate, obtuse. Flowers large, few to many, in terminal cyme. Calyx spathaceous, brown-tomentose. Corolla scarlet to red, campanulate, ventricose. Stamens 4. Ovary glabrous. Stigma spoon-shaped. Capsule erect, compressed, woody. Seeds flat, winged white.

Occasional in evergreen forest border. Planted along road sides for avenue tree. **Fl. & Fr.:** July-Mar. **VN:** *Thanneerkaaimaram*. **Sp.Ex.:** LP 1673 (SACONH).

STEREOSPERMUM Cham., Linnaea. 7: 720. 1833.

Stereospermum tetragonum DC., Biblioth. Universelle Genève n.s., 17: 124. 1838; FPM 2: 701. 1957. *S. colais* (Buch.-Ham. ex Dillw.) Mabb., Taxon 27: 553. 1979; FTN 2: 137. 1987; FEG 4: 374. 2011. *S. personoides* (Hassk.) Chatterjee, Bull. Bot. Soc. Bengal 2: 70. 1948; FTC 3(2): 1133. 1983.

Densely foliaceous tree. Leaves 1-pinnate. Leaflets 7-9, obovate to lanceolate, thin coriaceous. Corymbs axillary. Calyx campanulate, bilabiate. Corolla yellow, bell shaped, lobes 5, subequal. Stamens 4. Ovary oblong-cylindric. Capsule terete or 4-gonous.

Common in moist deciduous forest. **Fl. & Fr.:** April-June. **VN:** *Paathalamaram*. **Sp.Ex.:** VN 78374 (MH).

TABEBUIA Gomes ex DC., Biblioth. Universelle Genève, sér. 2. 17: 130. 1838.

Key to the species

- 1a. Corolla tube yellowish.....*T. aurea*
1b. Corolla tube pinkish to white.....*T. rosea*

Tabebuia aurea (Silva Manso) Benth. & Hook. f. ex S. Moore, Trans. Linn. Soc. London, Bot. 4: 423 1895. *T. argentea* (Bureau & K.Schum.) Britton, Sci. Surv. Porto Rico & Virgin Islands 6: 197. 1925.

Tree. Leaves digitate. Leaflets oblong, petaloid, margin entire. Panicles terminal. Calyx campanulate, bilabiate. Corolla yellowish, funnel shaped, lobes orbicular. Stamens 4.

Planted along the road side in Hassanur. **Fl. & Fr.:** Feb.-Mar. **Sp.Ex.:** LP 2919 (SACONH).

Tabebuia rosea (Bertol.) Bartero ex A.DC., Prodr. 9: 215. 1845; FTC 3(2): 1134. 1983; FTN 2: 137. 1987. *Tecoma rosea* Bertolt, Fl. Guatimal. 25. 1840.

Tree. Leaves digitate. Leaflets 5, oblong-obovate, thin coriaceous, lepidote, margin entire, lateral leaflets subsessile. Panicles terminal. Calyx campanulate, bilabiate. Corolla white to pinkish, funnel-shaped. lobes orbicular, obtuse. Stamens 4. Stigma ovate.

Common, planted along road sides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1825 (SACONH).

TECOMA Juss., Gen. Pl. 139. 1789.

Tecoma stans (L.) Juss. ex Kunth., Nov. Gen. Sp. 3: 144. 1819; FTC 3(2): 1135. 1983; FTN 2: 137. 1987; FEG 4: 376. 2011. *Stenolobium stans* (L.) D. Don, Edinburgh Philos. J. 9: 264. 1823; FPM 2: 703. 1957.

Small tree. Leaves lanceolate, margin serrate. Inflorescence in terminal panicles. Calyx 5, tubular. Corolla funnel-shaped, lobes 5, obovate. Stamens 4, didynamous. Ovary oblong. Capsule, dehiscent, compressed. Seeds winged.

Commonly planted along the roads and temple premises. **Fl. & Fr.:** Throughout the year. **VN:** *Manjarali*. **Sp.Ex.:** LP 1683 (SACONH).

MENYANTHACEAE Dumort., Anal. Fam. Pl. 20, 25. 1829.

NYMPHOIDES Hill, Brit. Herbal. 77. 1756.

Key to the species

- 1a. Corolla white throughout; lobes longitudinally folded in the middle.....*N. hetrophylla*
1b. Corolla yellow in the centre; lobes not so folded.....*N. indica*

Nymphoides hydrophylla (Lour.) Kuntze, Revis. Gen. Pl. 429. 1891; FTC 3(2): 979. 1983; FTN 2: 96. 1987. *Limnanthemum cristatum* (Roxb.) Griseb., Gen. Spec. Gent.: 342. 1839; FBI 4: 131. 1883; FPM 2: 620. 1957.

Submerged herb, rooting at basal nodes. Leaves peltate, orbicular-elliptic. Flowers clustered at distal nodes. Calyx-lobes 5, Corolla white, lobes longitudinally folded in the middle. Stamens 5, Capsule broadly ovate, few seeded. Seeds turbiculate.

Occasional in slow-flowing rivers and ponds of plains. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1624 (SACONH).

Nymphoides indica (L.) Kuntze., Revis. Gen. Pl. 2: 429. 1891; FTC 3(2): 980. 1983; FTN 2: 96. 1987. *Limnanthemum indicum* (L.) Griseb. emend Thwaites, Enum. Pl. Zeyl. 205. 1860; FBI 4: 131. 1983; FPM 2: 621. 1957.

Submerged herb, rooting at basal nodes. Leaves peltate, orbicular-elliptic. Umbellate clusters at both proximal and distal nodes of the stem. Bracts sheathing. Calyx lobes 5. Corolla white with yellow centre, lobes fimbriate. Stamens 5. Capsule ellipsoid.

Occasional in ponds. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1623 (SACONH).

PEDALIACEAE R. Br., Prodr. Nov. Holl. 519. 1810.

Key to the genera

- 1a. Fruit a capsule, dehiscent, bivalved, not spiny; corolla pink, white or purple.....*Seamum*
- 1b. Fruit a drupe, indehiscent, spiny; corolla yellow.....*Pedaliium*

PEDALIUM D. Royen in L., Syst. Nat. ed. 10: 1123. 1759.

Pedaliium murex L., Syst. Nat. (ed.10) 2: 1123. 1759; FBI 4: 386. 1884; FPM 2: 704. 1957; FTC 3(2): 1138. 1983; FTN 2: 137. 1987; FEG 4: 379. 2011.

Herb, stem glabrous, fleshy. Leaves alternate or opposite or (sub)opposite with unequal leaves, repand-angulate, succulent. Flower(s) solitary, axillary, ebracteate. Pedicel with 2 yellow glands. Calyx lobes 5, free, valvate. Corolla yellow, lobes 2+3. Stamens 4. Ovary conical. Drupe indehiscent, lower half 4-gonous, spiny along the angles, epicarp fleshy.

Common in hill slopes and dry deciduous forest. **Fl. & Fr.:** Sept.-Dec. **VN:** *Yaanai neringi*. **Sp.Ex.:** KR 138919, 138920 (MH).

SESAMUM L., Sp. Pl. 634. 1753.

Sesamum indicum L., Sp. Pl. 634. 1753; FBI 4: 387. 1884; FPM 2: 704. 1957; FTC 3(2): 1140. 1983; FTN 2: 138. 1987.

Herb, stem terete below, 4-gonous above. Leaves opposite below, alternate above, elliptic to lanceolate, chartaceous, margin lobed or serrate. Pedicel with 2 yellow glands. Calyx lobes 5, persistent. Corolla tube pink or white, lobes 5. Stamens 4. Ovary bilateral. Capsule oblong.

Common cash crop especially in irrigated areas. **Fl. & Fr.:** July-Dec. **VN:** *Yellu*. **Sp.Ex.:** VS 19372 (FRC).

MARTYNIACEAE Horan., Char. Ess. Fam.: 130. 1847.

MARTYNIA L., Sp. Pl. 2: 618. 1753.

Martynia annua L., Sp. Pl. 618. 1753; FPM 2: 705. 1957; FTC 3(2): 1137. 1983; FTN 2: 138. 1987. *M. diandra* Glox., Obs. 14. t. 1. 1785; FBI 4: 386. 1884.

Sub-shrub, stem purplish green, glandular hairy, sticky. Leaves opposite, cordiform, chartaceous. Racemes 7-12-flowered. Bracts caducous. Bracteoles 2, ovate. Calyx lobes 5, free. Corolla purple with yellow throat. Stamens 2. Ovary globose. Drupe ovoid, with 2 apical curved beaks.

Common in moist localities of the wastelands. **Fl. & Fr.:** Throughout the year. **VN:** *Kakka mookuchedi*. **Sp.Ex.:** VS 18681 (FRC); SRR 81021 (MH).

ACANTHACEAE Juss., Gen. Pl. 102. 1789.

Key to the genera

1a. Climbers; calyx reduced.....	2
1b. Erect, straggling or prostrate; calyx well developed.....	3
2a. Leaves petiolate; calyx rimmed or 10-16-toothed.....	<i>Thunbergia</i>
2b. Leaves sessile; calyx obscurely 5-lobed.....	<i>Meyenia</i>
3a. Plants scapigerous.....	<i>Elytraria</i>
3b. Plants not scapigerous.....	4
4a. Leaves 4 per node; corolla without upperlip.....	<i>Blepharis</i>
4b. Leaves 2 per node; corolla with upper lip.....	5
5a. Upper lip of corolla obsolete.....	<i>Acanthus</i>
5b. Upper lip of corolla well-developed.....	6
6a. Corolla-tube as long as, or scarcely longer than, the lips.....	7
6b. Corolla-tube > twice as long as lobes.....	13
7a. Bracts reniform.....	<i>Phaulopsis</i>
7b. Bracts other than reniform.....	8
8a. Stamens 4, didynamous.....	9
8b. Stamens 2, equal.....	10
9a. Flowers in condensed spikes; Calyx-lobes imbricate, free.....	<i>Lepidagathis</i>
9b. Flowers in axillary whorls; Calyx-lobes valvate, basely connate.....	<i>Hygrophila</i>
10a. Inflorescence a dense spike.....	11
10b. Inflorescence a cyme or (lax) panicle.....	12
11a. Bracts 4-ferious, margin broadly scarious.....	<i>Rungia</i>
11b. Bracts not 4-ferious, margin not or narrowly scarious.....	<i>Justicia</i>
12a. Seeds glabrous; corolla (lower) lip blotched within.....	<i>Andrographis</i>
12b. Seeds papillose or glochidiate; corolla (lower) lip not blotched within.....	<i>Dicliptera</i>
13a. Leaf margin entire.....	14
13b. Leaf margin crenate-serrate, serrulate or crenulate.....	19
14a. Corolla-limb 1-sided.....	<i>Crossandra</i>
14b. Corolla-limb equally spreading or 2-sided.....	15
15a. Fertile stamens 4; corolla-tube ventricose.....	<i>Ruellia</i>
15b. Fertile stamens 2; corolla-tube cylindric.....	16
16a. Corolla-lobes (sub)equally spreading.....	17
16b. Corolla-lobes distinctly 2-lipped.....	18
17a. Calyx-lobes 4, unequal, imbricate.....	<i>Barleria</i>
17b. Calyx-lobes 5, equal, valvate.....	<i>Eranthemum</i>
18a. Corolla white; bracts shorter than calyx.....	<i>Rhynacanthus</i>
18b. Corolla bluish green; bracts longer than calyx.....	<i>Ecbolium</i>
19a. Corolla 2-lipped.....	20
19b. Corolla not 2-lipped.....	21
20a. Flowers in 1-sided racemes.....	<i>Asystasia</i>
20b. Flowers not 1-sided racemes.....	<i>Dyschoriste</i>
21a. Ovules 2 per locule.....	<i>Strobilanthes</i>
21b. Ovules 4 per locule.....	<i>Stenosiphonium</i>

ANDROGRAPHIS Wall. ex Nees, Wall., Pl. Asiat. Rar. 3: 77, 116. 1832.

Key to the species

1a. Capsule elliptic.....	2
1b. Capsule linear-oblong.....	3
2a. Capsule hairy; 4-seeded.....	<i>A. echioides</i>
2b. Capsule glabrous; 8-seeded.....	<i>A. serpyllifolia</i>
3a. Flowers in elongated racemes; sometimes subpaniculate but the flowers distant.....	<i>A. paniculata</i>

- 3b. Flowers in racemes, paniculate, flowers not very distant.....4
 4a. Racemes short, forming terminal subcapitate panicles.....*A. neesiana*
 4b. Racemes long, forming rather large compound terminal panicles.....5
 5a. Leaves orbicular; corolla not ventricose; anthers conspicuously white bearded....*A. lobellioides*
 5a. Leaves other than orbicular; corolla slightly or prominently ventricose; anthers not bearded.....*A. lineata*

Andrographis echioides (L.) Nees, Pl. Asiat. Rar. 3: 117. 1832; FBI 4: 505. 1884; FPM 2: 736. 1957; FPI 1: 2. 2009. *Indoneesiella echioides* (L.) Sreem, Phytologia 16: 466. 1968; FTC 3(2): 1181. 1983; FTN 2: 149. 1987; FEG 4: 436. 2011.

Dense herb. Leaves oblong-ob lanceolate. Racemes unbranched or scarcely branched. Calyx lobes 5. Corolla white with brown tinge, lobes 5, bilipped. Stamens 2. Ovary elliptic, puberulous. Fruit a capsule.

Common in wastelands and fallow lands. **Fl. & Fr.:** Sept.-Mar. **VN:** *Gopuranthaangi*. **Sp.Ex.:** VS 19104 (FRC); SRR 81020 (MH).

Andrographis lineata Nees, Pl. Asiat. Rar. 3: 116. 1832; FBI 4: 504. 1884; FPM 2: 736. 1957; FTC 3(2): 1151. 1983; FTN 2: 139. 1987; FPI 1: 3. 2009; FEG 4: 388. 2011.

Subshrub. Leaves elliptic-oblong. Panicles terminal or subterminal. Bracts lanceolate. Bracteoles 2. Calyx lobes 5, glandular hispid. Corolla purple, lobes 5, glandular hispid. Stamens 2. Ovary oblong, puberulous.

Occasional in hills. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** LP 2909 (SACONH); CECF 5367 (FRC); VN 79678 (MH); CECF 38068, 38069 (MH).

Andrographis lobelioides Wight, Icon. Pl. Ind. Orient. 4: t. 1557. 1850 & Ill. Ind. Bot. 2: t. 164 b. f. 11. 1850, var. *lobelioides*; FBI 4: 504. 1884; FSIHS 2: 455. t. 396. 1932; FPM 2: 736. 1957; FTN 2: 139. 1987; FPI 1: 3. 2009.

Procumbent herb. Leaves ovate- orbicular, entire at margin. Inflorescence of paniculate racemes. Flowers white streaked with red. Calyx 5-lobed, lanceolate, glandular hairy. Corolla tubular, 2- lipped, lobes 5, unequal. Stamens 2. Ovary 2-celled. Capsule linear-oblong, glandular hairy.

Rare in high altitude open grasslands. **Fl. & Fr.:** Sept.-Nov. **Sp.Ex.:** LP 1982 (SACONH).

Andrographis neesiana Wight, Icon. Pl. Ind. Orient. 4: t. 1561. 1850, var. *neesiana*; FBI 4: 504. 1884; FPM 2: 735. 1957; FTN 2: 140. 1987; FPI 1: 3. 2009.

Unbranched herb, branches strigose. Leaves ovate-elliptic, glabrous, ciliate, nearly sessile. Panicles congested, terminal, strigose. Flowers densely arranged. Calyx lobes 5, glandular hairy. Corolla tube not ventricose. Capsule oblong. Seeds 6, glabrous.

Rare in high altitude open grasslands. **Fl. & Fr.:** Sept.-Oct. **Sp.Ex.:** VS 19099 (FRC).

Andrographis paniculata (Burm.f.) Nees, Pl. Asiat. Rar. 3: 116. 1832; FBI 4: 501. 1884; FPM 2: 734. 1957; FTC 3(2): 1152. 1983; FTN 2: 140. 1987; FPI 1: 3. 2009; FEG 4: 391. 2011.

Subshrub. Leaves linear-obovate. Panicle branches zigzag. Bracts lanceolate. Bracteoles 2. Calyx lobes 5. Corolla white with pink tinge. Stamens 2. Ovary oblong. Capsule oblong.

Occasional found along the rocky riverbanks. **Fl. & Fr.:** Dec.-Mar. **VN:** *Nilayembu & Sriyaanangai*. **Sp.Ex.:** LP 1598 (SACONH).

Andrographis serpyllifolia (Vahl) Wight, Icon. Pl. Ind. Orient. 2(3): t. 517. 1841; FBI 4: 506. 1884; FPM 2: 736. 1957; FTC 3(2): 1153. 1983; FTN 2: 140. 1987; FPI 1: 3. 2009; FEG 4: 391. 2011. *Justicia serpyllifolia* Rottler ex Vahl, Enum. Pl. 1: 169. 1804.

Prostrate herb, branchlets densely hispid. Leaves rotund-orbicular. Flower(s) subsessile, solitary, axillary or short racemes in upper axils. Bracts orbicular. Calyx lobes 5, thick, hispid within, glandular hairy without. Corolla white with pink tinge, lobes 5, bilabiate. Stamens 2. Ovary ellipsoid-ovoid.

Common in dry deciduous forest. **Fl. & Fr.:** June-Sept. & Jan.-Mar. **VN:** *Kattuppooraan kodi*. **Sp.Ex.:** LP 1357, 2840 (SACONH); VS 19100 (FRC); VN 79689, 84990 (MH); PSAT 186878 (MH).

ASYSTASIA Blume, *Bijdr. Fl. Ned. Ind.* 14: 796. 1826.

Key to the species

- 1a. Leaves chartaceous, glabrescent; flowers purple, violet or pink.....2
- 1b. Leaves membranous, grey-pubescent; flowers white or yellow.....3
- 2a. Leaf margins entire, base narrowed; racemes solitary.....*A. chelonoides*
- 2b. Leaf margins crenulate or crispate, base obtuse; racemes paired.....*A. crispata*
- 3a. Stems straggling; calyx-lobes pubescent; flowers above 2 cm across.....*A. gangetica*
- 3b. Stems not straggling; calyx-lobes puberulous; flowers below 1.5 cm across.....*A. dalzelliana*

Asystasia chelonoides Nees, *Pl. Asiat. Rar.* 3: 89. 1832; FBI 4: 493. 1884; FPI 1: 4. 2009; FEG 4: 393. 2011. *A. chelonoides* var. *quadrangularis* C.B. Clarke in Hook. f., *Fl. Brit. India* 4: 494. 1884; FPM 2: 744. 1957; FTC 3(2): 1154. 1983; FTN 2: 141. 1987.

Subshrub. Leaves elliptic-obovate, margin entire. Racemes solitary. Calyx lobes lanceolate, thinly pubescent. Corolla purple or violetish, lobes 5. Stamens 2. Capsule beaked, thinly pubescent. Seeds angular.

Occasional in Hills. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** VS 18814, 19092 (FRC); VN 79730 (MH).

Asystasia crispata Benth., *Linnaea* 24: 647. 1851; FBI 4: 494. 1884; FSIHS 2: 454. t. 394. 1932; FPM 2: 745. 1957; FTC 3(2): 1156. 1983; FTN 2: 141. 1987; FPI 1: 4. 2009.

Subshrub. Leaves elliptic-ovate, thinly scabrous. Racemes terminal, usually paired. Bracts lanceolate. Calyx lobes 5, lanceolate. Corolla purple, violet to pink, lobes 5. Stamens 2. Capsule pubescent, beaked. Seeds angular.

Occasional in hills. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** SRN 80536 (MH).

Asystasia dalzelliana Santapau, *Kew Bull.* 1948: 276. 1948; FTC 3(2): 1156. 1983; FTN 2: 141. 1987; FPI 1: 4. 2009; FEG 4: 393. 2011.

Sub shrub. Leaves ovate-elliptic, thinly pubescent. Racemes usually solitary, terminal or subterminal, subsessile. Calyx lobes 5, linear-lanceolate. Corolla white, lobes 5. Stamens 2. Capsule pubescent, beaked. Seeds orbicular to angular.

Occasional in plains. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** KNS 6948 (FRC); VS 20686 (FRC).

Asystasia gangetica (L.) T. Anderson, *Enum. Pl. Zeyl.* 235. 1860; FPM 2: 744. 1957; FTC 3(2): 1157. 1983; FTN 2: 141. 1987; FPI 1: 4. 2009; FEG 4: 393. 2011. *A. coromandeliana* Wight ex Nees in Wall., *Pl. Asiat. Rar.* 3: 89. 1832; FBI 4: 493. 1884.

Subshrub. Leaves elliptic-ovate, grey-pubescent. Racemes (sub)terminal. Bracts lanceolate. Calyx lobes 5, lanceolate. Corolla yellow or pink with white throat. Stamens 2. Capsule pubescent, beaked. Seeds angular.

Common along the banks of streams and rivers. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18817 (FRC); KCJ 81430 (MH).

BARLERIA L., Sp. Pl. 636. 1753.**Key to the species**

- 1a. Plants armed; leaf apex spine-tipped.....2
- 1b. Plants unarmed; leaf apex not spine-tipped.....5
- 2a. Bracts present; flowers yellow; capsules ovoid; seeds 2.....3
- 2b. Bracts absent; flowers not yellow; capsules ellipsoid. seeds 4.....4
- 3a. Leaves petiolate, ovate-obovate; flower sessile; floral bracts oblong-obovate.....*B. prionitis*
- 3b. Leaves subsessile, oblong-lanceolate; flowers subsessile; floral bracts lanceolate.....*B. cuspidata*
- 4a. Leaves orbicular-ovate; outer calyx-lobes not spinescent.....*B. buxifolia*
- 4b. Leaves elliptic-obovate; outer calyx-lobes spinescent.....*B. mysorensis*
- 5a. Flowers in solitary; corolla sly-blue in colour.....*B. pilosa*
- 5b. Flowers in panicles or scorpioid cymes; corolla other than sky-blue colour.....6
- 6a. Outer calyx-lobes ovate; corolla white.....*B. longiflora*
- 6b. Outer calyx-lobes obovate-spathulate; corolla white, tinged blue/purple.....*B. acuminata*

Barleria acuminata Wight ex Nees, Pl. Asiat. Rar. 3: 93. 1832; FPM 2: 742. 1957; FTC 3(2): 1159. 1983; FTN 2: 141. 1987; FPI 1: 5. 2009; FEG 4: 396. 2011. *B. tomentosa* Roth var. *acuminata* (Wight ex Nees) Hook. f., Fl. Brit. India 4: 485. 1884.

Tawny-pubescent, unarmed, subshrub. Leaves deltoid-ovate, thinly pubescent above tawny pubescent below. Flowers subsessile, 4-6, in 1-sided racemes. Bracts linear-lanceolate. Calyx lobes 4, obovate-spathulate, thick, glandular-pubescent. Corolla white, tinged blue/purple, lobes 5, ovate. Stamens 2. Ovary oblong-conic. Capsule elliptic-obovoid.

Common in foot hills and deciduous forest. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** LP 3119 (SACONH).

Barleria buxifolia L., Sp. Pl. 636. 1753; FBI 4: 483. 1884; FPM 2: 742. 1957; FTC 3(2): 1160. 1983; FTN 2: 141. 1987; FPI 1: 5. 2009; FEG 4: 396. 2011.

Armed, hispid, rigid subshrub. Leaves orbicular to elliptic-ovate, glabrescent above, sparsely sericeous below. Flower(s) solitary, axillary. Calyx lobes 4, herbaceous. Corolla pink to violet, lobes 5, ovate. Stamens 5. Capsule ellipsoid.

Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Nov.-Mar. & July-Oct. **Sp.Ex.:** VS 1730 (FRC); CECF 38330 (MH); VN 76629, 79045 (MH); KCJ 81501 (MH); PSAT 187194 (MH).

Barleria cuspidata B. Heyne ex Nees, Pl. Asiat. Rar. 3: 93. 1832; FBI 4: 483. 1884; FPM 2: 741. 1957; FTC 3(2): 1162. 1983; FTN 2: 142. 1987; FPI 1: 6. 2009; FEG 4: 399. 2011.

Armed, rigid, subshrub, nodes with small bristle-like hairs, spines 4, white. Leaves linear-lanceolate, thinly scabrous. Flower(s) solitary, axillary, sessile. Bracts linear, rigid, spine-tipped. Calyx lobes 4, lanceolate. Corolla yellowish, lobes 5. Stamens 5. Capsule ovoid.

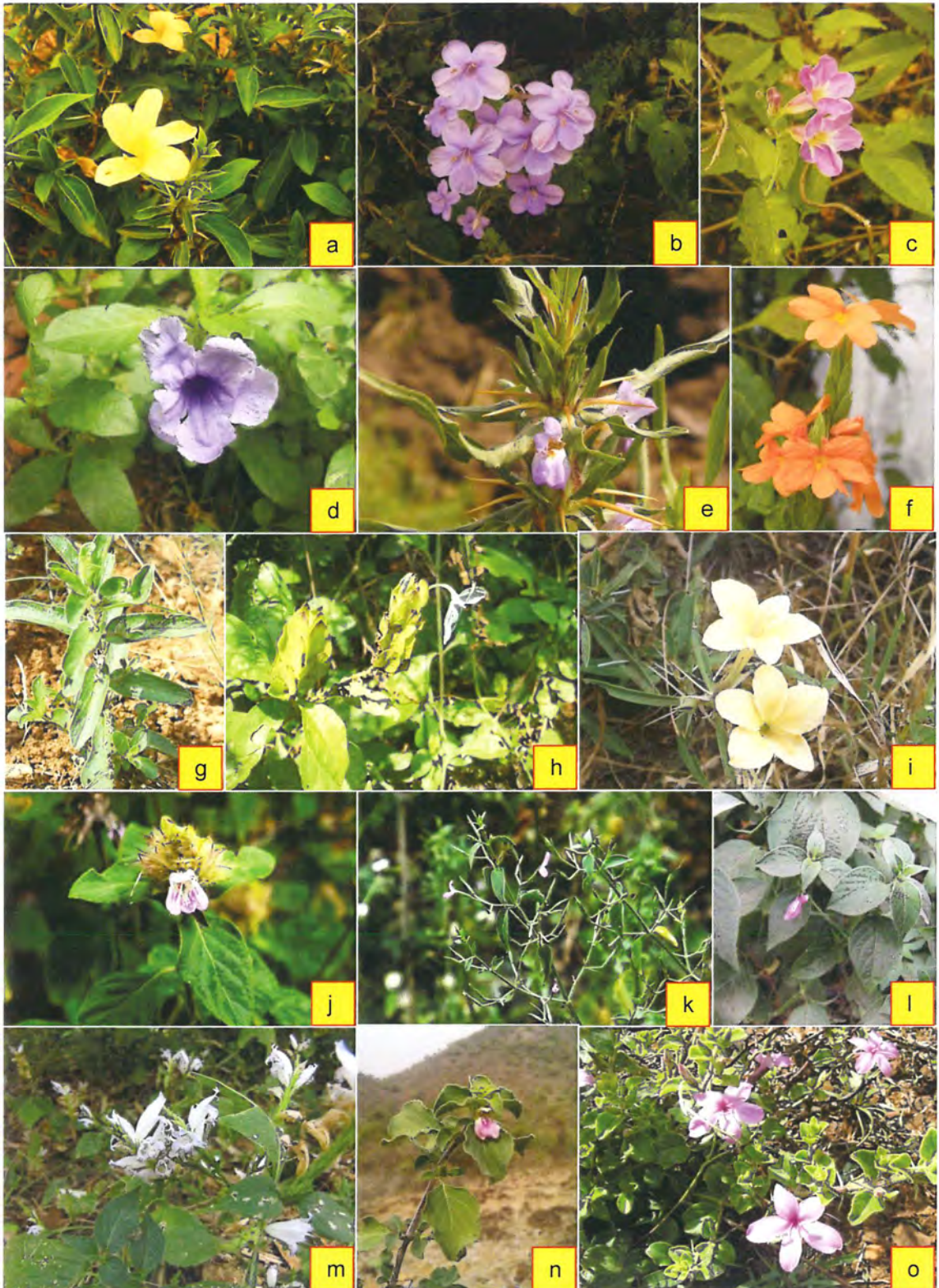
Occasional in wastelands. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** VS 18611, 19106 (FRC); KCJ & JD 81125 (MH).

Barleria longiflora L. f., Suppl. Pl. 290. 1782; FBI 4: 485. 1884; FPM 2: 742. 1957; FTC 3(2): 1164. 1983; FTN 2: 142. 1987; FPI 1: 6. 2009; FEG 4: 400. 2011.

Tawny pubescent, unarmed shrub. Leaves elliptic-ovate. Flowers 3-5, in 1-sided racemes. Bracts linear-lanceolate. Calyx lobes 4. Corolla white, salver form, lobes 5, ovate. Stamens 2. Ovary obovoid.

Occasional in foothills. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2589 (SACONH); PSAT 187226 (MH).

PLATE 17 - ACANTHACEAE



a) *Barleria prionitis*, b) *Barleria acuminata*, c) *Asystasia gangetica*, d) *Ruellia tuberosa*, e) *Hygrophila auriculata*, f) *Crossandra infundibuliformis*, g) *Andrographis echiioides*, h) *Ecbolium ligustrinum*, i) *Barleria cuspidata*, j) *Lepidagathis scariosa*, k) *Dicliptera paniculata*, l) *Dicliptera cuneata*, m) *Strobilanthes consanguinea*, n) *Justicia tranquebariensis*, o) *Barleria mysorensis*.

Barleria mysorensis B. Heyne ex Roth, Nov. Pl. Sp. 313. 1821; FBI 4: 484. 1884; FPM 2: 742. 1957; FTN 2: 142. 1987; FPI 1: 7. 2009.

Spinescent silky pubescent shrubs. Leaves obovate, elliptic, mucronate. Flowers solitary, axillary, subsessile, blue, ovate-lanceolate, silky pubescent. Corolla salver form, lobes 5, obovate. Stamens 2. Ovary ovoid.

Common wastelands and dry deciduous forests. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VS 18816, 19097 (SACONH).

Barleria pilosa B. Heyne ex Nees in Wall., Pl. Asiat. Rar. 3: 93. 1832; FBI 4: 486. 1884; FPM 2: 742. 1957; FTN 2: 143. 1987; FPI 1: 7. 2009.

Unarmed subshrub. Leaves ovate-lanceolate. Flowers solitary in axillary and/or terminal. Calyx lobes 4, lanceolate. Corolla lobes 5, pale blue. Stamens 2. Ovary oblong.

Occasional in margins of deciduous forests and also planted in gardens. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 18716, 19103 (FRC).

Barleria prionitis L., Sp. Pl. 636. 1753; FBI 4: 482. 1884; FPM 2: 741. 1957; FTC 3(2): 1166. 1983; FTN 2: 143. 1987; FPI 1: 7. 2009; FEG 4: 403. 2011.

Spinous herb, stem reddish, axillary spines 2-4, white. Leaves opposite decussate, elliptic, margin entire, mucronate. Flowers in cymose clusters or solitary and axillary. Calyx lobes 4, lanceolate, spinous at tip. Corolla infundibuliform, lobes 5, orange-yellow, 2-lipped. Stamens 2. Ovary bicarpellary. Stigma simple. Capsule ovate, brown.

Common in plains. **Fl. & Fr.:** Sept.-Jan. **Sp.Ex.:** LP 1668 (SACONH); VN 78967 (MH).

BLEPHARIS Juss., Gen. Pl. 103. 1789.

Blepharis maderaspatensis (L.) B. Heyne ex Roth, Nov. Pl. Sp. 320. 1821; FTC 3(2): 1167. 1983; FPI 1: 8. 2009; FEG 4: 407. 2011. *B. boerhaviifolia* Pers., Syn. Pl. 2: 180. 1806, "*boerhaviaefolia*"; FBI 4: 478. 1884; FPM 2: 712. 1957; FTN 2: 143. 1987.

Leaves elliptic-ovate to oblanceolate, margin entire or distantly toothed. Bracts in 4 opposite pairs. Bracteoles spatulate. Calyx lobes 4. Corolla white or with pink nerves. Stamens 4. Capsule shining. Seeds 2, orbicular, flattened.

Common in hill slopes, scrub jungles and dry deciduous forest. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VS 18722, 19102 (FRC); CECF 37254 (MH); VN 79170 (MH).

CROSSANDRA Salisb., Parad. lond. t.12. 1806.

Crossandra infundibuliformis (L.) Nees, Pl. Asiat. Rar. 3: 98. 1832; FTC 3(2): 1169. 1983; FTN 2: 144. 1987; FPI 1: 9. 2009; FEG 4: 484. 2011. *C. undulifolia* Salisb., Parad. lond. t. 12. 1806; FBI 4: 492. 1884; FPM 2: 739. 1957.

Subshrub. Leaves crowded near the inflorescence, elliptic-oblong. Spikes terminal and axillary. Bracts imbricate, 4-ferious. Bracteoles linear-subulate. Flowers sessile. Calyx -lobes 5, unequal, imbricate, lanceolate. Corolla orange-scarlet with yellow throat, salver form, lobes 5. Stamens 4. Ovary oblong-cylindric.

Occasional in dry hill slopes and scrub jungles. **Fl. & Fr.:** Dec.-Mar. VN: *Kanakambaram*. **Sp.Ex.:** VN 78955 (MH); PSAT 186657, 186658 (MH).

DICLIPTERA Juss., Ann. Mus. Natl. Hist. Nat. 9: 267. 1807.

Key to the species

- 1a. Cymes capitate; bracts spatulate.....*D. cuneata*
- 1b. Cymes divaricate; bracts linear.....*D. paniculata*

Dicliptera cuneata Nees, Pl. Asiat. Rar. 3: 111. 1832; FBI 4: 552. 1885; FPM 2: 752. 1957; FTC 3(2): 1170. 1983; FTN 2: 144. 1987; FPI 1: 10. 2009; FEG 4: 411. 2011.

Slender erect herb. Leaves obovate, appressed hairy. Cymes 3-5, axillary, (sub)capitate. Bracts of the cymes linear, a few sterile. Floral bracts spatulate. Bracteoles linear. Calyx lobes subequal, linear-lanceolate. Corolla pink, cylindric, lobes 5, bilipped, 2+3, imbricate, obovate. Stamens 2. Ovary oblong. Capsule ellipsoid. Seeds 4, orbicular-ovate.

Common on hill slopes. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** CECF 5434 (FRC); VS 18683, 19090 (FRC); KCJ & JD 81112 (MH).

Dicliptera paniculata (Forssk.) I. Darbysh., Kew Bull. 62: 122. 2007; FPI 1: 11. 2009. *Peristrophe bicalyculata* (Retz.) Nees in Wall., Pl. Asiat. Rar. 3: 113. 1832; FBI 4: 554. 1885; FPM 2: 759. 1957; FTC 3(2): 1193. 1983. *P. paniculata* (Forssk.) Brummitt, Kew Bull. 38: 451. 1983; FTN 2: 155. 1987; FEG 4: 452. 2011.

Herb. Leaves elliptic to lanceolate. Panicles of lax cymes, divaricate, terminal or axillary. Bracts 2, unequal, linear. Bracteoles similar in 2 unequals. valvate pairs. Calyx lobes 5, connate, valvate, linear. Corolla pink, tube cylindric, twisted, bilipped. Stamens 2. Ovary oblong-conic. Capsule ellipsoid. Seeds 4, orbicular.

Common in wastelands, stream banks, etc. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2231 (SACONH).

DYSCHORISTE Nees in Wall., Pl. Asiat. Rar. 3: 75, 81. 1832.

Key to the species

- 1a. Flowers in 3-9 in cluster; calyx-lobes shorter than tube.....*D. vagans*
1b. Flowers more than 12 in cluster; calyx-lobes as long as tube.....*D. erecta*

Dyschoriste erecta (Burm.f.) Kuntze, Revis. Gen. Pl. 2: 485 1891. *D. nagchana* (Nees) Bennet, Indian Forester 109: 220. 1983; FTN 2: 146. 1987; FPI 1: 13. 2009. *D. depressa* Nees in Wall., Pl. Asiat. Rar. 3: 81. 1832; FPM 2: 718. 1957; FTC 3(2): 1172. 1983; FEG 4: 418. 2011.

Prostrate herb. Leaves elliptic. Flowers in short cymes. Bracts lanceolate. Bracteoles linear. Calyx lobes 5, linear. Corolla white with pink stripes, cylindric, lobes 5. Stamens 4. Fruit a capsule.

Occasional in hills slopes. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** LP 2961 (SACONH); CECF 37530, 37533, 37534 (MH); KCJ 81338, 81388, 81398 (MH).

Dyschoriste vagans (Wight) Kuntze, Revis. Gen. Pl. 2: 486. 1891; FPM 2: 718. 1957; FTN 2: 146. 1987; FPI 1: 13. 2009; FEG 4: 419. 2011. *Calophanes vagans* Wight, Icon. Pl. Ind. Orient. t. 1526. 1850; FBI 4: 411. 1884.

Subscandent herb, stem grooved. Leaves simple, opposite, ovate-elliptic, margin entire, ciliated. Flowers violet, in axillary cyme. Bract 1, obovate-elliptic. Calyx lobes 5, linear-lanceolate. Corolla bilipped, tubular, violet with dark violet in throat. Stamens 4, didynamous. Ovary 2-celled, 2-ovuled. Stigma linear, recurved. Capsule oblong. Seeds 4.

Occasional in forest borders. **Fl. & Fr.:** Sept.-April. **Sp.Ex.:** VN 78767 (MH).

ECBOLIUM Kurz, Natural History 40: 75. 1875.

Ecbolium ligustrinum (Vahl) Vollesen, Kew Bull. 44: 651. 1989. *E. viride* (Forssk.) Alston in Trim., Hanb. Fl. Ceylon 6 (Suppl.): 229. 1931; FTC 3(2): 1174. 1983; FTN 2: 146. 1987; FPI 1: 14. 2009; FEG 4: 420. 2011. *E. linneanum* Kurz., J. Asiat. Soc. Bengal 40: 75. 1871; FBI 4: 411. 1884; FPM 2: 752. 1957.

Shrub. Leaves elliptic-ovate to obovate, thin coriaceous. Spikes terminal and axillary, leafy. Bracts imbricate, rotund. Bracteole 2, lanceolate. Corolla lobes 5, lanceolate. Corolla bluish green, lobes 5. Stamens 2. Ovary oblong-globular. Occasional in plains along the river banks. **Fl. & Fr.:** Throughout the year. **VN:** *Neelakanakambaram*. **Sp.Ex.:** LP 1987 (SACONH).

ELYTRARIA Michx., Fl. Bor. - Amer. 1: 8. 1803.

Elytraria acaulis (L. f.) Lindau, Nat. Pflanzenfam. Nachtr. 1: 304. 1897; FPM 2: 709. 1957; FTC 3(2): 1175. 1983; FTN 2: 146. 1987; FPI 1: 15. 2009; FEG 4: 421. 2011.

Acaulescent herb. Leaves subradical, in close spirals, ovate-oblong-lanceolate, margin crenate. Spikes scapigerous, (un)branched, slender. Bracts spirally imbricate, lower sterile, upper flower-bearing, ovate. Bracteoles 2, linear. Calyx lobes 4(5), lanceolate. Corolla white tinged pink. lobes 5, bilipped, 2+3. Stamens 2. Ovary cylindric. Seeds many flattened. Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1590 (SACONH).

ERANTHEMUM L., Sp. Pl. 9. 1753.

Key to the species

- 1a. Leaf margin entire; flowers in panicles.....*E. capense*
1b. Leaf margin faintly crenate; flowers in spikes.....*E. purpurascens*

Eranthemum capense L., Sp. Pl. 9. 1753, var. *capense*; FTC 3(2): 1176. 1983; FTN 2: 146. 1987; FPI 1: 15. 2009; FEG 4: 423. 2011. *E. montanum* (Roxb.) Roxb., Fl. Ind. (Eds. Carey & Wall.) 1: 110. 1820; FPM 2: 720. 1957.

Subshrub. Leaves obovate, thin coriaceous. Spikes dense, paniculate, terminal and/or axillary. Bracts lanceolate. Bracteoles linear-lanceolate. Calyx lobes 5, equal. Corolla blue, slaver form, lobes subequal. Stamens 2. Ovary oblong. Capsule oblong. Occasional in evergreen forest floor. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 5331 (FRC); VN 79122 (MH); KCJ 81310 (MH); SRR 83209 (MH).

Eranthemum purpurascens Nees in Wall., Pl. Asiat. Rar. 3: 106. 1832; FPM 2: 719. 1957; FTN 2: 147. 1987; FPI 1: 16. 2009; FEG 4: 425. 2011.

Shrubs. Leaves elliptic-ovate, obovate or lanceolate. Flowers blue, in terminal racemes. Calyx-lobes 5. Corolla lobes 5. Stamens 2, staminodes 2. Ovary glabrous. Fruit a capsule. Seeds 4, orbicular.

Occasional in evergreen forest floor. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** LP 2636 (SACONH).

HYGROPHILA A.R. Br., Prodr. Nov. Holl. 479. 1810.

Key to the species

- 1a. Armed; calyx-lobes 4.....*H. auriculata*
1b. Unarmed; calyx-lobes 5.....*H. quadrivalvis*

Hygrophila auriculata (Schumach.) Heine, Kew Bull. 16: 172. 1963; FTC 3(2): 1178. 1983; FTN 2: 149. 1987. *H. schulli* (Ham.) M. R. Almeida & S. M. Almeida in J. Bombay Nat. Hist. Soc. 83(Suppl.): 221. 1986; FPI 1: 23. 2009; FEG 4: 434. 2011. *Asteracantha longifolia* (L.) Nees in Wall., Pl. Asiat. Rar. 3: 90. 1832; FPM 2: 712. 1957.

Armed, strigose-hispid, subshrub. Leaves appear whorled, lanceolate, margin minutely dentate. Flowers in axillary whorls. Bracts and bracteoles leafy. Calyx lobes 4, unequal, lanceolate. Corolla purple, lobes 5. Stamens 4. Ovary oblong.

Occasional clumps in marshy areas. **Fl. & Fr.:** Nov.-April. **VN:** *Neermulli*. **Sp.Ex.:** KCJ & JD 81134 (MH).

Hygrophila ringens (L.) R. Br. ex Steud., Nomencl. Bot. 1: 418. 1821. *H. angustifolia* R. Br., Prodr. 1: 479. 1810; FPM 2: 713. 1957; FPI 1: 22. 2009. *H. salicifolia* (Vahl) Nees in Wall., Pl. Asiat. Rar. 3: 81. 1832; Wight, Icon. Pl. Ind. Orient. t. 1490. 1849; FBI 4: 407. 1884; FTC 3(2): 1180. 1983; FTN 2: 149. 1987; FEG 4: 433. 2011.

Herb, tender parts hirsute. Leaves narrowly oblong to lanceolate, base attuneate. Bracts lanceolate. Calyx lobes 5, unequal. Corolla white with pink lines. Stamens 4. Seeds 8-12, retinacula long and curved.

Common in marshy areas. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** VS 18684 (FRC).

JUSTICIA L., Sp. Pl. 15. 1753.

Key to the species

- 1a. Shrub, >1.5 m high.....2
- 1b. Subshrubs or herbs, < 1 m high.....3
- 2a. Leaves oblanceolate.....*J. adhatoda*
- 2b. Leaves ovate-lanceolate or oblong.....*J. betonica*
- 3a. Calyx-lobes 5.....4
- 3b. Calyx-lobes 4.....6
- 4a. Bracts white with green nerves; bracteoles similar.....*J. nilgherrensis*
- 4b. Bracts green; bracteoles different or 0.....5
- 5a. Branchlets woody; appressed white pubescent.....*J. tranquebariensis*
- 5b. Branchlets not so; softly hispid.....*J. glauca*
- 6a. Spikes stout, cylindric.....7
- 6b. Spikes slender, linear.....8
- 7a. Leaves elliptic-ovate; bracts linear.....*J. procumbens*
- 7b. Leaves oblong-ovate; bracts elliptic- ovate.....*J. simplex*
- 8a. Leaves ovate or (sub)orbicular, drying pale green.....*J. prostrata*
- 8b. Leaves elliptic-ovate, drying dark green/black.....9
- 9a. Bracteole ovate; calyx lobes linear-lanceolate.....*J. diffusa*
- 9b. Bracteole lanceolate; calyx lobes ovate-lanceolate.....*J. hedyotidifolia*

Justicia adhatoda L., Sp. Pl. 15. 1753; FTN 2: 150. 1987; FPI 1: 24. 2009; FEG 4: 438. 2011. *Adhatoda zeylanica* Medik., Hist. & Commentat. Acad. Elect. Sci. Theod.-Palat. 6: 393. 1790; FTC 3(2): 1147. 1983. *A. vasica* Nees in Wall., Pl. Asiat. Rar. 3: 103. 1832; FBI 4: 540. 1885; FPM 2: 758. 1957.

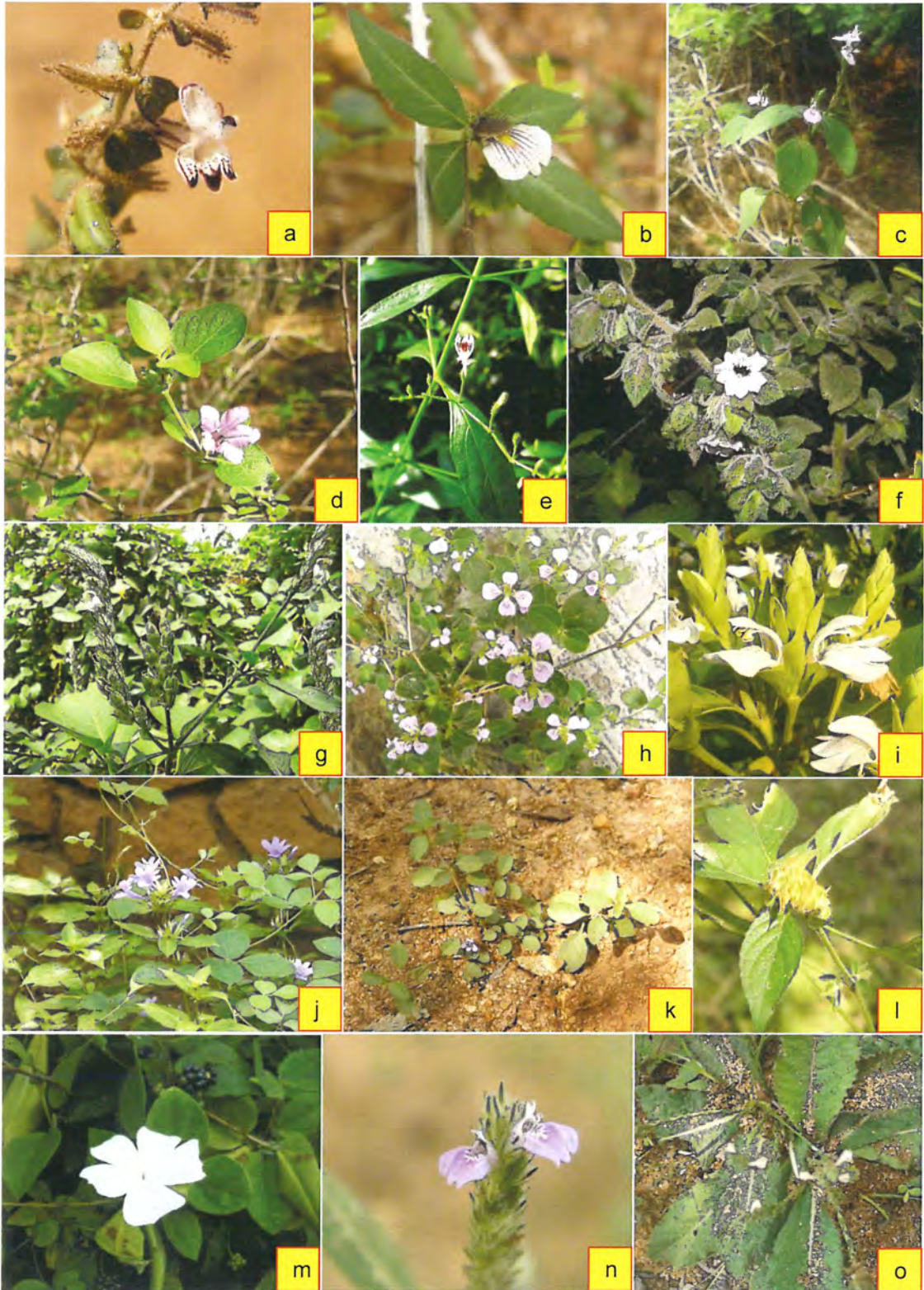
Shrub, branchlets grey-pubescent. Leaves oblanceolate, thin coriaceous, margin entire to minutely crenate. Bracts leafy. Bracteoles elliptic-oblong. Calyx lobes 5equal, imbricate, lanceolate. Corolla cream white, throat villous, bilipped, 2+3. Stamens 2. Ovary oblong.

Occasionally planted along the fences of the settlements. **Fl. & Fr.:** Nov.-Mar. **VN:** *Aduadhodai*. **Sp.Ex.:** LP 2597 (SACONH).

Justicia betonica L., Sp. Pl. 15. 1753; FBI 4: 525. 1885; FPM 2: 755. 1957; FTC 3(2): 1184. 1983; FTN 2: 150. 1987; FPI 1: 25. 2009; FEG 4: 439. 2011.

Subshrub, branchlets green, striate. Leaves ovate-lanceolate to obovate. Spike 1-3, terminal to subterminal. Bracts and bracteoles similar, leafy, elliptic to ovate. Calyx lobes 5, obovate-lanceolate. Corolla pubescent, lobes 5, bilipped. Stamens 2. Ovary oblong.

PLATE 18- ACANTHACEAE



a) *Andrographis serpyllifolia*, b) *Blepharis maderaspatensis*, c) *Justicia diffusa*, d) *Ruellia patula*, e) *Andrographis paniculata*, f) *Strobilanthes kunthiana*, g) *Justicia betonica*, h) *Justicia japonica*, i) *Justicia adhatoda*, j) *Barleria pilosa*, k) *Dyschoriste vagans*, l) *Phaulopsis imbricata*, m) *Thunbergia fragrans*, n) *Rungia repens*, o) *Elytraria acaulis*.

Common in along banks of river and streams. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1580 (SACONH); PSAT 186953 (MH); VS 18682 (FRC).

Justicia diffusa Willd., Sp. Pl. 1: 87. 1797; FBI 4: 538. 1885; FPM 2: 757. 1957; FTC 3(2): 1185. 1983; FPI 1: 25. 2009. *Rostellularia diffusa* (Willd.) Nees in Wall., Pl. Asiat. Rar. 3: 100. 1832, var. *diffusa*; FTN 2: 158. 1987; FEG 4: 459. 2011.

Herb. Base woody. Branches slender. Leaves broadly elliptic-ovate, drying dark green. Spikes linear, terminal, long stalked. Bracts and bracteoles ovate. Calyx lobes 4, subequal, lanceolate, margin scarious. Corolla lobes 5, bilipped. Stamens 2. Seeds ovate.

Common in hills of bare slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18818, 19091 (FRC); CECF 39368 (MH); SRR 78098 (MH); KCJ & JD 81114 (MH).

Justicia glauca Rottler, Neue Schriften Ges. Naturf. Freunde Berlin 4: 219. 1802; FBI 4: 529. 1885; FPM 2: 755. 1957; FTC 3(2): 1187. 1983; FTN 2: 150. 1987; FPI 1: 26. 2009; FEG 4: 442. 2011. *Gendarussa tranquebariensis* Wight, Icon. Pl. Ind. Orient. t. 462. 1841, non Nees 1832.

Undershrub, branchlets terete. Leaves elliptic-ovate. Spikes terminal and axillary. Bracts broadly ovate. Bracteoles linear. Calyx lobes 5, lanceolate. Corolla lobes 5, bilipped. Capsule apically pointed. Seeds spinulose when wet.

Common in foothills. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** VS 18810 (FRC).

Justicia hedyotidifolia (Nees) Remadevi, Contrib. Fl. Kerala Acanth. 97. 2009. *J. diffusa* Willd., Sp. Pl. ed. 4. 1(1): 87, 1797, var. *hedyotidifolia* (Nees) C.B. Clarke in Hook. f., Fl. Brit. India 4: 538. 1885; FPM 2: 757. 1957; FPI 1: 25. 2009.

Herb, stem zigzag, trichotomously branched. Leaves opposite, ovate or elliptic. Flowers white with violet striations, in terminal dense spike. Bracteoles lanceolate. Calyx lobes 4, ovate-lanceolate. Corolla bilipped, 2+3. Stamens 2. Ovary oblong. Capsule ellipsoid, brown.

Occasional in moist places of high altitude. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** EV 142120, 142121 (MH).

Justicia japonica Thunb. in Murray, Syst. Veg. ed. 14: 63. 1784. *J. simplex* D. Don, Prodr. Fl. nepal. 118. 1825; FBI 4: 539. 1885; FSIHS 2: 457. t. 398. 1932; FTC 3(2): 1189. 1983; FPI 1: 26. 2009. *Rostellularia simplex* Wight, Icon. Pl. Ind. Orient. t. 1542. 1850; FTN 2: 159. 1987; FEG 4: 388. 2011.

Herb, diffuse and branching, branchlets striate, angled, zigzag, strigose. Leaves elliptic-lanceolate, drying pale green. Spikes 1-3, cylindric. Bracts ovate, scarious. Calyx lobes 4, free. Corolla lobes 5, bilipped. Stamens 2. Seeds ovate.

Common in dry deciduous forest and hill slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CAB 39275 (MH); SRN 80527, 80560 (MH).

Justicia nilgherrensis (Nees) Wall. ex C.B. Clarke in Hook. f., Fl. Brit. India 4: 526. 1885; FSIHS 2: 456. t. 397. 1932; FPM 2: 755. 1957; FTN 2: 150. 1987; FPI 1: 27. 2009; FEG 4: 443. 2011.

Procumbent herb. Leaves oblong, attenuate at base, obtuse or emarginate at apex. Calyx lobes 5, equal, lanceolate. Corolla tube cylindric, 2-lipped. Stamens 2. Ovary oblong, hairy. Capsule clavate, pubescent. Seeds 4, echinate

Common in high altitude open grasslands. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** CECF 84998 (MH).

Justicia procumbens L., Sp. Pl. 15. 1753; FBI 4: 539. 1885; FPM 2: 756. 1957; FTC 3(2): 1188. 1983; FPI 1: 27. 2009. *Rostellularia procumbens* (L.) Nees in Wall., Pl. Asiat. Rar. 3: 103. 1832; FTN 2: 158. 1987.

Branchlets strigose-hispid. Leaves elliptic, scabrous above, glabrescent to strigose below. Spikes terminal. Bracts obovate. Bracteoles lanceolate. Calyx lobes 4, subequal, lanceolate. Corolla lobes 5, bilipped. shortly emarginate. Stamens 2. Capsule oblong.

Common in hill slopes and dry deciduous forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2224 (SACONH).

Justicia prostrata (Roxb. ex C.B. Clarke) Gamble, Fl. Madras 2: 757. 1957; FPI 1: 28. 2009. *Rostellularia prostrata* (Roxb. ex C.B. Clarke) R.B. Majumdar, Bull. Bot. Soc. Bengal 25: 75. 1971; FTN 2: 159. 1987; FEG 4: 462. 2011.

Prostrate herb. Branchlets striate. Leaves ovate or (sub)orbicular. Spikes linear, terminal. Bracts and bracteoles lanceolate. Calyx lobes 4, almost free, lanceolate. Corolla lobes 5, bilipped. Stamens 2. Capsule oblong.

Occasional in plains. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2698 (SACONH).

Justicia tranquebariensis L. f., Suppl. Pl. 85. 1782; FBI 4: 530. 1885; FPM 2: 755. 1957; FTC 3(2): 1190. 1983; FTN 2: 151. 1987; FPI 1: 29. 2009; FEG 4: 443. 2011.

Subshrub with a woody base. Branchlets stiff, terete, appressed white-pubescent. Leaves ovate-suborbicular. Spikes terminal and/or axillary. Bracts elliptic to broadly ovate. Bracteoles lanceolate. Calyx lobes 5, lanceolate. Corolla lobes 5, puberulous. Stamens 2.

Common in foothills and along roadsides. **Fl. & Fr.:** Throughout the year. **VN:** *Thavasimurungai*. **Sp.Ex.:** LP 1580 (SACONH); VS 18685 (FRC); PSAT 186873 (MH).

LEPIDAGATHIS Willd., Sp. Pl 3: 400. 1800.

Lepidagathis scariosa Nees in Wall., Pl. Asiat. Rar. 3: 95. 1832; FBI 4: 520. 1885; FPM 2: 748. 1957; FTN 2: 152. 1987; FPI 1: 32. 2009.

Herbs, stems woody. Leaves ovate, tawny pubescent below. Condensed spikes ovoid, pilose, densely crowded at the base the stem, rarely axillary. Bracts elliptic, spinescent. Bracteoles lanceolate. Calyx lobes 5. Corolla pinkish, villous at throat. Stamens 4. Fruit a capsule.

Occasional in foothills. **Fl. & Fr.:** Dec.-June. **VN:** *Karappan poondu*. **Sp.Ex.:** VS 18815 (FRC).

MEYENIA Nees, Pl. Asiat. Rar. 3: 75,78. 1832.

Meyenia hawtayneana (Wall.) Nees, Wall., Pl. Asiat. Rar. 3: 78. 1832; FPM 2: 708. 1957; FTC 3(2): 1192. 1983; FTN 2: 162. 1987; FPI 1: 33. 2009; FEG 4: 450. 2011. *Thunbergia hawtayneana* Wall., Tent. Fl. Napal. 49. 1826; FBI 4: 391. 1884.

Diffuse vine, branchlets 4-gonous. Leaves elliptic-ovate to deltoid, (sub)coriaceous. Flower(s) solitary or paired, axillary. Bracteoles oblong, leafy. Calyx reduced, obscurely 5-lobed, valvate. Corolla violet, yellow within, lobes 5, spreading equal. Stamens 4. Ovary conical. Capsule subglobose.

Occasional in margins of the moist deciduous forest. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** VS 18847 (FRC); CECF 37127, 37133, 37139, 137140, 137141, 137142, 137143, 137144, 84991, 84991 (MH); VN 74664, 79664 (MH); PSAT 186749, 186750, 186782, 186783 (MH).

PHAULOPSIS Willd., Sp. Pl. 3: 4, 342. 1800.

Phaulopsis imbricata (Forssk.) Sweet, Hort. Brit. 1. 327. 1827; FTC 3(2): 1194. 1983; FTN 2: 156. 1987; FPI 1: 34. 2009; FEG 4: 455. 2011.

Spreading herb, tender parts softly glandular-hairy. Leaves obliquely ovate to elliptic. Spikes 1-seeded, leafy, dense, terminal or axillary. Bracts 2. Calyx lobes 5, unequal, free. Corolla white, lobes 5, subequal, 2+3. Stamens 4. Ovary oblong. Capsule oblong.

Occasional in moist slopes and river banks of the hilly regions. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** LP 1680 (SACONH); KCJ 81487 (MH).

RHINACANTHUS Nees, Pl. Asiat. Rar. 3: 76, 108. 1832.

Rhinacanthus nasutus (L.) Kurz, J. Asiat. Soc. Bengal 2. Nat. Hist. 39: 79. 1870; FTC 3(2): 1196. 1983; FTN 2: 157. 1987; FPI 1: 36. 2009; FEG 4: 457. 2011. *R. communis* Nees in Wall, Pl. Asiat. Rar. 3: 109. 1832; FBI 4: 541. 1885; FPM 2: 758. 1957.

Subshrub. tender parts hirsute. Leaves elliptic to oblanceolate. Panicles divaricate, terminal or axillary, ultimate branches 3-chotomous. Bracts and bracteoles lanceolate. Calyx lobes 5. Corolla white, tube narrowly cylindric, lobes 5, bilipped. Stamens 2. Capsule linear. Occasional in hill slopes and margins of the moist deciduous forest. **Fl. & Fr.:** Dec.-April. **VN:** Nagamalli. **Sp.Ex.:** VN 78773 (MH); PSAT 187219 (MH).

RUELLIA L., Sp. Pl. 634. 1753.**Key to the species**

- 1a. Roots tuberous; calyx lobes longer than bracts and bracteoles.....*R. tuberosa*
1b. Roots not tuberous; calyx lobes shorter than bracts and bracteoles.....*R. patula*

Ruellia patula Jacq., Misc. Austriac. 2: 358. 1779; FBI 4: 412. 1884; FPM 2: 714. 1957; FPI 1: 37. 2009. *Dipteracanthus patulus* (Jacq.) Nees in Wall, Pl. Asiat. Rar. 3: 81. 1832; FTC 3(2): 1171. 1983; FTN 2: 145. 1987; FEG 4: 414. 2011.

Erect herb, tender parts white-pubescent. Leaves elliptic-ovate. Flower(s) solitary or in cymes. Bracteoles ovate. Calyx lobes 5, lanceolate. Corolla blue to violet, lobes 5. Stamens 4. Capsule elliptic.

Occasional in plains especially by riverbanks. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** LP 1679 (SACONH).

Ruellia tuberosa L., Sp. Pl. 635. 1753; FPM 2: 714. 1957; FTC 3(2): 1197. 1983; FTN 2: 159. 1987; FPI 1: 38. 2009; FEG 4: 465. 2011. *Ruellia glandulosa* Roth, Nov. Pl. sp. 312. 1821; FBI 4: 414. 1884.

Herb, tender parts hispid, nodes purplish. Leaves obovate to lanceolate. Flower(s) solitary or in 3-flowered cymes, terminal or axillary. Bracts and bracteoles linear-lanceolate. Calyx lobes subequal. Corolla blue to violetish, lobes subequal. Stamens 4. Capsule oblong.

Occasional in moist localities. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1687 (SACONH).

RUNGIA Nees, Pl. Asiat. Rar. 3: 77, 109. 1832.

Rungia repens (L.) Nees, Pl. Asiat. Rar. 3: 110. 1832; FBI 4: 549. 1885; FPM 2: 750. 1957; FTC 3(2): 1197. 1983; FTN 2: 160. 1987; FPI 1: 39. 2009; FEG 4: 466. 2011. *Justicia repens* L., Sp. Pl. 15. 1753.

Procumbent herb. Leaves elliptic-lanceolate, puberulose. Spikes terminal. Bracts 4-ferous, usually 2-rows. Bracteoles lanceolate. Calyx lobes 5, subequal. Corolla pinkish, lobes 5, bilipped, 2+3. Stamens 2. Ovary globose. Capsule elliptic-oblong, flat.

Occasional in plains in wastelands. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2614 (SACONH); CECF 38907, 38923 (MH); KCJ 81223 (MH); EV 142048, 142049 (MH).

STENOSIPHONIUM Nees, Pl. Asiat. Rar. 3: 75, 84. 1832.**Key to the species**

- 1a. Leaf apex acute; corolla blue; stamens 2.....*S. cordifolium*
1b. Leaf apex acuminate; corolla pink; stamens 4.....*S. wightii*

Stenosiphonium cordifolium (Vahl) Alston, Handb. Fl. Ceylon 6 (Suppl.): 226. 1931; FTN 2: 161. 1987; FPI 1: 41. 2009; FEG 4: 470. 2011. *Ruellia cordifolia* Vahl, Symb. Bot. 3: 84. 1794. *S. russeianum* Nees in Wall., Pl. Asiat. Rar. 3: 84. 1832; FBI 4: 427. 1884; FPM 2: 717. 1957; FTC 3(2): 1200. 1983.

Shrub. Leaves ovate-obovate, margins bluntly crenate, spikes interrupted. Flowers in clusters. Bracts broadly ovate to oblong, thick. Calyx lobes 5, unequal. Corolla blue to violet, ventricose, strigose along the groove. lobes 5, obtuse. Stamens 4. Seeds 6-8.

Occasional in foothills. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** VS 19107 (FRC).

Stenosiphonium wightii Bremek., Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede Sect. 2. 41 (1): 153. 1944; FTN 2: 161. 1987; FPI 1: 41. 2009. *S. diandrum* sensu Wight, Icon. Pl. Ind. Orient. t. 1502. 1850, non Nees 1847; FBI 4: 426. 1884; FPM 2: 716. 1957.

Shrub. Leaves ovate, acuminate at apex, broadly attenuate to cordate at base. Bracts ovate. Bracteoles linear, subulate, glandular hairy. Calyx lobes similar to bracteoles. Corolla pink, lower portion narrow, upper part campanulate.

Occasional in evergreen forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** LP 1990 (SACONH).

STROBILANTHES Blume, Bijdr. Fl. Ned. Ind. 796. 1826.

Key to the species

- 1a. Stamens 2.....2
- 1b. Stamens 4.....4
- 2a. Flowers in dense broad spike, not interrupted.....*S. kunthiana*
- 2b. Flowers in narrow spike.....3
- 3a. Bracts ovate-elliptic; bracteoles lanceolate.....*S. gamblei*
- 3b. Bracts ovate or lanceolate; bracteoles linear.....*S. consanguinea*
- 4a. Flowers in spike; leaf apex acuminate.....*S. heyneanus*
- 4b. Flowers in heads; leaf apex acute.....*S. pulneyensis*

Strobilanthes consanguinea (Nees) T. Anderson, Enum. Pl. Zeyl. 226. 1860; FBI 4: 435. 1884; FSIHS 2: 447 1932; FPM 2: 727. 1957; FPI 1: 46. 2009; FEG 4: 474. 2011. *Phlebophyllum spicatum* (Roth) Bremek., Ver. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Sect. 2. 41(1): 169. 1944, var. *amomum* (Nees) Bremek, Verh. Kon. Ned. 41: 169. 1944; FTN 2: 157. 1987.

Shrub. Leave simple, opposite, ovate, base decurrent, margin bluntly serrate, softly villous above. Flowers violet to bluish in long spikes. Bract 1, ovate. Calyx lobes 5, lanceolate, subequal. Corolla lobes 5, p, villous inside. Stamens 2. Ovary 2-locular.

Occasional in moist deciduous forest. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** LP 3087, 3104 (SACONH); VN 78746 (MH).

Strobilanthes gamblei Carine, J.M. Alexander & Scotland, Kew Bull. 59: 5. 2004; FPI 1: 48. 2009.

Shrub, stem glabrous below, pubescent above. Leaves ovate to elliptic, margin entire. Inflorescence narrow uninterrupted or intereprted spikes with cream or tawny coloured indumentum. Calyx lobes 2 or 3, broadly triangular. Corolla throat ventricose, lobes broadly triangular. Stamens exserted. Fruit oblong-clavate, glabrous.

Rare on rocky slopes and along the stream banks and margins of the evergreen forest. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** VN 78746 (MH).

Strobilanthes heyneana Nees in Wall., Pl. Asiat. Rar. 3: 85. 1832; FBI 4: 443. 1884; FPM 2: 727. 1957; FPI 1: 50. 2009; FEG 4: 474. 2011. *Nilgirianthus heyneanus* (Nees) Bremek., Verh. Kon. Ned. Akad. Wetensch., Afd. Tweede Sect. 41 (1): 173. 1944; FTN 2: 157. 1987.

Shrubs, branches glabrous. Leaves elliptic, glabrous. Spikes axillary, 2-3 together on trichotomous peduncle. Bracts orbicular or obovate. Flowers 4-10 in each spike. Calyx united to the middle, glabrous. Corolla white. Staminal sheath ciliate. Capsule glabrous.

Rare along the margins of evergreen forests. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** VN 79834 (MH); CECF 5351, 5352 (FRC).

Strobilanthes kunthiana (Nees) T. Anderson ex Benth., Fl. Hongk. 262. 1861, "*kunthiana*"; FBI 4: 434. 1884; FSIHS 2: 445. t. 373. 1932; FPM 2: 726. 1957; FTC 3(2): 1204. 1983; FPI 1: 51. 2009; FEG 4: 477. 2011. *Phlebophyllum kunthianum* Nees in Wall, Pl. Asiat. Rar. 3: 83. 1832; FTN 2: 157. 1987.

Shrub. Leaves elliptic-lanceolate to obovate, thick coriaceous, scabrous above, thinly white-pilose, below. Spikes dense. Bracts closely imbricate, obovate. Calyx lobes 5. Corolla blue to violet. Stamens 2. Ovary 4-ovuled.

Occasional in margins of the evergreen forest and open grasslands slopes on high altitude. **Fl. & Fr.:** Nov.-Jan. VN: *Kurinji*. **Sp.Ex.:** VS 19101 (FRC).

Strobilanthes pulneyensis C.B. Clarke in Hook. f., Fl. Brit. India 4: 438. 1884; FSIHS 2: 447. t. 386. 1932; FPM 2: 727. 1957; FTC 3(2): 1206. 1983; FPI 1: 56. 2009; FEG 4: 479. 2011.

Shrub, tender parts densely hispid. Leaves ovate to obovate, (sub)coriaceous, rugose, margin crenate-serrate. Condensed spikes depressed, capitate or strobilate, axillary and terminal, subtended by leafy. Calyx lobes 5, equal. Corolla blue to violet, tube narrowly cylindric, lobes 5, subequal. Stamens 4. Ovary cylindric. Stigma unequally 2-fid. Capsule oblong.

Occasional in margins of evergreen forest. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** CECF 5342 (FRC).

THUNBERGIA Retz., Physiogr. Salsk. Handl. (3): 163. 1780.

Key to the species

- 1a. Calyx-teeth subulate, c. 4 mm, glabrescent; capsule glabrescent.....*T. fragrans*
1b. Calyx-teeth filiform, c. 6 mm, very villous; capsule villous.....*T. tomentosa*

Thunbergia fragrans Roxb., Pl. Coromandel 1: t. 67. 1796, var. *fragrans*; FBI 4: 390. 1884; FPM 2: 707. 1957; FTC 3(2): 1211. 1983; FTN 2: 162. 1987; FPI 1: 61. 2009; FEG 4: 484. 2011. *T. fragrans* Roxb. var. *laevis* (Nees) FBI 4: 391. 1884; FPM 2: 707. 1957.

Slender twiner. branchlets sparsely sericeous. Leaves broadly elliptic to ovate, margin entire or distantly serrate. Flower(s) usually solitary. Calyx bowl shaped, teeth ca. 15. Corolla white, tube cylindric, lobes 5, subequal. Stamens 4. Stigma 2-lipped. Capsule scabrid. Seeds reticulate.

Common in hills on thickets and fences, by forest borders. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 3162 (SACONH); KNS 2049, 12055, 12056 (FRC); VS 18846, 19095, 19098, 19403 (FRC); CECF 37081, 37082 (MH); SRN 78103, 80583 (FRC); KCJ 81258 (MH); PSAT 187426, 187427 (MH).

Thunbergia tomentosa Wall. ex Nees, Pl. Asiat. Rar. 3: 78. 1832; FBI 4: 391. 1884; FSIHS 2: 443. t. 382. 1932; FPM 2: 708. 1957; FTN 2: 163. 1987; FPI 1: 62. 2009.

Twiner. Leaves sagittate, distantly serrate at margins. Flowers solitary, axillary. Calyx bowl shaped, toothed. Corolla funnel shaped, lobes 5, imbricate. Stamens 4. Ovary globose. Stigma 2-fid. Capsule depressed-globose. Seeds 4.

Occasional in along the forest borders. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** VN 79116 (MH); PSAT 18690 (MH).

VERBENACEAE J. St.-Hil., Expos. Fam. Nat. 1: 245. 1805.

Key to the genera

1a. Leaves simple.....	2
1b. Leaves palmately 3-5 foliolate	<i>Vitex</i>
2b. Inflorescence a raceme or cyme; flowers pedicelled; fruiting bracts inconspicuous.....	3
2a. Inflorescence a spike; flowers subsessile; fruiting bracts conspicuous.....	9
3a. Corolla regular; lobes 4 or 6-8; stamens equal.....	4
3b. Corolla bilabiate; lobes 5; stamens didynamous.....	6
4a. Flowers purple, 4-merous; pyrenes 4, 1-celled.....	5
4b. Flowers yellowish, 6-8-merous; drupe 1,4-celled.....	<i>Tectona</i>
5a. Inflorescence terminal panicles.....	<i>Callicarpa</i>
5b. Inflorescence axillary cymes.....	<i>Rotheca</i>
6a. Stamens inserted well below tube, involute in bud.....	7
6b. Stamens inserted near the middle of tube, not involute in bud.....	8
7a. Leaf margin entire.....	<i>Clerodendrum</i>
7b. Leaf margin serrate.....	<i>Volkameria</i>
8a. Racemes paniculate; corolla yellow, >2 cm across.....	<i>Gmelina</i>
8b. Racemes corymbose; corolla cream or white, <0.7 cm across.....	<i>Premna</i>
9a. Fertile stamens 2.....	<i>Stachytarpheta</i>
9b. Fertile stamens 4.....	10
10a. Pyrenes 2-celled and 2-seeded.....	<i>Priva</i>
10b. Pyrenes 1-celled and 1-seeded.....	11
11a. Erect shrubs, fruits fleshy.....	<i>Lantana</i>
11b. Prostrate herbs, fruits dry.....	<i>Phyla</i>

CALLICARPA L., Sp. Pl. 1: 111. 1753.

Callicarpa tomentosa (L.) Murray, Syst. Veg. ed. 13. 130. 1774; FTC 3(2): 1217. 1983; FTN 2: 163. 1987; Rajendran & Daniel, Indian Verben. 53. 2002; FEG 4: 487. 2011. *C. lanata* L., Mant. Pl. Altera 331. 1771, nom. illeg.; FBI 4: 567. 1885; FPM 2: 764. 1957.

Evergreen tree, branchlets fulvous tomentose. Leaves broadly elliptic-ovate, coriaceous, margin entire to minutely toothed. Inflorescence an axillary and terminal, umbellate cymes. Bracts linear, deciduous. Calyx cupular, obscurely 4-lobed. Corolla purple, regular. Stamens 4. Occasional in evergreen forest borders. **Fl. & Fr.:** Mar.-April. **VN:** *Pandakaiya maram*. **Sp.Ex.:** LP 1256 (SACONH); KA & PB 1422 (SACONH); CECF 5484 (FRC); KNS 7154, 7197, 13381, 13382 (FRC); VS 18889 (FRC); KCJ 81441 (MH).

CLERODENDRUM L., Sp. Pl. 2: 637. 1753.

Key to the species

1a. Inflorescence a cyme, corymb or capitulum.....	2
1b. Inflorescence a panicle or thyrses.....	<i>C. infortunatum</i>
2a. Corolla more than 5-toothed.....	<i>C. chinense</i>
2b. Corolla 5-toothed.....	<i>C. phlomides</i>

Clerodendrum infortunatum L., Sp. Pl. 637. 1753, "*infortunata*", non L. 1771; FBI 4: 594. 1885; FPM 2: 770. 1957; Rajendran & Daniel, Indian Verben. 116. 2002. *C. viscosum* auct. non Vent. 1804; FTN 2: 165. 1987.

Shrubs, stems 4-angled, tawny pubescent. Leaves orbicular, cordate at base, serrate-crenate. Flowers white, in large terminal, pedunculate paniced cymes. Calyx lobes cupular, lanceolate. Corolla tube slender, lobes 5, obovate, pubescent. Stamens 4. Berry 1-3-lobed.

Occasional in banks of riparian forest. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** CECF 5516 (FRC); KNS 12087, 12088 (FRC); PSAT 187579, 187580 (MH).

Clerodendrum chinense (Osbeck) Mabb., Plant-book Repr. 707. 1989. *C. philippinum* Schauer in A. DC., Prodr. 11: 667. 1847; FTC 3(2): 1219. 1983; FTN 2: 164. 1987; Rajendran & Daniel, Indian Verben. 133. 2001; FEG 4: 489. 2011.

Shrubs, branchlets angled, hirsute. Leaves broadly ovate, acute, base cordate, margins serrate. Inflorescence terminal, congested cymes. Flowers double, fragrant. Calyx campanulate, pinkish. Corolla white. Stamens 4.

Common in moist deciduous forest borders and along the roadsides. **Fl. & Fr.:** Feb.-May. **VN:** *Mysore mali*. **Sp.Ex.:** LP 2819 (SACONH)

Clerodendrum phlomidis L. f., Suppl. Pl. 292. 1781; FBI 4: 590. 1885; FPM 2: 769. 1957; FTC 3(2): 1220. 1983; FTN 2: 164. 1987; Rajendran & Daniel, Indian Verben. 136. 2001; FEG 4: 490. 2011.

Shrub. Leaves deltoid-ovate, chartaceous, margin entire to coarsely serrate. Panicles axillary and/or terminal. Bracts ovate-lanceolate. Calyx campanulate, lobes 5, ovate-lanceolate. Corolla cream, lobes 5, subequal, oblong-obovate. Stamens 4. Ovary globose.

Occasional in dry deciduous forest and along the road sides. **Fl. & Fr.:** Feb. **Sp.Ex.:** VS 18687 (FRC).

GMELINA L., Sp. Pl. 2: 626. 1753.

Key to the species

- 1a. Shrubs or straggler; armed; leaves often lobed.....*G. asiatica*
1b. Trees; unarmed; leaves entire.....*G. arborea*

Gmelina arborea Roxb., Hort. Bengal. 46. 1814 & Pl. Coromandel 3: 41. t. 246. 1815; FBI 4: 581. 1885; FPM 2: 768. 1957; FTC 3(2): 1222. 1983; FTN 2: 165. 1987; Rajendran & Daniel, Indian Verben. 155. 2002; FEG 4: 493. 2011.

Unarmed deciduous tree, tender parts fulvous-tomentose. Leaves broadly ovate-cordate, subcoriaceous. Panicles axillary or terminal. Calyx valutinous without. Corolla brownish yellow, lobes 5. Stamens 4. Fruit a drupe.

Common in deciduous forest. **Fl. & Fr.:** Feb.-May. **VN:** *Kumizh*. **Sp.Ex.:** KNS 7155, 7156, 7157 (FRC); VN 78361 (MH); KCJ 81278 (MH); PSAT 186778, 186779 (MH).

Gmelina asiatica L., Sp. Pl. 626. 1753; FBI 4: 582. 1885; FPM 2: 768. 1957; FTC 3(2): 1223. 1983; FTN 2: 165. 1987; Rajendran & Daniel, Indian Verben. 161. 2001; FEG 4: 493. 2011.

Armed subshrub, spinuous, leaf bearing. Leaves elliptic-ovate, chartaceous, margin entire to irregularly lobed. Racemes axillary and terminal. Calyx lobes, puberulous without. Corolla golden yellow, lobes 5. Stamens 4. Fruit a drupe.

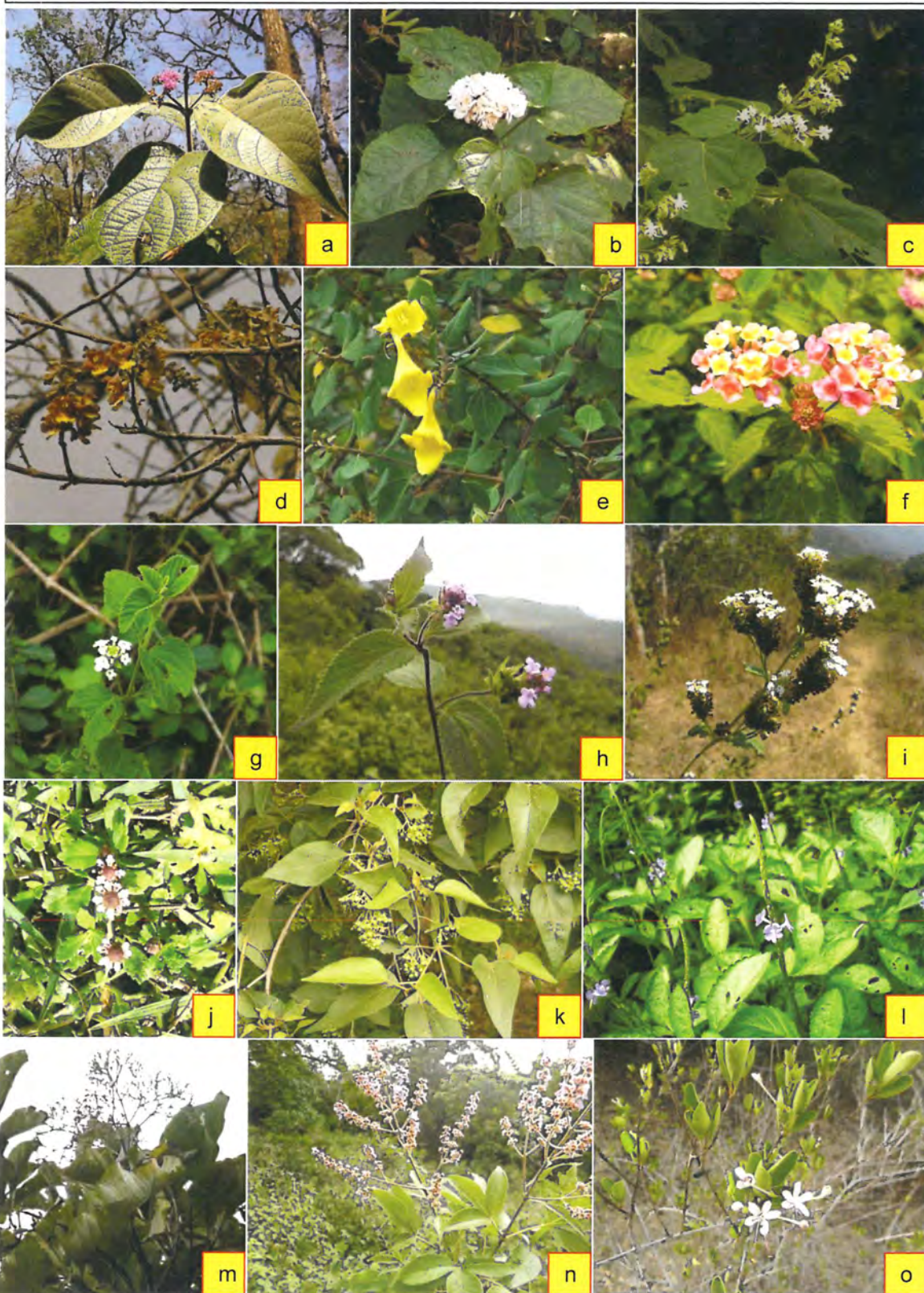
Common in scrub jungles. **Fl. & Fr.:** Mar.-May. **VN:** *Nilkkumizh*. **Sp.Ex.:** LP 1531 (SACONH); KA & PB 1687 (SACONH); CECF 5503 (FRC); KNS 7152, 7200 (FRC) VS 18849 (FRC); VN 79645 (MH); KCJ 81189 (MH); PSAT 186561, 186561, 186836, 186837, 187083, 187329, 187330 (MH).

LANTANA L., Sp. Pl. 2: 626. 1753.

Key to the species

- 1a. Plants armed; spikes capitate or subumbellate, globose.....*L. camara*
1b. Plants unarmed; spikes cylindric, elongate.....2
2a. Peduncle less than 5 cm long; flowers white.....*L. veronicifolia*
2b. Peduncle more than 5 cm long; flowers pink.....*L. indica*

PLATE 19 - VERBENACEAE



a) *Callicarpa tomentosa*, b) *Clerodendrum chinense*, c) *Clerodendrum infortunatum*, d) *Gmelina arborea*, e) *Gmelina asiatica*, f) *Lantana camara* var. *aculeata*, g) *Lantana indica*, h) *Lantana trifolia*, i) *Lantana veronicifolia*, j) *Phyla nodiflora*, k) *Premna tomentosa*, l) *Stachytarpheta jamaicensis*, m) *Tectona grandis*, n) *Vitex altissima*, o) *Volkameria inermis*.

Lantana camara L., Sp. Pl. 627. 1753, var. **aculeata** (L.) Mold., Torreyia 34: 9. 1934; FBI 4: 562. 1885; FTN 2: 165. 1987; Rajendran & Daniel, Indian Verbenaceae 181. 2002; FTC 3(2): 1224. 1983; FEG 4: 496. 2011. *L. aculeata* L., Sp. Pl. 627. 1753; FSIHS 2: 459. 1932; FPM 2: 761. 1957.

Rambling shrub, stem with retrorse prickles along the angles. Leaves elliptic-ovate, thick-chartaceous, margin crenate. Inflorescence in a spike, globose, axillary, solitary. Bracts ovate, obtuse. Flowers densely packed. Calyx lobes 5, truncate. Corolla bright red to rose or pink or yellowish. Stamens 4. Berry dark blue, smooth.

Common and impenetrable thickets on hills. **Fl. & Fr.:** Throughout the year. **VN:** *Unnichedi*. **Sp.Ex.:** LP 2818 (SACONH); KNS 8607, 8608 (FRC); VS 18688, 18872, 19335 (FRC); VN 79135 (MH); KCJ & JD 81104 (MH).

Lantana indica Roxb., Fl. Ind. 3: 89. 1832; FBI 4: 562. 1885; FPM 2: 766. 1957; FTC 3(2): 1224. 1983; FTN 166. 1987; FEG 4: 497. 2011.

Unarmed shrub, tender parts hirsute-pubescent. Leaves elliptic-oblong, thick-chartaceous, rugose, margin crenate. Inflorescence in spike. Bracts broadly ovate. Calyx margin entire, Corolla pink to red, lobes 5. Stamens 4.

Occasional in hill slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2192 (SACONH); KA & PB 1576 (SACONH); CECF 39605 (MH). VN 79690 (MH); KCJ 81464 (MH).

Lantana veronicifolia Hayek, Rep. Nov. Spec. Regni. Veg. 2: 163. 1906; FTN 2: 166. 1987; Rajendran, SRIV. 222. 1991. *L. wightiana* Wall. ex Gamble, Fl. Madras 2: 761. 1957; FTC 3(2): 1225. 1983; FTN 2: 166. 1987; Rajendran, SRIV. 222. 1991, pro syn; FEG 4: 497. 2011.

Unarmed subshrub, tender parts scabrous. Leaves elliptic-ovate, softly appressed-pubescent. Inflorescence a spike. Bracts ovate. Calyx 5-lobed. Corolla white, lobes 5. Stamens 4. Occasional clumps in foothills and scrub jungles. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** LP 1516 (SACONH); SRR 78097 (MH); VN 79755, 79756 (MH); PSAT 186570, 186571 (MH).

PHYLA Lour., Fl. Cochinch. 1: 66. 1790.

Phyla nodiflora (L.) Greene, Pittonia 4: 46. 1899; FTC 3(2): 1226. 1983; FTN 2: 166. 1987; Rajendran & Daniel, Indian Verben. 206. 2002; FEG 4: 498. 2011. *Lippia nodiflora* (L.) A-Rich. in Michx., Fl. Bor. Amer. 2: 15. 1803; FBI 4: 563. 1885; FPM 2: 762. 1957.

Prostrate herb. Leaves orbicular to obovate-spathulate, thick-chartaceous. Flowers zygomorphic, 5-merous, sessile, aggregated in axillary. Bracts broadly ovate, thick, concave. Corolla purplish white, salver-form, lobes 5, bilipped, salver-form, 2+3. Stamens 4.

Occasional in clayey riverbeds on moist ground. **Fl. & Fr.:** Throughout the year. **VN:** *Poduthalai*. **Sp.Ex.:** LP 2525 (SACONH); KR 138889, 138890 (MH).

PREMNA L., Mant. Pl. 154. 1771.

Key to the species

- 1a. Shrubs.....*P. serratifolia*
- 1b. Trees.....2
- 2a. Plants with stellate-tomentum; flowers in paniculate cymes.....*P. tomentosa*
- 2b. Plants without stellate-tomentum; flowers in corymbose cymes.....*P. mollissima*

Premna mollissima Roth., Nov. Pl. Sp. 286. 1821. *P. latifolia* Roxb., Fl. Ind. 3: 76. 1832, var. *mollissima* Wight, Icon. Pl. Ind. Orient. t. 869. 1845; FBI 4: 577. 1885; FPM 2: 767. 1957; FTC 3(2): 1228. 1983; FTN 2: 167. 1987.

Tree. Leaves broadly ovate to (sub)orbicular, chartaceous, corymbs terminal, both in main and axillary shoots. Calyx cupular, obscurely bilipped, 2+3. Corolla white, densely villous within, lobes ovate. Stamens 4. Fruit a drupe.

Occasional in foothills and lowers slopes. **Fl. & Fr.:** Dec.-Mar. & Aug.-Oct. **Sp.Ex.:** LP 1389, 1860, 1430, 1470 (SACONH); CECF 5497 (FRC); GVS 80155, 80156 (MH); PSAT 186679, 186680 (MH); KNS 8243, 8244 (FRC).

Premna serratifolia L., Mant. Pl. Alt. 253. 1771; FPM 2: 767. 1957; FTC 3(2): 1229. 1983; FTN 2: 167. 1987; FEG 4: 502. 2011. *P. integrifolia* L., Mant. Pl. Alt. 252. 1771 nom. illeg.; FBI 4: 574. 1885.

Tree. Leaves elliptic-ovate to broadly oblong, thin coriaceous, margin entire to crenate. Corymbs terminal. Calyx minutely 5-toothed. Corolla greenish white, lobes 5, (sub)orbicular. Stamens 4.

Occasional in scrub jungles. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KNS 8766, 8769 (FRC); VS 188 51, 19328, 19329 (FRC); CAB 40018, 40019, 40032, 40042, 40042 (MH); VN 78360 (MH); SRN 80528 (MH); KCJ 81299 (MH); PSAT 186932, 186988, 187420, 187421 (MH).

Premna tomentosa Willd., Sp. Pl. 3: 314. 1800; FBI 4: 576. 1885; FPM 2: 767. 1957; FTC 3(2): 1229. 1983; FTN 2: 168. 1987; Rajendran & Daniel, Indian Verben. 289. 2001; FEG 4: 502. 2011. *Cornutia tomentosa* Lam., Encycl. 1: 54. 1783, auct non Burm. f. 1768.

Tree. Leaves broadly ovate-cordate, thick-chartaceous, tomentose along nerves, densely below. Corymbose cymes terminal and axillary, pyramidal. Calyx stellate-pubescent without, lobes 5. Corolla cream, lobes 5. Stamens 4. Stigma unequally 2-fid. Fruit a drupe.

Common in deciduous forest. **Fl. & Fr.:** Jan.-April. **VN:** *Kolakkattai thaekku*. **Sp.Ex.:** LP 1557 (SACONH); KA & PB 1706 (SACONH); VS 18848, 19330, 19331 (FRC); CECF 39837, 39838 (MH); VN 79034 (MH); PSAT 186532, 186894, 187239 (MH).

PRIVA Adens., Fam. 2: 505. 1763.

Priva cordifolia (L. f.) Druce, Rep. Bot. Soc. Exch. Club Brit. Isles 4: 641. 1917; FTC 3(2): 1230. 1983; FTN 2: 168. 1987; Rajendran & Daniel, Indian Verben. 298. 2001; FEG 4: 504. 2011. *P. leptostachya* A.L. Juss., Ann. Mus. Hist. Nat. 7: 70. 1806; FBI 4: 565. 1885; FPM 2: 764. 1957.

Sticky herb. Branchlets 4-angular, sticky-pubescent. Leaves broadly ovate-elliptic, chartaceous, margin serrate. Flowers zygomorphic, aggregated in terminal elongated spike. Bracts lanceolate. Calyx tubular, 5-toothed. Corolla white, salver-form, tube cylindric, twisted. Stamens 4. Ovary oblong-cylindric. Drupe of 2, 2-seeded pyrenes.

Common in shady regions along road sides. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** VS 19334 (FRC); VN 79761 (MH); KCJ 81300 (MH); PSAT 187060 (MH).

ROTHECA Raf., Fl. Tellur. 4: 69. 1838.

Rothea serrata (L.) Steane & Mabb., Novon 8: 206. 1998. *Clerodendrum serratum* (L.) Moon, Cat. Pl. Ceylon 46: n. 382. 1824; FBI 4: 592. 1885; FSIHS 2: 461, t. 401. 1932; FPM 2: 770. 1957; FTC 3(2): 1220. 1983; FTN 165. 1987; Rajendran & Daniel, Indian Verben. 139. 2001; FEG 4: 491. 2011.

Shrub. Leaves obovate-lanceolate, subcoriaceous, margin coarsely serrate. Panicles terminal. Bracts lanceolate. Calyx cupular, 5-toothed. Corolla violet, tubular, bilipped, lobes 5, unequal. Stamens 4. Drupe 4-lobed.

Occasional in hill slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KA & PB 1531 (SACONH).

STACHYTARPHETA Vahl, Enum. Pl. 1: 205. 1804.

Stachytarpheta jamaicensis (L.) Vahl, Enum. Pl. 1: 206. 1804; FTC 3(2): 1232. 1983; FTC 3(2): 1232. 1983; FTN 2: 168. 1987; Rajendran & Daniel, Indian Verben. 307. 2002; FEG 4: 505. 2011. *S. indica* (L.) Vahl var. *jamaicensis* (L.) Moon, Cat. Pl. Ceylon 68. 1885 & Handb. Fl. Ceylon 3: 348. 1895; FPM 2: 763. 1957.

Undershrub, branchlets glabrescent. Leaves obovate-elliptic, margin serrate. Flowers arranged in spikes. Bracts ovate-lanceolate. Calyx teeth 4. Corolla lobes 5. Stamens 2. Pyrenes oblong. Common along the stream sides, fallow lands, etc. **Fl. & Fr.:** Throughout the year. **VN:** *Seemai naayuruvi*. **Sp.Ex.:** VS 18850 (FRC); CECF 39677 (MH); KCJ 81302 (MH); PSAT 186927, 187228 (MH).

TECTONA L. f., Suppl. Pl. 151. 1781.

Tectona grandis L. f., Suppl. Pl. 151. 1782; FBI 4: 570. 1885; FPM 2: 765. 1957; FTC 3(2): 1236. 1983; FTN 2: 169. 1987; FEG 4: 509. 2011.

Deciduous tree, branchlets 4-gonous, stellately tomentose. Leaves broadly elliptic, thin-coriaceous, glabrescent above, stellate pubescent below. Inflorescence terminal and/or axillary, dichotomous, cymose panicle. Bracts lanceolate. Calyx campanulate, 5-lobed. Corolla yellowish, broadly oblong-lanceolate. Stamens as many as altering with corolla. Drupe globose. Common, planted. **Fl. & Fr.:** June-Sept. **VN:** *Thaekku*. **Sp.Ex.:** VN 79682 (MH); KCJ 81226 (MH).

VOLKAMERIA L., Sp. Pl.: 637 (1753). *Ikameria* L., Sp. Pl. 637. 1753.

Volkameria inermis L., Sp. Pl. 637. 1753. *Clerodendrum inerme* (L.) Gaertn., Fruct. 1: 271. t. 57. 1788; FBI 4: 589. 1885; FPM 2: 769. 1957; FTC 3(2): 1219. 1983; FTN 164. 1987; Rajendran & Daniel, Indian Verben. 112. 2001; FEG 4: 488. 2011.

Shrub. Leaves obovate to (sub)orbicular, coriaceous. Cymes generally 3-flowered, axillary. Bracts linear. Calyx cupular, 5-toothed. Corolla white with pink lines, tube narrowly cylindric. Stamens 4. Drupe globose.

Occasional in wastelands. **Fl. & Fr.:** Jan.-May. **VN:** *Peenarisangu*. **Sp.Ex.:** LP 2821 (SACONH).

VITEX L., Sp. Pl. 2: 638. 1753.**Key to the species**

- 1a. Inflorescence terminal or from upper axils.....2
- 1b. Inflorescence axillary.....*V. leucoxylon*
- 2a. Tree; leaves thinly pubescent below; petiole auriculate.....*V. altissima*
- 2b. Shrubs; leaves grey-pubescent below; petiole not auriculate.....*V. negundo*

Vitex altissima L. f., Suppl. Pl. 294. 1781; FBI 4: 584. 1885; FPM 2: 772. 1957; FTC 3(2): 1239. 1983; FTN 2: 169. 1987; Rajendran & Daniel, Indian Verben. 344. 2002; FEG 4: 512. 2011.

Tree. Leaves 3-foliate, central leaflet obovate-lanceolate, lateral ones oblanceolate, thick chartaceous. Racemes panicles terminal or from upper axils. Calyx cupular, lobes 5, ovate. Corolla blue to purple, throat villous within. Stamens 4.

Common in deciduous forest and along the riversides. **Fl. & Fr.:** June-Sept. **VN:** *Mayiladi*. **Sp.Ex.:** CECF 5525, 5526 (FRC); VS 19332, 20669, 20679 (FRC); CECF 40173, 40204 (MH); VN 78254, 79767 (MH); PSAT 186554, 186555, 186886, 187057 (MH).

Vitex leucoxylon L. f., Suppl. Pl. 293. 1781; FBI 4: 587. 1885; FPM 2: 772. 1957; FTC 3(2): 1239. 1983; FTN 2: 169. 1987; FEG 4: 514. 2011.

Tree. Leaves 3-7 foliate. Leaflets obovate-oblongate, thin coriaceous, margin entire to toothed, cymes divaricate, axillary, of corymbose panicles. Calyx appressed-pubescent, 5-toothed. Corolla cream, purplish within. Stamens 4. Drupe ellipsoid-oblong.

Occasional in along the river banks. **Fl. & Fr.:** Throughout the year. **VN:** *Neernotchi*. **Sp.Ex.:** KA & PB 1614 (SACONH).

Vitex negundo L., Sp. Pl. 638. 1753; FBI 4: 583. 1885 incl. var. *incisa*; FPM 2: 771. 1957; FTC 3(2): 1240. 1983; FTN 2: 169. 1987; FEG 4: 515. 2011.

Shrub, tender parts grey-pubescent. Leaves 3-5-foliate. Leaflets oblanceolate, chartaceous. Panicles terminal and from the upper axils. Calyx 3, white spotted without, 5-toothed, teeth triangular. Corolla purple to violet, lobes broadly ovate. Stamens 4. Drupe globose. Occasional along the river banks and planted along the temple premises. **Fl. & Fr.:** Almost throughout the year. **VN:** *Nochi*. **Sp.Ex.:** LP 1508 (SCONH); VN 79339 (MH); PSAT 186613, 186614, 186941 (MH).

LAMIACEAE Martinov, Tekhno-Bot. Slovar: 355. 1820, *nom. alt.: Labiatae*.

Key to the genera

- 1a. Calyx lobes equal or subequal.....2
- 1b. Calyx lobes distinctly bilipped.....7
- 2a. Plants stellately pubescent; flowers yellow.....*Gomphostemma*
- 2b. Plants not stellately pubescent; flowers otherwise.....3
- 3a. Flowers in axillary clusters, cymes or globose heads.....4
- 3b. Flowers in elongated spikes, racemes or panicles.....6
- 4a. Calyx 5-toothed; corolla blue.....*Hyptis*
- 4b. Calyx 8-10 toothed; corolla white or orange.....5
- 5a. Calyx teeth spinescent; corolla orange.....*Leonotis*
- 5b. Calyx teeth not spinescent; corolla white.....*Leucas*
- 6a. Corolla 4-lobed; stamens equal or subequal.....*Pogostemon*
- 6b. Corolla 5-lobed; stamens didynamous.....*Anisomeles*
- 7a. Flowers in dense uninterrupted spike forming oblong or ovoid heads.....*Anisochilus*
- 7b. Flowers in interrupted whorls forming lax spike or thyrsus.....8
- 8a. Ovary 4-lobed; corolla 1-lipped.....*Teucrium*
- 8b. Ovary 4 partite; corolla 2-lipped.....9
- 9a. Upper lip of the corolla equal to or longer than the lower lip.....10
- 9b. Upper lip of the corolla shorter than the lower lip.....13
- 10a. Stamens exserted; anthers 1-celled.....11
- 10b. Stamens included; anthers 2-celled.....*Orthosiphon*
- 11a. Corolla tube clearly exserted; stigma capitate.....*Endostemon*
- 11b. Corolla tube hardly exserted; stigma 2-fid.....12
- 12a. Lower calyx-lip 4-toothed; filaments < 1 cm.....*Ocimum*
- 12b. Lower calyx-lip 2-mucronate; filaments > 1 cm.....*Basilicum*
- 13a. Calyx prominently 2-lipped.....14
- 13b. Calyx with 5 subequal teeth.....*Isodon*
- 14a. Stamens 4 didynamous.....*Plectranthus*
- 14b. Stamens 2.....*Salvia*

ANISOCHILUS Wall. ex Benth., Edward's Bot. Reg. 15: t. 1300. 1830.

Key to the species

- 1a. Leaf base cordate; corolla pale purple.....*A. carnosus*
- 1b. Leaf base acute or attenuate; corolla yellow or white.....*A. scaber*

Anisochilus carnosus (L. f.) Wall. ex Benth., Pl. Asiat. Rar. 2: 18. 1830; FBI 4: 627. 1885; FPM 2: 788. 1957; FTC 3(2): 1248. 1983; FTN 2: 171. 1987; FEG 4: 524. 2011. *Lavandula carnosus* L. f., Suppl. Pl. 273. 1781.

(Sub)shrub. Leaves ovate, verrucose above, pubescent below, base cordate, margin serrate. Flowers arranged in spikes. Calyx lobes 5, bilobed. Corolla purple, lobes 5, bilabiate, 4+1. Stamens 4.

Occasional in hills. **Fl. & Fr.:** Dec.-May. **Sp.Ex.:** LP 3048 (SACONH); VS 18604 (FRC); VN 78803 (MH).

Anisochilus scaber Benth. in DC., Prodr. 12: 81. 1848; FBI 4: 629. 1885; FPM 2: 788. 1957; FTC 3(2): 1249. 1983; FTN 2: 172. 1987; FEG 4: 526. 2011.

(Sub)shrub. Leaves ovate, subcoriaceous, puberulous, margin minutely crenate. Flowers arranged in spikes. Calyx lobes 5, bilipped, 1+4. Corolla white, tinged with pink, lobes 5, bilabiate, 4+1. Stamens 4.

Occasional in shallow soil among the rocks on exposed slopes. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** LP 1991 (SACONH).

ANISOMELES R. Br., Prodr. Nov. Holl. 503. 1810.

Key to the species

- 1a. Stem acutely tetragonous; leaves ovate; corolla rose.....*A. indica*
1b. Stem obtusely tetragonous; leaves oblanceolate; corolla purple.....*A. malabarica*

Anisomeles indica (L.) Kuntze, Revis. Gen. Pl. 2: 512. 1891; FSIHS 2: 478. 1932; FPM 2: 797. 1957; FTC 3(2): 1250. 1983; FTN 2: 172. 1987; FEG 4: 527. 2011. *A. heyneana* Benth. in Wall., Pl. Asiat. Rar. 1: 59. 1830; FBI 4: 672. 1885; FPM 1: 797. 1957.

Aromatic, pubescent subshrub. Leaves ovate to obovate, chartaceous, margin deeply crenate-serrate. Flowers in spike. Calyx lobes 5, equal, sericeous without. Corolla pink-violet. Stamens 4.

Common along the stream banks and along the fences. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2684 (SACONH); VS 18405, 18609 (FRC); CECF 41219, 41220, 41221 (MH); KCJ 81285 (MH); PSAT 187359 (MH).

Anisomeles malabarica (L.) R. Br. ex Sims, Bot. Mag. t. 2071. 1819; FBI 4: 673. 1885; FPM 2: 797. 1957; FTC 3(2): 1250. 1983; FTN 2: 172. 1987; FEG 4: 529. 2011. *Nepeta malabarica* L., Mant. Pl. Altera. 566. 1771.

Subshrub, densely white-woolly, aromatic. Leaves oblanceolate, (sub)coriaceous, margins serrulate. Flowers in spikes. Calyx lobes 5, equal. Corolla purple, bilipped. Stamens 4.

Common in dry deciduous forest, scrub jungles and along the canals, fences and road sides. **Fl. & Fr.:** Throughout the year. **VN:** *Peimiratti*. **Sp.Ex.:** KNS 7151, 7198 (FRC); VS 18857, 23986 (FRC); PSAT 187381 (MH).

BASILICUM Moench, Suppl. Meth. 143. 1802.

Basilicum polystachyon (L.) Moench, Suppl. Meth. Pl. 143. 1802; FTC 3(2): 1252. 1983; FTN 2: 172. 1987; FEG 4: 529. 2011. *Moschosma polystachyum* (L.) Benth. in Wall., Pl. Asiat. Rar. 2: 13: 1830-31; FBI 4: 612. 1885; FPM 2: 782. 1957.

Subshrub. Leaves ovate, chartaceous, margin serrate. Verticils 6-flowered, slender, terminal and/or axillary. Calyx tubular, lobes 5, imbricate, 1+4. Corolla pinkish white, tube cylindric, lobes 5, obscurely 2-lipped. Stamens 4, didynamous. Stigma obconic, forked.

Occasional in along the riverbanks. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KR 138903, 138904 (MH).

ENDOSTEMON N.E. Br., Fl.Cap. 5(1): 295. 1910.

Endostemon viscosus (Roth) M.R. Ashby, J. Bot. 74: 126. 1936; FTC 3(2): 1254. 1983; FEG 4: 531. 2011. *Orthosiphon tomentosus* Benth. in Wall., Pl. Asiat. Rar. 2: 14. 1830; FBI 4: 613. 1885. *O. diffusus* (Benth.) Benth. in DC., Prodr. 12: 50. 1848; FBI 4: 613. 1885; FPM 2: 779. 1957.

Erect herb, aromatic, stout, woody rootstock, branchlets viscid-pubescent. Leaves elliptic to (sub)orbicular, thick chartaceous. Flowers in whorls of 6, on a terminal, 3-chotomous racemes. Floral bracts ovate. Calyx tube villous, lobes 5, bilipped, 1+4. Corolla pink, lobes 5, bilipped, 4+1. Stamens 4, didynamous. Nutlets erect, basilar.

Common in foothills, arable lands and along the roadsides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18853 (FRC); CECF 40343 (MH); VN 78768, 79766 (MH); PSAT 186879, 186923 (MH).

GOMPHOSTEMMA Benth., Edward's Bot. Reg. 15: t. 1292. 1830.

Gomphostemma heyneanum Wall. ex Benth. in Wall., Pl. Asiat. Rar. 2: 12. 1830, var. *heyneanum*; Wight, Icon. Pl. Ind. Orient. t. 1456. 1849; FPM 2: 808. 1957; FTN 174. 1987.

Subshrub, stems 4-angled, branchlets fulvous-tomentose. Leaves elliptic-ovate, rounded and decurrent at base, margin serrate, coriaceous. Flowers arranged in spikes. Flowers yellow. Corolla hirsute without. Nutlets ellipsoid, smooth.

Occasional in evergreen forest borders. **Fl. & Fr.:** Sept.-Jan. **Sp.Ex.:** PSAT 186952 (MH).

HYPTIS Jacq., Collectanea. 1: 101. 1787.

Hyptis suaveolens (L.) Poit., Ann. Mus. Natl. Hist. Nat. Paris 7: 472. t. 29. f. 2. 1806; FBI 4: 630. 1885; FPM 2: 789. 1957; FTC 3(2): 1256. 1983; FTN 2: 174. 1987; FEG 4: 538. 2011.

Subshrub, branchlets terete to 4-gonous, ovate, chartaceous, strigose, margin irregularly serrate. Flowers in verticels or in short stalked cymes, ca. 6-flowered. Calyx campanulate, 10-ribbed, lobes 5, subequal, linear. Corolla blue, lobes 5, bilipped, 2+3. Stamens 4, didynamous. Common in deciduous forests and along the roadsides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KCJ 81128 (MH); PSAT 186500, 186501, 186862 (MH).

ISODON (Schrader ex Benth.) Spach, Hist. Nat. Veg. 9: 162. 1840.

Key to the species

- 1a. Herbs; fruiting calyx 2-lipped, 3+2, upper lip 3-lobed, lower 2-lobed.....2
- 1b. Subshrubs; fruiting calyx 2-lipped, 1+4, upper lip entire, lower 4-lobed.....*I. coesta*
- 2a. Leaves rugose; fruiting calyx densely woolly, teeth rounded.....*I. nilgherriensis*
- 2b. Leaves not rugose; fruiting calyx sparsely hairy, teeth acute.....*I. wightii*

Isodon coetsa (Buch.-Ham. ex D.Don) Kudô Mem. Fac. Sci. Taihoku Imp. Univ. 2: 131. 1929. *Plectranthus coetsa* Buch.-Ham. ex D. Don, Prodr. Fl. Nep. 117. 1825; FBI 4: 619. 1885; FPM 2: 784. 1957. *P. japonicus* (Burm. f.) Koidz., Bot. Mag. (Tokyo) 43: 386. 1929; FTN 2: 182. 1987.

Subshrub. Leaves oblanceolate to rhomboid, hoary tomentose below, cuneate at base, crenate at margin. Verticils terminal, 3-chotomous. Cymes branched; ca. 8-flowered. Calyx campanulate, bilipped, 1+4. Corolla tube oblique, curved, bilipped, 4+1. Stamens 4. Nutlets trigonous, erect.

Rare in evergreen forest. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** KA & PB 1641 (SACONH); CECF 5557 (FRC); VN 78899 (MH); SRN 80553 (MH); KCJ 81454 (MH).

Isodon nilgherrius (Benth.) H. Hara, J. Jap. Bot. 60: 236. 1985. *Plectranthus nilgherrius* Benth. in DC., Prodr. 12: 57. 1848; FBI 4: 619. 1885; FPM 2: 784. 1957; FTN 2: 182. 1987.

Erect herb. Leaves ovate, cordate at base, crenate at margins, acute at apex. Flowers in terminal racemose panicles. Calyx campanulate, bilipped, 1+4, densely woolly without. Corolla-tube cylindric, tube oblique, lobes hispid-ciliate. Stamens 4. Nutlets orbicular ovoid.

Occasional in rocky crevices in high altitude. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** CECF 72190 (MH).

Isodon wightii (Benth.) H. Hara, J. Japan Bot. 60: 237. 1985. *Plectranthus wightii* Benth. Labiat. Gen. Sp. 41. 1832; FBI 4: 619. 1885; FPM 2: 784. 1957; FTC 3(2): 1276. 1983; FTN 2: 183. 1987. *Robdosia wightii* (Benth.) Hara, J. Jap. Bot. 47: 203. 1972; FBI 4: 619. 1855; FPM 2: 784. 1957.

Subshrub, branchlets hirsute. Leaves ovate, strigose, margin deeply crenate. Cymes branched, 13-17 flowered. Bracts scaly or linear. Calyx lobes 5, subequal, 3+2, obscurely bi-lipped. Corolla pinkish white, lobes 5, bi-lipped, 4+1. Stamens 4.

Occasional in moist and shady places of streams banks and evergreen forests. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** KA & PB 1412 (SACONH); VS 18838 (FRC).

LEONOTIS (Persoon) R. Br., Prodr. Nov. Holl. 504. 1810.

Leonotis nepetifolia (L.) R. Br., Prodr. Nov. 504. 1810; FBI 4: 691. 1885; FPM 2: 807. 1957; FTC 3(2): 1257. 1983; FTN 2: 175. 1987; FEG 4: 540. 2011. *Phlomis nepetifolia* L., Sp. Pl. 586. 1753, "*nepetaefolia*".

Erect herb, branchlets pubescent. Leaves ovate, chartaceous, margin deeply crenate to serrate. Verticels axillary, many flowered. Bracts acuminate. Calyx tubular, mouth oblique, coriaceous. Corolla orange, tubular, bilipped. Stamens 4, didynamous.

Occasional along the riverbanks and roadsides. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** GVS 72190, 72191 (MH); KCJ & JD 81173 (MH).

LEUCAS R. Br., Prodr. Nov. Holl. 504. 1810.

Key to the species

- 1a. Leaves entire or very minutely serrate.....2
- 1b. Leaves distinctly crenate, serrate-dentate.....4
- 2a. Leaves oblong; calyx throat villous within.....*L. hirta*
- 2b. Leaves linear-lanceolate; calyx throat not villous within.....3
- 3a. Leaves oblong-lanceolate; verticils single, both terminal and axillary.....*L. aspera*
- 3b. Leaves linear-lanceolate; verticils superposed, rarely solitary, generally terminal.....*L. zeylanica*
- 4a. Leaves white tomentose beneath.....5
- 4b. Leaves not white tomentose beneath.....9
- 5a. Calyx lobes equal.....6
- 5b. Calyx lobes unequal.....7
- 6a. Flowers solitary or in few flowered verticels, axillary.....*L. montana*
- 6b. Flowers in dense wholes, many flowered.....*L. decemdentata*
- 7a. Plants dense woolly.....*L. lanata*
- 7b. Plants not woolly.....8
- 8a. Leaves sessile.....*L. lanata*
- 8b. Leaves petioled.....*L. marrubioides*
- 9a. Fruiting calyx deflexed.....*L. martinicensis*
- 9b. Fruiting calyx straight.....10
- 10a. Flowers axillary; upper lip bearded with white hairs.....11
- 10b. Flowers terminal; upper lip bearded with yellowish hairs.....12

- 11a. Procumbent herb; 1 to 6 flowers in axils.....*L. biflora*
 11b. Erect herb; more than 10 flowers in axils.....*L. urticifolia*
 12a. Verticils axillary; calyx throat naked.....*L. chinensis*
 12b. Verticils terminal; calyx throat villous.....*L. ciliata*

Leucas angularis Benth. in Wall., Pl. Asiat. Rar. 1: 62. 1830; FSIHS 2: 480. t. 415. 1932; FBI 4: 684. 1885; FPM 2: 805. 1957; FTN 2: 175. 1987; V. Singh, Monog. Ind. Leucas 39. f. 2. 2001.

Straggling herb. Leaves opposite, decussate, ovate to lanceolate, margin coarsely crenate to serrate. Inflorescence many, axillary, 2-25 flowers in cluster. Bracteoles straight, linear. Calyx tubular, moderately widened at the mouth, 10-teethed. Corolla white. Stamens 4.

Occasional in along the margins of moist deciduous and evergreen forests. **Fl. & Fr.:** July-Jan. **Sp.Ex.:** LP 3017, 1841 (SACONH).

Leucas aspera (Willd.) Link, Enum. Pl. Hort. Berol. 2: 113. 1822; FBI 4: 690. 1885; FPM 2: 803. 1957; FTC 3(2): 1259. 1983; FTN 2: 175. 1987; V. Singh, Monog. Ind. Leucas 43. f. 4. 2001; FEG 4: 543. 2011.

Scabrid, erect or diffuse herb, hairs spreading. Leaves linear-lanceolate, chartaceous, margin entire to serrate. Verticils terminal and axillary. Bracts lanceolate, equalling calyx. Calyx tubular, mouth oblique, 10-teethed, teeth unequal. Corolla whitish. Stamens 4.

Common along the road sides. **Fl. & Fr.:** Nov.-Feb. **VN:** *Thutthi*. **Sp.Ex.:** KCJ 81144 (MH); PSAT 187256 (MH).

Leucas biflora (Vahl) R. Br., Prodr. Nov. Holl. 504. 1810; FBI 4: 683. 1885; FPM 2: 804. 1957; FTC 3(2): 1260. 1983; FTN 2: 175. 1987; V. Singh, Monog. Ind. Leucas 49. f. 5. 2001; FEG 4: 543. 2011.

Puberulous herb, hairs deflexed. Leaves ovate, chartaceous, margin crenate-serrate. Flower(s) axillary, solitary, 2 or 4 per node. Bracts few, linear. Calyx lobes puberulous without, mouth straight, 10-teethed, teeth subequal, linear. Corolla bilipped. Stamens 4.

Occasional in foothills and deciduous forest borders. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** SRR 78708 (MH); PSAT 187141 (MH).

Leucas chinensis (Retz.) R. Br., Prodr. Nov. Holl. 504. 1810; FBI 4: 681. 1885; FPM 2: 805. 1957; FTC 3(2): 1260. 1983; FTN 2: 175. 1987; V. Singh, Monog. Ind. Leucas 59. f. 7. 2001; FEG 4: 545. 2011.

Erect or ascending herb, hairs appressed-sericeous. Leaves ovate, thick-chartaceous, tawny-pubescent below, margin crenate-serrate. Verticils axillary. Calyx funnel-shaped, mouth straight, teeth subequal., triangular-ovate. Corolla whitish, villous without. Stamens 4.

Common in evergreen forest and high-altitude grasslands. **Fl. & Fr.:** Sept.-Jan. **Sp.Ex.:** PSAT 187162 (MH).

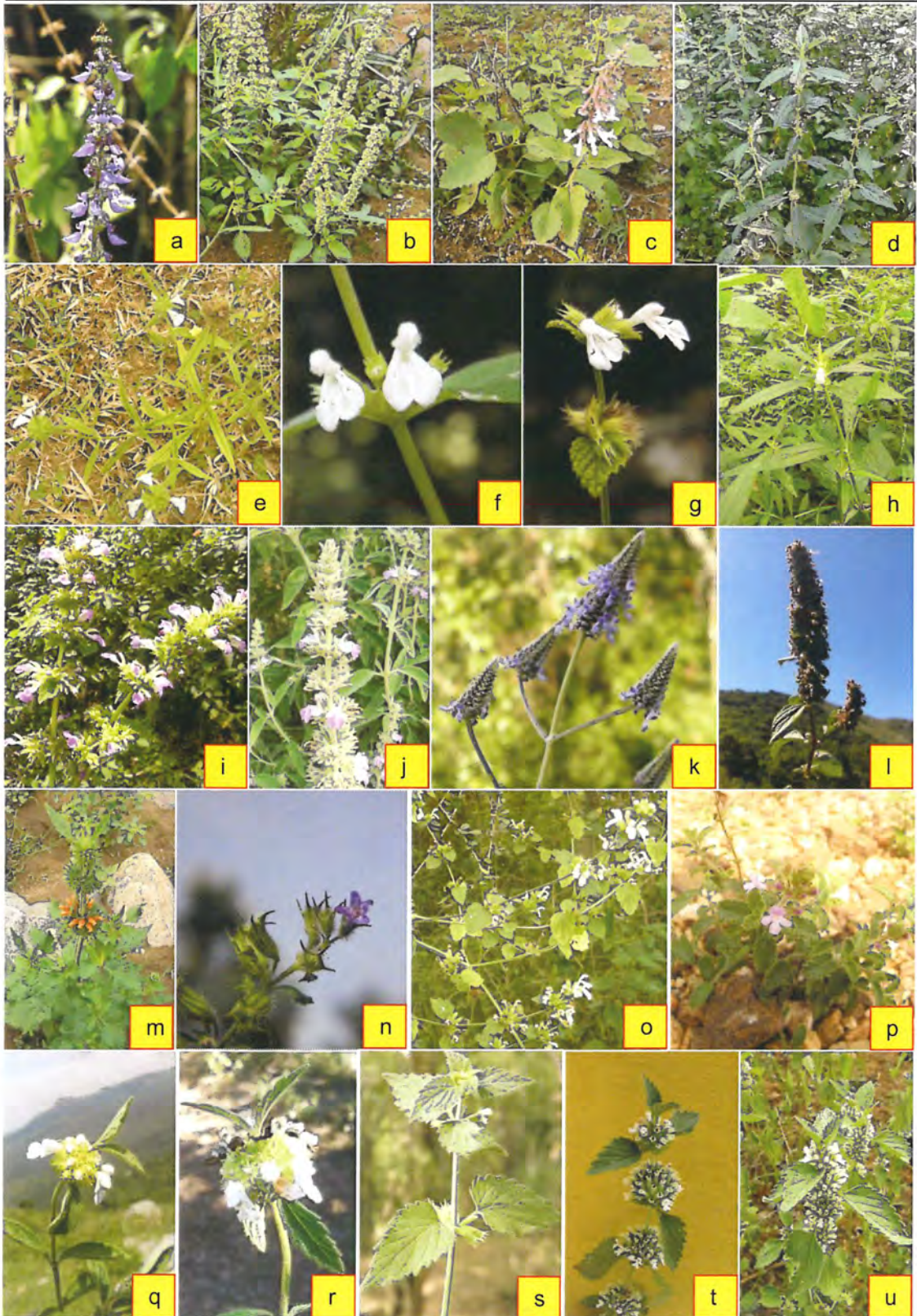
Leucas ciliata Benth., Pl. Asiat. Rar. 1: 61. 1830; FBI 4: 687. 1885; FPM 2: 806. 1957; FTN 2: 176. 1987; V. Singh, Monog. Ind. Leucas 61. f. 8. 2001; FEG 4: 546. 2011.

Straggling herb. Leaves ovate-lanceolate, coarsely serrate at margins, narrowed at base. Verticil 1 or 2, large globose, densely many flowered, terminal and axillary. Calyx tubular, hairy outside, teeth linear-lanceolate. Corolla whitish, bilipped. Stamens 4. Nutlets smooth.

Occasional in grassy hill slopes. **Fl. & Fr.:** Aug.-Jan. **Sp.Ex.:** VN 78796, 78916 (MH); SRN 80572 (MH).

Leucas decemdentata (Wild.) Sm., Cycl. 20(2): 6. 1812, var. *decamdentata*; V. Singh, Monog. Ind. Leucas 67. f. 10. 2001; FEG 4: 547. 2011.

PLATE 20 -LAMIACEAE



a) *Anisochilus carnosus*, b) *Ocimum americanum*, c) *Orthosiphon thymiflorus*, d) *Leucas martinicensis*, e) *Leucas aspera*, f) *Leucas biflora*, g) *Leucas chinensis*, h) *Leucas zeylanica*, i) *Anisomeles indica*, j) *Anisomeles malabarica*, k) *Anisochilus carnosus*, l) *Pogostemon pubescens*, m) *Leonotis nepetifolia*, n) *Hyptis suaveolens*, o) *Leucas angularis*, p) *Endostemon viscosus*, q) *Leucas hirta*, r) *Leucas ciliata*, s) *Leucas decedentata*, t) *Leucas marrubioides*, u) *Leucas urticifolia*.

Erect herb. Leaves opposite, decussate, petiolate, ovate lanceolate, margin crenate to serrate. Inflorescence many, axillary lax clusters, 2-9 flowered. Calyx tubular campanulate, mouth straight, teeth 10. Corolla white. Stamens 4, didynamous.

Occasional in deciduous forest. **Fl. & Fr.:** May-Jan. **Sp.Ex.:** KA & PB 1631 (SACONH); VS 19283 (FRC).

Leucas hirta (B. Heyne ex Roth.) Spreng., Syst. Veg. 2: 743. 1825; FSIHS 483. t. 422. 1932; FBI 4: 687. 1885; FPM 2: 806. 1957; FTC 3(2): 1261. 1983; FTN 2: 176. 1987; V. Singh, Monog. Ind. Leucas 90. f. 16. 2001; FEG 4: 549. 2011.

Pubescent subshrub, hairs deflexed. Leaves oblong, thin-coriaceous, tawny pubescent below, margin serrate. Verticils usually terminal. Calyx tube campanulate, 10-toothed. Corolla whitish, villous without. Stamens 4.

Occasional in dry hill slopes. **Fl. & Fr.:** Feb.-April. **VN:** *Malaithumbai*. **Sp.Ex.:** KNS 7153, 7215, 11827, 11828 (FRC); VS 18610, 18852, 18874, 19281 (FRC); VN 78761 (MH); KCJ 81350 (MH); PSAT 186877, 187406, 187407 (MH).

Leucas lanata Benth., Pl. Asiat. Rar. 1: 61. 1830; FBI 4: 681. 1885; FPM 2: 804. 1957; FTN 2: 177. 1987; V. Singh, Monog. Ind. Leucas 97. f. 18. 2001; FEG 4: 550. 2011.

Erect herb, densely woolly. Leaves simple, opposite, ovate-lanceolate, margin serrate, pubescent above tomentose below. Flowers white, sessile, in axillary many flowered whorls, densely villous. Bracts linear. Calyx campanulate. Corolla bilabiate, white. Stamens 4, didynamous.

Occasional in shady moist places. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18607, 18854 (FRC); CAB 41510, 41511 (MH); CECF 41511 (MH); KCJ 81249 (MH) EV 142018, 142019 (MH); PSAT 186976 (MH).

Leucas marrubioides Desf., Mem. Mus. Hist. Nat. Paris 11: 6. t. 3. f. 1. 1824; FBI 4: 683. 1885; FSIHS 2: 479. 1932; FPM 2: 805. 1957; FTC 3(2): 1263. 1983; FTN 2: 177. 1987; V. Singh, Monog. Ind. Leucas 115. f. 23. 2001; FEG 4: 552. 2011.

Erect stout herb, hairs deflexed. Leaves broadly ovate, thick chartaceous. Verticils axillary. Bracts filiform. Calyx tubular, 10 toothed, mouth straight, teeth lanceolate, unequal. Corolla whitish, villous without. Stamens 4.

Occasional in hills. **Fl. & Fr.:** Aug.-Nov. **Sp.Ex.:** CECF 5610 (FRC); KCJ 81483 (MH).

Leucas martinicensis (Jacq.) R. Br., Prodr. Nov. Holl. 504. 1810; FBI 4: 688. 1885; FPM 2: 803. 1957; FTC 3(2): 1263. 1983; FTN 2: 177. 1987; V. Singh, Monog. Ind. Leucas 118. f. 24. 2001; FEG 4: 553. 2011.

Subshrub, hairs deflexed. Leaves oblong to lanceolate, chartaceous, margin coarsely irregularly serrate. Verticils axillary, dense. Calyx tubular, sigmoidly curved, mouth oblique, 10 toothed. Corolla mouth oblique. Stamens 4.

Occasional in hills. **Fl. & Fr.:** Nov.-Jan. **VN:** *Perunthumbai*. **Sp.Ex.:** VS 18606 (FRC); VN 78829, 78980 (MH); KCJ 81344, 81844 (MH).

Leucas montana Spreng., Syst. Veg. 2. 742. 1825; FBI 4: 687. 1885; FPM 2: 804. 1957; V. Singh, Monog. Ind. Leucas 121. f. 25. 2001; FEG 4: 553. 2011.

Undershrub, stem 4-gonous, tomentose with deflexed hairs. Leaves opposite, ovate, margin dentate. Flowers white in ca. 8 flowered axillary verticils. Calyx mouth straight, teeth 10. Corolla bilipped, tomentose. Stamens 4, didynamous. Stigma unequally bifid. Nutlets trigonous.

Occasional in moist localities. **Fl. & Fr.:** Jun-May. **Sp.Ex.:** VS 19290 (FRC); VN 78381 (MH).

Leucas urticifolia (Vahl) Sm., Cycl. 20(2): 4. 1812; FBI 4: 680. 1885; FPM 2: 803. 1957; FTC 3(2): 1266. 1983; FTN 2: 178. 1987; V. Singh, Monog. Ind. Leucas 144. f. 32. 2001; FEG 4: 557. 2011.

Puberulous herb, hairs appressed. Leaves oblanceolate, chartaceous, margin serrate. Verticils axillary, dense. Calyx 10 toothed, mouth oblique. Corolla whitish, puberulous without. Stamens 4.

Common in moist localities along the road sides and a weed in cultivated lands. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** KA & PB 1716 (SACONH).

Leucas zeylanica (L.) R. Br., Prodr. Nov. Holl. 504. 1810; FBI 4: 689. 1885; FSIHS 2: 484. 1932; FPM 2: 803. 1957; FTN 2: 179. 1987; V. Singh, Monog. Ind. Leucas 157. f. 36. 2001; FEG 4: 562. 2011.

Small erect herbs, branches villous. Leaves elliptic-lanceolate. Heads terminal and sub-terminal. Bracts linear. Flowers 10-20 in a head. Calyx mouth slightly oblique, teeth 8, scabrous. Corolla white, upper lip obovate, with black hairs. Nutlets smooth, brownish.

Common in foothills and scrub jungles. **VN:** Thumbaipoo. **Fl. & Fr.:** May-July. **Sp.Ex.:** PSAT 186899 (MH).

OCIMUM L., Sp. Pl. 2: 597. 1753.

Key to the species

- 1a. Mostly shrubs or undershrubs; throat of fruiting calyx closed by the upcurved 2 median teeth of anterior lip, anterior much shorter than posterior.....*O. gratissimum*
- 1b. Mostly herbs with stems woody at base; throat of fruiting calyx open, the 2 median teeth of anterior lip as long as or longer than posterior.....2
- 2a. Calyx tube glabrous or thinly covered with minute glandular hairs inside; nutlets unchanged when wet.....*O. tenuiflorum*
- 2b. Calyx tube with a ring of hairs at throat inside; nutlets producing mucilage when wet.....3
- 3a. Fruiting calyx up to 5 mm long; corolla 4 - 5.5 mm long.....4
- 3b. Fruiting calyx 6 - 8 mm long; corolla 7 - 8 mm long.....*O. basilicum*
- 4a. Fruiting calyx 2 - 3 mm long; stem internodes with short adpressed or retrorse hairs.....*O. americanum*
- 4b. Fruiting calyx 4 - 5.5 mm long; stem internodes with long, spreading and sometimes retrorse hairs.....*O. africanum*

Ocimum americanum L., Cent. Pl. 1: 15. 1755; FTN 2: 179. 1987; FEG 4: 566. 2011. *O. canum* Sims in Curtis, Bot. Mag. t. 2452. 1823; FBI 4: 607. 1885; FPM 2: 777. 1957; FTC 3(2): 1269. 1983.

Subshrub, stem sulcate, puberulous. Leaves aromatic, elliptic-lanceolate, glandular pumicate below, margin entire. Flowers in racemes, white. Nutlets oblong, black, pitted, mucilaginous, when wet.

Common in wastelands, scrub jungles, foothills and dry deciduous forest. **Fl. & Fr.:** Throughout the year. **VN:** Naaithulasi. **Sp.Ex.:** LP 3008, 3006 (SACONH); VN 7123 (MH); VS 18829, 18856, 19284, 19287 (FRC); KR 138913, 138914 (MH); PSAT 187154, 187252, 187517, 187518 (MH).

Ocimum africanum Lour., Fl. Cochinch. 370. 1790. *O. basilicum* L., Sp. Pl. 597. 1753, var. *pilosum* Benth., Labiat. Gen. Sp. 4: 1832; FPM 2: 777. 1957; FTC 3(2): 1269. 1983; FTN 2: 179. 1987; FEG 4: 569. 2011.

Subshrub, tender parts and inflorescence axis pilose. Leaves elliptic-lanceolate, glabrous above, sparsely strigose below, margin entire to sparingly serrate. Inflorescence generally 3-chotomous, slender.

Occasional in wastelands. **Fl. & Fr.:** Throughout the year. **VN:** *Karunthulasi*. **Sp.Ex.:** VS 18855 (FRC); EV 70970, 70971 (MH); SRR 81017 (MH); PSAT 186524, 186525 (MH).

Ocimum basilicum L., Sp. Pl. 597. 1753, var. *basilicum*; Roxb., Fl. Ind. 3: 17. 1832; FBI 4: 608. 1885; FPM 2: 777. 1957; FTC 3(2): 1268. 1983; FTN 2: 179. 1987; FEG 4: 568. 2011.

Subshrub. Leaves elliptic-ovate or lanceolate. margin entire to serrulate. Bracts oblanceolate, ciliate. Calyx lobes 5. Corolla cream, lobes 5. Stamens 4. Seeds mucilaginous.

Common in wastelands. **Fl. & Fr.:** Throughout the year. **VN:** *Nalla thulasi*. **Sp.Ex.:** KCJ 81133 (MH); PSAT 186514, 186515, 187103, 187454, 187455 (MH).

Ocimum gratissimum L., Sp. Pl. 1197. 1753; FBI 4: 608. 1885; FPM 2: 777. 1957; FTC 3(2): 1270. 1983; FTN 2: 180. 1987; FEG 4: 570. 2011.

Undershrubs, branchlets 4-angled, glabrescent. Leaves ovate, deeply serrate. Inflorescence racemes. Bracts oblanceolate. Calyx sparsely hispidulous, lobes 5. Corolla white, lobes 5. Stamens 4. Ovary obovoid. Nutlets 4, subglobose, reticulate or pitted.

Common along the river banks. **Fl. & Fr.:** July-Dec. **VN:** *Kattuthulasi*. **Sp.Ex.:** KA & PB 1482 (SACONH); CECF 40348, 40353 (MH).

Ocimum tenuiflorum L., Sp. Pl. 597. 1753; FTC 3(2): 1271. 1983; FTN 2: 180. 1987; FEG 4: 570. 2011. *O. sanctum* L., Syst. Nat. ed. 12. 2: 402. 1767 & Mant. Pl. 85. 1767; FBI 4: 609. 1885; FPM 2: 778. 1957.

Erect pubescent aromatic herb, branchlets 4-angular. Leaves elliptic-oblong, margin serrate. Flowers pinkish white, in terminal racemes and in upper axils. Calyx lobes 5, bilipped. Corolla white, lobes 5. Stamens 4. Nutlets erect, ellipsoid.

Common along the roadsides, foothills and scrub jungles. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VN 79224 (MH); SRN 80505 (MH).

ORTHOSIPHON Benth., Edward's Bot. Reg. 15: t. 1300. 1830.

Key to the species

- 1a. All leaves sessile or subsessile.....*O. rubicundus*
- 1b. All leaves except uppermost petiolate; corolla tube about as long as calyx.....2
- 2a. Corolla tube equal to or shorter than calyx.....*O. pallidus*
- 2b. Corolla tube longer than calyx.....*O. thymiflorus*

Orthosiphon pallidus Royle ex Benth., Hooker's J. Bot. Kew Gard. Misc. 3: 370. 1833; FBI 4: 613. 1885; FPM 2: 779. 1957; FTN 2: 180. 1987; FEG 4: 572. 2011.

Subshrub. Leaves ovate, margin coarsely crenate-serrate. Racemes terminal, unbranched. Verticils ca. 6-flowered. Calyx bilobed, lobes 4, 1+4. Corolla white bilobed, unequal, 4+1. Stamens 4. Nutlets 4, ovoid.

Occasional in foothills. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 3120 (SACOMH).

Orthosiphon rubicundus (D. Don) Benth., Pl. Asiat. Rar. 2: 41. 1830; FBI 4: 614. 1885; FSIHS 2: 464. 1932; FPM 2: 779. 1957; FTN 2: 180. 1987; FEG 4: 574. 2011.

Erect pubescent herb. Stem quadrangular, faintly rigid. Leaves opposite, ovate or oblong-lanceolate, margin serrate-dentate. Flowers in whorls, subtended by leafy bracts. Bracts ovate to obovate. Calyx bilipped, lobes 5. Corolla bilipped, white. Stamens 4, didynamous. Stigma capitate. Nutlets subglobose, smooth.

Common in forest floors of deciduous forest. **Fl. & Fr.:** Sept.-April. **VN:** *Bodhathulasi*. **Sp.Ex.:** CECF 40517, 40518 (MH); VN 79671 (MH).

Orthosiphon thymiflorus (Roth.) Sleensen, Reinwardtia 5: 42. 1959; FTC 3(2): 1272. 1983; FTN 2: 181. 1987. *Ocimum thymiflorum* Roth, Nov. Pl. Sp. 269. 1821; FEG 4: 574. 2011. *Orthosiphon diffusus* (Benth.) Benth. in DC., Prodr. 12: 50. 1848; FBI 4: 613. 1885; FPM 2: 779. 1957.

Subshrub. Leaves ovate to elliptic, chartaceous, margin serrate. Flowers in whorls of 6, on a terminal, 3-chotomous racemes. Floral bracts ovate. Calyx lobes 5, bilobed, 1+4. Corolla white, lobes 5, bilipped, 4+1. Stamens 4. Style gynobasic. Nutlet erect, basilar.

Common along the roadsides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1877, 2972, 1582 (SACONH); VS 18605, 18858, 19289, 20695 (FRC); VN 78294, 78996 (MH).

PLATOSTOMA P. Beauv., Fl. Oware 2: 61 (1818).

Platostoma elongatum (Benth.) A.J. Paton., Kew Bull. 52: 274. 1997. *Geniosporum elongatum* Benth., Labiat. Gen. Spec. 21 1832; FBI 4: 610. 1885; FTN 2: 181. 1987; FEG 4: 536. 2011. *G. indicum* Briq., Nat. Pflanzenfam. 4(3a): 367 1897; FPM 2: 779. 1957.

Pubescent herb. Leaves opposite, linear-oblong, margin serrate. Flowers red, in terminal and axillary racemose spikes. Calyx lobes 5, hairy without. Corolla bilabiate. Stamens 4, reniform. Ovary 4-loculed. Style bifid. Stigma capitate. Nutlets 4, smooth, ellipsoid.

Occasional in moist localities. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** CECF 5552 (FRC).

PLECTRANTHUS L'Her., Srtip. Novae 84. 1788.

Key to the species

- 1a. Leaves attenuate-cuneate at base.....2
- 1b. Leaves truncate-cordate at base.....3
- 2a. Inflorescence dense.....*P. caninus*
- 2b. Inflorescence lax.....*P. barbatus*
- 3a. Flowers in whorls of racemes.....*P. mollis*
- 3b. Flowers in cymose panicles.....*P. glabratus*

Plectranthus barbatus Andrews, Bot. Repos. 10: t. 594. 1809; FTC 3(2): 1274. 1983; FTN 2: 181. 1987; FEG 4: 578. 2011. *Coleus forskohlii* (Willd.) Briq., in Engler & Prantl, Pflanzenf. 4: 359. 1897. FBI 4: 625. 1885; FPM 2: 786. 1957.

Aromatic erect herb, branchlets scabrid. Leaves oblong to elliptic, thin fleshy. Verticils ca. 9 flowered. Floral bracts closely imbricate. Calyx tube villose within, lobes 5, bilipped. Corolla purple, lobes 5. Stamens 4.

Occasional in moist soil among rocks. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** CECF 40725 (MH); KNS 7150, 7198 (FRC); VS 19286, 19285 (FRC); PSAT 186847 (MH).

Plectranthus caninus Roth., Nov. Pl. Sp. 279. 1821; FTC 3(2): 1275. 1983; FTN 2: 181. 1987; FEG 4: 579. 2011. *Coleus spicatus* Benth. in Wall., Pl. Asiat. Rar. 2: 15. 1830; FBI 4: 624. 1885; FPM 2: 786. 1957.

Herb, branchlets hispid. Leaves ovate-suborbicular, succulent. Verticils closely, packed. Floral bracts imbricate, ovate. Calyx tube villous, lobes 5, unequal, 1+4. Corolla bluish, lobes 5. Stamens 4.

Occasional in scrub jungles. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** VN 78995 (MH).

Plectranthus glabratus (Benth.) Alston, Handb. Fl. Ceylon 6(Suppl.): 236. 1931. *P. coleoides* Benth. in DC., Prodr. 12: 64. 1848; FBI 4: 622. 1885; FPM 2: 785. 1957; FTC 3(2): 1275. 1983; FTN 2: 181. 1987; FEG 4: 579. 2011.

Subshrub. Leaves ovate to cordiform, chartaceous, margin doubly serrate. Cymes decussate. 9-13 flowered. Bracts oblanceolate. Calyx lobes 5, hispid without, unequal, 1+4. Corolla violetish, tube obliquely gibbose. Stamens 4.

Occasional clumps in evergreen forest. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** VN 78879 (MH); KCJ 81475 (MH).

Plectranthus mollis (Aiton) Spreng., Syst. Veg. 2. 690. 1825; FTC 3(2): 1276. 1983; FTN 2: 182. 1987; FEG 4: 581. 2011. *P. incanus* Link., Enum. Hort. Berol. 2: 120. 1822; FBI 4: 621. 1885; FPM 2: 784. 1957.

Erect herb, branchlets puberulous. Leaves ovate to (sub)cordate, chartaceous, margin doubly crenate-serrate. Bracts ovate, persistent with a cluster of 6-9 flowers per node. Calyx lobes 5, unequal, 1+4. Corolla violetish, lobes 5. Stamens 4.

Common along the road sides of the hill stations and rocks on exposed slopes. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** KA & PB 1644 (SACONH); CECF 40690, 49683 (MH); PSAT 187001 (MH)

POGOSTEMON Desf., Mém. Mus. Hist. Nat. 2: 154. 1815.

Key to the species

- 1a. Spikes or racemes of cluster terminal and axillary paniced.....2
- 1b. Spikes or racemes of cluster terminal or axillary, solitary, not paniced.....*P. wightii*
- 2a. Inflorescence one sided.....*P. paniculatus*
- 2b. Inflorescence otherwise.....3
- 3a. Tender parts glabrous; leaves pubescent or tomentose below.....*P. pubescens*
- 3b. Tender parts hoary-pubescent; leaves glabrous below.....*P. benghalensis*

Pogostemon benghalensis (Burm.f.) O. Kuntze, Revis. Gen. Pl. 2: 529. 1891; FTC 3(2): 1278. 1983; FTN 2: 184. 1987; FEG 4: 585. 2011. *P. plectranthoides* Desf., Ann Mus. Hist. Nat. 2: 156. t. 6. 1808; FBI 4: 632. 1885; FPM 2: 793. 1957.

Subshrub, young parts pinkish red. Leaves ovate-lanceolate, margin double-serrate. Racemes spicate, dense, branched. Calyx lobes 5, subequal. Corolla pink to violet, lobes 4, obscurely 2-lipped. Stamens 4, unequal. Nutlets ellipsoid, smooth.

Common in evergreen forest floor. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** KA & PB 1453 (SACONH); KNS 8542 (FRC).

Pogostemon paniculatus (Willd.) Benth. in Wall., Pl. Asiat. Rar. 1: 30. 1830; FBI 4: 631. 1885; FPM 2: 792. 1957; FTC 3(2): 1280. 1983; FTN 2: 184. 1987; FEG 4: 587. 2011.

Subshrub. branchlets hispid. Leaves unequal, ovate to lanceolate, chartaceous, margin irregularly inciso-serrate. Panicles unilateral. Spikes second, flattened. Calyx lobes 5, subequal. Corolla violet, lobes 4, obscurely 2-lipped, 3+1. Stamens 4. Nutlets smooth.

Occasional in evergreen forest floor. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** KA & PB 1647 (SACONH).

Pogostemon pubescens Benth. in DC., Prodr. 12: 152. 1848; FSIHS 2: 471. t. 408. 1932; FPM 2: 792. 1957; FTN 2: 185. 1987. *P. parviflorus* Benth. in Wall., Pl. Asiat. Rar. 1: 31. 1830; FBI 4: 632. 1885.

Subshrub, branchlets reddish pink. Leaves ovate-lanceolate, margin crenate-serrate. Flowers in panicles, terminal or in upper axils, dense. Calyx lobes 5, subequal. Corolla bilipped, whitish with purple tinge. Stamens 4. Nutlets erect, ovoid.

Occasional along the evergreen forest borders. **Fl. & Fr.:** Mar.-July. **Sp.Ex.:** VS 19288 (FRC); VN 78857 (MH); KCJ 81447 (MH).

Pogostemon wightii Benth., Labiat. Gen. Sp. 155. 1833; FBI 4: 635. 1885; FSIHS 2: 472. 1932; FPM 2: 793. 1957; FTN 2: 185. 1987.

Decumbent herbs, glandular hairy. Stems subsucculent, pink. Leaves ovate, crenulate along margins. Spikes terminal. Calyx campanulate, lobes unequal, ciliate. Corolla bilipped, 3+2, white to pale pink. Nutlets enclosed in glandular calyx-cup.

Rare in dense shady places along the streamlets. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** PSAT 187201, 187391 (MH).

SALVIA Linnaeus, Sp. Pl. 1: 23. 1753.

Salvia plebeia R. Br., Prodr. Fl. Nov. Holl. 501. 1810; FBI 4: 655. 1885; FPM 2: 808. 1957; FTN 2: 186. 1987; FEG 4: 589. 2011.

Subshrub. Branchlets 4-gonus. Leaves deltoid to (sub)cordiform. Flowers arranged in verticils, 6-flowered. Calyx tubular, 2-lipped, lobes 3+2. Corolla crimson, lobes 5, bilipped, 2+3. Stamens 2.

Occasional in evergreen forest borders. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 1891 (SACONH).

TEUCRIUM L., Sp. Pl. 2: 562. 1753.

Teucrium polium L., Sp. Pl. 566. 1753. *T. tomentosum* Lam., Fl. Franç. 2: 407. 1779; FBI 4: 700. 1885; FPM 2: 809. 1957; FTC 3(2): 1284. 1983; FTN 2: 187. 1987; FEG 4: 592. 2011.

(Sub)shrub, branchlets pubescent. Leaves ovate to elliptic, chartaceous, tomentose below, margin doubly serrate. Racemes paniculate, terminal or axillary. Calyx tubular, lobes 5, bilipped, unequal, 3+2. Corolla white, blotched pink within., lobes 5. Stamens 4, didynamous. Nutlets erect, laterally attached.

Common in hill along the slopes and evergreen forest floor. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KCJ 81351 (MH).

NYCTAGINACEAE Juss., Gen. Pl. 90. 1789.

Key to the genera

- 1a. Herbs.....2
- 1b. Shrubs or small trees.....3
- 2a. Inflorescence involucrate; flowers showy.....*Mirabilis*
- 2b. Inflorescence not involucrate; flowers not showy.....*Boerhavia*
- 3a. Plants armed; flowers bracteate.....*Bougainvillea*
- 3b. Plants unarmed; flowers ebracteate.....*Pisonia*

BOERHAVIA L., Sp. Pl. 3. 1753.

Key to the species

- 1a. Flowers pedicelled; perianth funneliform.....*B. chinensis*
- 1b. Flowers sessile; perianth urceolate.....2
- 2a. Diffuse herbs; leaf glabrescent.....3
- 2b. Erect herbs; leaf glabrous.....*B. erecta*
- 3a. Plant robust; leaf margin crisped.....*B. crispa*
- 3b. Plant diffused to slender; leaf margin entire or slightly undulate.....*B. diffusa*

Boerhavia chinensis (L.) Rottb., Pl. Hort. Univ. Rar. Prog. 4. 1773; FTN 2: 188. 1987.

B. repanda Willd., Sp. Pl. 1: 22. 1797; Wight, Icon. Pl. Ind. Orient. t. 1766. 1852; FBI 4: 709.

1885; FPM 2: 814. 1957. *Commicarpus chinensis* (L.) Heimerl in Engler, Pflanzenfam. ed. 2. 166. 117. 1934; FTC 3(2): 1290. 1983.

Diffuse scandent herb. leaves in unequal pairs, triangular-ovate to repand, chartaceous, base obliquely truncate to subcordate, margins shallowly lobed. Umbels pedunculate, axillary, or at the forks of dichotomy, 5-7-flowered. Perianth funnel-shaped, 5-lobed. Stamens 3, far-exserted. Ovary obovoid. Stigma peltate. Anthocarp oblong-fusiform.

Occasional in high altitude replacement of *Boerhavia diffusa*. **Sp.Ex.:** LP 2203 (SACONH); VS 18834, 19368 (FRC); EV 70936 (MH); VN 78302 (MH); KCJ 81162 (MH); PSAT 187148 (MH).

Boerhavia crispa B. Heyne ex Hook. f., Fl. Brit. India 4: 709. 1885; FPM 2: 814. 1957; FTN 2: 188. 1987.

Prostrate, robust herb. Root stout, branched. Stems cylindric, densely pubescent. Leaves opposite, simple, oblong-ovate, coriaceous. Inflorescence axillary or terminal laxly branched panicles, composed of a few capitated flowers. Flowers incomplete, bisexual. Perianths coroliformis. Stamens 2. Carpel 1. Ovary ellipsoid. Stigma 1, capitate. Anthocarp obovoid, indehiscent.

Occasional in dry hill slopes and plantations. **Fl. & Fr.:** Aug.-Oct. **Sp.Ex.:** VS 19370 (FRC).

Boerhavia diffusa L., Sp. Pl. 3. 1753; FPM 2: 814. 1957; FTC 3(2): 1287. 1983; FTN 2: 188. 1987. *B. repens* L., Sp. Pl. 3. 1753; FBI 4: 709. 1885.

Diffuse herb. Leaves ovate to (sub)cordiform, thick chartaceous, glabrous or glaucous below. Panicles axillary and terminal, 3-7 flowered. Perianth lobes pinkish. Stamens 2 or 3. Anthocarp club-shaped, glandular hairy, top rounded.

Common in plains, roadsides, wastelands and riverbanks. **Fl. & Fr.:** Throughout the year. **VN:** *Mookirattai*. **Sp.Ex.:** LP 1629 (SACONH); VS 18608 (FRC); VN 78262 (MH); SRR 81053 (MH).

Boerhavia erecta L., Sp. Pl. 3. 1753; FTC 3(2): 1288. 1983; FTN 2: 188. 1987.

Erect herb. Leaves elliptic-ovate, chartaceous, thick when fresh, glabrescent to puberulous. Panicle zigzag, slender, axillary, terminal, 2-4 flowered. Perianth lobes white with pink stripes. Stamen(s) 1 or 3. Anthocarp obconic, glabrous, top truncate.

Common in roadsides and wastelands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 19369, 20281 (FRC).

BOUGAINVILLEA Comm. ex Juss., Gen. 91. 1789.

Bougainvillea glabra Choisy in DC., Prodr. 13(2): 437. 1849; FPM 2: 815. 1957; FTC 3(2): 1288. 1983; FTN 2: 188. 1987.

Evergreen climbing shrub, thorny. Leaves dark green, alternate, simple, ovate. Bracts leafy, pink to yellowish. Flowers tubular, whitish.

Commonly cultivated in gardens. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2873 (SACONH)

MIRABILIS L., Sp. Pl. 177. 1753.

Mirabilis jalapa L., Sp. Pl. 177. 1753; FPM 2: 815. 1957; FTC 3(2): 1291. 1983; FTN 2: 189. 1987.

Erect herb, branchlets succulent, swollen at nodes. Leaves opposite, triangular-ovate to elliptic, thick-chartaceous. Inflorescence of 3-7 flowered, terminal, sessile corymbs. Flowers shortly stalked, ovate-elliptic. Perianth funnel-shaped, 5-lobed. Stamens 3-6. Ovary globose. Anthocarp globose.

Planted in garden as hedge plant. Escaped. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** PSAT 186924 (MH).

PISONIA L., Sp. Pl. 2: 1026. 1753.

Pisonia aculeata L., Sp. Pl. 1026. 1753; FBI 4: 711. 1885; FPM 2: 815. 1957; FTC 3(2): 1291. 1983; FTN 2: 189. 1987.

Armed, scandent shrub, prickles axillary. Leaves elliptic-ovate, thick chartaceous. Flowers bisexual or polygamous, sessile, aggregated in axillary, stalked umbel. Perianth funnel shaped, lobes 10, alternating short and long. Stamens 4-7. Ovary oblong-globose. Anthocarp oblong, 5-angled.

Planted. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** PSAT 187374, 187376 (MH).

AMARANTHACEAE Juss., Gen. Pl. 87. 1789.

Key to the genera

- 1a. Ovary 6-10-ovuled.....*Celosia*
- 1b. Ovary 1-ovuled.....2
- 2a. Leaves alternate.....3
- 2b. Leaves opposite.....7
- 3a. Perianth woolly; pseudostaminodes present.....*Aerva*
- 3b. Perianth glabrous; pseudostaminodes absent.....4
- 4a. Flowers unisexual.....*Amaranthus*
- 4b. Flowers bisexual.....5
- 5a. Fertile flowers subtended by 2 sterile flowers; perianth pink.....*Digera*
- 5b. Fertile flowers not subtended by sterile flowers; perianth green or white.....6
- 6a. Flowers in heads; utricles dehiscent.....*Allmania*
- 6b. Flowers in panicles; utricles indehiscent.....*Indobanalia*
- 7a. Anthers 1-celled.....*Alternanthera*
- 7b. Anthers 2-celled.....8
- 8a. Fruits with hooked bristles.....*Pupalia*
- 8b. Fruits without hooked bristles.....9
- 9a. Spikes above 10 cm long; bracteoles spiny; perianth glabrous.....*Achyranthes*
- 9b. Spikes below 5 cm long; bracteoles not spiny; perianth woolly or tomentose.....*Gomphrena*

ACHYRANTHES L., Sp. Pl. 204. 1753.

Key to the species

- 1a. Leaves linear-lanceolate, membranous.....*A.bidentata*
- 1b. Leaves ovate-elliptic, coriaceous.....*A.aspera*

Achyranthes aspera L., Sp. Pl. 204. 1753; FBI 4: 730. 1885; FSIHS 487. 1932; FPM 2: 823. 1957; FTC 3(2): 1296. 1983; FTN 2: 189. 1987; FPI 1: 68. 2009.

Subshrub. Leaves elliptic-obovate to (sub)orbicular, sparingly pubescent above, densely so below. Spikes long, peduncle stout. Bracts broadly ovate. Tepals 5, lanceolate. Stamens 5. Ovary obconic.

Very common in wastelands and roadsides. **Fl. & Fr.:** Throughout the year. **VN:** *Nayuruvi*. **Sp.Ex.:** VN 78722, 78978, 78979 (SACONH); KCJ 81514 (MH).

Achyranthes bidentata Blume, Bijdr. Fl. Ned. Ind. 545. 1826; FBI 4: 730. 1885; FSIHS 3: 487. 1932; FPM 2: 824. 1957; FTC 3(2): 1298. 1983; FTN 2: 189. 1987; FPI 1: 68. 2009.

Subshrub. Leaves variable, elliptic-ovate to oblanceolate, glabrescent to pubescent. Spikes long, peduncle slender, puberulous. Bracts lanceolate, bracteoles obovate. Tepals 5, lanceolate. Stamens 5. Ovary depressed-globose, basely narrowed.

Shady places of the forest borders in above 1000 m above sea level. **Fl. & Fr.:** Throughout the year. **VN:** *Nayuruvi*. **Sp.Ex.:** KA & PB 1408 (SACONH).

AERVA Forssk., Fl. Aegypt-Arab 170. 1775.**Key to the species**

- la. Spikes clustered, <3 cm long; flowers bisexual.....*A. lanata*
 lb. Spikes paniculate, >5 cm long; flowers unisexual.....*A. javanica*

Aerva javanica (Burm.f.) Juss. ex Schult., Ann. Mus. Hist. Nat. 11: 131. 1808 & Syst. veg. 5: 565. (1819) 1820; FBI 4: 727. 1885; FTC 3(2): 1299. 1983; FPI 1: 69. 2009. *A. persica* (Burm.f.) Merr., Philipp. J. Sci. 19: 348. 1921; FTN 2: 190. 1987.

Tomentose subshrub, erect to scandent, dioecious. Leaves alternate, oblanceolate to spatulate. Spikes paniculate, terminal. Tepals 5, obovate-oblanceolate to spatulate. Stamens 5. Stigma deeply forked.

Common in roadsides, wastelands, and scrub jungles. **Fl. & Fr.:** Nov.-Mar. **VN:** *Permpoolai*. **Sp.Ex.:** VN 79190 (MH); KNS 1870 (FRC).

Aerva lanata (L.) Juss., Ann. Mus. Natl. Hist. Nat. 11: 131. 1803; FBI 4: 728. 1885; FPM 2: 825. 1957; FTC 3(2): 1299. 1983; FTN 2: 189. 1987; FPI 1: 69. 2009.

Erect herb, pubescent when young. Leaves closely alternate, upper decussate, ovate to orbicular. Spicate clusters axillary, (sub)sessile. Bracts and bracteoles ovate. Flowers bisexual. Tepals 5, oblong to obovate. Stamens 5. Stigma 2-fid.

Common in plains, roadsides. **Fl. & Fr.:** Nov.-April. **VN:** *Koolappoo & Poolappoo*. **Sp.Ex.:** LP 3005 (SACONH); CECF 42298 (MH); VN 79029, 79760 (MH); KCJ 81115 (MH); PSAT 187098 (MH).

ALLMANIA R. Br. ex Wight, J. Bot. (Hooker) 1: 226. 1834.

Allmania nodiflora (L.) R. Br. ex Wight, J. Bot. (Hooker) 1: 226. t. 128. 1834; FBI 4: 716. 1885; FSIHS 3: 487. 1932, incl. vars. *dichotoma* & *aspera*; FTC 3(2): 1301. 1983; FTN 2: 189. 1987; FPI 1: 69. 2009.

Straggling herb with woody base. Leaves alternate, oblong-spathulate or elliptic, chartaceous. Spikes globose to oblong. Flowers bisexual in a group of 3. Bracts and bracteoles lanceolate. Tepals 5, obovate-oblong. Stamens 5, unequal. Ovary globose, ovule 1, erect. Stigma divergent. Uricle circumscissile. Seed erect, compressed.

Common in exposed localities. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** VS 19278 (FRC); CECF 42033, 42056 (MH); VN 79699 (MH).

ALTERNANTHERA Forssk., Fl. Aegypt.-Arab. 28. 1775.**Key to the species**

- la. Tepals similar, not mucronate; stamens 3.....2
 lb. Tepals dissimilar, pungently mucronate; stamens 5.....3
 2a. Outer tepals 3-nerved, with barbellate hairs.....*A. ficoidea*
 2b. Outer tepals 1-nerved, without barbellate hairs.....*A. sessilis*
 3a. Pilose at nodes; staminodes dentate.....*A. pungens*
 3b. Puberulous at nodes; staminodes subulate.....*A. paronychioides*

Alternanthera ficoidea (L.) Smith, Cycl. 39 (2 Suppl.): n. 8. 1819; FPI 1: 70. 2009. *Gomphrena ficoidea* L., Sp. Pl. 225. 1753.

Perennial prostrate herb, stems moderately branched, stems and branches villous when young. Leaves elliptic to oblanceolate, hairy above and hairless below, petiole woolly or velvety.

Rounded or short cylindrical flower heads in leaf axils, sessile, solitary. Tepals 5, white lanceolate. Stamens 5. Ovary strongly compressed, obpyriform.

Occasional in along the road sides. **Fl. & Fr.:** Aug. **Sp.Ex.:** VS 19278 (FRC).

Alternanthera paronychioides A. St. Hil, Voy. Distr. Diam. 2(2): 439. 1833; FTC 3(2): 1302. 1983; FTN 2: 190. 1987. *A. polygonoides* R. Br. ex Sweet, Hort. Suburb. Lond. 48. 1818; FPI 1: 70. 2009.

Much branched prostrate herb. Leaves clustered, obovate-rhomboid. Spikes (sub)globose to oblong, paired, often clustered. Bracts and bracteoles oblanceolate. Tepals 5, unequal. Stamens 5. Ovary depressed-globose, basally narrowed. Utricle (sub)orbicular. Seeds discoid.

Occasional in stream sides and low-lying moist ground. **Fl. & Fr.:** Feb. **Sp.Ex.:** LP 1507, 2146, 2973, 2992 (SACONH).

Alternanthera pungens Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 2: 206. 1818; FTC 3(2): 1303. 1983; FTN 2: 189. 1987; FPI 1: 71. 2009.

Spiny prostrate herb. Leaves of the same pair unequal, obliquely elliptic to (sub)orbicular. Spikes 2 or more. Bracts oblanceolate. Tepals 5, unequal. Stamens 5. Ovary depressed globose. Seeds discoid, lenticular.

Common in plains and road sides. **Fl. & Fr.:** Throughout the year. **VN:** *Nerungimullu*. **Sp.Ex.:** KCJ 81172 (MH).

Alternanthera sessilis (L.) R. Br. ex DC., Cat. Pl. Horti. Monsp. 77. 1813; FBI 4: 731. 1885; FTC 3(2): 1304. 1983; FTN 2: 189. 1987; FPI 1: 71. 2009. *A. triandra* Lam., Encycl. 1: 95. 1783; FSIHS 3: 488. 1932; FPM 2: 825. 1957.

Prostrate herb, nodes pilose. Leaves lanceolate to spatulate, subsessile. Spikes globose, paired. Bracts and bracteoles ovate-obovate. Tepals 5, subequal, ovate-lanceolate. Stamens 3. Ovary depressed globose. Stigma simple, fimbriate. Utricle cordiform, strongly compressed. Seeds orbicular.

Common in moist, clayey soil, in low-lying areas, river banks and irrigation canals. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** LP 2885 (SACONH); VS 18612, 18835, 18861, 19279 (FRC); VN 78971 (MH); KCJ 81322 (MH); EV 142042, 142043 (MH).

AMARANTHUS L., Sp. Pl. 989. 1753.

Key to the species

- 1a. Tepals 3, rarely 2 or 4; stamens 3; utricles indehiscent.....2
- 1b. Tepals 5; stamens 5, rarely 2 or 3; utricles usually dehiscent by lid.....3
- 2a. Stem erect, somewhat branched; utricles rugose.....*A. viridis*
- 2b. Stem ascending, much branched; utricles smooth or slightly rugose.....*A. blitum*
- 3a. Armed at leaf axils; bract often becoming 2 spines.....*A. spinosus*
- 3b. Unarmed at leaf axils; bract not becoming spiny.....*A. cruentus*

Amaranthus blitum L., Sp. Pl. 990. 1753; FBI 4: 721. 1885; FPI 1: 71. 2009.

Annual erect herb, glabrous. Leaves long petioled, oblong-ovate or rounded. Clusters of spikes in terminal or dense or lax spike. Tepals 3, linear-oblong or lanceolate. Utricle orbicular or broadly ovate, indehiscent.

Occasional in road sides and waste lands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 19266 (FRC).

Amaranthus cruentus L., Sp. Pl. 990. 1753 & Syst. nat. ed. 10. 2: 1269. 1759. *A. hybridus* L., Sp. Pl. 990. 1753; FTC 3(2): 1306. 1983; FPI 1: 72. 2009. *A. paniculatus* L., Sp. Pl. ed. 2: 1406. 1763; FBI 4: 718. 1885; FPM 2: 818. 1957.

Tall robust herb. Stem striate. Leaves long-petioled, elliptic or ovate-lanceolate. Spikes in dense thyrses, suberect, reddish or greenish yellow. Tepals oblong-lanceolate. Seeds yellowish white or pitchy black with a rounded boarded.

Occasional in wet areas and shady areas. Also cultivated as green vegetables. **Fl. & Fr.:** Throughout the year. **VN:** *Pungikeerai*. **Sp.Ex.:** CAB 42100, 42101 (MH).

Amaranthus spinosus L., Sp. Pl. 991. 1753; FBI 4: 718. 1885; FPM 2: 819. 1957; FTC 3(2): 1307. 1983; FTN 2: 191. 1987 FPI 1: 73. 2009.

Armed erect herb. Spines axillary, paired or clustered subtending the inflorescence. Leaves elliptic-obovate to rhomboid. Fascicles axillary or aggregated into terminal panicles. Bracts and bracteoles narrowly ovate-lanceolate. Male flowers tepals 5, unequal; stamens 5. Female flowers tepals 5, (sub)equal, oblong, flat. Utricles circumscissile.

Common near village wastelands and roadsides. **Fl. & Fr.:** Dec.-April. **VN:** *Mullukeerai*. **Sp.Ex.:** VS 18611, 18879, 19265 (FRC); KCJ 81105 (MH). PSAT 186631, 186632, 187145 (MH).

Amaranthus viridis L., Sp. Pl. ed. 2. 1405. 1763; FBI 4: 720. 1885; FTC 3(2): 1308. 1983; FPI 1: 73. 2009. *Chenopodium caudatum* Jacq., Collectanea 2: 235. 1788; FPM 2: 818. 1957; FTN 2: 191. 1987.

Erect herb. Leaves deltoid-ovate to rhomboid. Panicles terminal and axillary. Bracts and bracteoles ovate-lanceolate. Male flowers tepals 3, oblong-lanceolate; stamens 3, free. Female flowers tepals 3, style 2, stigmatose. Utricle indehiscent, subcompressed, rugose, brownish.

Common in arable lands and roadsides. **Fl. & Fr.:** Dec.-April. **VN:** *Kuppakeerai*, *Thandankeerai*. **Sp.Ex.:** LP 1645 (SACONH); VS 19264 (FRC).

CELOSIA L., Sp. Pl. 205. 1753.

Key to the species

- 1a. Spikes > 15 mm wide; flowers dense; perianth above 7 mm long.....*C. argentea*
- 1b. Spikes < 8 mm wide; flowers lax; perianth below 3 mm long.....2
- 2a. Leaf tip obtuse or acute; petioles < 1 cm long; inflorescence axis pubescent....*C. polygonoides*
- 2b. Leaf tip acuminate; petioles > 1.5 cm long; inflorescence axis glabrous.....*C. pulchella*

Celosia argentea L., Sp. Pl. 205. 1753; FBI 4: 714. 1885; FPM 2: 816. 1957; FTC 3(2): 1309. 1983; FTN 2: 192. 1987; FPI 1: 74. 2009. *C. cristata* L., Sp. Pl. 205. 1753; FBI 4: 715. 1885; FBI 4: 715. 1885; FPM 2: 817. 1957; FTN 2: 192. 1987.

Erect herb. Leaves elliptic-ovate below, linear-lanceolate above. Spikes dense, cylindrical. Bracts lanceolate, aristate. Bracteoles oblanceolate, curved, persistent. Tepals 5, broadly obovate-lanceolate. Stamens 5. Stigma minutely forked. Capsule globose.

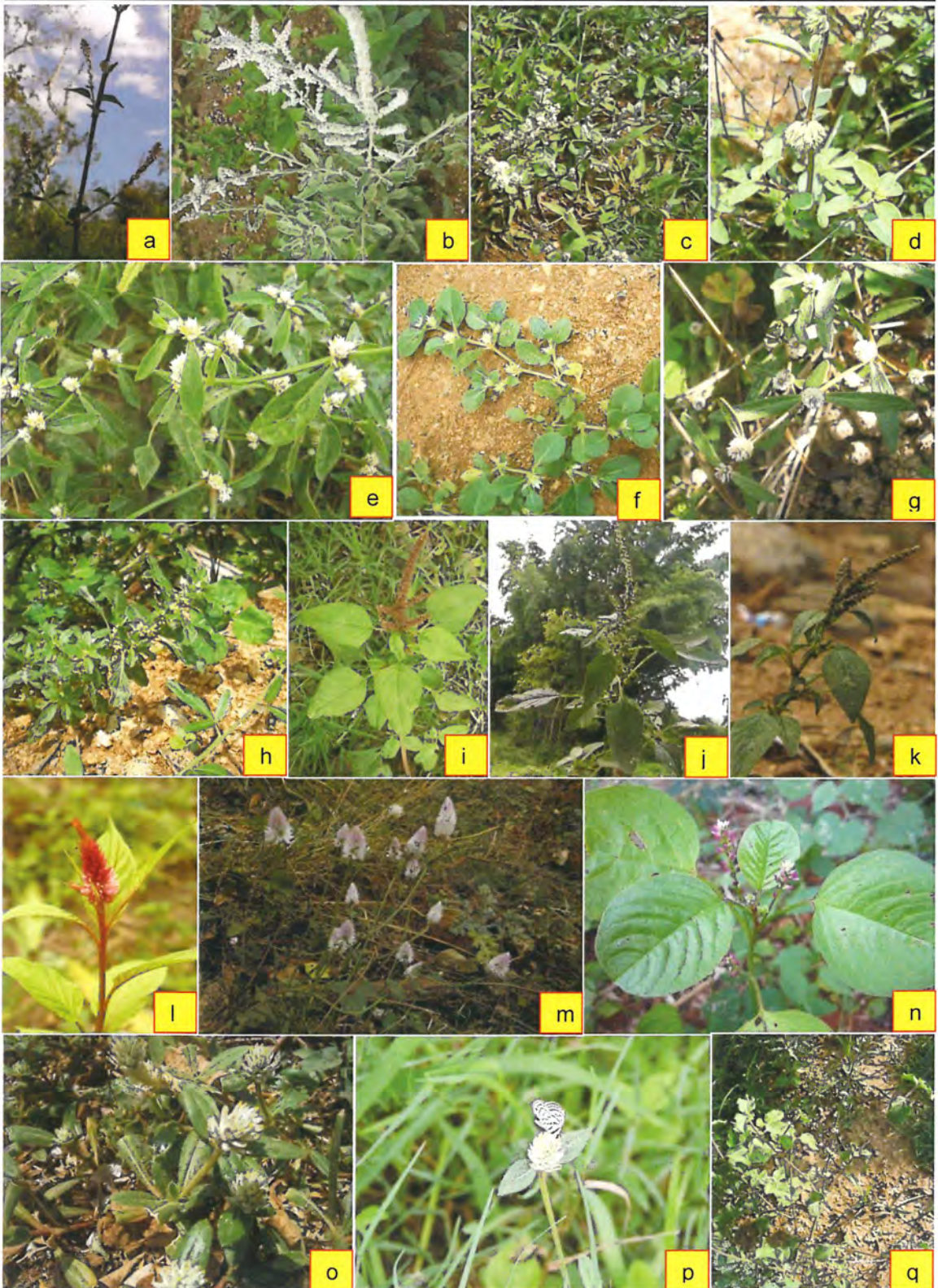
Common in arable lands and near village sides. **Fl. & Fr.:** Throughout the year. **VN:** *Pannakkeerai*. **Sp.Ex.:** LP 2898 (SACONH); VS 19269 (FRC); VN 78831 (MH); SRR 81028 (MH); KCJ 81330 (MH).

Celosia polygonoides Retz., Observ. Bot. 2: 12. 1781; FBI 4: 715. 1885; FPM 2: 817. 1957; FTC 3(2): 1310. 1983; FTN 2: 192. 1987; FPI 1: 74. 2009.

Erect herb. Leaves deltoid-ovate. Spike lax, thyrsiform, puberulose. Flowers rose, (1)3-5 flowered. Bracts oblong-obovate. Bracteoles oblong-lanceolate, shortly awned. Tepals 5, oblong-obovate. Stamens 5. Capsule urceolate, exserted from perianth.

Common in plains and gravelly ground. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2527 (SACONH); SRR 81057, 86034 (MH).

PLATE 21 - AMARANTHACEAE



a) *Achyranthes aspera*, b) *Aerva javanica*, c) *Aerva lanata*, d) *Allmania nodiflora*, e) *Alternanthera paronychioides*, f) *Alternanthera pungens*, g) *Alternanthera sessilis*, h) *Amaranthus blitum*, i) *Amaranthus cruentus*, j) *Amaranthus spinosus*, k) *Amaranthus viridis*, l) *Celosia argentea*, m) *Celosia pulchella*, n) *Digera muricata*, o) *Gomphrena celosioides*, p) *Gomphrena serrata*, q) *Pupalia lappacea*.

Celosia pulchella Moq in DC., Prodr. 13 (2): 238. 1849; FBI 4: 715. 1885; FSIHS 3: 486. 1932; FPM 2: 816. 1957; FTN 2: 192. 1987; FPI 1: 74. 2009.

Erect herb, glabrous. Leaves alternate, ovate or lanceolate. Spike terminal, slender. Flowers clustered. Bracts and bracteoles similar, ovate. Tepals 5, ovate. Stamens 5. Ovary globose. Style absent. Stigma 2, curved, pilose. Utricles ovoid, circumscissile. Seeds many, reniform, black, muricate.

Occasional in margins of moist deciduous and evergreen forests. **Fl. & Fr.:** Aug.-Nov. **Sp.Ex.:** VN 78878 (MH); PSAT 187214 (MH).

DIGERA Forssk., R. Aegypt.-Arab. 65. 1775.

Digera muricata (L.) Mart., Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur. 13: 285. 1826; FTC 3(2): 1311. 1983; FTN 2: 192. 1987; FPI 1: 75. 2009. *D. arvensis* Forssk., Fl. Aegypt. Arab. 65. 1775; FBI 4: 717. 1885; FPM 2: 818. 1957.

Erect or ascending herb. Leaves alternate, deltoid to elliptic-ovate or lanceolate. Inflorescence an axillary, rarely terminal. Flowers bisexual. Tepals 5, unequal. Stamens 5, basally connate into a sheath. Ovary globose. Fruit an indehiscent, hard, verrucose nutlet.

Common in arable lands, roadsides and riverbanks. **Fl. & Fr.:** Throughout the year. **VN:** *Thoyyakeerai*. **Sp.Ex.:** LP 959, 3027 (SACONH); VS 19276 (FRC).

GOMPHRENA L., Sp. Pl. 224. 1753.

Key to the species

- 1a. Spikes globose; flowers pink.....*G. globosa*
- 1b. Spikes elongate; flowers white.....2
- 2a. Plant whitish green to yellowish green; leaf glabrous, apex obtuse.....*G. celosioides*
- 2b. Plant green to dark green; leaf pubescent, apex acute.....*G. serrata*

Gomphrena celosioides Mart., Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur. 13: 301. 1826; FTC 3(2): 1312. 1983; FPI 1: 75. 2009.

Ascending or erect herb. Branchlets bearing. Leaves lanceolate, obovate to spatulate. Spike terminal and axillary, globose to elongate. Bracts concave. Bracteoles cordate. Tepals 5, faint, evanescent above. Stamens 5, teeth slightly 2-lobed. Ovary compressed-globose. seed faintly reticulate, shiny.

Occasional in gravelly soil areas and fallow lands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** PSAT 187107 (MH).

Gomphrena globosa L., Sp. Pl. 224. 1753; FBI 4: 732. 1885; FPM 2: 825. 1957; FTC 3(2): 1313. 1983; FTN 2: 192. 1987; FPI 1: 75. 2009.

Erect or ascending herb, branchlets appressed-white, hairy when young. Leaves obovate-lanceolate. Spike terminal, (sub)globose or depressed globose, purplish, occasionally elongate with age. Bracts ovate, membranous, concave below. Tepals 5. Stamens 5. Ovary (sub)globose, compressed, reniform. Seeds shiny.

Escaped. Commonly planted in garden as hedge plant. **Fl. & Fr.:** Throughout the year. **VN:** *Vaadamalli*. **Sp.Ex.:** VS 18836, 19277 (FRC)

Gomphrena serrata L., Sp. Pl. 224. 1753; FTN 2: 192. 1987; FPI 1: 75. 2009. *G. decumbens* Jacq., Pl. Hort. Schoenbr. t. 482. 1805; FPM 2: 825. 1957.

Decumbent herb, stem hispid. Leaves opposite, obovate, tomentose. Spike oblong, supported by 2 oblong bracts. Flowers many in a densely packed spike. Tepals 5, strongly aristate, white cottony hairy. Stamens 5. Achenes membranous, circumscissile. Seed one muricate.

Common in dry localities and roadsides. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** LP 2634 (SACONH); VS 18859 (FRC).

INDOBANALIA A.N. Henry & B. Roy, Bull. Bot. Surv. India 10: 274. 1969.

Indobanalia thyrsiflora (Moq.) A.N. Henry & B. Roy, Bull. Bot. Surv. India 10: 274. 1969; FTN 2: 192. 1987; FPI 1: 75. 2009. *Banalia thyrsiflora* Moq. in DC., Prodr. (ed. A.DC.) 13 (2): 278. 1849; FBI 4: 716. 1885; FPM 2: 817. 1957.

Slender erect herb. Stem glabrous ribbed. Leaves simple, alternate, ovate. Spikes thyrsoid, panicles, narrow, terminal and axillary. Bracts and bracteoles similar, broadly ovate. Flowers 2-3 together. Tepals 5, equal, free. Stamens 5. Ovary ellipsoid, compressed. Stigma 2, papillose. Achenes globose. Seeds orbicular, black.

Occasional in moist deciduous and evergreen forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** KCJ 81478 (MH).

PUPALIA Juss., Ann. Mus. Natl. Hist. Nat. 2: 132. 1803.

Pupalia lappacea (L.) Juss., Ann. Mus. Natl. Hist. Nat. 2: 132. 1803; FBI 4: 724. 1885; FPM 2: 821. 1957; FTC 3(2): 1316. 1983; FTN 2: 193. 1987; FPI 1: 76. 2009. *P. atropurpurea* (Lam.) Moq. in DC., Prodr. (ed. A.DC.) 13 (2): 331. 1849; FBI 4: 723. 1885; FPM 2: 821. 1957.

Erect or straggling herb, branchlets pubescent. Leaves decussate, obovate, chartaceous. Spikes terminal, unbranched, lax. Flowers bisexual, in a cluster of 3, purplish green. Tepals 5, (sub)equal. Stamens 5, connate at base into a short. Ovary depressed-globose, basally narrowed. Stigma capitate, papillose. Capsule depressed-globose, circumscissile.

Common in dry hill slopes, road sides and riverbanks. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** LP 2697 (SACONH); VS 18860, 19267 (FRC).

CHENOPODIACEAE Vent., Tabl. Règne Vég. 2: 253. 1799.

DYSPHANIA R. Br., Prodr. Nov. Holland. 411. 1810.

Dysphania ambrosioides (L.) Mosyakin & Clemants., Ukrayins'k. Bot. Zhurn. 59: 382. 2002. *Chenopodium ambrosioides* L., Sp. Pl. 219. 1753; FBI 5: 4. 1886; FSIHS 3: 489. 1932; FPM 2: 827. 1957; FTC 3(2): 1322. 1983; FTN 2: 195. 1983.

Subshrub, branchlets angular, ribbed, glabrous or thinly pubescent. Leaves oblong-lanceolate. Panicles axillary or terminating the branchlets. Tepals 5, broadly ovate. Stamens 5. Ovary capped with glandular vesicles. Stigma (3)5, filiform. Seeds horizontal, rarely erect.

Common weed in arable lands and along the river banks. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KA & PB 1401 (SACONH); VN 78293 (MH); KCJ 81311 (MH).

POLYGONACEAE Juss., Gen. Pl. 82. 1789.

Key to the genera

- 1a. Climber; inflorescence tip tendrilar.....*Antigonon*
- 1b. Other than climber; inflorescence tip not tendrilar.....2
- 2a. Leaves < 1 cm long; flowers in axillary fascicles.....*Polygonum*
- 2b. Leaves > 2 cm long; flowers in racemes or capitate clusters.....*Persicaria*

ANTIGONON Endl., Gen. Pl. 4: 310. 1837.

Antigonon leptopus Hook. & Arn., Bot. Beech. Voy. 308. t. 69. 1838; FPM 2: 835. 1957; FTC 3(2): 1331. 1983; FTN 2: 196. 1987.

Woody climber. Leaves alternate, ovate-cordate. Racemes ending with tendrils. Flowers rose-pinkish. Tepals 5. Stamens 8. Nut trigonous, enclosed in papery perianth. Cultivated in plains also naturalized in wild. **Fl. & Fr.:** Throughout the year. **VN:** *Kodirose*. **Sp.Ex.:** LP 2874 (SACONH).

PERSICARIA Mill., Gard. Dict. Abr. ed. 1754.

Key to the species

- 1a. Scandent herbs; flowers in heads.....*P. chinensis*
- 1b. Erect herbs; flowers in elongated spikes or racemes.....2
- 2a. Ocreae obliquely clefted, long ciliate at mouth.....*P. barbata*
- 2b. Ocreae truncate, glabrous at mouth.....3
- 3a. Ocreae coarsely ciliate; leaf blade glabrous.....*P. glabra*
- 3b. Ocreae softly ciliate; leaf blade tomentose.....*P. pulchra*

Persicaria barbata (L.) Hara, Fl. E. Himal. 1: 70. 1966; FTC 3(2): 1334. 1983. *Polygonum barbatum* L., Sp. Pl. 362. 1753; FBI 5: 37. 1886; FPM 2: 833. 1957; FTN 2: 197. 1987.

Herb. Leaves lanceolate, chartaceous, glabrous. Ocreae tubular, truncate, strigose, coarsely ciliate. Spikes terminal and axillary. Perianth white, lobes 5. Stamens 5. Ovary obovoid. Stigma capitellate. Nutlets trigonous.

Common and gregarious in marsh lands or stream sides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18641, 18863 (FRC).

Persicaria chinensis (L.) H. Gross., Bot. Jahrb. Syst. 49: 269, 277, 315. 1913; FTC 3(2): 1334. 1983. *Polygonum chinense* L., Sp. Pl. 363. 1753; FBI 5: 44. 1886, incl. var. *ovalifolia* Meisner; FSIHS 3: 493. t. 429. 1932; FPM 2: 833. 1957; FTN 2: 197. 1987.

Straggling shrub. Leaves broadly elliptic-oblong, thick coriaceous. Inflorescence of stalked, capitate clusters aggregated in lax, terminal, corymbose panicles. Bracts oblong, concave, scarious. Perianth white, lobes 5, subequal. Stamens 8. Ovary globose, Stigma capitellate. Nutlets trigonous, smooth.

Common in margins of evergreen forest and riparian zones. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18900 (FRC); CAB 42644, 42657 (MH); CECF 42671 (MH); KCJ 81445 (MH).

Persicaria glabra (Willd.) M. Gomez, Ann. Inst. Segunda Enseñ. Habana 2: 278. 1896; FTC 3(2): 1336. 1983. *Polygonum glabrum* Willd., Sp. Pl. 2: 447. 1799, var. *glabrum*; FBI 5: 34. 1886; FSIHS 3: 491. 1932; FPM 2: 832. 1957; FTN 2: 198. 1987.

Subshrub. Leaves narrowly lanceolate, thick coriaceous. Ocreae tubular, margin truncate. Racemes terminal or from the upper axils. Perianth rose, lobes 5, oblong. Stamens 5. Ovary globose. Stigma capitellate. Nutlets compressed, faces flattened.

Common and gregarious in riverbanks. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18616, 19383 (FRC); CECF 42612 (MH); KCJ 81284 (MH); PSAT 186940 (MH).

Persicaria pulchra (Blume) Soják, Preslia 46: 154. 1974; FTC 3(2): 1339. 1983; FTN 199. 1987, "*pulchrum*". *Polygonum tomentosum* Willd., Sp. Pl. 2: 447. 1799, non Schrank 1789; FBI 5: 30. 1886; FPM 2: 832. 1957.

Erect herb. Leaves lanceolate or linearly obovate, thick-chartaceous, thin, silky tomentose. Ocreae tubular, margins truncate. Panicle terminal. Bracts oblong, thick. Perianth pinkish, lobes 5, equal, ovate. Stamens 5. Ovary globose. Stigmas capitellate. Nutlets biconvex.

Common in low-lying marshes and banks of stagnant ponds. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KCJ & JD 81206 (MH); EV 142084, 142085 (MH).

POLYGONUM L., Sp. Pl. 1: 359. 1753.**Key to the species**

- 1a. Prostrate herb; leaves oblong.....*P. plebeium*
 1b. Stout herb; leaves elliptic-lanceolate.....*P. pubescens*

Polygonum plebeium R. Br., Prodr. Nov. Holl., 420. 1810, "*plebejum*"; FBI 5: 27. 1886 incl. var. *indica*; FPM 2: 832. 1957; FTC 3(2): 1339. 1983; FTN 2: 199. 1987.

Prostrate herb. Leaves oblong, thick. Flowers actinomorphic, bisexual, in axillary fascicles. Perianth rose, lobes 5, unequal. Stamens (5)6, included, alternating with basal, glandular, disc-lobes. Ovary trigonous. Style broadly 3-fid above. Stigma simple. Nutlets strongly 3-gonus with persistent style.

Common and gregarious by riverbanks and moist floor of tanks. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KA & PB 1405 (SACONH); VS 18614, 18862 (FRC); EV 142116, 142117 (MH).

Polygonum pubescens Blume, Bijdr. Fl. Ned. Ind. 2: 532. 1825. *P. hydropiper* L. *flaccidum* Steward, Contr. Grey Herb. 88. 59. 1930; FTN 2: 198. 1987. *P. flaccidum* acut. non Roxb. 1832; FBI 5: 27. 1886 incl. var. *hispida*; FPM 2: 833. 1957.

Perennial herb. Stem erect, often reddish, sparingly hispidulous, swollen at nodes. Leaves densely hispidulous, ovate-lanceolate. Inflorescence terminal or axillary, spicate, pendulous. Bracts green, funnel-shaped. Perianth lobes 5, green with red above, tepals elliptic. Stamens 8, included. Style 3, connate at below middle. Achenes trigonous, ovoid, blackish.

Occasional in wet places of the hill station and stream sides. **Fl. & Fr.:** Aug.-Oct. **Sp.Ex.:** KA & PB 1578 (SACONH); KCJ 81468 (MH).

ARISTOLOCHIACEAE Juss., Gen. Pl. 72. 1789.**ARISTOLOCHIA L., Sp. Pl. 960. 1753.****Key to the species**

- 1a. Leaves cordiform-reniform, deeply cordate to sagittate at base, 5-7-nerved from base.....*A. bracteolata*
 1b. Leaves oblong, truncate to shallowly cordate at base, 3-nerved from base.....*A. indica*

Aristolochia bracteolata Lam., Encycl. 1: 258. 1783; FTC 3(2): 1344. 1983; FTN 2: 198. 1987; PI 1: 155. 2009. *A. bracteata* Retz., Observ. bot. 5: 29. 1788; FBI 5: 75. 1886; FPM 2: 841. 1957.

Prostrate herb. Leaves cordiform-reniform, base cordate to broadly sagittate. Bracts cordate-orbicular. Flowers axillary, solitary, dark purple. Limb entire, 1-lipped, rolled black, emarginate. Stamens 6. Stigmatic lobes 6, connivant. Capsules, glabrous to glaucous. Seeds cordate.

Occasional in wastelands. **Fl. & Fr.:** Throughout the year. **VN:** Aaduthinnappalai. **Sp.Ex.:** LP 2831 (SACONH).

Aristolochia indica L., Sp. Pl. 960. 1753; FBI 5: 75. 1886; FPM 2: 841. 1957; FTC 3(2): 1345. 1983; FTN 2: 198. 1987; FPI 1: 155. 2009.

Slender twiner. Leaves oblong, base truncate to (sub)cordate. Racemes axillary or terminal, 8-15 flowered. Flowers dark purple. Limb 1-lipped, rolled back, emarginate. Stamens 6. Stigmatic lobes 6, erect. Seeds oblong, obtuse, laterally winged.

Common in along the stream side bushes and roadsides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2813 (SACONH); VS 19363 (FRC); CECF 42955 (MH); VN 78936 (MH); PSAT 186890 (MH).

PIPERACEAE Giseke, Prael. Ord. Nat. Pl. 123. 1792.

Key to the genera

- 1a. Climbing with nodal roots; flowers unisexual; spike leaf opposed.....*Piper*
 1b. Erect herbs without nodal roots; flowers bisexual; spike terminal and axillary.....*Peperomia*

PEPEROMIA Ruiz & Pav., Fl. Peruv. Prodr. 8: 8. 1794.

Key to the species

- 1a. Plants crispate-pubescent; lower leaves decussate; drupe prominently punctate....*P. dindygulensis*
 1b. Plants glabrous or shortly puberulous; lower leaves opposite-distichous, alternate or whorled; drupe smooth or minutely rugose.....2
 2a. All leaves in whorls of 4; spike pubescent.....*P. tetraphylla*
 2b. Leaves otherwise; spikes glabrous.....3
 3a. Leaves cordate at base, 5-7 ribbed, membranous.....*P. pellucida*
 3b. Leaves cuneate or rounded at base, thickly coriaceous.....4
 4a. Leaves < twice as long as wide; peduncle puberulous.....*P. blanda*
 4b. Leaves >twice as long as wide; peduncle glabrous.....*P. wightiana*

Peperomia blanda (Jacq.) Kunth, Nov. Gen. Sp. 1: 67. 1816. *Peperomia dindygulensis* Miq., Syst. Piperac. 122. 1843; FSIHS 501. t. 436. 1932; FPM 2: 847. 1957; FTC 3(2): 1348. 1983; FTN 2: 202. 1987. *P. heyneana* sensu Wight, Icon. Pl. Ind. Orient. t. 1922. f. 1. 1853, non Miq. 1843; FTN 2: 202. 1987.

Erect herb. Stem pubescent. Leaves elliptic to obovate, 5-ribbed from base, pubescent. Spike slender, erect. Bracts orbicular. Peltate with white margins. Flowers distant. Nutlets obovoid to orbicular.

Occasional in moist and semi-evergreen forest. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** VN 79018 (MH).

Peperomia dindygulensis Miq., Syst. Piperac. 122. 1843; FBI 5: 98. 1886; FSIHS 3: 501. t. 436. 1932; FPM 2: 847. 1957; FTC 3(2): 1348. 1983; FTN 2: 202. 1987. *P. heyneana* sensu Wight, Icon. Pl. Ind. Orient. t. 1922. f. 1. 1853; FBI 5: 98. 1886; FSIHS 3: 501. t. 436. 1932; FPM 2: 847. 1957; FTN 2: 202. 1987.

Erect herb. Stem and branchlets crisped-hairy. Leaves decussate, or the upper ones in whorls of 3-4, elliptic-ovate or obovate, spatulate, chartaceous. Spike(s) 1 or 2. Bracts ovate, fleshy. Stamens 2. Ovary oblong, somewhat pyramidal. Berry (sub)globose.

Common in crevices of rocks and moss crowded tree trunks of evergreen forests. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** LP 1992 (SACONH).

Peperomia pellucida (L.) Kunth., Nov. Gen. Sp. 1: 64. 1816; FPM 2: 847. 1957; FTN 2: 203. 1987. *P. exigua* (Blume) Miq., Syst. Piperac. 77. 1843; FBI 5: 97. 1886.

Small erect herb. Stem erect, pellucid. Leaves alternate, triangular ovate, cordate at base. Spikes solitary, terminal or leaf opposed. Flowers scarcely immersed. Ovary oblique. Fruit sessile, globose-ellipsoid.

Common in moist shady localities of the high altitude and evergreen forests. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** LP 1993 (SACONH).

Peperomia tetraphylla (G.Forst.) Hook. & Arn., Bot. Beechey Voy. 96. 1832; FTC 3(2): 1348. 1983; FTN 2: 203. 1987. *P. reflexa* (L. f.) Dietr., Sp. Pl. 1: 180. 1839, non H.B.K. 1815; FBI 5: 99. 1886; FSIHS 3: 501. t. 435. 1932; FPM 2: 847. 1957.

Epiphytic, much branched herb. Leaves whorled, 4 at a node. ovate to rhomboid (sub)succulent. Spikes terminal, pubescent. Bracts orbicular, peltate. Stamens 2. Ovary obovoid, narrowed above. Stigma minute. Berry obovoid, glabrous.

Common in growing on moss crowded tree trunks of the evergreen forest. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** KA & PB 1404 (SACONH); VS 18893 (FRC); VN 78858, 79747 (MH); KCJ 81458 (MH).

Peperomia wightiana Miq., London J. Bot. 5: 548. 1846; FBI 5: 98. 1886; FSIHS 3: 501. 1932; FPM 2: 847. 1957; FTC 3(2): 1350. 1983; FTN 2: 203. 1987.

Herb. Leaves alternate, upper 1 or 2 pairs sometimes opposite, elliptic-ovate or orbicular, chartaceous. Spikes terminal. Bracts ovate, fleshy, obtuse. Stamens 2. Ovary globose. Berry globose, ovoid, beaked with stigma.

Occasional in growing on moss crowded tree trunks of the evergreen forest. **Fl. & Fr.:** Nov.-Dec. **Sp.Ex.:** VN 78952 (MH).

PIPER L., Sp. Pl. 1: 28. 1753.

Key to the species

- 1a. Branchlets and leaves pubescent; berries ovoid.....*P. hymenophyllum*
- 1b. Branchlets and leaves glabrous; berries otherwise.....2
- 2a. Bracts cupular.....*P. trichostachyon*
- 2b. Bracts otherwise.....3
- 3a. Flowers bisexual.....4
- 3b. Flowers unisexual.....*P. attenuatum*
- 4a. Cupular bract hooded on one side; berry more than 0.5 cm across.....*P. wightii*
- 4b. Cupular bract not hooded; berry less than 0.5 cm across.....*P. nigrum*

Piper attenuatum Buch.-Ham. ex Miq., Syst. Piperac. 306. 1844; FBI 5: 92. 1886; FPM 2: 845. 1957; FTC 3(2): 1351. 1983. *P. trioicum* Roxb., Fl. Ind. 1: 151. 1820; FTN 2: 204. 1987.

Vine, branchlets zigzag. Leaves ovate or broadly elliptic-ovate. Flowers unisexual. *Male flowers* bracts ovate; stamens 2(3). *Female flowers* bracts broadly ovate-orbicular, margin reflexed with age; ovary globose. Berry smooth, globose.

Occasional in climbing on evergreen forest trees. **Fl. & Fr.:** Aug.-May. **Sp.Ex.:** VN 79734 (MH).

Piper hymenophyllum (Miq.) Wight, Icon. Pl. Ind. Orient. 6: t. 1942. 1853; FBI 5: 93. 1886; FPM 2: 845. 1957; FTC 3(2): 1351. 1983; FTN 2: 204. 1987.

Vine. Leaves broadly elliptic-ovate, often linearly ovate in male plants. Flowers unisexual. Male inflorescence spike, bracts orbicular-ovate, closely imbricate; stamens in a group of 3, rarely 1 or 2. Female inflorescence bracts orbicular-ovate, bracteoles confluent with bracts. Ovary ellipsoid. Berry ellipsoid-globose, 4-angled.

Occasional in climbing on evergreen forest trees. **Fl. & Fr.:** Sept.-Oct. **VN:** *Kattu milagu*. **Sp.Ex.:** LP 1342, 1911 (SACONH); KA & PB 1421 (SACONH); KCJ 81477, 81511 (MH).

Piper nigrum L., Sp. Pl. 28. 1753; FBI 5: 90. 1886; FSIHS 344. 1932; FPM 2: 845. 1957; FTC 3(2): 1352. 1983; FTN 2: 204. 1987.

Vine. Leaves broadly ovate, coriaceous, flattened to impressed above, raised below. Inflorescence spike. Bracts concave, partly embedded in peduncle. Flowers bisexual. Stamens 2 on either side of the pistil. Ovary globose ovoid. Berry ovoid-globose, nearly 8-gonus.

Occasional and also cultivated. **Fl. & Fr.:** Jan.-May. **VN:** *Milagu*. **Sp.Ex.:** VS 18895 (FRC).

Piper trichostachyon (Miq.) C. DC. in DC., Prodr. 16(1): 242. 1869; FBI 5: 80. 1886; FPM 2: 844. 1957; FTN 2: 204. 1987.

Stout climbers. Leaves alternate, simple, elliptic-ovate, oblique at base. Spikes stout, drooping. Bracts pubescent, forming a fleshy cup. Stamens 2. Berry globose, yellowish red. Stigmatic lobes 3.

Occasional in evergreen forest. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** VN 79735 (MH).

Piper wightii Miq., London J. Bot. 5: 552. 1846; FBI 5: 94. 1886; FSIHS 3: 500. 1932; FPM 2: 845. 1957; FTN 2: 205. 1987.

Stout climber, glabrous. Leaves ovate, rounded to (sub)cordate at base, coriaceous. Spikes long, drooping, peduncular. Flowers distantly arranged, bisexual. Stamens 2. Berry reddish, globose, smooth. Stigmatic lobes 3 or 4.

Occasional in evergreen forest. **Fl. & Fr.:** July-Feb. **Sp.Ex.:** VS 18188, 18406 (FRC).

BASELLACEAE Raf., Fl. Tellur. 3: 44. 1837.

Key to the genera

- 1a. Spike 3-10 cm long.....*Basella*
- 1b. Spike more than 10 cm long.....*Andredera*

ANREDERA Juss., Gen. Pl. 84. 1789.

Anredera cordifolia (Ten.) Steenis, Fl. Males. 5: 303. 1957; Rasingam & Lakshinarasimhan, Rheede, 22(1): 16-17. 2012.

Evergreen vine. Stem semi-succulent. Leaves simple, ovate to (sub)cordate, rounded or cordate at base, thin fleshy. Racemes axillary, pendent, simple or branched, many-flowered. Flowers fragrant. Perianth white, lobes 5, ovate or oblong to elliptic. Stamens 5, opposite to perianth lobes.

Occasional in forest edges and road sides. **Fl. & Fr.:** June-Oct. **Sp.Ex.:** LR KFK-1 (CAL).

BASELLA L., Sp. Pl. 1: 272. 1753.

Basella alba L., Sp. Pl. 272. 1753; FTC 3(2): 1326. 1983. *B. rubra* L., Sp. Pl. 272. 1753; FBI 5: 20. 1886; FPM 2: 830. 1957.

Rhizomatous, (sub)succulent vine. Leaves ovate-elliptic to oblanceolate. In spike, flowers bearing from the upper half, slender. Flower buds crowded. Bracteoles 2. Perianth (Sub)urceolate, pinkish green, lobes 5, equal. Stamens 5. Ovary globose. Pseudoberry globose or lobed, Seed 1, globose.

Occasional in forest borders in scrub jungles. **Fl. & Fr.:** Jan.-April. **VN:** *Pasalakkkerai*. **Sp.Ex.:** VS 18613, 19404 (FRC); VN 79021 (MH); PSAT 187058 (MH).

LAURACEAE Juss., Gen. Pl. 80. 1789.

Key to the genera

- 1a. Leafless; wiry twining shrubs.....*Cassytha*
- 1b. Leaves well developed; woody trees.....2
- 2a. Leaves 3-ribbed at base or little above from the base.....3
- 2b. Leaves penninerved.....4
- 3a. Leaves opposite or subopposite; flowers in cymes or panicles.....*Cinnamomum*
- 3b. Leaves alternate; flowers in axillary or extra-axillary umbellules.....*Neolitsea*
- 4a. Leaves in alternate sometime crowded at apex.....5
- 4b. Leaves in whorls or pseudo-whorls.....*Actinodaphne*
- 5a. Flowers in racemes or panicles.....6
- 5b. Flowers in axillary or extra-axillary simple or compound racemose umbels.....*Litsea*
- 6a. Anthers 4-celled.....7

- 6b. Anthers 2-celled.....*Cryptocarya*
 7a. Leaves alternate, equidistant; panicles many flowered.....*Persea*
 7b. Leaves alternate fascicled at apex of branchlets; panicles few flowered.....8
 8a. Staminal glands stipitate.....*Phoebe*
 8b. Staminal glands sessile.....*Alseodaphne*

ALSEODAPHNE Nees in Wall., Pl. Asiat. Rar. 2: 61, 71. 1831.

Alseodaphne semecarpifolia Nees in Wall., Pl. Asiat. Rar. 2: 72. 1831, var. *semecarpifolia*; FBI 5: 144. 1886; FPM 2: 858. 1957; FTC 3(2): 1356. 1983; FTN 2: 206. 1987.

Densely foliaceous evergreen tree. Leaves alternate or clustered at apices, obovate to oblanceolate. Panicle much branched, (sub)terminal. Flowers bisexual. Tepals e equal, 3+3, ovate, concave. Fertile stamens 9, glands ovate. Stigma peltate. Berry ellipsoid. Seed oblong-globular.

Common in evergreen forest. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** VN 78907 (MH).

CASSYTHA L., Sp. Pl. 1: 35. 1753.

Cassytha filiformis L., Sp. Pl. 35. 1753; FBI 5: 188. 1886; FPM 2: 868. 1957; FTC 3(2): 1358. 1983; FTN 2: 207. 1987.

Parasitic, leafless twiner. Spikes terminal or axillary. Bracteoles 3, ovate, ciliate. Flowers (sub)sessile, in spikes, 3-merous, bisexual. Tepals 6, free, unequal, 3+3, truncate. Fertile stamens 9. Stigma capitate. Drupe globose. Seed 1, globose.

Common in dry and moist deciduous forest. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 1885 (SACONH).

CINNAMOMUM Schaeff., Bot. Exped. 74. 1760.

Key to the species

- 1a. Leaves opposite and sub-opposite.....2
 1b. Leaves spirally arranged, also congested near apex of branchlets.....*C. cassia*
 2a. Leaves hairy when young.....*C. sulphuratum*
 2b. Leaves completely glabrous.....3
 3a. Panicle densely yellow tomentose.....*C. malabatrums*
 3b. Panicle grey pubescent.....*C. verum*

Cinnamomum cassia (L.) J.Presl, Prir. Rostlin 2: 44. 1825. *Neolitsea cassia* (L.) Kosterm., J. Sci. Res., Indonesia 1: 85. 1952; FTN 2: 211. 1987. *Litsea zeylanica* Nees & T. Nees, Cinnam. Disp 1: 58. t. 5. 1823; FBI 5: 178. 1886.

Medium sized trees. Leaves simple, alternate or in whorls elliptic-lanceolate, coriaceous. Flowers unisexual, yellowish-green, in sessile umbels on extremely short branchlets at internodes. Tepals 4, ovate. Stamens 6, in 3 rows. Ovary half inferior, ovoid. Drupe globose, seated on disc like, crenate perianth cup.

Occasional in evergreen forest. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** PSAT 187549, 187550 (MH).

Cinnamomum malabatrums (Burm. f.) J. Presl, Prir. Rostlin 2: 36. 1825; FTN 2: 208. 1987. *Laurus malabatrums* Burm. f., Fl. India 92. 1768. *C. iners* sensu Gamble, Fl. Madras 2: 857. 1957, non Reinw. ex Blume, 1826.

Densely foliaceous evergreen tree. Leaves opposite to (sub)opposite, obovate, 3-nerved from base or a little above. Inflorescence in a panicle. Flowers brownish. Tepals 6, equal, obovate. Fertile stamens 9. Stigma 2-lobed. Berry ellipsoid-globose, epicarp coriaceous.

Common in the evergreen forest. **Fl. & Fr.:** Mar.-May. **VN:** Lavangam. **Sp.Ex.:** VN 79848 (MH).

Cinnamomum sulphuratum Nees in Wall., Pl. Asiat. Rar. 2: 74. 1831; FBI 5: 132. 1886; FPM 2: 857. 1957; FTN 2: 208. 1987.

Small tree, young branchlets yellow-tomentose. Leaves ovate-lanceolate or elliptic to oblong. Flowers bisexual, greenish yellow in axillary and terminal cymes. Perianth lobes 6, biseriate, lobes triangular. Stamens 9, in 3 whorls. Ovary sparsely hairy. Stigma 3-lobed. Berry globose.

Rare in evergreen forest. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** KNS 6913 (FRC); KCJ 81457 (MH).

Cinnamomum verum J. Presl, Prir. Rostl. 2: 36. t. 7. 1823; FTN 2: 208. 1987. *C. zeylanicum* Blume, Bijdr. Fl. Ned. Ind. 568. 1825; FBI 5: 131. 1886; FPM 2: 857. 1957.

Small tree. Leaves elliptic-ovate or oblong-lanceolate, glabrous. Flowers in terminal and axillary panicles. Berries ovoid to oblong. Bluish purple when ripe.

Common in evergreen forest. **Fl. & Fr.:** Oct.-Mar. **VN:** *Lavangappattai*. **Sp.Ex.:** CECF 6146 (FRC).

CRYPTOCARYA R. Br., Prodr. Nov. Holland. 402. 1810.

Cryptocarya beddomei Gamble, Kew Bull. Misc. Inform. Kew 1925: 127. 1925 & FPM 2: 853. 1957; FTN 2: 209. 1987.

Small evergreen trees, branchlets fulvous-tomentose. Leaves simple, alternate, ovate or elliptic, shining above, reddish glaucous beneath, coriaceous. Panicles fulvous pubescent. Flowers pale yellow, bisexual. Bracteoles minute, deciduous. Perianth lobes 6, subequal in 2-rows, pubescent. Stamens 9, in 3 rows. Ovary sessile, enclosed by perianth tube. Drupe ellipsoid. Rare in along the evergreen forest fringes. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** PB & MM 1660 (SACONH); KA & PB 1665 (SACONH).

LITSEA Lam., Encycl. 3: 574. 1792.

Key to the species

- 1a. Inflorescence solitary umbels or in clusters.....2
- 1b. Inflorescence racemose umbels.....4
- 2a Umbels born on brachyblasts.....*L. quinqueflora*
- 2b. Umbels solitary or clusters born directly on stem.....3
- 3a. Inflorescence pseudo-raceme, 3–5 umbels in a peduncle.....*L. glutinosa*
- 3b. Inflorescence solitary.....*L. deccanense*
- 4a. Lateral veins 16 pairs; inflorescence 6 cm long; involucre bracts 4–7; flowers 5–8 in an umbel; fruits ovoid, sparsely silky pubescent.....*L. floribunda*
- 4b. Lateral veins 10 pairs; inflorescence 10 cm long; involucre bracts 5–8; flowers 5 in an umbel; fruits ellipsoid, glabrous.....*L. wightiana*

Litsea deccanensis Gamble, Fl. Madras 1235. 1925 & 2: 864. 1957; FSIHS 3: 506. 1932; FTC 3(2): 1360. 1983; FTN 2: 210. 1987. *L. tomentosa* B. Heyne ex Nees, Pl. Asiat. Rar. 2: 65. 1831, auct non Blume, 1826; FBI 5: 157. 1886.

Small evergreen tree. Branchlets fulvous-rusty. Leaves elliptic-ovate to obovate-lanceolate. Umbels simple. *Male flowers* tepals 2-4 or more, linear, deciduous; stamens 20 or more. *Staminodes* filiform. *Female flowers* tepals caducous; staminodes linear. Berry, epicarp fleshy.

Common in evergreen forest. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** KNS 6917 (MH); VS 19378 (FRC); CECF 44646 (MH); SRR 78702 (MH); VN 79728 (MH); KCJ 81428 (MH).

Litsea floribunda (Blume) Gamble, Fl. Madras 1238. 1925 & 2: 867. 1957; FTN 2: 210. 1987.

Dioecious tree. Leaves simple, alternate, estipulate, petiolate, obovate-oblong, elliptic-oblong. Flowers unisexual, in axillary racemose umbellule, 6-8 in an umbellule. Perianth lobes 6. Stamens 12, in 4 rows. Stigma capitate. Berry oblong, seated on a turbinate perianth tube. Occasional in evergreen forest. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** PB & MM 1665 (SACONH); VN 79740 (MH); KCJ 81472 (MH).

Litsea glutinosa (Lour.) C.B. Rob., Philipp. J. Sci. 6: 321. 1911; FTC 3(2): 1361. 1983; FTN 2: 210. 1987. *L. chinensis* Lam., Encycl. 3: 574. 1792; FPM 2: 864. 1957.

Evergreen tree. Leaves elliptic to obovate, pubescent. Umbels compound, 7-9 flowered. Flowers unisexual, yellowish. *Male flowers* perianth 0; stamens 9-12, all fertile. *Female flowers* perianth 0. staminodes 9-12.

Common in dry evergreen forest. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** LP 3113, 3121 (SACONH); VS 18617, 181618 (FRC); PSAT 187468, 187467 (MH).

Litsea quinqueflora (Dennst.) Suresh in Nicolson *et al.*, Interpr. Hort. Malab. 158. 1985. *L. ligustrina* (Nees) Hook. f., Fl. Brit. India 5: 158. 1886; FSIHS 3: 506. t. 438. 1932; FPM 2: 864. 1957; FTN 2: 210. 1987.

Small evergreen tree. Leaves elliptic-oblong or obovate, narrowed at base, obtuse or acute at apex. Flowers solitary or in paired umbellules, greenish yellow. Berries globes, seated on the perianth-tube.

Common in moist deciduous forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 5760 (FRC); VS 18894 (FRC).

Litsea wightiana (Nees) Benth. & Hook. f., Gen. Pl. 3: 162. 1880, var. *wightiana*; FBI 5: 177. 1886; FSIHS 3: 507. t. 439. 1932; FPM 2: 866. 1957; FTN 2: 211. 1987.

Evergreen trees. Leaves elliptic-lanceolate, subcoriaceous. Umbellules in racemes. Perianth rusty-yellow, lobes 6, 3+3. *Male flowers* stamens 12 or 15, filaments bearded. *Female flowers* Ovary globes, enclosed in perianth lobes. Berry ellipsoid.

Common in along the evergreen forest boundary. **Fl. & Fr.:** Aug.-Oct. **Sp.Ex.:** CECF 44680, 44682 (MH); SRN 80530 (MH); KCJ & JD 81237 (MH).

NEOLITSEA (Benth. & Hook. f.) Merr., Philipp. J. Sci. 1(Suppl. 1): 56. 1906.

Key to the species

- 1a. Leaves densely rusty-sericeous below; berry c. 1.5 cm across.....*N. fischeri*
- 1b. Leaves glabrous or glaucous below; berry <1 cm across.....*N. scrobiculata*

Neolitsea fischeri Gamble, Bull. Misc. Inform. Kew 1925: 132. 1925 & Fl. Madras 2: 868. 1957; FTN 2: 212. 1987.

Small tree. Leaves broad elliptic-obovate, thick coriaceous. Umbellules compound. Perianth rusty yellow, lobes 2+2, rarely 3+3, ovate. *Male flowers* stamens 6; filaments bearded. *Female flowers* ovary globose; staminodes 6. Berry globose.

Rare in along the forest borders. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** VN 78890 (MH); KCJ 81462, 81463 (MH); PSAT 187034, 187035 (MH).

Neolitsea scrobiculata (Meisner) Gamble, Fl. Madras 1240. 1925 & 2: 868. 1957; FTC 3(2): 1362. 1983; FTN 2: 212. 1987.

Dioecious tree. Leaves alternate to (sub)verticillate, obovate to lanceolate. Flowers 3-8, in axillary. Involucral bracts 4, concave, naviculate, deciduous. *Male flowers* tepals 4; stamens 6, in 3 whorls of 2 each, all fertile, opposite tepals. *Female flowers* tepals 4. free. lanceolate: ovary globose; staminodes 6, in 3 series. Drupe globose.

Very common in evergreen and moist deciduous forest. **Fl. & Fr.:** Mar.-July. **Sp.Ex.:** LP 2619, 1097, 1309, 1297 (SACONH); KA & PB 1628 (SACONH); VN 78926 (MH).

Neolitsea zeylanica (Nees & T. Nees) Merr., Philipp. J. Sci. 57. 1906; FSIHS 3: 508. t. 440. 1932; FPM 2: 867. 1957.

Small evergreen tree. Leaves simple, alternate, spiral, clustered at twig ends, planoconvex in cross section, glabrous, elliptic to narrow elliptic. Inflorescence in umbels, axillary or lateral clusters. Berry ellipsoid-oblong. Fruiting perianth scarcely accrescent and crenate. Seed 1.

Common in evergreen forest border. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** LP 1203, 1452 (SACON).

PERSEA Mill., Gard. Dict. Abr., ed. 4. [1030]. 1754.

Persea macrantha (Nees) Kosterm., Reinwardtia 6(2): 193. 1962; FTC 3(2): 1363. 1983; FTN 2: 212. 1987. *Machilus macrantha* Nees in Wall., Pl. Asiat. Rar. 2: 70. 1831; FBI 5: 140. 1886; FSIHS 3: 504. 1932; FPM 2: 859. 1957.

Densely foliaceous evergreen tree. Leaves dark green above, glaucous below, alternate, elliptic to oblong. Panicles terminal. Flowers 3(4)-merous, bisexual. Tepals 6, equal, 3+3, obovate. Fertile stamens 9. Stigma simple. Berry globose, epicarp red when ripe. Seed one globose.

Common in evergreen forest. **Fl. & Fr.:** Feb.-June. **VN:** *Kolar maavu*. **Sp.Ex.:** LP 2923 (SACONH); VN 78836, 78924 (MH); KCJ 81452 (MH); PSAT 187164 (MH).

PHOEBE Nees, Syst. Laur. 98. 1836.

Key to the species

- la. Branchlets grey-puberulous; lateral veins distant; flowering peduncles above 7 cm long, puberulous.....*P. paniculata*
- lb. Branchlets rusty tomentose; lateral veins close; flowering peduncles below 5 cm long, tomentose.....*P. wightii*

Phoebe paniculata (Nees) Nees, Syst. Laurin. 105. 1836; FBI 5: 142. 1886; FSIHS 3: 509. 1932; FPM 2: 860. 1957; FTN 2: 212. 1987.

Evergreen trees. Leaves cuneate and narrowed at base, minutely grey-puberulous. Inflorescence panicles. Flowers pale yellow. Berries ovoid, glabrous, shiny, seated on elongated fleshy perianth-tube.

Occasional in evergreen forest. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** CECF 5739 (FRC); VS 18800 (FRC).

Phoebe wightii Meisner in DC., Prodr. 15(1). 38. 1864; FSIHS 3: 509. 1932; FPM 2: 860. 1957; FTC 3(2): 1364. 1983; FTN 2: 212. 1987. *P. paniculata* auct. non Nees 1836; FBI 5: 142. 1886.

Densely foliaceous evergreen tree. Leaves alternate, obovate to rhomboid, coriaceous. Panicle lax, terminal or axillary. Flowers bisexual. Perianth lobes 6, (sub)equal, 3+3, oblong. Fertile stamens 9. Stigma simple. Berry globose, epicarp fleshy.

Occasional in evergreen forest. **Fl. & Fr.:** April-May. **Sp.Ex.:** VN 78851, 79733 (MH); KCJ 81460 (MH).

HERNANDIACEAE Blume, Bijdr. Fl. Ned. Ind. 11: 550. 1826.

GYROCARPUS Jacq., Select. Am. 282. t. 178. f. 80. 1763.

Gyrocarpus americanus Jacq., Select. Stirp. Amer. Hist. 282. 1763; FPM 2: 869. 1957; FTC 3(2): 1367. 1983. *G. asiaticus* Willd., Sp. Pl. 4: 982. 1806; FTN 2: 213. 1987.

Smooth barked deciduous tree. Leaves ovate-lanceolate, truncate to (sub)cordate at base, entire or 3-5 lobed at margins. Flowers in corymbose cyme, subterminal, polygamous. Tepals 4-8, ovate, subequal. Stamens 4(-7), exserted. Staminodes flat. Ovary inferior, 1-celled. Drupe ovoid-globose or ovoid, ribbed, with 2-terminal wings.

Common in foot hills and dry deciduous forest. **Fl. & Fr.:** April-June. **VN:** *Thanukku maram*. **Sp.Ex.:** LP 2515 (SACONH); KNS 1849 (FRC); VS 18714, 18715 (FRC); VN 79189 (MH); PSAT 187383 (MH).

PROTEACEAE Juss., Gen. Pl. 78. 1789.

GREVILLEA R. Br. ex Knight, Trans. Linn. Soc. 10: 167. 1810.

Grevillea robusta A. Cunn. ex R. Br., Suppl. Prodr. Fl. Nov. Holl. 24. 1830; FPM 2: 869. 1957; FTC 3(2): 1368. 1983; FTN 2: 213. 1987.

Tall evergreen tree. Leaves reminiscent. Leaflets sessile, entire or pinnatifid, olive green above, silver grey silky hairy in beneath, margins recurved. Racemes appearing on the old wood, solitary 2 or a few forming a panicle. Flowers in solitary, in twos or threes. Sepals hooded, Orange yellow to golden yellow. Stamens sessile. Follicle 2-seeded. Seeds broadly winged.

Planted in high elevation. **Fl. & Fr.:** Sept.-Nov. **VN:** *Savukku maram*. **Sp.Ex.:** PSAT 187254 (MH).

THYMELAEACEAE Juss. Gen. Pl. 76. 1789.

GNIDIA L. Sp. Pl. 1: 358. 1753.

Gnidia glauca (Fresen.) Gilg., Bot. Jahrb. Syst. 19: 265. 1894; FTN 2: 214. 1987; FSIHS 2: 1133. 1988. *Lasiosiphon eriocephalus* (Meisner) Dence. in Jacq. Voy. Inde. 148. 1844; FBI 2: 197. 1878; FPM 2: 871. 1957.

Shrub. Leaves crowded towards apices of branchlets, linear-oblong. Inflorescence capitate, compact, terminal. Calyx lobes 5, oblong. Petaloid appendages 8, yellow, fleshy. Stamens 8-10, in 2-rows. Ovary oblong. Fruits ellipsoid. Seed ellipsoid.

Occasional in along the open grasslands slopes. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** LP 2938 (SACONH).

ELAEAGNACEAE Juss., Gen. Pl. 74. 1789.

ELAEAGNUS L. Sp. Pl. 121. 1753.

Key to the species

- 1a. leaves elliptic to oblanceolate; inflorescence 3-4 flowered.....*E. indica*
- 1b. Leaves ovate; inflorescence 5-7 flowered.....*E. conferta*

Elaeagnus conferta Roxb., Fl. India 1: 460. 1820; FPM 2: 873. 1957; FTN 214. 1987. *E. latifolia* L. Sp. Pl. 121. 1753; FBI 5: 202. 1886. *E. kologa* Schldlecht. in DC., Prodr. 14(2): 611. 1857; FTC 3(2): 1370. 1983.

Extensive straggler with arching branches. Leaves elliptic to oblong, dark green above, with darker rusty pustules below, subcoriaceous, sparingly scaly below. Fascicle 5-7 or more flowered. Flowers cream. Perianth lobes urceolate, lobes 4. Stamens 4, included. Style flattened. Nut obovoid, ribbed, winged.

Occasional in evergreen forest borders. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** CECF 5804, 45106 (FRC); VN 78305 (MH); KCJ 81459 (MH); PSAT 186663, 186664 (MH).

Elaeagnus indica Serv., Bull. Herb. Boissier ser. 2. 8: 393. 1908; FPM 2: 872. 1957; FTC 3(2): 1369, 1983; FTN 2: 214. 1987.

Profusely branched straggler. Leaves elliptic to oblanceolate, silvery below, occasionally on both surfaces, chartaceous, scales silvery white. Fascicles 3-4 flowered. Flowers cream, smaller. Perianth tubular-campanulate, tube cylindrical, lobes 4. Stamens 4, partly exserted. Nut obovoid, ribbed.

Occasional in forest border. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 19382 (FRC).

LORANTHACEAE Juss., Ann. Mus. Natl. Hist. Nat. 12: 292. 1808.

Key to the genera

- 1a. Each flower with 2-3 bracts.....2
- 1b. Each flower with one bract.....3
- 2a. Corolla-tube straight, below 1 cm long.....*Macrosolen*
- 2b. Corolla-tube curved, above 1.5 cm long.....*Elytranthe*
- 3a. Leaves ribbed from base; perianth lobes spirally curled when flowers open.....*Helicanthes*
- 3b. Leaves penninerved; perianth lobes not as above.....4
- 4a. Petals free.....*Helixanthera*
- 4b. Petals united.....5
- 5a. Flowers regular.....*Dendrophthoe*
- 5b. Flowers irregular.....6
- 6a. Leaves opposite.....*Scurrula*
- 6b. Leaves alternate.....*Taxillus*

DENDROPTHOE Mart., Flora. 13: 109. 1830.

Key to the species

- 1a. Branchlets trigonous; leaves fleshy.....*D. trigona*
- 1b. Branchlets terete; leaves coriaceous.....*D. falcata*

Dendrophthoe falcata (L. f.) Etting., Denkschr. Kaisel. Akad. Wiss. Math.-Naturwiss. Klasse 32: 52, 53, 58. t. 13. f. 14. 1872, var. *falcata*; FTC 3(2): 1372. 1983; FTN 2: 215. 1987. *Loranthus longiflorus* Desr. in Lam., Encycl. 3: 598. 1792; FBI 5: 214. 1886; FSIHS 3: 516. t. 447. 1932; FPM 2: 877. 1957.

Parasitic on other trees. Branchlets terete, nodes dilated. Leaves variable, more often lanceolate or elliptic-ovate, sub-coriaceous. Inflorescence racemes, bracts margin truncate. Calyx tubular. Corolla yellow, slightly inflated, lobes 5, oblong. Stamens 5.

Very common in foot hills dry deciduous forest and scrub jungles. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KA & PB 1625 (SACONH); CECF 5819, 5867m 5871 (FRC); VS 18713, 18802, 19337 (FRC); VN 78311, 79160, 78334 (MH); PSAT 187073 (MH).

Dendrophthoe trigona (Wight & Arn.) Danser ex Santapau, Rec. Bot Surv. India 16(1): 163. 1953; FTC 3(2): 1373. 1983; FTN 2: 215. 1987. *Loranthus trigonus* Wight & Arn., Prodr. Fl. Ind. Orient. 386. 1834; FBI 5: 219. 1886; FPM 2: 877. 1957.

Parasitic on other trees. Branchlets trigonous. Leaves broadly ovate-elliptic, thick coriaceous. Flowers in short racemes. Calyx flask-shaped. Corolla tube cylindric, lobes 5. Stamens 5. Occasional in deciduous forest. **Fl. & Fr.:** Sept.-Nov. **Sp.Ex.:** PSAT 187289, 187290, 187523, 187524 (MH).

ELYTRANTHE (Blume) Blume, Syst. Veg. 7: 1730.

Elytranthe parasitica (L.) Danser, Bull. Jard. Bot. Buitenzorg 3. 10: 315. 1929. *Marcosolen parasiticus* (L.) Danser, Blume 2: 36. 1936; FTN 2: 217. 1987. *E. loniceroides* (L.) G. Don, Gen. Syst. 3: 427. 1834; FPM 2: 879. 1957.

Parasitic on other trees. Leaves ovate to ovate-lanceolate, acuminate at apex. Corolla red, green at tip, lobes 6, reflexed. Fruit ovate-oblong.

Occasional in moist deciduous forest. **Fl. & Fr.:** April-Sept. **Sp.Ex.:** KNS 6918 (FRC); PSAT 187036, 187037, 187087 (MH).

HELICANTHES Danser, Verh. Kon. Akad. Wetensch., Afd. Natuurk., Sect. 2. 29(6): 55. 1933. **Helicanthes elastica** (Desr.) Danser, Verh. Akad. Wet. Afd. Natuurk. Sect. 2. 29(6): 55. 1933; FTC 3(2): 1373. 1983; FTN 2: 216. 1987. *Loranthus elasticus* Desr. in Lam., Encycl. 3: 599. 1792; FBI 5: 216. 1886; FPM 2: 878. 1957.

Parasitic on other trees. Branchlets woody, 2-chotomous. Leaves decussate, obovate to elliptic, coriaceous. Flowers in short, axillary fascicles. Bracts ovate, concave, obtuse. Calyx flask-shaped. Corolla tube split lengthwise towards one side, lobes 5, linear-lanceolate, spirally twisted. Stamens 5. Stigma obovoid.

Common in evergreen forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CAB 45591, 45593, 45595 (MH).

HELIXANTHERA Lour., Fl. Cochinch. 1: 142. 1790.

Helixanthera obtusata (Wall.) Danser, Bull. Jard. Bot. Buitenzorg ser. 3. 10: 317. 1929; FTN 2: 216. 1987. *Loranthus obtusatus* Schul. in Roem. & Schul., Syst. 7: 1650. 1830; FBI 5: 205. 1886; FSIHS 3: 514. t. 443. 1932; FPM 2: 876. 1957.

Parasitic on other trees. Branchlets terete, ferruginous tomentose. Leaves elliptic to ovate, obtuse at apex. Inflorescence pubescent especially when young. Racemes densely golden tomentose. Flowers many, reflexed, 4-angular, curved in bud, lobes 4, tomentose. Corolla dark pink. Stigma globose. Fruit ovoid, rugulose.

Rare in deciduous forests. **Fl. & Fr.:** April-June. **Sp.Ex.:** CECF 5848 (FRC).

MACROSOLEN (Blume) Blume, Syst. Veg. 7: 1731. 1830.

Macrosolen capitallatus (Wight & Arn.) Danser, Blumea 2: 36. 1936; FTN 2: 217. 1987. *Elytranthe capitellata* (Wight & Arn.) Engler in Engler & Prantl, Pflanzenf. 3(1): 189. 1889; FSIHS 518. t. 451. 1932; FPM 2: 879. 1957.

Parasitic on other tree species. Branches 2-angular, glabrous. Leaves simple, elliptic-lanceolate, coriaceous. Flowers 2-4 together, nearly sessile. Bracts and bracteoles ovate to orbicular. Calyx cylindric, apex truncate with short rounded lobes. Corolla yellow to white in the tubular part and scarlet green at apex, lobes 6, linear. Stamens 6. Berry purple-black when ripe, ellipsoid.

Occasional in deciduous forest. **Fl. & Fr.:** April-June. **Sp.Ex.:** VN 78307 (MH).

SCURRULA L., Sp. Pl. 1: 110. 1753.

Key to the species

- la. Leaves rounded to cordate at base.....***S. cordifolia***
- lb. Leaves obtuse to acute at base.....***S. parasitica***

Scurrula cordifolia G. Don, Gen. Hist. 3: 421. 1834; FTN 2: 217. 1987. *Loranthus cordifolius* Wall., Fl. Ind. (ed.) Carey & Wall. 2: 222. 1824; FBI 5: 209. 1886; FPM 2: 876. 1957.

Parasitic on other tree species. Leaves alternate, oblong or orbicular-ovate, whitish. Inflorescence a condensed raceme, fascicled at nodes of old branches, with 30-40 flowers. Bracts

ovate. Calyx truncate, lobes obscure. Corolla orange-tawny, split down on one side from above the middle, lobes 4. Stamens 4.

Occasional in evergreen forest. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** PSAT 186918 (MH).

Scurrula parasitica L., Sp. Pl: 110. 1753; FTC 3(2): 1374. 1983; FTN 2: 217. 1987. *Loranthus buddlejoides* Desv. in Lam., Encycl. 3: 600. 1792; FPM 2: 876. 1957.

Parasitic on other tree species. Branchlets tawny-tomentose. Leaves (sub)opposite, broadly elliptic or ovate, coriaceous, rusty tomentose. Flowers zygomorphic, axillary racemes, buds acute. Bracts ovate. Calyx truncate, pulverulent. Corolla orange-yellow, lobes 4, lanceolate. Stamens 4. Stigma obovoid-capitate.

Occasional in hill station. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** CECF 5854, 5857 (FRC); VS 18620, 18621 (FRC); CAB 45185, 45186 (MH), VN 78364, 79090 (MH); KCJ 81288 (MH).

TAXILLUS Tiegh., Bull. Soc. Bot. France. 42: 256. 1895.

Key to the species

- 1a. Leaves not as above; corolla densely villous.....2
- 1b. Leaves obovate-spathulate; corolla glabrous.....*T. cuneatus*
- 2a. Calyx-teeth irregularly lobed; corolla rusty-villous.....*T. recurvus*
- 2b. Calyx-teeth regularly lobed; corolla floccose-woolly.....*T. tomentosus*

Taxillus cuneatus Danser, Bull. Jard. Bot. Buitenzorg. Ser. 3. 10: 354. 1929; FTC 3(2): 1376. 1983; FTN 2: 217. 1987. *Loranthus cuneatus* B. Heyne ex Roth. Nov. Pl. Sp. 193. 1821; FBI 5: 214. 1886; FSIHS 3: 515. t. 446. 1932; FPM 2: 877. 1957.

Parasitic on other trees. Leaves obovate-spathulate. Cyme 3-flowered. Calyx margin toothed. Corolla lobes lanceolate. Stamens 5. Ovary cylindric.

Occasional in hill station. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1823 (SACONH); CECF 45348 (MH); KCJ 81361 (MH).

Taxillus recurvus Tiegham, Bull. Soc. Bot. France 42: 256. 1895; FTN 2: 218. 1987. *Loranthus recurvus* Wall. ex. DC., Prodr. 4: 299. 1830; FBI 5: 213. 1886; FSIHS 3: 515. t. 445. 1932; FPM 2: 877. 1957.

Parasitic on other trees. Branchlets rusty. Leaves obovate, blackish green above when dry, thinly grey-pubescent below. Cymes to 6-flowered, rusty. Bracts ovate, free from the calyx. Calyx lobes 5. Corolla yellowish green, tube curved, split half-way, lobes 5. Stamens 5. Drupe oblong to flask-shaped.

Occasional in moist deciduous and evergreen forest. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** PSAT 187494, 187496 (MH).

Taxillus tomentosus Tiegh., Bull. Soc. Bot. France 42: 256. 1895; FTN 2: 218. 1987. *Loranthus tomentosus* B. Heyne ex Roth, Nov. Pl. Sp. 191. 1821; FBI 5: 212. 1886; FSIHS 3: 514. t. 444. 1932; FPM 2: 876. 1957.

Parasitic on other trees. Branchlets tawny-tomentose. Leaves (sub)orbicular, rarely spathulate, pilose pubescent. Flowers in axillary fascicles. Bracts oblanceolate, Calyx margins obscurely 2-4 toothed, white pilose. Corolla greenish yellow, red inside, lobes 5, linear-lanceolate. Stamens 5. Ovary oblong-cylindric.

Occasional in hill station. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 5831 (FRC); VS 18880, 20709 (FRC); CECF 45268 (MH); KCJ 81453 (MH).

SANTALACEAE R. Br., Prodr.: 350. 1810.

Key to the genera

- 1a. Flowers bisexual, brownish purple; disc lobes free.....*Santalum*
1b. Flowers unisexual, greenish; disc lobe connate.....*Osyris*

OSYRIS L., Sp. Pl. 2: 1022. 1753.

Osyris lanceolata Hochst. & Steud., Unio Itin. In sched., W.Schimper s.n.. 1832. *O. quadripartita* Salzm. ex. Decne., Ann. Sci. Nat. Bot. ser. 2. 6: 65. 1836, var. *quadripartita*, FTN 2: 219. 1987. *O. wightiana* Wall, ex Wight, Icon. Pl. Ind. Orient. t. 1853. 1852; FTC 3(2): 1381. 1983. *O. arborea* Wall. ex DC., Prodr. 14: 633. 1857; FBI 5: 132. 1886; FSIHS 3: 522. 1932; FPM 2: 883. 1957.

Monoecious or dioecious shrub. Leaves elliptic-ovate to lanceolate, thin coriaceous, glabrous to glaucescent. Flowers(s) 3-merous, solitary or in short, axillary cymes. *Male flowers*: tepals 3, ovate, thick, spreading; stamens 3, opposite tepals free. *Female flowers*: tepals 3, thick, decurrent and adnate to the ovary, free. Ovary inferior, oblong-cylindric. Drupe ovoid-globose.

Common in high altitude open slopes. **Fl. & Fr.**: Throughout the year. **VN**: *Vella santhanam*. **Sp.Ex.**: CECF 8864, 46079, 46080, 46081, 46102, 46103 (FRC); CAB 46100, 46101 (MH); VN 79238 (MH); KCJ 81365 (MH); PSAT 186713, 186714 (MH).

SANTALUM L., Sp. Pl. 1: 349. 1753.

Santalum album L., Sp. Pl. 349. 1753; FBI 5: 231. 1886; FPM 2: 883. 1957; FTC 3(2): 1381. 1983; FTN 2: 219. 1987.

Evergreen tree. Leaves opposite below, alternate above, elliptic-ovate to lanceolate, subcoriaceous. Inflorescence of paniculate cymes, trichotomous, terminal and axillary. Flowers bisexual, 5-merous, brownish purple. Tepals 5, equal. Stamens 5. Ovary superior, globose. Disc of 5, fleshy. Drupe globose.

Plains and hill slopes. Abundant on the lower slopes. **Fl. & Fr.**: Throughout the year. **Sp.Ex.**: LP 2586 (SACONH); KA & PB 1633 (SACONH); KNS 6914 (FRC); CECF 8874 (FRC); VS 18623, 18624 (FRC); CAB 46059, 46060, 46061, 83500 (MH); VN 78406, 79100 (MH); KCJ 81183 (MH); PSAT 187056, 187351, 187352 (MH).

VISCACEAE Batsch, Tab. Affin. Regni Veg.: 240. 1802.

VISCUM L., Sp. Pl. 2: 1023. 1753.

Key to the species

- 1a. All leafless; internodes flat, angular or terete; inflorescence sessile.....2
1b. All leafy; internodes terete; inflorescence sessile or pedunculate.....4
2a. Internodes distinctly 4-angled; flowers arranged laterally.....*V. angulatum*
2b. Internodes terete or flattened; flowers arranged laterally or encircling the node.....3
3a. Internodes flattened; inflorescences laterally placed.....*V. articulatum*
3b. Internodes terete; inflorescences lateral or around the node.....*V. ramosissimum*
4a. Central flower female; leaves lanceolate, oblong or ovate-acute.....*V. cruciatum*
4b. Central flower male; leaves cuneate, subtruncate, ovate, obovate or lanceolate.....5
5a. Leaves falcate; young fruits smooth, flask-shaped; inflorescence sessile.....*V. monoicum*
5b. Leaves variously shaped; young fruits smooth / warty; inflorescence sessile / pedunculate....6
6a. Young fruits warty; internodes longitudinally grooved; leaves ovate to oblong....*V. heyneanum*
6b. Young fruits smooth; internodes not grooved; leaves lanceolate /cuneate.....*V. capitellatum*

Viscum angulatum B. Heyne ex DC., Prodr. 4: 283. 1830; FBI 5: 225. 1886; FPM 2: 881. 1957; FTN 2: 218. 1987.

Parasitic herb on trees. Branches 4-angled, drooping, slightly broadened near the apex of the internodes, smooth. Flowers solitary or 3-together, axillary, all female or all male or middle one female and laterals male. Perianth lobes 4, triangular. Stamens 4, epiphyllous. Ovary obovoid, style short or absent. Berry globose, yellowish.

Occasional in dry and moist deciduous forest. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** CECF 5893 (FRC); VS 19338, 19339, 19340 (FRC); CECF 45889 (MH).

Viscum articulatum Burm. f., Fl. Ind. 311. 1768; FBI 5: 226. 1886; FPM 2: 881. 1957; FTC 3(2): 1377. 1983; FTN 2: 218. 1987.

Parasitic herb on trees. Lower internodes terete, upper ones densely flattened, prominently striate, gradually narrowed below, yellowish green. Flowers triads in axillary fascicles. Male fewer than female. *Male flowers:* tepals 4, ovate; stamens 4. *Female flowers:* tepals 4, ovate, obtuse. Ovary globose, truncate. Berry ovoid-globose, glossy-white.

Common in dry deciduous forest. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** KNS 11888, 11889 (FRC); VS 18622, 19336 (FRC); KCJ 81186 (MH); PSAT 187059, 187293, 187294, 187450, 187451 (MH).

Viscum capitellatum Sm. in Rees, Cyclop. 37: n. 18. 1818; FBI 5: 225. 1886; FPM 2: 881. 1957; FTN 2: 218. 1987.

Parasitic on other Loranthaceae species as well as on other trees. Stem cylindrical, rugose. Leaves obovate, obtuse, cuneate at base, con-duplicate folded, easily shed. Flowers triads in axillary fascicles. *Male flowers:* tepals 4, ovate; stamens 4. *Female flowers:* tepals 4, ovate, obtuse. Ovary globose. Berry ovoid-globose. Fruit ellipsoid.

Occasional in deciduous forest. **Fl. & Fr.:** May-June. **Sp.Ex.:** CECF 5873, 5885 (FRC).

Viscum cruciatum Sieber ex Boiss, Voy. Bot. Espagne 2: 274. 1840. *V. orientale* Willd., Sp. Pl. 4: 737. 1806; FBI 5: 224. 1886; FPM 2: 880. 1957; FTC 3(2): 1378. 1983; FTN 2: 219. 1987.

Parasitic on trees. Internodes terete, faintly striate. Leaves obovate to spatulate, coriaceous, margins entire to undulate. Flowers in axillary dichasia, usually triads. Female raised, Male subsessile. *Male flowers:* tepals 4, ovate, concave; stamens 4, ovate. *Female flowers:* raised by a thick, cylindric stalk; tepals 4, triangular-ovate, concave; stigma rounded. Berry obovoid.

Common in dry deciduous forest. **Fl. & Fr.:** Feb.-Mar. **Sp.Ex.:** CECF 5877 (FRC); PSAT 187090 (MH).

Viscum heyneanum DC., Prodr. 4: 278. 1830; FTN 2: 218. 1987. *V. verruculosum* Wight & Arn., Prodr. Fl. Ind. Orient. 379. 1834; FBI 5: 224. 1886; FSIHS 3: 520. 1932; FPM 2: 881. 1957. *V. orbiculatum* Wight, Icon. Pl. Ind. Orient. t. 1016, 1845; FBI 5: 224. 1886; FSIHS 3: 520. 1932; FPM 2: 881. 1957.

A large parasitic herb, branchlets terete, suberect. Leaves ovate-lanceolate, 3-5 ribbed, glandular. Cymes pedunculate, 3 flowered, 3-8 in the axils, slender. Flowers in each triad all male or all female or middle one female and laterals male, sessile. Berry ellipsoid.

Common in the deciduous forest. **Fl. & Fr.:** June-Sept. **Sp.Ex.:** VS 18803 (FRC); KCJ 187038, 187039 (MH).

Viscum monoicum Roxb. ex DC., Prodr. Syst. Nat. 4: 278. 1830; FBI 5: 224. 1886; FSIHS 3: 520. 1932; FPM 2: 880. 1957.

Parasitic on trees, internodes generally terete. Leaves opposite, elliptic-lanceolate, often falcate, curvinervous. Inflorescence mostly axillary, up to 6 per node, dischasia subsessile bearing 3-5 flowers. Fruit mostly oblong, slightly rounded at the base.

Occasional in moist and evergreen forest. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** VN 79027 (MH).

Viscum ramosissimum Wall., ex Wight & Arn., Prodr. Fl. Ind. Orient. 3. t. 1017. 1834; FBI 5: 225.1886; FSIHS 3: 520. 1932; FPM 2: 881. 1957; FTC 3(2): 1378. 1983; FTN 219. 1987.

Parasitic on trees. Internodes terete, faintly striate. Leaves from lower branches, obovate-spathulate, flattened. Flowers triads in fascicles. *Male flowers* tepals 5, triangular-ovate; stamens 4, ovate. *Female flowers* tepals 4, ovate, concave. Ovary oblong-globose, truncate. Berry globose. Common in foothills and dry deciduous forest. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** KNS 2003, 81184, 81272 (FRC).

EUPHORBIACEAE Juss., Gen. Pl. 384. 1789.

Key to the genera

- 1a. Flowers without perianth, arranged in cyathia.....*Euphorbia*
- 1b. Flowers with perianth not arranged in cyathia.....2
- 2a. Leaves compound, trifoliate.....*Bischofia*
- 2b. Leaves simple.....3
- 3a. Vines; fruiting perianth with stinging hairs.....4
- 3b. Other than vines; fruiting perianth with stinging hairs.....5
- 4a. Capsule sessile, in spike; whole plant with stinging hairs.....*Tragia*
- 4b. Capsule stalked, in involucre clusters; fruiting perianth alone have stinging hairs.....*Dalechampia*
- 5a. Leaves lobed.....6
- 5b. Leaves not lobed.....7
- 6a. leaves 3-5-lobed.....*Jatropha*
- 6b. Leaves 5-7-lobed.....*Ricinus*
- 7a. Fruit an indehiscent berry or drupe.....8
- 7b. Fruit a dehiscent capsule (except *Breynia*).....14
- 8a. Fruit a juicy berry or drupe.....*Phyllanthus* (p.p)
- 8b. Fruit a dry or fleshy drupe, not juicy.....9
- 9a. Leaves penninerved.....10
- 9b. Leaves palminerved (3-5-nerved from base).....13
- 10a. Drupe 3-celled; leaf margin serrulate.....*Putranjiva*
- 10b. Drupe either 1 or 2-celled; leaf margin entire.....11
- 11a. Drupe 1-celled, 2-seeded; leaf apex acute-acuminate.....12
- 11b. Drupe 2-celled, 4-seeded; leaf apex obtuse-retuse.....*Bridelia*
- 12a. Drupes in axillary clusters; seeds arillate.....*Drypetes*
- 12b. Drupes in terminal and/or axillary spikes; seeds not arillate.....*Antidesma*
- 13a. Drupe < 1.5 cm across; epicarp dry; endocarp crustaceous.....*Trewia*
- 13b. Drupe > 2.5 cm across; epicarp fleshy; endocarp stony.....*Givotia*
- 14a. Capsule wall echinate, glandular, or densely hairy.....15
- 14b. Capsule wall without appendages or hairs.....18
- 15a. Herbaceous.....16
- 15b. Trees.....*Mallotus*
- 16a. Leaves linear-lanceolate; capsule with 2 vertical rows of prickles along the valves.....*Microstachys*
- 16b. Leaves other than linear-lanceolate; capsule without prickles.....17
- 17a. Leaf-apex acute; capsule wall warty; seeds carunculate.....*Croton*
- 17b. Leaf-apex obtuse; capsule wall stellate-tomentose; seeds without caruncle.....*Chrozophora*
- 18a. Capsule 3-seeded.....19
- 18b. Capsule 6-seeded.....25
- 19a. Leaves palminerved; seeds carunculate.....*Manihot*
- 19b. Leaves penninerved; seeds not caruncle.....20
- 20a. Herbs or shrubs < 3 m.....21

20b. Trees, >6 m.....	23
21a. Capsule subglobose, obscurely 3-lobed.....	<i>Homonoia</i>
21b. Capsule depressed, distinctly 3-lobed.....	22
22a. Stamens less than 5; seeds arillate.....	<i>Micrococca</i>
22b. Stamens more than 8; seeds not arillate.....	<i>Acalypha</i>
23a. Capsules aggregated exclusively in axillary fascicles; seeds arillate.....	<i>Suregada</i>
23b. Capsules aggregated in terminal and/or axillary spikes; seeds not arillate.....	24
24a. Latex milky, acrid; capsule valves elastically twisting.....	<i>Excoecaria</i>
24b. Latex watery or 0; capsule valves not twisting.....	<i>Epiprinus</i>
25a. Fruiting perianth accrescent; capsule indehiscent.....	<i>Breynia</i>
25b. Fruiting perianth not accrescent; capsule dehiscent.....	26
26a. Leaf-apex obtuse to retuse; capsule wall fleshy or coriaceous.....	<i>Flueggea</i>
26b. Leaf-apex acute to acuminate; capsule wall thin or crustaceous.....	27
27a. Branchlets phyllanthoid.....	28
27b. Branchlets not phyllanthoid.....	<i>Glochidion</i>
28a. Stipule fimbriate; stamens 5, united basally into column and free above.....	<i>Meineckia</i>
28b. Stipule not fimbriate; stamens 3, if 5 then 2 inner ones connate and outer free.....	<i>Phyllanthus</i> (p.p)

ACALYPHA L., Sp. Pl. 2: 1003. 1753.

Key to the species

1a. Leaf margin dentate; styler branches many, reddish.....	<i>A. wilkesiana</i>
1b. Leaf margin crenate to/or serrate; styler branches < 12, green.....	2
2a. Male and female flowers on separate spike; male spikes below, female spikes above.....	3
2b. Male and female flowers on same spike; female flowers below; male flowers above.....	4
3a. Female spike branched; bracts smaller than flowers.....	<i>A. paniculata</i>
3b. Female spike unbranched; bracts larger than flowers.....	<i>A. alnifolia</i>
4a. Petiole shorter than, leaf blade; leaf-apex gradually acuminate.....	<i>A. fruticosa</i>
4b. Petiole as long as, or longer than, leaf blade; leaf-apex acute or abruptly acuminate.....	5
5a. Bracts 3-5-fid, lanceolate, margin entire, glandular hairy.....	<i>A. brachystachya</i>
5b. Bracts entire, campanulate, margin dentate or aciculate.....	6
6a. Spikes below 3 cm long; bracts aciculate.....	<i>A. ciliata</i>
6b. Spikes above 5 cm long; bracts dentate.....	7
7a. Bracts larger than capsule; leaf-base rounded to shortly attenuate.....	<i>A. indica</i>
7b. Bracts smaller than capsule; leaf base cuneate.....	<i>A. lanceolata</i>

Acalypha alnifolia J.G. Klein ex Willd., Sp. Pl. 4: 525. 1805; FBI 5: 415. 1887; FPM 2: 930. 1957; FTC 3(2): 1405. 1983; FTN 2: 220. 1987.

Shrub, branchlets densely hispid. Leaves elliptic-ovate, base rounded, margin crenate to serrate. *Male spike* in slender, elongate, cylindrical spikes, usually in lower axils; anthers vermiculiform. *Female spike* short, (sub)terminal; bracts cupular, dentate, enclosing ovary; ovary tomentose.

Common in dry foothills. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 18777 (FRC); SRR 81015 (MH); PSAT 186874 (MH).

Acalypha brachystachya Hornem., Enum. Pl. Hort. Hafn. Rev. ed. 1. 1807; FBI 5: 416. 1887; FPM 2: 930. 1957; FTC 3(2): 1405. 1983; FTN 2: 220. 1987.

Herb, branchlets striate. Leaves ovate-obovate, flaccid when dry, base rounded or subcordate, margin serrate. Spikes axillary, terminating in an allomorphic female flower. *Male flowers* many from the middle; tepals tomentose-glandular; anthers vermiculiform, subsessile.

Female flowers few; bracts lanceolate, 3-5-fid, glandular hairy. Allomorphic flowers apically laciniate.

Common in moist and shady places of the deciduous forest. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** LP 963 (SACONH); VN 79740, 79748 (MH).

Acalypha ciliata Forssk., Fl. Aeg.-Arab. 162. 1775; FBI 5: 417. 1887; FPM 2: 930. 1957; FTC 3(2): 1406. 1983; FTN 2: 220. 1987.

Subshrub, branchlets striate, strigose. Leaves ovate, base rounded, margin serrate, usually as long as leaf blade. Spikes short, axillary, terminating in an allomorphic flower. *Male flowers* in upper half, minute; anthers vermiculiform, subsessile. *Female flowers* a few crowded at the lower half, bracts folded, campanulate, acuminate. Allomorphic flowers with 2, fimbriate whorls.

Common in foothills and scrub jungles. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** VS 19108 (FRC).

Acalypha fruticosa Forssk., Fl. Aeg.-Arab. 161. 1775; FBI 5: 415. 1887; FPM 2: 931. 1957; FTC 3(2): 1406. 1983; FTN 2: 220. 1987.

Shrub. Leaves ovate, base truncate to rounded, glandular below, margin crenate to dentate. Spikes axillary. *Male spikes* on terminating spikes; tepals tomentose with sessile glands outside; anthers subglobose to oblong. *Female flowers* 3-5, at basal half; bracts campanulate, folded, crenate.

Very common and gregarious in the scrub jungles and foothills. **Fl. & Fr.:** July-Sept. VN: *Aathaathazhai*. **Sp.Ex.:** CECF 6085 (FRC); KNS 6980 (FRC); VS 19122, 19123 (FRC); CECF 48250 (FRC); VN 78403, 78978 (MH); PSAT 186494, 186495 (MH).

Acalypha indica L., Sp. Pl. 1003. 1753; FBI 5: 416. 1887; FPM 2: 930. 1957; FTC 3(2): 1408. 1983; FTN 2: 220. 1987.

Herb, branchlets striate, thinly pubescent. Leaves broadly ovate, base rounded to shortly attenuate, margin crenate to serrate. Spikes axillary. *Male flowers* from above the middle; anthers vermiculiform; terminating in an allomorphic flower, long stalked. *Female flower* (9) 12-15 at the lower half; bracts folded, campanulate; pistils 2, one sterile. Ovary hispid.

Common in waste places and moist shady places of plains. **Fl. & Fr.:** Throughout the year. VN: *Kuppameni*. **Sp.Ex.:** VS 19112 (FRC); KR 138927, 138928 (MH).

Acalypha lanceolata Willd., Sp. Pl. 4: 524. 1805; FPM 2: 931. 1957; FTC 3(2): 1408. 1983; FTN 2: 220. 1987. *A. fallax* Muell.-Arg., Linnaea 34: 43. 1865; FBI 5: 416. 1887.

Herbs. Leaves alternate, broadly ovate, nearly triangular, rather coarsely toothed; petiole to 4 cm long. Spikes axillary, erect. $\frac{3}{4}$ th of the spikes is occupied by female bracts and the male flowers are clustered only at the $\frac{1}{4}$ th upper portion. Bracts campanulate or cup-shaped, folded, 3, crenate-dentate and gland-dotted.

Occasional in wastelands in plains. **Fl. & Fr.:** Aug.-Sept. **Sp.Ex.:** PSAT 186849 (MH).

Acalypha paniculata Miq., Fl. Ned. Ind. 1(2): 406. 1859; FBI 5: 415. 1887; FPM 2: 930. 1957; FTC 3(2): 1409. 1983. *A. racemosa* B. Heyne ex Baill., Etud. Gen. Euphorb. 443. 1858; FTN 2: 221. 1987.

Herb, branchlets striate, thinly pubescent. Leaves broadly ovate, base truncate to rounded, margin crenate to serrate. *Male flowers* in slender, elongate, axillary spikes, at times terminating in sterile female flowers; anthers vermiculiform. *Female flowers* in terminal panicles; bracts minute, each subtending three female flowers. Ovary glandular ciliate.

Occasional in moist and shady places of the hill station. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 19116, 19117 (FRC); SRR 78104 (MH); VN 79124 (MH); PSAT 187112 (MH).

Acalypha wilkesiana Mull. Arg. in DC., Prodr. 15(2): 817. 1866, var. *wilkesiana*; FPM 2: 930. 1957; FTC 3(2): 1409. 1983; FTN 2: 221. 1987.

A much-branched monoecious shrub with variegated leaves, young shoots tomentose. Leaves broadly ovate, rounded to cuneate or cordate, crenate to serrate at margin. Inflorescence axillary solitary, unisexual, fairly dense flowered. *Male flowers* sessile; buds tetragonal. *Female flowers* sessile; sepals 3-4, ovate-lanceolate; ovary sub-globose to trilobate. Commonly planted as ornamental. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1471 (SACONH).

ANTIDESMA Burm. ex L., Sp. Pl. 2: 1027. 1753.

Key to the species

- 1a. Leaves ovate or rhomboid; spike 5 cm long; stamens 2.....*A. acidum*
1b. Leaves broadly oblong; spikes 10 cm long; stamens 3-5.....*A. montanum*

Antidesma acidum Retz., Observ. Bot. 5: 30. 1788; FTC 3(2): 1412. 1983; FTN 2: 242. 1987. *A. diandrum* (Roxb.) B. Heyne ex Roth, Nov. Pl. Sp. 369. 1821; FBI 5: 361. 1887; FPM 2: 908. 1957.

Tree. Leaves obovate. Spikes terminating the branchlets, bracteoles concave. Female flowers pedicellate. Tepals 5, ovate. Stamens 2. Pistillode 0. Ovary obovoid. Drupe oblong, ericarp crinkled when dry.

Occasional in forest border in hill station. **Fl. & Fr.:** July-Aug. **VN:** *Kattu koyya*. **Sp.Ex.:** VN 79114 (MH).

Antidesma montanum Blume, Bijdr. Fl. Ned. Ind. 1124. 1827. *A. menasu* (Tul.) Miq. ex Muell.-Arg. in DC., Prodr. 15: 257. 1866; FBI 5: 364. 1887; FSIHS 3: 534. t. 466. 1932; FPM 2: 908. 1957; FTC 3(2): 1413. 1983; FTN 2: 242. 1987.

Tree, tender leaves puberulous. Leaves broadly oblong, base truncate to broadly acute. Panicles terminal or axillary. Bracteoles concave. Flowers pedicellate. Tepals 3, free, concave. Stamens 5. Ovary globose. Drupe globose.

Occasional in evergreen forest. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** VS 18791 (FRC).

BISCHOFIA Blume, Bijdr. Fl. Ned. Ind. 1168. 1826.

Bischofia javanica Blume, Bijdr. Fl. Ned. Ind. 1168. 1827; FBI 5: 345. 1887; FPM 2: 918. 1957; FTC 3(2): 1485. 1983; FTN 2: 241. 1987.

A large deciduous tree, branches spreading. Leaves 3-foliate, alternate, stipulate, leaflet glabrous elliptic-ovate, margin serrate, glabrous. Flowers unisexual, green, in axillary and lateral pedunculate panicle racemes. *Male flowers* tepals 5, obovate, concave, imbricate; stamens 5. *Female flowers* tepals 5, linear lanceolate; ovary superior, globose. Fruit a berry, globose, reddish-brown. Seeds 3, trigonus.

Occasional in moist deciduous and evergreen forest. **Fl. & Fr.:** June-Aug. **Sp.Ex.:** KNS 6983 (FRC); VS 18795 (FRC); VN 78947 (MH); KCJ 81429 (MH).

BREYNIA L., Sp. Pl. 1: 503 (1753).

Key to the species

- 1a. Fruiting perianth notably enlarged; capsule depressed-globose; style exserted.....*B. retusa*
1b. Fruiting perianth hardly enlarged; capsule (sub)globose; style half-sunken.....*B. vitis-idea*

Breynia retusa (Dennst.) Alston, Ann. Roy. Bot. Gard. (Peradeniya) 11: 204. 1929; FTC 3(2): 1415. 1983; FTN 2: 222. 1987. *B. patens* (Roxb.) Rolfe, J. Bot. 11: 359. 1882; FBI 5: 329. 1887; FSIHS 3: 530. t. 461. 1932; FPM 2: 912. 1957.

Shrub. Leaves elliptic-oblong, base rounded to (sub)acute. Male flowers staminal column basally narrowed. Female flowers perianth 6-lobed, thick fleshy, wavy. Ovary cupular, obscurely 6-lobed. Capsule depressed-globose.

Common in deciduous forest. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** KNS 6982, 8770, 8771 (FRC); VS 18627, 18775 (FRC); CECF 72921, 84996 (MH); VN 79619 (MH); PSAT 186572, 186573, 186790, 186791, 187415, 187497, 187498, 187533, 187534 (MH).

Breynia vitis-idaea (Burm.f.) C.E.C. Fischer, Bull. Misc. Inform. Kew 1932: 65. 1932; FTC 3(2): 1416. 1983; FTN 2: 222. 1987. *B. rhamnoides* (Retz.) Muell.-Arg. in DC., Prodr. 15(2): 440. 1866; FBI 5: 330. 1887; FSIHS 3: 530. 1932; FPM 2: 912. 1957.

Shrub. Leaves elliptic-ovate, base rounded. Male flowers yellowish, perianth lobes 6, staminal column uniformly thick. Female flowers reddish, perianth lobes 6, campanulate. Ovary truncate, obscurely 3-6-lobed. Capsule (sub)globose.

Common in scrub jungles. **Fl. & Fr.:** Feb.-April. **VN.:** *Sempula*. **Sp.Ex.:** KA & PB 1709 (SACONH); VS 18774 (FRC); VN 79639 (MH); KCJ 81295 (MH); PSAT 186908, 187093 (MH).

BRIDELIA Willd., Sp. Pl. 4: 978. 1806.

Bridelia retusa (L.) A. Juss., Euphorb. Gen. 109. 1824; FBI 5: 268. 1887 p.p.; FPM 2: 896. 1957; FTC 3(2): 1417. 1983; FTN 2: 223. 1987. *B. crenulata* Roxb., Fl. Ind. 3: 734. 1832; FTC 3(2): 1416. 1983; FTN 2: 223. 1987.

Dioecious tree. Leaves alternate, simple, elliptic-oblong, (sub)coriaceous, puberulous below. Flowers pedicellate or not, in axillary clusters. Male flowers tepals 10, biseriate, valvate; stamens 5, Monadelphous; pistillodes bifurcate; disc annular. Female flowers tepals 10, biseriate, lanceolate, valvate; ovary half-inferior, globose; style 2, stigmatiferous. drupe globose.

Common in deciduous forest. **Fl. & Fr.:** May-Sept. **VN:** *Mul vengai*. **Sp.Ex.:** LP 2223, 2969 (SACONH); VN 78297 (MH); SRR 80570 (MH); PSAT 186974 (MH); KNS 13385, 13386 (FRC); VS 18783 (FRC); CECF 46427 (MH); VN 78769 (MH).

CHROZOPHORA Neck. ex A.Juss., Euphorb. Gen. 27. 1824.

Chrozophora rottleri (Geiseler) A. Juss. ex Spring., Syst. Veg. 3: 850. 1826; FPM 2: 921. 1957; FTC 3(2): 1418. 1983; FTN 2: 223. 1987.

Monoecious herb, branchlets fulvous-tomentose. Leaves alternate, broadly ovate, (sub)coriaceous. Stipule deciduous. Racemes (sub)terminal, densely tomentose. Male flowers (sub)sessile, crowded in upper axils; tepals 10, biseriate; stamens 12-15, in 2 series. Female flowers pedicellate in lower; tepals 10, biseriate; ovary globose. Capsule depressed.

Occasional in plains. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 18780, 23983, 23984, 23985 (FRC).

CROTON L., Sp. Pl. 2: 1004. 1753.

Croton bonplandianus Baill., Adansonia 4: 339. 1864; FTC 3(2): 1420. 1983; FTN 2: 224. 1987. *C. sparsiflorus* Morong, Ann. New York Acad. Sci. 7: 221. 1893; FPM 2: 920. 1957.

Subshrub, tender parts with white warty outgrowth. Leaves ovate-lanceolate, margin serrulate. Inflorescence in terminal racemes. *Male flowers* tepals 10, ovate-oblong. *Female flowers* tepals 5, lanceolate, valvate. Ovary tomentose. Capsule of 3, bivalved cocci, epicarp warty. Seeds oblong.

Common in wastelands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2513 (SACONH); VS 18625 (FRC); PSAT 187205 (MH).

DALECHAMPIA L., Sp. Pl. 2: 1054. 1753.

Dalechampia velutina Wight, Icon. Pl. Ind. Orient. 5: 1881. 1852; FBI 5: 467. 1888; FPM 2: 934. 1957; FTN 2: 225. 1987. *D. scandens* L., Sp. Pl. 1054. 1753, var. *velutina* (Wight) Muell.-Arg. in DC., Prodr. 15: 1245. 1866; FTC 3(2): 1422. 1983.

Vine. Leaves simple, 3(5)-lobed, puberulous above, thinly pubescent below, base cordate, margin entire to serrulate. *Male flowers* tepals 3(4), obovate, concave. *Female flowers* tepals 6, oblong; pinnatifid.

Occasional in hill station. **Fl. & Fr.:** Dec.-Jan. **Sp.Ex.:** KNS 12078, 12079, 12080 (FRC); KCJ 81394 (MH).

DRYPETES Vahl, Eclog. Amer. 3: 49. 1810.

Drypetes malabarica (Bedd.) Airy Shaw, Kew Bull. 23: 56. 1969; FTN 2: 226. 1987. *Cyclostemon malabaricus* Bedd., Fl. Sylv. S. India Forest's Man. Bot.: p. 199. 1873; FBI 5: 341. 1887; FPM 2: 911. 1957.

A large evergreen tree. Leaves simple, alternate, oblong, base oblique, coriaceous. Stipules lateral, small, caducous. Flowers unisexual, reddish-yellow, fascicled on old wood, densely fulvous tomentose. Tepals 4, broadly ovate. Stamens 30-40. Ovary superior, globose. Stigma 4-lobed, peltate, black. Fruit a drupe, subglobose.

Occasional in riverine forest. **Fl. & Fr.:** Dec.-June. **Sp.Ex.:** LP 1464 (SACONH).

EPIPRINUS Griff., Notul. Pl. Asiat. 4: 487. 1854.

Epiprinus mallotiformis (Muell.-Arg.) Croizat, J. Arnold Arbor. 23: 53. 1942; FTC 3(2): 1424. 1983; FTN 2: 227. 1987. *Symphyllia mallotiformis* Muell.-Arg., Linnaea 34: 156. 1865; FPM 2: 925. 1957.

Monoecious evergreen tree. Leaves broadly elliptic-ovate, (sub)coriaceous. Stipules 2. Spike interrupted, (sub)terminal. Bracts lanceolate. *Male flowers* many, clustered; tepals 4-6, ovate, chartaceous; stamens 4, free, alternating with tepals. *Female flowers* fewer; tepals 5-8, unequal, globose. Disc 0. Capsule 3-lobed, depressed. Seeds globose.

Occasional in evergreen forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VN 78866 (MH); SRN 80565 (MH).

EUPHORBIA L., Sp. Pl. 1: 450. 1753.**Key to the species**

- 1a. Plants armed; leafless or deciduous.....2
- 1b. Plants unarmed; leaves well developed.....5
- 2a. Flowering twigs leafless; branchlets angled, without leaf-scars.....3
- 2b. Flowering twigs leafy; branchlets terete with leaf scars.....4
- 3a. Branchlets exclusively 3-angled, spirally twisted; ovary sharply 3-angled.....*E. tortilis*
- 3b. Branchlets 3-5-angled, not so twisted; ovary bluntly 3-angled.....*E. antiquorum*
- 4a. Subshrub <1 m; leaves < 5 x 3 cm; bracts red; spines > 1 cm long.....*E. millii*
- 4b. Tree > 8-12 m; leaves > 10 x 5 cm; bracts green; spines < 0.5 cm long.....*E. nivulia*
- 5a. Shrub > (2)3 m.....6
- 5b. Herb < 1 m.....8
- 6a. Involucre with basal rim.....*E. umbellata*
- 6b. Involucre without basal rim.....7
- 7a. Leaves deciduous; branchlets articulate, subsucculent.....*E. tirucalli*
- 7b. Leaves persistent; branchlets not so.....*E. pulcherrima*
- 8a. Leaves alternate below, opposite to whole above, estipulate.....9

- 8b. Leaves opposite, decussate or distichous, stipulate.....11
 9a. Cyathia axillary, solitary; glands 4, horned; branchlets umbellate.....*E. rothiana*
 9b. Cyathia in terminal clusters; gland 1, hornless; branchlets not so.....10
 10a. Upper leaves sinuate, yellow to red at base; gland bilabiate.....*E. cyathophora*
 10b. Upper leaves entire, uniformly green; gland cupular.....*E. heterophylla*
 11a. Leaves broadly oblong-elliptic; lateral nerves prominent.....12
 11b. Leaves subsquarrose to elliptic-oblong; lateral nerves obscure.....15
 12a. Floral leaves distichously imbricate; appendage of glands aciculate.....*E. cristata*
 12b. Floral leaves distantly decussate; appendage of glands entire.....13
 13a. Erect herb; cyathia stalked.....*E. hypericifolia*
 13b. Ascending herb; cyathia sessile.....14
 14a. Plants with yellow hairs; limb of gland equal to gland.....*E. hirta*
 14b. Plants with white hairs; limb of gland broader than gland.....*E. indica*
 15a. Leaf margin serrulate; capsule ripening within the cyathium.....*E. thymifolia*
 15b. Leaf margin entire, rarely crenulate; capsule ripening outside the cyathium.....*E. prostrata*

Euphorbia antiquorum L., Sp. Pl. 450. 1753; FBI 5: 255. 1887; FPM 2: 894. 1957; FTC 3(2): 1428. 1983; FTN 2: 227. 1987.

Armed tree, branchlets 3-5 angular, subsucculent, with copious milky latex. Leaves early deciduous. Cyathia in axillary, lax cymes. Involucre cupular, gland 5(6), semicircular. Flowers greenish. *Male flowers* in 5 groups of 8 in each. *Female flowers* erect; ovary erect; style recurved. Capsule 3-gonous, reddish when young. Seeds globose.

One of the dominant species in dry deciduous forest. **Fl. & Fr.:** Dec.-Jan. **Sp.Ex.:** LP 1465 (SACONH).

Euphorbia cristata B. Heyne ex Roth, Nov. Pl. Sp. 226. 1821; FBI 5: 247. 1887; FPM 2: 892. 1957; FTC 3(2): 1428. 1983; FTN 2: 227. 1987.

Ascending herb. Leaves decussate, elliptic to broadly ovate-oblong, sparingly sericeous base obliquely truncate to cordate, margin serrulate. Cyathia 1-3, axillary or (sub)terminal. Involucre campanulate, glands 4, unequal, ovoid. Anthers subglobose. Female flowers laterally pendulous. Ovary softy pubescent. Seeds white 4-angled.

Occasional in foothills. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** CAB 46161, 46183 (MH); VN 76783 (MH).

Euphorbia cyathophora Murray, Comment. Soc. Regiae Sci. Gott. 7: 81. 1786; FTC 3(2): 1430. 1983.

Shrub. Leaves alternate below, decussate to whorled above, obovate to lanceolate, margin serrate to entire. Floral leaves yellow to red at the basal half. Cyathia 12-15, in terminal clusters. Involucre campanulate, gland 1. Male florets 20-30, roughly in 5 groups, bracteolate. Female flowers laterally pendulous. Seed oblong-globose.

Occasional along the road side. Also planted as ornamental. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** CAB 46161, 46183 (MH); VN 76783 (MH).

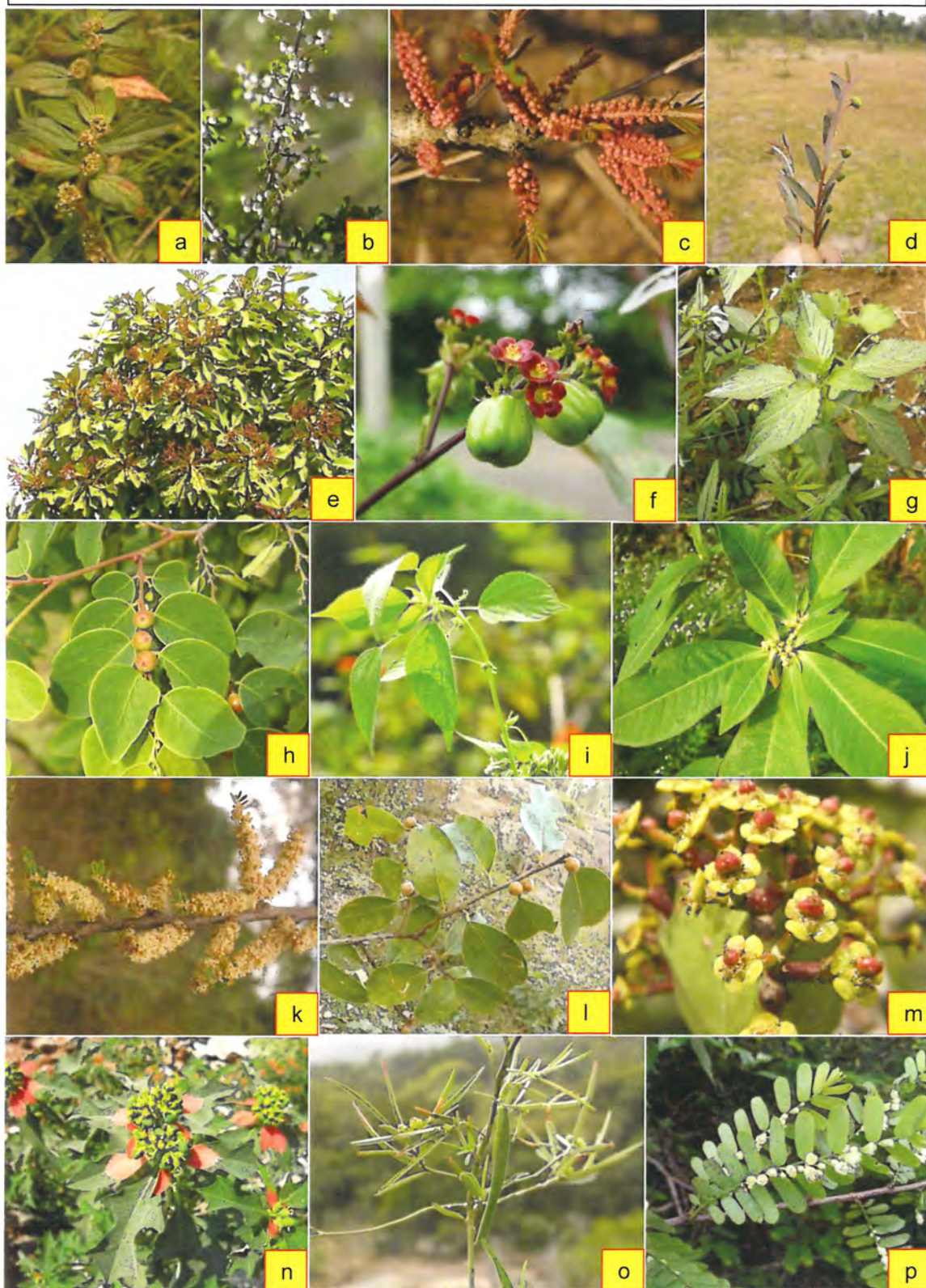
Euphorbia heterophylla L., Sp. Pl. 453. 1753; FTC 3(2): 1432. 1983. *E. geniculata* Ortega, Nov. Rar. Pl. Matr. 18. 1797; FPM 3: 1303. 1957; FTN 2: 228. 1987.

Herb. Leaves alternate or opposite below, rarely whorled above, obovate to rhomboid or oblanceolate. Cyathia 6-10, cuneate, in a terminal cluster. Involucre campanulate. gland 1. Male florets 12-15, bracteolate. Female flowers laterally pendulous. Fruit capsule. Seeds angled.

Common in along the river beds. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 20733, 20734 (FRC); KR 138935, 138936 (MH); PSAT 186863 (MH).

Euphorbia hirta L., Sp. Pl. 454. 1753; FPM 2: 892. 1957; FTC 3(2): 1434. 1983; FTN 2: 228. 1987.

PLATE 22 - EUPHORBIACEAE



a) *Euphorbia hirta*, b) *Flueggea leucopyrus*, c) *Phyllanthus indofischeri*, d) *Phyllanthus urinaria*, e) *Euphorbia umbellata*, f) *Jatropha gossypifolia*, g) *Micrococca mercurialis*, h) *Breynia vitis-idaea*, i) *Acalypha brachystachya*, j) *Euphorbia heterophylla*, k) *Phyllanthus emblica*, l) *Bridelia retusa*, m) *Euphorbia antiquorum*, n) *Euphorbia cyathophora*, o) *Microstachys chamaelea*, p) *Phyllanthus polyphyllus*.

Hispid, ascending herb. Leaves decussate, broadly oblong to elliptic-lanceolate, base obliquely truncate, margin serrulate to serrate. Cyathia ca. 20(25), aggregated in single or paired, axillary clusters. Involucre campanulate, glands 5, red. *Male florets* 4-6, ebracteolate. *Female flowers* laterally pendulous; styles 3, bifid; stigma obtuse. Capsule pubescent. Seeds 4-angled.

Very common in plains. **Fl. & Fr.:** Throughout the year. **VN:** *Ammam patcharisi*. **Sp.Ex.:** KA & PB 1684 (SACONH); VS18712 (FRC); KCJ 81291 (MH); CECF 84997 (MH); PSAT 187477, 187478 (MH).

Euphorbia hypericifolia L., Sp. Pl. 454. 1753; FBI 5: 249. 1887; FPM 2: 892. 1957; Burch, Rhodora 68: 160. 1966; FTC 3(2): 1434. 1983. *E. indica* sensu Raju & P.N. Rao, Indian J. Botany 2: 205. 1979 p.p. non Lam. 1788; FTN 2: 228. 1987.

Hispid, erect herb. Leaves decussate, broadly oblong, base obliquely truncate, margin serrulate. Cyathia ca. 15, aggregated in axillary, stalked clusters. Involucre campanulate, glands 5. *Male florets* 4-6, bracteolate. *Female flowers* laterally pedunculous; ovary puberulous; style 3, bifid from base; stigma obtuse. Fruit a capsule. Seeds 4-angled.

Common on fallow lands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** PSAT 187475, 187476 (MH).

Euphorbia indica Lam., Encycl. 2: 423. 1788; FTN 2: 228. 1987. *E. hypericifolia* auct. non L. 1753; FBI 5: 249. 1887; FPM 2: 892. 1957; FTC 3(2): 1434. 1983.

Hispid, erect herb. Leaves oblong, ovate, base oblique, crenulate, glaucous beneath. Cyathia in stalked clusters, ca. 15, axillary. Involucre campanulate, pubescent, glands 5, minute. *Male flowers* 4-5. *Female flowers* laterally pendulous; ovary pubescent. Fruit a capsule.

Occasional in moist localities. **Fl. & Fr.:** May-June. **Sp.Ex.:** LP 2823 (SACONH).

Euphorbia milli Des Moul., Bull. Hist. Nat. Soc. Linn. Bordeaux 1: 27. 1826. *E. splendens* Bojer ex Hook., Bot. Mag. t. 2902. 1829; FPM 2: 894. 1957; FTC 3(2): 1435. 1983; FTN 2: 229. 1987.

Thorny, succulent subshrub. Leaves crowded at apex, ovate to lanceolate. Bracts broadly ovate, in various colours. Cyathia few, aggregated in single or paired, axillary clusters. *Male flowers* numerous; tepals absent; stamen 1. *Female flowers* one in each cyathia. Fruit capsule, 3-lobed.

Cultivated and escaped. Planted as ornamental hedge plant. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1466 (SACONH).

Euphorbia nivulia Buch.-Ham., Trans. Linn. Soc. Bot. London 14: 286. 1825; FBI 5: 255. 1887; FPM 2: 893. 1957; FTC 3(2): 1435. 1983; FTN 2: 229. 1987.

Armed deciduous tree. Spines short, paired. Leaves alternate, subsucculent. Cyathia usually paired, in subterminal, lax cymes. Involucre broadly cupular, glands 5, oblong. *Male florets* roughly in 5 groups of 8 each with sterile florets. *Female flowers* laterally pendulous; stigma broad, somewhat fimbriate. Fruit a capsule. Seeds 4-angular, smooth.

Occasional in dry hill slopes. **Fl. & Fr.:** Dec.-April. **VN:** *Mullukkalli*. **Sp.Ex.:** VN 79236 (MH).

Euphorbia prostrata Aiton, Hort. Kew. ed. 1. 2: 139. 1789; FBI 5: 266. 1887, in adnot.; FPM 2: 893. 1957; FTC 3(2): 1436. 1983. *E. chamesyce* L., Sp. Pl. 455. 1753; FTN ser. 1. 2: 227. 1987.

Spreading herb, branchlets hispid-pubescent. Leaves opposite, distichous, elliptic to obovate, base obliquely truncate, margin crenulate. Cyathia axillary. Involucre tubular, glands 4. *Male flowers* 1-4, ebracteolate. *Female flowers* laterally pendulous; style 3, forked from base. Capsule prominently beaked. Seeds obtusely 4-angled.

Occasional in hill station. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** KCJ 81171 a & b (MH).

Euphorbia pulcherrima Willd. ex Klotzsch. in Otto & Dietrich., Allg. Gartenzeitung 2: 27. 1834; FBI 5: 239. 1887; FPM 2: 894. 1957; FTC 3(2): 1436. 1983; FTN 2: 229. 1987.

Much-branched large shrub with milky latex. Leaves alternate, ovate-lanceolate, entire or lobed with 2 or 3 blunt teeth. Petiole reddish brown. The uppermost foliar leaves usually red or pink. Cyathia in terminal. Involucre green with red fringe top, cup-like, glands compressed. *Male flowers* perianth absent; stamens 1. *Female flowers* long stalked; ovary 3-locular; style 3.

Cultivated, escaped and naturalised. **Fl. & Fr.:** Dec.-Feb. **Sp.Ex.:** LP 1467 (SACONH).

Euphorbia rothiana Spreng., Syst. Veg. 3: 796. 1826; FBI 5: 263. 1887; FSIHS 3: 527. t. 457. 1932; FPM 2: 894. 1957; FTC 3(2): 1438. 1983; FTN 2: 229. 1987.

Profusely branched subshrub, upper branchlets umbellate. Leaves alternate below, whorled above, linear to oblanceolate, subsessile. Cyathia axillary, solitary in the axils. Involucre campanulate, glands 4. *Male flowers* 10-12, bracteolate. *Female flowers* erect; style 3, bifid; stigma obtuse. Fruit capsule. Seeds globose.

Common in along the roadside of the high altitude. **Fl. & Fr.:** Oct.-April. **Sp.Ex.:** KA & PB 1442 (SACONH); VN 78894 (MH); KCJ 81437 (MH).

Euphorbia thymifolia L., Sp. Pl. 453. 1753; FBI 5: 252. 1887; FPM 2: 893. 1957; FTC 3(2): 1439. 1983; FTN 2: 230. 1987.

Softly hispid, prostrate herb. Leaves opposite, distichous, suborbicular to oblong, base obliquely cordate, margin serrulate. Cyathia axillary, solitary or in clusters. Involucre campanulate, glands 4. *Male florets* 1-4, ebracteolate. *Female flowers* laterally pendulous. Ovary tomentose. Style 3. Capsule ripening within the cyathium.

Common in along roadsides and foothills. **Fl. & Fr.:** Dec.-Mar. **VN:** *Sinnamman paccharisi*. **Sp.Ex.:** KA & PB 1505 (SACONH); CECF 46302 (MH); KCJ 81171 (MH).

Euphorbia tirucalli L., Sp. Pl. 452. 1753; FBI 5: 254. 1887; FPM 2: 893. 1957; FTC 3(2): 1440. 1983; FTN 2: 230. 1987.

Shrub or tree, branchlets terete, succulent, articulate. Leaves linear to lanceolate, deciduous. Cyathia a few, usually terminal. Involucre broadly cupular, coriaceous, glands 5. Ovary pubescent. Style 3, spreading. Capsule globose. Seed globose.

Common in foothills. **Fl. & Fr.:** June-Aug. **VN:** *Thirukkalli*. **Sp.Ex.:** PSAT 186691, 186692 (MH).

Euphorbia tortilis Rottl. ex Ainslie, Materia Indica 2: 424. 1826; FBI 5: 256. 1887; FPM 2: 894. 1957; FTC 3(2): 1441. 1983; FTN 2: 230. 1987.

Shrub. branchlets 3-angular, twisted. Spines paired. Leaves deciduous. Cyathia paired, in a group of 3 or in 4, axillary. Involucre cupular, coriaceous, glands 5. *Male florets* in 5 group of 5 each, 2-5 seriate, bracteolate. *Female florets* laterally pendulous. Ovary sharply 3-angled. Styles 3. Capsule 3-gonous. Seeds 4-angled.

Common in scrub jungles. **Fl. & Fr.:** Feb.-May. **VN:** *Thirukukalli*. **Sp.Ex.:** LP 1472 (SACONH).

Euphorbia umbellata (Pax) Bruyns, Euphorbia World 3: 5 2007. *Synadenium grantii* Hook. f., Bot. Mag. t. 5633. 1867 FTC 3(2): 1478. 1983; FTN 2: 240. 1987.

Monoecious shrub with copious milky latex. Leaves alternate, broadly lanceolate, subsucculent, base cuneate. Cyathia in lax, subterminal or axillary, cymose panicles. Peduncles dichotomously branched. Involucre cupular, bracts 5, suborbicular to concave. *Male flowers* 20-30, rarely in 5 groups. *Female florets* single, laterally pendulous. Ovary 3-lobed. Capsule 3-lobed. Seeds oblong.

Common in forest borders. Cultivated as agricultural fences. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** LP 2559 (SACONH).

EXCOECARIA L., Syst. Nat., ed. 10. 2: 1288. 1759.

Excoecaria oppositifolia Griff., Calcutta J. Nat. Hist. 4: 386. 1844. var. **crenulata** (Wight) Chakrab. & M. Gangop. J. Econ. Taxon. Bot. 18: 208. 1994. *E. crenulata* Wight, Icon. Pl. Ind. Orient. t. 1865. 1852; FBI 5: 473. 1888; FSIHS 3: 536. t. 470. 1932; FPM 2: 941. 1957; FTN 2: 230. 1987. *E. robusta* Hook. f., Fl. Brit. India 5: 474. 1888; FPM 2: 941. 1957; FTC 3(2): 1443. 1983; FTN 2: 230. 1987.

Tree. Leaves opposite, oblanceolate, waxy, shining green. *Male spikes* bracteoles broadly ovate; tepals 3; stamens 3. *Female spike* tepals 3, ovate; ovary oblong, globose. Capsule pendulous, 3-lobed.

Occasional in hill stations. **Fl. & Fr.:** Mar.-Aug. **VN:** *Palmarum*. **Sp.Ex.:** CECF 6131 (FRC).

FLUEGGEA Willd., Sp. Pl. 4: 637, 757. 1805.

Key to the species

- 1a. Unarmed; pistillodes 3, connate below; capsule grey.....*F. virosa*
1b. Armrd; pistillodes 2, free; capsule white.....*F. leucopyrus*

Flueggea leucopyrus Willd., Sp. Pl. 4: 757. 1806; FBI 5: 328. 1887; FPM 2: 907. 1957. *Securinea leucopyrus* (Willd.) Muell.-Arg. in DC., Prodr. 15 (2): 451. 1866; FTN 2: 240. 1987; FTC 3(2): 1475. 1983.

Shrub, branchlets arrested, stiff, thorn-like, bearing leaves and flowers. Leaves alternate, elliptic to obovate. *Male flowers* tepals concave, obtuse; stamens 5. *Female flowers* tepals 5, ovate; ovary globose. Capsule globose, white.

Common in dry deciduous forest and scrub jungles. **Fl. & Fr.:** Feb.-Aug. **VN:** *Vellaippula*. **Sp.Ex.:** LP 1881, 1361, 1468, 2935 (SACONH); VS 18626, 18776 (FRC).

Flueggea virosa (Roxb. ex Willd.) Royle, Illu. Bot. Himal. Mts. 328. 1836; FPM 2: 907. 1957. *Securinea virosa* (Roxb. ex Willd.) Baill., Adansonia 6: 334. 1866; FTC 3(2): 1476. 1983; FTN 2: 240. 1987.

Shrub. Leaves alternate elliptic-ovate, thinly pubescent. *Male flowers* tepals 5, ovate-concave; stamens 5. *Female flowers* tepals 5, ovate. Capsule globose, grey.

Occasional in hill slopes. **Fl. & Fr.:** Mar.-April. **VN:** *Karumpoola*. **Sp.Ex.:** CECF 5965 (FRC); KNS 6979 (FRC); VN 79723 (MH); PSAT 186498, 186499, 186865 (MH).

GIVOTIA Griff., Calcutta, J. Nat. Hist. 4: 388. 1843.

Givotia moluccana (L.) Sreem., Taxon 24: 696. 1975. *G. rottleriformis* sensu Wight, Icon. Pl. Ind. Orient. t. 1889. 1852, non. Griff., 1844; FBI 5: 395. 1887; FPM 2: 938. 1957; FTC 3(2): 1443. 1983; FTN 2: 230. 1987.

Dioecious, fulvous tomentose tree. Leaves alternate, broadly ovate, (sub)coriaceous. Panicles lax, subterminal, pendulous, bracts conspicuous, linear. Tepals 10, biseriate, ovate, imbricate. Stamens 8-20, exserted. Disc 4, free. Ovary globose, 2 or 3-locular. Drupe subglobose or ellipsoid.

Common dry hill slopes. **Fl. & Fr.:** April-May. **VN:** *Kottai-thanukku*. **Sp.Ex.:** VS 18782 (FRC); CECF 48519 (MH); VN 79685 (MH).

GLOCHIDION J.R. Forst. & G. Forst., Char. Gen. Pl. 57. 1775.

Key to the species

- 1a. Branchlets zig-zag, glabrous.....*G. candolleianum*
1b. Branchlets straight, pubescent or tomentose.....*G. heyneanum*

Glochidion candolleianum (Wight & Arn.) Chakrab. & M. Gangop., J. Econ. Taxon. Bot. 19: 191. 1995. *G. neilgherrense* Wight, Icon. Pl. Ind. Orient. 5(2): 29. 1852; FBI 5: 316. 1887; FSIHS 3: 531. t. 463. 1932; FPM 2: 914. 1957; FTC 3(2): 1445. 1983; FTN 2: 231. 1987.

Monoecious tree, branchlets zigzag. Leaves elliptic-oblong. *Male flowers* tepals 3+3, free, obovate, fleshy; stamens 3. *Female flowers* tepals 6, almost free, unequal, obovate; ovary puberulous, 3-locular. Capsule depressed globose.

Occasional in evergreen forest. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** KA & PB 1489, 1666 (SACONH); KNS 13413, 13414, 13420, 13421 (FRC); VS 18784 (FRC); CECF 47497, 47498 (MH); VN 79139 (MH); KCJ 81402 (MH).

Glochidion heyneanum (Wight & Arn.) Wight, Icon. Pl. Ind. Orient. 5: t. 1908. 1852. *G. velutinum* Wight, Icon. Pl. Ind. Orient. t. 1907. f. 2. 1852; FBI 5: 322. 1887; FSIHS 3: 531. t. 462. 1932; FPM 2: 914. 1957; FTC 3(2): 1446. 1983; FTN 2: 231. 1987.

Dioecious tree, branchlets zigzag. Leaves elliptic-ovate or lanceolate, densely so below. Style villose. Capsule 8-lobed.

Occasional in hill station. **Fl. & Fr.:** April-May. **Sp.Ex.:** KNS 6958, 6959 (SACONH).

HOMONOIA Lour., Fl. Cochinch. 2: 636. 1790.

Homonoia riparia Lour., Fl. Cochinch. 2: 637. 1790; FBI 5: 455. 1887; FPM 2: 932. 1957; FTC 3(2): 1447. 1983; FTN 2: 232. 1987.

Shrub. Leaves linear to lanceolate. Inflorescence in axillary spikes. *Male flowers* Tepals 3, puberulous without; stamens many. *Female flowers* Tepals 5, ovate, puberulous without. Ovary puberulous. Capsule. subglobose. Seeds biconvex, globose.

Common in riparian regions. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** VS 18781, 23997, 23998 (FRC); CECF 48345 (MH); VN 79200, 79759 (MH); SRR 83211 (MH); PSAT 186601, 186602, 187089, 187183 (MH).

JATROPHA L., Sp. Pl. 2: 1006. 1753.

Key to the species

- 1a. Leaves entire or divided from above the middle; stems and leaves glabrous.....2
- 1b. Leaves divided to below the middle; stems and leaves glandular hairy.....*J. gossypifolia*
- 2a. Leaves peltate; capsule pubescent.....*J. villosa*
- 2b. Leaves cordiform; capsule glabrous.....*J. curcas*

Jatropha curcas L., Sp. Pl. 1006. 1753; FBI 5: 383. 1887; FPM 2: 937. 1957; FTC 3(2): 1449. 1983; FTN 2: 232. 1987.

Shrub. Leaves entire or shallowly 5-lobed, cordiform, stipule deciduous. Inflorescence cyme, bracts lanceolate. Tepals equal in male flowers, unequal in female flowers. Stamens 10, biseriate, 5+5. Capsule (oblong)globose, rugose when dry.

Common in foot hills. Often planted by fences. **Fl. & Fr.:** April-July. **VN:** Kottamutthu, Kattukkottai. **Sp.Ex.:** VS 19121 (FRC); PSAT 186920 (MH).

Jatropha gossypifolia L., Sp. Pl. 1006. 1753; FBI 5: 383. 1887; FPM 2: 937. 1957; FTC 3(2): 1450. 1983; FTN 2: 232. 1987.

Shrub, branchlets glandular hairy, purplish green tender parts. Leaves in close spirals, deeply 3-5 lobed, base (sub)cordate, lobes obovate, margin glandular-hairy. Stipules ciliate, glandular. Bracts lanceolate. Flowers unisexual. Tepals glandular hairy, lobes 4, ovate. Stamens 8, biseriate, 5+3. Capsule 3-lobed. Seeds oblong, 3-gonous.

Common in plains. **Fl. & Fr.:** Throughout the year. **VN:** Kattamanukku. **Sp.Ex.:** KNS 2052 (FRC); VS 18631, 18788 (FRC); PSAT 187377 (MH); GVS 80143, 80144 (MH).

Jatropha villosa Wight, Icon. Pl. Ind. Orient. 3: t. 1159. 1846; FTC 3(2): 1452. 1983; FTN 2: 233. 1987. *J. wightiana* Mull.-Arg. in DC., Prodr. 15(2): 1080. 1866; FBI 5: 383. 1887; FPM 2: 937. 1957.

Shrub. Leaves entire to shallowly 3-5-lobed. Cymes terminal. Outer tepals lanceolate, inner obovate, villous at base within. Stamens 8. Capsule 3-lobed, thinly pubescent. Occasional in dry hill slopes. **Fl. & Fr.:** Feb.-May. **Sp.Ex.:** LP 1867 (SACONH).

MALLOTUS Lour., Fl. Cochinch. 2: 635. 1790.

Key to the species

- 1a. Leaves opposite.....*M. resinosus*
- 1b. Leaves alternate.....2
- 2a. Capsule covered with white tomentose spines.....3
- 2b. Capsule covered with red resinous power.....*M. philippensis*
- 3a. Seeds smooth.....*M. barbatus*
- 3b. Seeds angular.....*M. tetracoccus*

Mallotus barbatus Müll.-Arg., Linnaea 34: 184. 1865.

Monoecious shrub. Stipules linear-triangular. Leaves peltate, broadly ovate, base truncate, rounded, margin dentate. Inflorescences terminal, unisexual or bisexual, bracteoles linear triangular, 2 or 3 flowers per node. Sepals 4(5). Stamens 60(85). Ovary 3(-5)-locular.

Rare in moist deciduous forest. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** CECF 6066 (FRC).

Mallotus philippensis (Lam.) Muell.-Arg., Linnaea 34: 196. 1865; FBI 5: 442. 1887, "philippinensis"; FSIHS 3: 535. t. 468. 1932; FPM 2: 924. 1957; FTC 3(2): 1456. 1983; FTN 2: 234. 1987.

Tree. Leaves alternate, ovate-lanceolate, pubescent below, margin entire. Panicles (sub)terminal. *Male flowers* tepals 4, free, obovate, recurved. *Female flowers* tepals 3, lanceolate, bifid; ovary pubescent, 3-locular. Capsule smooth, red glandular. Seeds globose, black.

Occasional in evergreen forest borders. **Fl. & Fr.:** Almost throughout the year. **VN:** Kungumam. **Sp.Ex.:** LP 3176 (SACONH); CECF 6057, 6059 (FRC); KNS 6957 (FRC); CECF 47936 (MH); VN 78779, 78849 (MH); KCJ 81485 (MH); PSAT 187216, 187303, 187304 (MH).

Mallotus resinosus (Blanco) Merr., Sp. Blancoanae 222. 1918; FTN 2: 234. 1987. *M. muricatus* (Wight) Thw., Enum. Pl. Zeyl. 273. 1861; FBI 5: 436. 1887; FPM 2: 925. 1957. *M. intermedius* (Baill.) N.P. Balakr., Bull. Bot. Surv. India 10: 245. 1968; FTC 3(2): 1455. 1983.

Shrubs or small trees, branchlets flattened, young branchlets glabrous or puberulous. Leaves opposite, unequal, glabrous, mostly cuneate-obovate to elliptic, sparsely yellow-glandular beneath. Staminate inflorescences not branched; flowers clustered per bracteole. Bracteoles with entire margin. Pistillate inflorescences not branched. Capsules with many regular spines or echinate.

Occasional in evergreen forest. **Fl. & Fr.:** May-Oct. **Sp.Ex.:** CECF 6068 (FRC).

Mallotus tetracoccus (Roxb.) Kurz, J. Asiat. Soc. Bengal 42: 245. 1873; FTC 3(2): 1457. 1983; FTN 2: 234. 1987. *M. albus* var. *occidentalis* Hook. f., Fl. Brit. India 5: 429. 1887; FSIHS 3: 535. 1932; FPM 2: 924. 1957.

Tree, branchlets tomentose. Leaves alternate, broadly ovate to deltoid when young, base truncate. Inflorescence panicle, bracts broadly ovate. *Male flowers* tepals 4, ovate. Stamens on a

fleshy receptacle. *Female flowers* tepals 4, connate at base. Ovary 4-locular. Capsule loculicidal, 3-4 valved, woolly spines, white tomentose. Seeds angular, black.

Occasional in evergreen forest. **Fl. & Fr.:** June-Aug. **VN:** *Kumalaa*. **Sp.Ex.:** LP 1835, 2637 (SACONH); KA & PB 1445 (SACONH); VS 18790 (FRC); PSAT 187121 (MH).

MANIHOT Mill., Gard. Dict. Abr., ed. 4. 1754.

Manihot esculenta Crantz, Inst. Rei Herb. 1: 167. 1766. *M. utilissima* Pohl, Pl. Bras, Ic. Desr. 1: 32. t. 24. 1826; FBI 5: 239. 1887; FPM 2: 942. 1957; FTC 3(2): 1458. 1983.

Subshrub. Leaf lobes oblanceolate to rhomboid, base cuneate, margin entire to dentate, apex shortly acuminate. Capsule 3-winged when young, smooth.

Cultivated, also escaped, found in roadsides. **Fl. & Fr.:** Feb.-Mar. **VN:** *Maravallikizhangu, kuchikizhangu*. **Sp.Ex.:** PSAT 187142 (MH).

MEINECKIA Baill., Étude Euphorb.: 586. 1858.

Meineckia parvifolia (Wight) G.L.Webster, Acta Bot. Neerl. 14: 342. 1965. *Neopeltandra suberosa* (Muell.-Arg.) Gamble, Fl. Madras 1286. 1925 & 2: 900. 1957. *Phyllanthus suberosus* Muell.-Arg., Linnaea 32: 10. 1863, non. Wall., 1847; FBI 5: 287. 1887.

Shrubs, monoecious, base slightly woody. Leaves alternate, ovate, apex acute, base truncate or rounded, membranous, glabrous. flowers ion axillary androgynous with 4-5 (8) flowers. Flowers 5-merous. Perianth lobes ovate or obovate, obtuse, margins hyaline. Capsule globose. Seeds brown.

Occasional in moist deciduous forest. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** CECF 5946 (FRC).

MICROCOCCA Benth. in Hook. f., Niger. Fl. 503. 1849.

Key to the species

- 1a. Shrub; leaves to 15 cm long; racemes to 12 cm long.....*M. beddomei*
- 1b. Herb; leaves under 4 cm long; racemes to 7 cm long.....*M. mercurialis*

Micrococca beddomei (Hook. f.) Prain, Ann. Bot (London) 25: 630. 1911; FPM 2: 929. 1957; FTN 2: 235. 1987. *Claoxylon beddomei* Hook. f., Fl. Brit. India 5: 413. 1887.

Monoecious shrub. Leaves simple, alternate, ovate or ovate-lanceolate, serrate, puberulous. Spikes lax, slender. Bracts minute. Perianth lobes of male ovate; of female 3, lanceolate. Capsule 3-lobed, glabrescent.

Occasional in evergreen forest. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** VN 78869 (MH).

Micrococca mercurialis (L.) Benth., Hook., Niger Fl. 503. 1849; FPM 2: 929. 1957; FTC 3(2): 1460. 1983; FTN 2: 235. 1987.

Monoecious herb, Leaves alternate, ovate to lanceolate, puberulous, margin serrate, stipule minute. Spikes lax, slender, interrupted, axillary. Bracts minute, imbricate. *Male flowers* tepals 3, equal, ovate; stamens 3-5, free, alternating with tepals, glands 8. *Female flowers* tepals 3, lanceolate, valvate; ovary 3-lobed; style 3, linear, thick. Capsule bivalved cocci. Seeds globose. Common in plains, wastelands. **Fl. & Fr.:** Nov.-Dec. **Sp.Ex.:** LP 2608 (SACONH).

MICROSTACHYS A. Juss., Euphorb. Gen. 48. Fe. 1824.

Microstachys chamaelea (L.) Müll.Arg., Linnaea 32: 95 1863. *Sebastiania chamaelea* (L.) Muell.-Arg. in DC., Prodr. 15(2): 1175. 1866; FBI 5: 475. 1888; FPM 2: 940. 1957; FTC 3(2): 1474. 1983; FTN 2: 240. 1987.

Monoecious erect or ascending herb, branchlets puberulous. Leaves alternate, linear-lanceolate. Spikes axillary, bracts lanceolate. Male flowers minute in clusters of 3; tepals unequally 5-lobed, ovate, valvate; stamens 3, free. Female flowers solitary, axillary; tepals 3, ovate, valvate. Ovary 3-lobed. Capsule 3-lobed. Seeds oblong, carunculate.

Common in sandy regions of the plains. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 48628 (MH).

PHYLLANTHUS L., Sp. Pl. 2: 981. 1753.

Key to the species

- 1a. Trees and shrubs.....2
- 1b. Subshrubs or herbs.....6
- 2a. Berry dark blue.....*P. reticulatus*
- 2b. Capsule or drupe green.....3
- 3a. Leaves > 4 x 2 cm; tepals 4; stamens 4, free.....*P. acidus*
- 3b. Leaves < 2 x 0,5 cm; tepals 6; stamens 3, connate.....4
- 4a. Capsule dry, dehiscent.....*P. polyphyllus*
- 4b. Drupe fleshy, indehiscent.....5
- 5a. Fruits depressed globose.....*P. emblica*
- 5b. Fruits ovoid.....*P. indofischeri*
- 6a. Stipules peltate, subsagittate.....*P. narayanaswamii*
- 6b. Stipules not peltate, lanceolate.....7
- 7a. Leaves elliptic-ovate; male flower disc of star shaped glands.....*P. debilis*
- 7b. Leaves oblong to lanceolate; male flower disc annular or of lobed glands.....8
- 8a. Tepals 5; stamens 5.....*P. amarus*
- 8b. Tepals 6; stamens 3.....9
- 9a. Leaf-base cuneate; capsule smooth.....*P. maderaspatensis*
- 9b. Leaf-base truncate or obtuse; capsule verrucose.....10
- 10a. Filaments free.....*P. virgatus*
- 10b. Filaments connate.....*P. urinaria*

Phyllanthus acidus (L.) Skeels, Bull. Bur. Pl. Industr. U.S.D.A. 148. 17. 1909; FTC 3(2): 1463. 1983; FTN 2: 236. 1987. *Cicca disticha* L., Mant. Pl. 124. 1767; FPM 2: 942. 1957.

Tree. Leaves elliptic to obovate, base rounded. Flowers on leafless branchlets. *Male flowers* numerous; tepals 4, unequal, 2+2, ovate; stamens 4, exserted. Disc gland 4. *Female flowers* a few, solitary; ovary (sub)globose, 3(4)-lobed. Drupe roughly 6-8 angular, depressed globose.

Cultivated for the edible fruits. **Fl. & Fr.:** Throughout the year. **VN:** *Arinelli*, *Poonelli*. **Sp.Ex.:** LP 2558 (SACONH).

Phyllanthus amarus Schumach & Thonn., Kongel. Danske Vidensk.-Selsk. Skr. 4: 195. 1829; FTC 3(2): 1464. 1983; FTN 2: 236. 1987. *P. niruri* auct. non L. 1753; FBI 5: 298. 1887; FPM 2: 903. 1957.

Herb. Leaves oblong, glaucous below. Stipules lanceolate, scarious. *Male flowers* a few, terminal; tepals 5, ovate, obtuse; stamens 3, exserted; disc-glands 5. *Female flowers* many; tepals 5, oblong, obtuse; disc ovate. Capsule dry, dehiscent. Seeds vertically muricate.

Common in arable and fallow lands. **Fl. & Fr.:** Throughout the year. **VN:** *Keezhaanelli*. **Sp.Ex.:** LP 2903 (SACONH); VS 19124 (FRC); VN 79603 (MH).

Phyllanthus debilis J.G. Klein ex Willd., Sp. Pl. 4: 582. 1805; FBI 5: 299. 1887; FPM 2: 903. 1957; FTC 3(2): 1466. 1983; FTN 2: 236. 1987.

Herb. Leaves elliptic-ovate, glaucous below. Stipule lanceolate. *Male flowers* a few in the lower axils; tepals 6, obovate; stamens 3, exserted; disc glands 6, star shaped. *Female flowers* many; ovary 6-lobed; style 3, bifid; stigma obtuse; disc annular. Capsule 3-valved. Seeds trigonous.

Occasional in fallow lands and river sides of the hill regions. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 46909, 46910 (MH); PSAT 186854 (MH).

Phyllanthus emblica L., Sp. Pl. 982. 1753; FBI 5: 289. 1887; FTC 3(2): 1466. 1983; FTN 2: 236. 1987. *Embllica officinalis* Gaertn., Fruct. 2: 122. 1791; FPM 2: 906. 1957.

Deciduous tree. Leaves oblong, base truncate to (sub)cordate. Stipule linear. Flowers in axillary fascicles; male and female flowers mixed. *Male flowers* tepals 6, oblanceolate, obtuse; stamens 3, connate; disc glands 6. *Female flowers* tepals 6, valvate, oblanceolate, truncates; style broadly fimriate, stigmatiferous. Drupe indehiscent, depressed-globose, fleshy, juicy. Seeds trigonous.

Common in hill slopes and deciduous forest. **Fl. & Fr.:** Mar.-May. **VN:** *Nelli*. **Sp.Ex.:** KNS 6984, 11833, 11834, 13387, 13388 (MH); VS 18630, 18779 (FRC); VN 78299 (MH); KCJ 81286 (MH); PSAT 187130 (MH).

Phyllanthus indofischeri Bennet, Indian Forester 109: 221. 1983; FTN 2: 237. 1987. *Embllica fischeri* Gamble, Bull. Misc. Inform. 1925: 330. 1925 & Fl. Madras 2: 906. 1957.

Small deciduous trees, branchlets distichous, pubescent. Leaves simple, alternate, oblong, base oblique or rounded, margin entire, glabrous, glandular beneath, chartaceous. Stipules minute. Flowers unisexual, in axillary fascicles, yellowish-green. *Male flowers* glabrous; tepals 6, obovate; stamens 3. *Female flowers* tepals 6, oblong, fleshy; ovary 3-celled, ovoid. Fruit a drupe. Seeds trigonous.

Occasional in deciduous forest. **Fl. & Fr.:** July-Feb. **Sp.Ex.:** LP 2931 (SACONH); VS 18187 (FRC); CAB 47044, 47945 (MH); PSAT 186751, 186752 (MH).

Phyllanthus maderaspatensis L., Sp. Pl. 982. 1753; FBI 5: 292. 1887; FPM 2: 902. 1957; FTC 3(2): 1467. 1983; FTN 2: 237. 1987.

Herb. Leaves linear to obovate, generally glaucous below. Stipules peltate, lanceolate. Male flowers above, female flowers below, pedicel filiform. Bracts 2, acute. Tepals 6, obovate, margin serious, obtuse. Stamens 3. Ovary 3-lobed. Stigma obtuse. Disc glands 6oblong in both flowers. Capsule 3-valved, globose. Seeds triquetrous, vertically muricate.

Common in the arable lands of the plains and road sides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1402 (SACONH); VS 18629, 18786 (FRC); VN 79221, 79642 (MH).

Phyllanthus narayanswamii Gamble, Kew Bull. 1925: 329. 1925 & Fl. Madras 2: 902. 1957.

Subshrub. Leaves distichous, elliptic or oblong, obtuse, coriaceous, margin thickened, recurved. Stipule peltate. Flowers axillary, solitary. *Male flowers* sub-sessile. Female flowers pedicellate. Perianth lobes 6, ovate, glabrous. Stamens 3. Ovary 3-loculed. Capsule glandular.

Occasional in foothills. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** VS 18201 (FRC); PSAT 186844 (MH).

Phyllanthus polyphyllus Willd., Sp. Pl. 4: 586. 1805; FBI 5: 290. 1887; FPM 2: 901. 1957; FTC 3(2): 1468. 1983; FTN 2: 238. 1987.

Small tree. Leaves oblong. Stipules lanceolate, Male and female flowers mixed. Tepals 6, ovate, obtuse. Stamens 3. Disc glands 6. Ovary globose. Stigma acute, recurved. Disc annular, wavy. Capsule 3-valved. Seeds triquetrous.

Common in foothills and scrub jungles. **Fl. & Fr.:** Dec.-Feb. **VN:** *Sirunalli*. **Sp.Ex.:** CECF 5950 (FRC) KNS 6977, 6978 (FRC); VN 79623 (MH); PSAT 186848 (MH).

Phyllanthus reticulatus Poir., Encycl. 5: 298. 1804; FBI 5: 288. 1887; FTC 3(2): 1468. 1983; FTN 2: 238. 1987. *Kirganelia reticulata* (Poir.) Baill., Etude Euphorb. 613. 1858; FPM 2: 905. 1957.

Shrub. Leaves oblong-elliptic. Stipules lanceolate. *Male flowers* 5-7 in axillary fascicles; tepals 5, unequal, obovate, imbricate; stamens 5; disc glandular 5. *Female flowers* fewer in lower; tepals 5, shortly connate, obovate, valvate; ovary (sub)globose; disc glands 5. Berry globose. Seeds trigonous.

Common in along the foot hills and near wetlands. **Fl. & Fr.:** Throughout the year. **VN:** Karunelli. **Sp.Ex.:** PSAT 186921, 187153 (MH); CECF 6000 (FRC); VS 18628, 20700 (FRC); CECF 46993, 46994 (MH); KCJ & JD 81167 (MH).

Phyllanthus urinaria L., Sp. Pl. 982. 1753; FBI 5: 293. 1887; FPM 2: 902. 1957; FTC 3(2): 1469. 1983; FTN 2: 239. 1987.

Herb. Leaves oblong, base obtuse, margin minutely ciliate. Stipules linear-subulate. Bracts linear, scarious. *Male flowers* in upper axils; tepals 6, orbicular; stamens 3, connate; disc 6-lobed. *Female flowers* in lower axils; tepals 6, obovate-oblong; stigma acute; disc annular. Capsule 3-valved, globose, verrucose. Seeds triquetrous.

Occasional in hill station. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 2979 (FRC).

Phyllanthus virgatus G. Forst., Fl. Insul. Austr. Prodr. 65. 1786, "*virgata*"; FTC 3(2): 1469. 1983; FTN 2: 239. 1987. *P. oblongifolia* Wight, Icon. Pl. Ind. Orient. t. 1902; FBI 5: 295. 1887; FPM 2: 902. 1957.

Key to the varieties

- 1a. Leaves elliptic or obovate to 3.6 x 1.5 cm.....var. *gardnerianus*
1b. Leaves linear-oblong or elliptic to oblong 20 x 0.6 cm.....var. *virgatus*

var. *gardnerianus* (Wight) Govaerts & Radcl.-Sm. Kew Bull. 51: 177. 1996. *P. gardnerianus* (Wight) Baill., Etud. Gen. Euphorb. 628. 1858; FSIHS 3: 529. t. 460. 1932; FPM 2: 902. 1957; FTN 2: 237. 1987.

Erect herbs, glabrous. Branchlets leafy, scabrous. Leaves 21-30 pairs on lateral branchlets, oblong, acute at both ends, serrulate. Stipule ovate, cordate at base. *Male flowers* solitary, subsessile; sepals ovate. *Female flowers* sessile, solitary; sepals 5 or 6, ovate. Capsule rugose. Seeds 6, trigonous.

Occasional in Moist and evergreen forest. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** VS 18778 (FRC).

var. *virgatus*

Herb. Leaves oblong-lanceolate, base rounded. Stipule subsagittate-peltate. *Male flowers* in axils. *Female flowers* in above. Tepals 6, oblong. Stamens 3, free. Disc glands 6. Style 3. Capsule globular, 3-locular. Seeds triquetrous.

Common in the hill station. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2979 (SACONH); CECF 46818 (MH); CAB 46821, 46822 (MH); VN 78269, 79223 (MH).

PUTRANJIVA Wall., Tent. Fl. Nepal. 61. 1826.

Putranjiva roxburghii Wall., Tent. Fl. Nap. 61. 1826; FBI 5: 336. 1887; FPM 2: 917. 1957. *Drypetes roxburghii* (Wall.) Hurus., J. Fac. Sci. Univ. Tokyo, Sect. 3. Bot. 6: 337. 1954; FTC 3(2): 1423. 1983; FTN 2: 226. 1987.

Tree. Leaves lanceolate, (sub)coriaceous, base obliquely acute to truncate, margin serrulate. Stipules deciduous. *Male flowers* many, greenish yellow, sessile, dense; tepals 5, oblong, imbricate. *Female flowers* a few, axillary; bracts lanceolate; tepals 5, unequal, oblong, imbricate; ovary globose, pubescent. Drupe ellipsoid, epicarp pubescent.

Common in dry deciduous forest. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** VN 78866 (MH); PSAT 80565 (MH).

RICINUS L., Sp. Pl. 2: 1007. 1753.

Ricinus communis L., Sp. Pl. 1007. 1753; FBI 5: 457. 1887; FPM 2: 933. 1957; FTC 3(2): 1471. 1983; FTN 2: 239. 1987.

Monococious shrub. Leaves alternate, palmatifid, 6-10 lobed, lobes lanceolate, thinly pubescent below, margins serrate. Paniculate racemes terminal. Male flowers below, female flowers above. *Male flowers* perianth cucular, splitting into 3-5 lobes, lanceolate, valvate; stamens many. *Female flowers* tepals 5, subequal, lanceolate, valvate. Ovary globose, echinate, 3-locular.

Common in road sides of plains. Also cultivated for oil seeds. **Fl. & Fr.:** Throughout the year. **VN:** *Aamanukku*, *Kottamutthu*. **Sp.Ex.:** VN 79005, 79006 (MH); PSAT 187261, 187262 (MH).

SUREGADA Roxb. ex Rottler, Ges. Naturf. Freunde Berlin Neue Schriften. 4: 206. 1803.

Suregada lanceolata (Willd.) Kuntze, Revis. Gen. Pl. 2: 619. 1891. *S. angustifolia* (Baill ex Muell.-Arg.) Airy Shaw, Kew Bull. 23: 128. 1969; FTC 3(2): 1478. 1983; FTN 2: 240. 1987. *Gelonium lanceolatum* auct. non Willd. 1806; FBI 5: 459. 1887; FPM 2: 940. 1957.

Dioecious evergreen tree. Leaves alternate, obovate to oblanceolate, coriaceous, pellucid-punctate. Stipules caducous. *Male flowers* 5-8 in axillary subumbellate clusters; tepals 5, concave; stamens ca.25, free. *Female flowers* 3-5, axillary; tepals 5, ovate, imbricate; ovary globose, 3-locular. Disc annular. Capsule 3-lobed. Seeds globose, arillate.

Occasional in moist deciduous forest. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** CECF 6120 (FRC).

TRAGIA L., Sp. Pl. 980. 1753.

Key to the species

- 1a. Leaves rounded, obtuse, acute to cuneate at base.....2
- 1b. Leaves cordate or narrowly so at base.....*T. bicolor*
- 2a. Leaves 6-12 times longer than broad.....*T. sanjappae*
- 2b. Leaves 1.5-5 times longer than broad.....*T. involucrata*

Tragia bicolor Miq., Linnaea 26: 222. 1854; FBI 5: 465. 1887; FSIHS 3: 684. 1932; FPM 2: 932. 1957; FTN 2: 240. 1987.

Twiner, densely hispid, young parts fulvous-tomentose. Leaves ovate, acuminate, cordate at base, regularly serrate, densely hispid below, sparsely above. Stipule lanceolate. Inflorescence racemes hispid. Bracts lanceolate, glandular-ciliate. *Male flowers* tepals 3, orbicular, glabrous; stamens 3, filaments free. *Female flowers* tepals 3, sericeous without; ovary 3-locular; disc 0. Capsule sessile.

Occasional in evergreen forest. **Fl. & Fr.:** Nov.-Dec. **Sp.Ex.:** VS 18793 (FRC).

Tragia involucrata L., Sp. Pl. 980. 1753; FBI 5: 465. 1888; FPM 2: 931. 1957; FTC 3(2): 1479. 1983; FTN 2: 240. 1987.

Key to the varieties

- 1a. Leaves broadly elliptic or ovate-lanceolate.....var. *involucrata*
 - 1b. Leaves narrowly linear.....var. *angustifolia*
- var. **involucrata**

Densely pubescent vine. Leaves simple, elliptic-ovate to obovate, margin serrate. *Male flowers* tepals 3; stamens 3. *Female flowers* tepals 6, sericeous without; ovary 3-locular; disc 0. Capsule sessile.

Occasional in foothills. **Fl. & Fr.:** Throughout the year. **VN:** *Senthatti*. **Sp.Ex.:** VS 19109, 19118 (FRC); CECF 48301 (MH); KCJ 81384 (MH).

var. **angustifolia** Hook. f., Fl. Brit India 5: 465. 1888; FPM 2: 932. 1957; FTN 2: 241. 1987.

Twiner. Leaves lanceolate. Spike slender, axillary. *Male flowers* tepals 3, c. 1.2 mm, ovate; stamens 3, free, included. *Female flowers* tepals 6, ovate, pinnatifid, accrescent. Ovary pubescent. Capsule subsessile, 3-lobed. Seeds globose.

Occasional in foothills and scrub jungles. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 19120 (FRC).

Tragia sanjappae Chakrab. & N.P. Balakr., Rheede 16: 25. 2006 & Fam. Euphorbiaceae India 181. 2007. *T. involucrata* L. var. *angustifolia* Hook. f., Fl. Brit India 5: 465. 1888; FPM 2: 932. 1957; FTN 2: 240. 1987.

Herbaceous climber, stem and branches flattened, tawny or brown hispid when young. Leaves alternate, narrowly oblong-lanceolate, irregularly and distantly serrulate. Racemes axillary, terminal or leaf-opposed with 1-2 female flowers at lower nodes and several male flowers at upper nodes. Bracts spatulate to oblanceolate. *Male flowers* sepals 3, suborbicular; stamens 3. *Female flowers* sepals 6, linear, pinnatifid; ovary subglobose. Capsules depressed, deeply 3-lobed. Seeds subglobose, greyish brown and mottled brown.

Occasional in margins of evergreen forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 48289 (MH).

TREWIA L., Sp. Pl.: 1193 (1753).

Trewia nudiflora L., Sp. Pl. 1193. 1753; FBI 5: 423. 1888; FPM 2: 922. 1957; FTC 3(2): 1482. 1983; FTN 2: 241. 1987.

Tree, tender parts fulvous-pubescent, leaves cordiform to broadly ovate, base cordate to truncate, margin entire to irregularly crenate. *Male flowers* in raceme; tepals ovate, puberulous. *Female flowers* in raceme; ovary globose, 2-locular. Fruit a drupe.

Occasional in river banks. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** LP 1409 (SACONH).

URTICACEAE Juss., Gen. Pl. 400. 1789.

Key to the genera

- 1a. Plants with stinging hairs; leaf-blade 3-7-lobed.....*Girardinia*
- 1b. Plants without stinging hairs; leaf-blade entire.....2
- 2a. Leaf margin entire.....3
- 2b. Leaf margin crenate-serrate.....4
- 3a. Leaves 1-nerved, subsucculent.....*Pilea*
- 3b. Leaves 3-9 nerved, herbaceous.....*Pouzolzia*
- 4a. Dioecious shrub or tree.....*Debregeasia*
- 4b. Monoecious herb.....*Elatostema*

DEBREGEASIA Gaudich., Voy Bonite t. 90. 1844.

Debregeasia longifolia (Burm. f.) Wedd. in DC., Prodr. 16: 235. 1869; FTC 3(2): 1488. 1983; FTN 2: 243. 1987. *D. velutina* Gaudich., Voy. Bonite Bot. t. 90. 1844-1846; FBI 5: 590. 1888; FPM 3: 971. 1957.

Dioecious shrub, tender parts hispid-pubescent. Leaves alternate, simple, lanceolate, thick-chartaceous. Flowers subsessile in stalked, globose, axillary, panicle clusters. *Male flowers* tepals 4, ovate, concave; stamens 4; pistillode ellipsoid. *Female flowers* tepals 3 or 4, free, unequal, ovate; ovary obovoid, basally beaked. Stigma subsessile, penicillate. Seeds erect, albumen copious.

Occasional in shady places and river banks of the moist and evergreen forest. **Fl. & Fr.:** Nov.-Jan. **VN:** *Kattu nochi*. **Sp.Ex.:** SRN 80540 (MH) KCJ 81444 (MH).

ELATOSTEMA J.R. Forst. & G. Forst., Char. Gen. Pl. 53. 1775.

Elatostema lineolatum Wight, Icon. Pl. Ind. Orient. 6: t. 1984. 1853, var. *lineolatum*, "*lineolata*"; FBI 5: 565. 1888; FSIHS 3: 548. t. 479. 1932; FPM 3: 963. 1957; FTC 3(2): 1490. 1983; FTN 2: 244. 1987.

Monoecious herb. Leaves alternate, simple, distichous, lanceolate, thick-chartaceous. Cystoliths linear, scattered. Stipules intrapetiolar, deciduous. Flowers in short, unisexual clusters. *Male flowers* tepals 4, ovate; stamens 4; pistillode linear, clavate. *Female flowers* tepals 3-5, linear-lanceolate. Ovary obovoid. Stigma sessile, penicillate. Achenes ellipsoid. Seeds oblong. Common in inside the evergreen forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1895 (SACONH).

GIRARDINIA Gaudich., Voy. Uranie, Bot. 498. 1826.

Girardinia diversifolia (Link) Friis, Kew Bull. 36: 145. 1981; FTC 3(2): 1490. 1983; FTN 2: 245. 1987. *G. leschenaultiana* Decne. in Jacq., Voy. 4: 152. 1844; FPM 3: 960. 1957.

Subshrub, branchlets with stinging hairs throughout. Leaves alternate, pedately 3-7 lobed, chartaceous. Stipule cordate. Male spike branched or unbranched, female ones in capitate heads. *Male flowers* tepals 4, ovate, cucullate, valvate, strigose hairy; stamens 4; pistillode globose. *Female flowers* tepals 2-4 lobed; ovary ovate, flattened. Achenes compressed. Common in stream sides and borders of the evergreen forest. **Fl. & Fr.:** Nov.-Jan. **VN:** *Aanai veratti*. **Sp.Ex.:** LP 3043 (SACONH); VN 78925 (MH); KCJ 81499 (MH).

PILEA Lindl., Coll. Bot. t. 4. 1821.

Pilea microphylla (L.) Liebm., Mexic. Neldeagt. Pl. V. 2: 302. 1851; FBI 5: 551. 1888; FPM 2: 965. 1957; FTC 3(2): 1493. 1983; FTN 2: 247. 1987.

Monoecious herb. Leaves elliptic-ovate, subsucculent, raphides transverse. Flowers in stalked, umbellate clusters. *Male flowers* tepals 4, free, concave; stamens 4. *Female flowers* tepals connate, minutely 2-4 toothed, valvate. Ovary ellipsoid. Achenes ellipsoid. Common in crevices of rock walls. Also, a weed in gardens. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2991 (SACONH).

POUZOLZIA Gaudich., Freyc., Voy. Bot. 503. 1826.

Key to the species

- 1a. Inflorescence a terminal, leafy spike; male flower buds truncate....*P. wightii* var. *nilghirensis*
- 1b. Inflorescence an axillary cluster; male flower buds rounded.....2
- 2a. Male flowers 5-merous; leaf apex acuminate.....*P. auriculata*
- 2b. Male flowers 4-merous; leaf apex acute.....*P. zeylanica*

Pouzolzia auriculata Wight, Icon. Pl. Ind. Orient. 6: 42. 1853; FBI 5: 582. 1888; FSIHS 374. 1932; FPM 3: 967. 1957; FTC 3(2): 1495. 1983; FTN 2: 247. 1987.

Shrub, tender parts white hairy. Leaves alternate, elliptic-lanceolate, appressed hairy. Flowers in (sub)sessile clusters. *Male flowers* buds rounded; tepals 5, ovate, concave; stamens 5. *Female flowers* tepals connate, minutely toothed. Ovary sericeous. Achenes usually not winged. Occasional in foothills. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 49718, 49719 (MH); VN 79020 (MH).

Pouzolzia wightii Benn., Pl. Jav. Rar. 1: 66. 1838, var. **nilghirensis** (Wight) Hook. f., Fl. Brit. India 5: 584. 1888; FSIHS 3: 551. 1932; FPM 3: 967. 1957; FTC 3(2): 1497. 1983; FTN 2: 248. 1987. *P. nilghirensis* Wight, Icon. Pl. Ind. Orient. t. 2097, f. 26. 1853, "*neilgherrensis*".

Shrub, tender parts pubescent, gradually tapering into leafy spikes. Leaves alternate, obovate-lanceolate, scabrid above, pubescent below. Flowers in sessile clusters. *Male flowers* buds truncate; tepals 4(5), free, ovate-lanceolate; stamens 4(5). *Female flowers* tepals connate, pubescent; ovary obovoid; style linear. Achenes obovoid, prominently winged.

Occasional in stream banks of the high altitude. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 18192 (FRC).

Pouzolzia zeylanica (L.) Benn., Pl. Jav. Rar. 1: 67. 1838; FTC 3(2): 1497. 1983; FTN 2: 249. 1987. *Panetana zeylanica* L., Sp. Pl. 1052. 1753. *Pouzolzia indica* (L.) Gaudich., Voy. Uranie 12: 503. 1830; FBI 5: 581. 1888; FPM 3: 967. 1957.

Shrub. Leaves alternate, elliptic-ovate, sparingly strigose. Flowers in subsessile clusters. Bracts 2, concave. Bracteoles lanceolate, scarious. *Male flowers* buds rounded; tepals 4, ovate-lanceolate; stamens 4. *Female flowers* tepals connate, sericeous-pubescent; style linear, thinly pubescent. Achenes 2-winged.

Common in the forest borders. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** PSAT 187229 (MH).

MORACEAE Gaudich., Gen. Pl. 13. 1835.

Key to the genera

- 1a. Flowers in syconia.....*Ficus*
- 1b. Flowers not in syconia.....2
- 2a. Fruits above 5 cm across, echinate.....*Artocarpus*
- 2b. Fruits below 1 cm across, not echinate.....3
- 3a. Stems herbaceous; inflorescence flat.....*Dorstenia*
- 3b. Stems woody; inflorescence globose.....4
- 4a. Plant a straggler; leaves entire; female flowers in heads.....*Plecosperrum*
- 4b. Plant a shrub or tree; leaves senate; female flowers solitary or in cymes.....*Streblus*

ARTOCARPUS J.R.Forst. & G.Forst., Char. Gen. Pl. 51. 1775.

Artocarpus heterophyllus Lam., Encycl. 3: 29. 1789, "*heterophylla*"; FTC 3(2): 1509. 1983; FTN 2: 251. 1987. *A. integrifolius* acut. non L. f. 1791; FBI 5: 541. 1888, non L. f. 1781; FPM 3: 957. 1957.

Evergreen trees. Leaves simple, alternate, obovate-oblong, entire, glabrous and shining above, scabrous beneath. Stipules ovate-lanceolate. Flowers minute, in spikes enclosed by spathe-like bracts. Male from young branches, catkin narrow cylindric. Female catkins from the trunk and mature branches, more massive. Sorosis oblong, echinate fruiting perianth yellow to light orange, fleshy. Seeds elliptic-oblong

Occasional in semi-evergreen forest. **Fl. & Fr.:** Nov.-June. **Sp.Ex.:** VN 78930 (MH); KCJ & JD 81119 (MH); PSAT 187344, 187343 (MH).

DORSTENIA L., Sp. Pl. 121. 1753.

Dorstenia indica Wight, Icon. Pl. Ind. Orient. 6: 8. 1853; FBI 5: 494. 1888; FSIHS 3: 543. t. 474. 1932; FPM 3: 958. 1957; FTC 3(2): 1510. 1983; FTN 2: 251. 1987.

Tufted herb. Leaves alternate, obovate or oblanceolate, acute, base attenuate or cuneate, membranous, distantly toothed. Flowers monoecious, many, on obconical receptacle. Receptacle axillary, solitary, discoid, 5-angled. *Male flowers* towards the periphery of the receptacle, stamens

3. *Female flowers* grouped at the centre; ovary sunken in the tissue of the receptacle, style lateral, stigmas 2. Fruit an achene, sunken.
Occasional in rocks and tree trunks of the moist deciduous and evergreen forest. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** VS 18921 (FRC).

FICUS L., Sp. Pl. 2: 1059. 1753.

Key to the species

1a. Root climbers or creepers.....	<i>F. pumila</i>
1b. Trees, shrubs or stragglers.....	2
2a. Syconia pedunculate.....	3
2b. Syconia sessile.....	9
3a. Leaves hispid or scabrous above.....	4
3b. Leaves neither hispid nor scabrous above.....	5
4a. Syconia solitary, axillary.....	<i>F. exasperata</i>
4b. Syconia in clusters, cauliflorous.....	<i>F. hispida</i>
5a. Syconia cauliflorous.....	<i>F. racemosa</i>
5b. Syconia axillary.....	6
6a. Leaves cordate at base.....	<i>F. arnottiana</i>
6b. Leaves not cordate at base.....	7
7a. Syconia pubescent at scabrous, yellow when ripe.....	<i>F. tinctoria</i>
7b. Syconia glabrous or sparsely puberulous, reddish purple when ripe.....	8
8a. Petioles above 2.5 cm long.....	<i>F. virens</i>
8b. Petioles below 2 cm long.....	<i>F. nervosa</i>
9a. Young shoots wooly.....	10
9b. Young shoots glabrous or glabrescent.....	11
10a. Leaves and mature syconia glabrescent.....	<i>F. drupacea</i>
10b. Leaves and mature syconia tomentose.....	<i>F. mollis</i>
11a. Leaves truncate to cordate at base.....	12
11b. Leaves obtuse to cuneate at base.....	13
12a. leaves obtuse to acute at apex; syconia above 1.5 cm across.....	<i>F. benghalensis</i>
12b. Leaves cordate at apex; syconia below 1 cm across.....	<i>F. religiosa</i>
13a. Petioles 0.5-2 cm long, nerves close-set.....	14
13b. Petioles 2.5-8 cm long, nerves distant.....	15
14a. Ripened fruits yellowish brown.....	<i>F. microcarpa</i>
14b. Ripened fruits orange.....	<i>F. benjamina</i>
15a. Syconia above 1.2 cm across.....	<i>F. amplissima</i>
15b. Syconia below 0.6 cm across.....	<i>F. tsjahela</i>

Ficus amplissima Sm., Cyclop. 14: n. 1. 1810; FTC 3(2): 1515. 1983; FTN 2: 251. 1987; Sudhakar *et al.*, Fig. East. Ghats 26. 2017. *F. tsiela* Roxb. ex Buch.-Ham., Trans. Linn. Soc. London 15: 149. 1826; FBI 5: 515. 1888; FSIHS 3: 542. 1932; FPM 2: 953. 1957.

Large spreading tree, monoecious, hemi-epiphytic, aerial roots few. Stipule ovate-lanceolate. Fig obovoid or obconical, solitary or paired, axillary, sessile, young fig light green, purple when ripe. Achenes ellipsoid or obovoid.

Common in dry and moist deciduous forest. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KCJ 81408 (MH).

Ficus arnottiana (Miq.) Miq., Ann. Mus. Lugduno-Batavi 3: 287. 1867; FBI 5: 513. 1888; FPM 2: 953. 1957; FTC 3(2): 1515. 1983; FTN 252. 1987; Sudhakar *et al.*, Fig. East. Ghats 30. 2017.

Smooth barked tree, monoecious, aerial roots absent. Leaves alternate, cordate, subcordate, ovate, subcoriaceous. Stipule ovate to lanceolate. Fig globose, clusters of 3-4, axiles of fallen leaves or below the leaves. Achenes ovoid or ellipsoid.

Common in rocky areas of moist deciduous and evergreen forests. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** PSAT 186986 (MH).

Ficus benghalensis L., Sp. Pl. 1059. 1753, var. *benghalensis*; FBI 5: 499. 1888; FPM 3: 952. 1957; FTC 3(2): 1518. 1983; FTN 2: 252. 1987; Sudhakar *et al.*, Fig. East. Ghats 36. 2017.

Large evergreen tree, monoecious, hemi-epiphytic, buttressed, aerial prop root numerous. Leaves alternate, often clusters at end of branches, ovate, orbicular to elliptic. Stipule deltoid or broadly triangular. Figs 1 or 2, axillary, depressed-globose, sessile. Tepals 3-5. Male fig stamen 1. Female fig ovary obovoid-globose. Achenes globose-ellipsoid.

Common in dry and moist deciduous and evergreen forest. Also planted along the roadsides and temple premises. **Sp.Ex.:** KCJ 81213 (MH); PSAT 186669, 186670, 18361 (MH).

Ficus benjamina L., Mant. Pl. 1: 129. 1767, var. *benjamina*; FBI 5: 508. 1888; FSIHS 3: 542. 1932; FPM 3: 956. 1957; FTC 3(2): 1519. 1983; FTN 2: 252. 1987; Sudhakar *et al.*, Fig. East. Ghats 40. 2017.

Dense crowned tree, monoecious, evergreen, hemi-epiphytic, aerial roots absent or few. Leaves alternate, elliptic or ovate, coriaceous, basal and later nerves inconspicuous. Stipule lanceolate. Fig globose or ovoid, in pairs, rarely solitary, axillary, sessile. Achenes ovoid.

Occasional in deciduous forest. **Fl. & Fr.:** Jan.-July. **Sp.Ex.:** LP 1406 (SACONH).

Ficus drupacea Thunb., Diss. Fic. 11. 1786, var. *pubescens* (Roth.) Corner, Gard. Bull. singapore 17: 381. 1960; FTC 3(2): 1519. 1983; FTN 2: 253. 1987; Sudhakar *et al.*, Fig. East. Ghats 48. 2017. *F. mysorensis* B. Heyne ex Roth in Roem. & Schult., Syst. Veg. 1: 508. 1817; FBI 5: 500. 1888; FPM 3: 952. 1957.

Large tree, hemi-epiphytic, monoecious, aerial root basking the trunk. Leaves alternate, symmetric, ovate, elliptic to oblong, rarely obovate, coriaceous. Stipules ovate-lanceolate. Figs axillary, solitary, sessile, ellipsoid-globose. Tepals 3-4, free, ovate-concave. Male fig disperse, pedicellate, stamen 1, exserted. Female fig sessile, ovary obovoid. Achenes smooth.

Occasional in moist deciduous forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KCJ 81413 (MH).

Ficus exasperata Vahl, Enum. Pl. 2: 197 & 402. 1805; FTC 3(2): 1520. 1983; FTN 2: 253. 1987; Sudhakar *et al.*, Fig. East. Ghats 52. 2017. *F. asperrima* Roxb., Fl. India 3: 554. 1832; FBI 5: 522. 1888; FPM 3: 955. 1957.

Small tree, dioecious, aerial roots absent. Leaves alternate, sometimes crowded at the tip of branchlets, symmetric, sometimes asymmetric, ovate, obovate or elliptic, hispid. Figs axillary, solitary, globose or ellipsoid, ripening yellow. Tepals 3-6, free, linear - spatulate, white - hairy. *Male fig* ostiolar, 1-or 2-seriate, stamen 1. *Female fig* sessile, ovary obovoid. Achenes oblong.

Occasional in moist deciduous forest. **Fl. & Fr.:** Dec.-July. **Sp.Ex.:** LP 1355 (SACONH).

Ficus hispida L. f., Suppl. Pl. 442. 1782; FBI 5: 522. 1888; FPM 3: 956. 1957; FTC 3(2): 1522. 1983; FTN 2: 254. 1987; Sudhakar *et al.*, Fig. East. Ghats 61. 2017.

Shrub or medium sized tree with sticky milky exudates, dioecious, aerial roots absent. Leaves simple, opposite to subopposite, ovate to oblong, thick coriaceous or chartaceous. Stipule terminal or axillary. Figs obovate, turbinate or depressed globose, axillary in pairs or solitary. Achenes ovoid or elliptic.

Common in dry and moist deciduous forest. **Fl. & Fr.:** Mar.- Nov. **Sp.Ex.:** LP 1354 (SACONH).

Ficus microcarpa L. f., Suppl. Pl. 442. 1782; FTC 3(2): 1522. 1983; FTN 2: 254. 1987; Sudhakar *et al.*, Fig. East. Ghats 64. 2017. *F. retusa* auct., non L. 1767; FBI 5: 511. 1888; FPM 3: 952. 1957.

Dense crowned tree, hemi-epiphytic, lithophytic, aerial roots numerous. Leaves alternate, ovate to subrotund, rhomboid., basal and lateral nerves inconspicuous. Stipule ovate-lanceolate. Figs axillary, paired, sessile, globose, ripening orange, tepals 3-4, free, ovate-lanceolate. *Male fig* disperses, stamens 1. *Female fig* sessile, ovary ovoid-globose, red brown. Achenes ovoid or obovoid, smooth.

Common in dry and moist deciduous and rare in semi-evergreen forest. **Fl. & Fr.:** Mar.-Oct. **Sp.Ex.:** LP 2998, 2225 (SACONH); KA & PB 1611 (SACONH); VS 18633, 18634 (MH); CECF 49036 (MH); VN 78367, 78953, 79795 (MH); KCJ 81270, 81410 (MH); SRR 83205 (MH); PSAT 186609, 186610, 186743, 186744, 186842, 186843, 186995 (MH).

Ficus mollis Vahl, Symb. Bot. 1: 82. 1790; FTC 3(2): 1524. 1983; FTN 2: 254. 1987; Sudhakar *et al.*, Fig. East. Ghats 67. 2017. *F. tomentosa* Roxb., ex Willd., Sp. Pl. 4: 1136. 1806; FBI 5: 501. 1888; FPM 3: 952. 1957; FTN 2: 254. 1987.

Epiphytic or lithophytic tree, monoecious, aerial roots few. Leaves alternate, ovate to elliptic, sometime pandurate, coriaceous, dark green above pale beneath, glabrous. Stipule ovate-lanceolate. Figs axillary, paired or clustered, sessile. Tepals 3-4, ovate – lanceolate. *Male fig* disperse, subsessile, stamen 1. *Female fig* sessile, ovary ovoid-globose, red-brown. Achenes ovoid, yellowish mucilaginous.

Common in rocky areas of scrub jungle and dry deciduous forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 3105 (SACONH); VS 18865 (FRC); VN 79699 (MH); PSAT 186605, 186606 (MH).

Ficus nervosa B. Heyne ex Roth., Nov. Pl. Sp. 388. 1821; FBI 5: 512. 1888; FPM 2: 954. 1957; FTC 3(2): 1525. 1983; FTN 2: 254. 1987; Sudhakar *et al.*, Fig. East. Ghats 70. 2017. *F. angustifolia* Roxb., Fl. India 3: 554. 1832.

Large buttressed tree, monoecious, aerial roots absent. Leaves alternate, rarely subopposite, asymmetric, elliptic oblong-lanceolate. Stipule ovate-lanceolate. Fig depressed globose to pyriform, in pairs or solitary, axillary. Achenes ovoid or trigonus.

Occasional in moist deciduous forest. **Fl. & Fr.:** Sept.-May. **Sp.Ex.:** VS 18882, 18907 (FRC).

Ficus pumila L., Sp. Pl. 1060. 1753; FPM 2: 956. 1957; FTC 3(2): 1526. 1983; FTN 2: 254. 1987; Sudhakar *et al.*, Fig. East. Ghats 124. 2017.

Procumbent root climber, dioecious. Leaves alternate, dimorphic. *Acrophylls* ovate, elliptic to oblong, thickly coriaceous. *Bathyphylls* ovate to cordate, green above pale beneath. Stipule in pairs or clustered, ovate-lanceolate. Fig subglobose to pyriform, solitary, axillary. Achenes subterate.

Planted, creeping the walls. **Fl. & Fr.:** Jan.-Aug. **Sp.Ex.:** LP 1353 (SACONH).

Ficus racemosa L., Sp. Pl. 1060. 1753; FTC 3(2): 1526. 1983; FTN 2: 255. 1987; Sudhakar *et al.*, Fig. East. Ghats 75. 2017. *F. glomerata* Roxb., Pl. Coromandel t. 123. 1799; FBI 5: 535. 1888; FSIHS 3: 541. 1932; FPM 3: 954. 1957.

Large buttressed tree, monoecious, aerial roots absent or few. Leaves alternate, symmetric or asymmetric, elliptic, oblong to lanceolate, chartaceous. Stipule terminal or axillary, many, ovate-lanceolate, pink to purple. Fig sub-globose to sub-pyriform or turbinate, cauliflorous, white pilose. *Male fig* ostiolar, stamens 2, exserted. *Female fig* ovary sessile or shortly stalked. Achenes lenticular.

Common along the river banks, streams and roadsides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2916 (SACONH); KNS 13423 (FRC); VS 18006 (FRC); KCJ 81375 (MH); SRR 83218 (MH); PSAT 187353, 187354 (MH).

Ficus religiosa L., Sp. Pl. 1059. 1753; FBI 5: 513. 1888; FPM 3: 953. 1957; FTC 3(2): 1527. 1983; FTN 2: 255. 1987; Sudhakar *et al.*, Fig. East. Ghats 78. 2017.

Large tree, monoecious, hemi-epiphytic, aerial roots absent. Leaves alternate, broadly ovate to suborbicular to cordiform, coriaceous. Stipules ovate-lanceolate or subulate, puberulous. Figs globose, paired, rarely solitary, axillary. *Male fig* ostiolar, sessile, tepals 2, free, stamen 1. *Female fig* sessile, tepals 3-4, free, ovary ovoid-oblong. Gall flowers similar. Achenes smooth. Common in dry and moist deciduous forest. Also planted along the roadsides and temple premises. **Fl. & Fr.:** Mar.-July. **Sp.Ex.:** KCJ 81416 (MH); PSAT 186758, 186759 (MH).

Ficus tinctoria G. Forst., Fl. Ins. Austr. 76. 1786, subsp. **gibbosa** (Blume) Corner var. **cuspidifera** (Miq.) Chithra in A.N. Henry *et al.*, FTN 2: 255. 1987; Sudhakar *et al.*, Fig. East. Ghats 89. 2017. *F. tinctoria* Forstf., subsp. *parasitica* (Willd.) Comer, Gard. Bull. Straits Settlement. 17: 476. 1960. var. *parasitica*; FTC 3(2): 1528. 1983; FTN 2: 255. 1987.

Straggler or small free-standing tree, hemi-epiphytic, aerial roots absent or few, dioecious. Leaves alternate, distichous asymmetric, rhomboid to sub-rhomboid, coriaceous. Stipule terminal or axillary, lanceolate. Fig globose or depressed globose, pyriform, in pairs or clustered, rarely 1. Tepals 3-5, free. *Male fig* ostiolar, stamen 1. *Female fig* sessile, ovary obovoid-globose. Achenes ovoid-elliptic.

Occasional in moist deciduous forest. **Fl. & Fr.:** Dec.-May. **Sp.Ex.:** PSAT 187188 (MH); KCJ 81374 (MH).

Ficus tsjahela Burm. f., Fl. India. 227. 1768; FBI 5: 514. 1888; "*tjakela*": FPM 3: 953. 1957; FTC 3(2): 1530. 1983; FTN 2: 256. 1987; Sudhakar *et al.*, Fig. East. Ghats 92. 2017.

Tree, aerial root absent, early epiphytic, monoecious. Leaves alternate, ovate-lanceolate, coriaceous, lucid, young leaves reddish. Stipule in pairs, smaller on resting buds. Fig axillary or on leafless branchlets 2-6, rarely 1, sessile, depressed globose. *Male fig* tepals 2-3, ovate-lanceolate, ostiolar, sessile, stamen 1. *Female fig* tepals 3-4, ovate-lanceolate, ovary obovoid. Achenes smooth.

Common in moist deciduous forest. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** LP 2012 (SACONH); KNS 6960 (FRC); VS 18635 (FRC); CECF 49077 (MH); VN 78325 (MH); KCJ 81419 (MH); PSAT 186772, 186773 (MH).

Ficus virens Aiton, Hort. Kew. 3: 451. 1789, var. *virens*; FTC 3(2): 1531. 1983; FTN 2: 256. 1987; Sudhakar *et al.*, Fig. East. Ghats 98. 2017. *F. infectoria* sensu Roxb., Fl. Ind. 3: 551. 1832, non Willd. 1806; FBI 5: 515. 1888; FPM 3: 953. 1957.

Large tree, monoecious, aerial root absent or few. Leaves alternate, elliptic to lanceolate, sub-coriaceous or coriaceous. Stipule ovate-acute. Fig globose in pairs, axillary, white, green with pink or red dots. *Male fig* shortly stalked, stamen 1. *Female fig* sessile. Achenes ovoid.

Along river and stream banks of the dry and moist deciduous forest. **Fl. & Fr.:** Oct.-June. **Sp.Ex.:** VN 78336 (MH); KCJ 81505, 81391 (MH).

PLECOSPERMUM Trecul, Ann. Sci. Nat. Bot. ser. 3. 8. 124. 1847.

Plecosperrum spinosum (Roxb. ex Willd.) Trecul, Ann. Sci. Nat. Bot. Ser. 3. 8: 124, t. 4. ff. 121-126. 1847; FBI 5: 491. 1888; FPM 3: 947. 1957; FTC 3(2): 1533. 1983; FTN 2: 256. 1987.

Woody climber. Leaves elliptic-ovate, cuneate at base, entire at margins, shortly acuminate at apex. Flowers in axillary heads, white, sessile. Perianth - lobes 4, ovate - acute in

male; tubular and minutely 4-lobed in female. Stamens 4. Ovary obovoid, sunk in receptacle. Style simple, hairy, exerted. Syncarp sub-globose. Occasional in hill slopes. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** CECF 48920, 48921 (MH); KCJ 81105 (MH); PSAT 186812, 186813 (MH).

STREBLUS Lour., Fl. Cochinch. 2: 754. 1790.

Streblus asper Lour., Fl. Cochinch. 2: 615. 1790; FBI 5: 489. 1888; FPM 3: 947. 1957; FTC 3(2): 1534. 1983; FTN 2: 257. 1987.

Small tree. Leaves elliptic - obovate to rhomboid, scabrid. *Male flowers* in stalked clusters; tepals 4, lanceolate, stamens 4. *Female flowers* 2-4 in each node; tepals 4, ovate, ovary ovoid. Drupe within persistent perianth.

Occasional in foothills and scrub jungles. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** CECF 6150 (FRC); KNS 6967 (FRC); KCJ 81153 (MH).

CASUARINACEAE R. Br., Voy. Terra Austral. 2: 571. 1814, nom. cons.

CASUARINA Adens. Fam., 2: 481. 1763.

Casuarina equisetifolia L., Amoen. Acad. 4: 143. 1759, "*equisetifolia*"; Forst. & Forst.f., Char. Gen. Pl. 104. f. 53. 1776; FBI 5: 598. 1888; FPM 3: 972. 1957; FTC 3(2): 1536. 1983. *C. litorea* L., Diss. Stickman 12. 1754, "*Casaarina*"; FTN 2: 257. 1987.

Trees, branchlets arising from the axils of small, recurved scales. Leaves ca.7 in a node, scaly, alternating with ribs of the upper nodes. *Male spike* tepals 2, lanceolate, thinly ciliate; stamens 1. *Female spike* 1 or more, shortly stalked; bracts and bracteoles persistent, woody; tepals 0. Ovary ovoid; style filiform. Carpophores ovoid or oblong-cylindric. Nutlets compressed, winged, tipped by persistent style. Seeds exalbuminous.

Cultivated in plains. **Fl. & Fr.:** Feb.-June. **Sp.Ex.:** LP 1496 (SACONH).

SALICACEAE Mirb., Elém. Physiol. Vég. Bot. 2: 905. 1815.

SALIX L., Sp. Pl. 1015. 1753.

Salix tetrasperma Roxb., Pl. Coromandel 1: 66. t. 97. 1795; FBI 5: 626. 1888; FSIHS 3: 554. 1932; FPM 3: 973. 1957; FTC 3(2): 1538. 1983; FTN 258. 1987.

Deciduous tree, tender parts glabrous. Leaves lanceolate, subcoriaceous, glabrous, margin crenate to serrate. Catkins axillary or terminating the dwarfed. Bracts one flowered, ovate, elliptic, concave. Stamens 6-9, unequal. Ovary conical, basally rounded. Capsule 2-valved. Seeds ovate-lanceolate.

Common in watercourses. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** CECF 6223, 6225 (FH).

ULMACEAE Mirb., Elém. Physiol. Vég. Bot. 2: 905. 1815.

Key to the genera

- 1a. Fruits winged; leaves penninerved.....*Holoptelea*
- 1b. Fruits not winged; leaves 3-nerved from base.....2
- 2a. Flowers unisexual; leaves glaucous below, serrulate at margin.....*Trema*
- 2b. Flowers bisexual; leaves not glaucous below, entire or distally serrate at margins.....*Celtis*

CELTIS L., Sp. Pl. 2: 1043. 1753.

Key to the species

- 1a. Leaves oblique at base.....*C. tetrandra*
- 1b. Leaves acute-obtuse at base.....2

- 2a. Leaf margin entire.....*C. philippensis*
 2b. Leaf margin serrate.....*C. timorensis*

Celtis philippensis Blanco, Fl. Filip. 197. 1837; FTC 3(2): 1501. 1983; FTN 2: 249. 1987. *C. wightii* Planch., Ann. Sci. Nat. Bot. ser. 3. 10: 307. 1948; FBI 5: 483. 1888; FSIHS 3: 538. t. 471. 1932; FPM 3: 944. 1957.

Trees. Leaves elliptic to oblong-lanceolate, base rounded, apex acute. Panicle short, many flowered. Male in the upper part of the new shoots, bisexual ones above. tepals 5, concave, membranous, finely ciliate. Stamens 5, occasionally unequal. Ovary obovoid. Style-arms broadly bifurcate, papillose. Drupe ellipsoid, epicarp leathery-coriaceous.

Common in dry and moist deciduous forest. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** LP 2554, 2810 (SACONH); CAB 48803, 48806 (MH).

Celtis tetrandra Roxb., Fl. Ind. 2: 63. 1824; FBI 5: 482. 1888; FSIHS 3: 538. 1932; FPM 3: 944. 1957; FTC 3(2): 1502. 1983; FTN 2: 250. 1987.

Tree, tender parts puberulous. Leaves obliquely obovate to rhomboid, glabrous or greyish-white above, base obliquely acute to attenuate, margin serrate. Stipule linear-lanceolate. Inflorescence racemose ca. 15-flowered. Male 2-5, borne on leafless new shoots. Female ones in leaf axils. Tepals 4, ovoid-lanceolate, concave. Stamens 4. Ovary obovoid. Drupe globose.

Occasional in evergreen forest. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** LP 2937 (SACONH); CECF 6141 (FRC); VS 19351 (FRC); CECF 48781, 48782 (MH); KCJ 81368 (MH); SRR 83212 (MH).

Celtis timorensis Span, Linnaea 15: 343. 1841; FTC 3(2): 1503. 1983; FTN 2: 250. 1987. *C. cinnamomea* Lindl. ex Planch, Ann. Sci. Nat. Bot. (Ser. 3) 10: 303. 1848; FBI 5: 482. 1888; FSIHS 538. 1932; FPM 3: 944. 1957.

Trees, tender parts pubescent. Leaves chartaceous or subcoriaceous, base rounded, margin entire or serrate. Inflorescence racemose ca. 15 flowered. Tepals 5, linear, slightly incurved. Stamens 5. Ovary ellipsoid. Drupe ovoid-globose.

Occasional in deciduous forest. **Fl. & Fr.:** Mar.-June. **Sp.Ex.:** KNS 1721, 12923, 12950 (FRC).

HOLOPTELEA Planch., Ann. Sci. Nat. Bot. Ser. 3. 10. 259, 266. 1848.

Holoptelea integrifolia (Roxb.) Planch, Ann. Sci. Nat. Bot. Ser. 3. 10: 259. 1848; FBI 5: 481. 1888; FPM 3: 943. 1957; FTC 3(2): 1503. 1983; FTN 2: 250. 1987. *Ulmus integrifolia* Roxb., Pl. Coromandel t. 78. 1798.

Polygamous, deciduous tree, tender parts pubescent. Leaves distichous, elliptic-ovate, subcoriaceous. Fascicles at the scars of the old shoots, bracts scaly. Flowers subsessile, male and bisexual mixed. Tepals 4, free, concave. Stamens 7-9, biseriate. Ovary compressed-ovate. Fruit a dry, winged, compressed samara. Seeds flat, exalbuminous.

Common in foothills and planted along the roadsides. **Fl. & Fr.:** Feb.-May. **VN:** *Aaya maram*. **Sp.Ex.:** VS 19352 (FRC); CECF 48747, 48748, 48749 (MH); VN 79176 (MH); KCJ 81165 (MH); PSAT 187140 (MH).

TREMA Lour., Fl. Cochinch. 2: 539, 562. 1790.

Trema orientale (L.) Blume, Mus. Bot. 2: 62. 1856; FBI 5: 484. 1888; FSIHS 3: 539. t. 472. 1932; FPM 3: 945. 1957; FTC 3(2): 1504. 1983; FTN 2: 250. 1987.

Dioecious, evergreen tree. Leaves obovate to broadly lanceolate, subcoriaceous to rugose, margins serrulate. Cymes axillary, in cluster. Flowers 5-merous, unisexual. Tepals 5, free, concave. Stamens 5. Pistillode oblong. Style arms 2, erect, hairy pointed. Drupe globose.

Common in ravines. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** VS 187632, 19349, 19350 (FRC); CECF 48853 (MH); KCJ 81395 (MH); PSAT 187115 (MH).

HYDROCHARITACEAE Juss., Gen. Pl. 67. 1789.

OTTELIA Pers., Syn. Pl. 1: 400. 1805.

Ottelia alismoides (L.) Pers., Syn. Pl. 1: 400. 1805; FBI 5: 662. 1888; FPM 3: 978. 1957; FTC 3(3): 1546. 1983; FTN 3: 2. 1989.

Acaulescent herb, rootstock sometimes well developed. Leaves radical, submerged and floating. Flowers unisexual and/or bisexual. Spathes elliptic-ovate, greenish, 6-winged. Flowers solitary, sessile. Sepals 3, oblong-lanceolate, persistent. Petals 3, white with yellow spots, oblong-obovate. Stamens 9-15. Ovary oblong, style bifid, stigma terminal. Fruit oblong-ellipsoid. Common in rivers, streams ditches and ponds. **Fl. & Fr.:** Aug.-Sept. **Sp.Ex.:** KCJ 81325 (MH).

ORCHIDACEAE Juss., Gen. Pl. 64. 1789.

Key to the genera

1a. Plants epiphytic.....	2
1b. Plants terrestrial.....	15
2a. Leaves with pseudobulbs.....	3
2b. Leaves without pseudobulbs.....	7
3a. Pseudobulbs with single leaf.....	<i>Bulbophyllum</i>
3b. Pseudobulbs with 2 or more leaves.....	4
4a. Flowers in panicles.....	<i>Polystachya</i>
4b. Flowers in racemes.....	5
5a. Pseudobulbs discoid.....	<i>Conchidium</i>
5b. Pseudobulbs not discoid.....	6
6a. 2-3-flowered, bracts oblong-lanceolate.....	<i>Eria</i>
6b. 4-5 flowered, bracts ovate.....	<i>Coelogyne</i>
7a. Leaves terete.....	8
7b. Leaves flat or keeled.....	9
8a. Lip without spur.....	<i>Luisia</i>
8b. Lip with spur.....	<i>Papilionanthe</i>
9a. Flowers dense, in spikes.....	<i>Oberonia</i>
9b. Flowers lax, in racemes.....	10
10a. Leaves acute at apex.....	<i>Dendrobium</i>
10b. Leaves obtuse or bilobed at apex.....	11
11a. Lip spurred.....	12
11b. Lip not spurred.....	<i>Cymbidium</i>
12a. Lip with a single conical or saccate spur.....	13
12b. Lip with 2 small collateral spurs.....	<i>Diplocentrum</i>
13a. Flowers pale pink.....	<i>Aerides</i>
13b. Flowers bright yellow.....	14
14a. Sepals and petals narrowed at base; leaf apex irregularly toothed.....	<i>Vanda</i>
14b. Sepals and petals not narrowed at base; leaf apex bilobed with unequal lobes.....	<i>Acampe</i>
15a. Plant climbing.....	<i>Vanilla</i>
15b. Plants not climbing.....	16
16a. Lip with two spurs.....	<i>Satyrium</i>
16b. Lip with one spur or none.....	17
17a. Leaf 1; cordate at base.....	<i>Nervilia</i>
17b. Leaves 2-many; not cordate at base.....	18
18a. Inflorescence decurved.....	<i>Geodorum</i>

- 18b. Inflorescence erect.....19
 19a. Lip with spur.....20
 19b. Lip without spur.....*Zeuxine*
 20. Root tuberous; leaves sessile.....*Habenaria*
 20. Root not tuberous; leaves petioled.....*Calanthe*

ACAMPE Lindl., Fol. Orchid. 4: 1. 1853.

Acampe praemorsa (Roxb.) Blatt. & McCann, J. Bombay Nat. His. Soc. 35: 495. 1932; Abraham & Vatsala, Introd. Orchids 450. 1981; FTC 3(3): 1602. 1983; Joseph, Orchids of Nilgiris 183. p. 93. f. 1-4. 1987; FTN 3: 3. 1989; OEG 33. 2019.

Epiphytic or lithophytic herbs. Stem erect or pendulous, stout, terete. Leaves coriaceous, sessile, lorate or linear-oblong, unequally bilobed. Inflorescence leaf-opposed or supra-axillary, shorter than leaves. Sepals and petals pale yellow with irregular transverse maroon bands. Lip white with maroon line at the base. Stigma suborbicular, rostellum bifid. Capsule oblong or fusiform.

Common in moist deciduous forests. **Fl. & Fr.:** May-Oct. **Sp.Ex.:** LP 2975 (SACONH).

AERIDES Lour., Fl. Cochinch. 2: 525. 1790.

Key to the species

- 1a. Flowers pinkish violet; lip horizontal or inflexed.....*A. maculosum*
 1b. Flowers white with pink; lip deflexed.....*A. ringens*

Aerides maculosa Lindl., Bot. Reg. t. 58. 1845; FBI 6: 45. 1890; FPM 3: 1008. 1957; FTN 3: 4. 1989; OEG 39. 2019.

Epiphytic. stem erect or pendulous. Leaves coriaceous, sessile, linear-oblong, unequally lobed, spaced with purple spots. Inflorescence axillary, simple branched, densely many flowered racemes. Floral bracts greenish purple. Flowers fragrant, whitish-rose and sepals and petals with purple spots. Lip spreading, clawed. Column purple-white. Stigma sub-orbicular. Pollinia 3. Capsule obovoid.

Rare in moist deciduous forest. **Fl. & Fr.:** June-July. **Sp.Ex.:** VN 79717(MH).

Aerides ringens (Lindl.) C.E.C. Fish. in Gamble, Fl. Madras 1442. 1928 & 3: 1008. 1957; FSIHS 3: 579. t. 505. 1932; FTC 3(3): 1593. 1983; Joseph, Orchids of Nilgiris 181. p. 92. f. 1-2. 1987; FTN 3: 4. 1989; OEG 43. 2019.

Epiphytic robust herb. Stem erect. leaves coriaceous, keeled sessile, linear-oblong, unequally bilobed, green with purple spot. Inflorescence axillary, erect; racemes lax many flowered. Flowers whitish rose. Lip sessile. Spur laterally compressed. Column whitish rose, oblong rectangular. Stigma orbicular. Pollinia 2, subglobose. Capsule fusiform.

Occasional in west coast semi evergreen forest. **Fl. & Fr.:** April-July. **Sp.Ex.:** KA & PB 1435, 1593 (SACONH); VS 18917 (FRC); KCJ 81455, 81456 (MH).

BULBOPHYLLUM Thouars, Hist. Orchid., Tabl. Esp. 3. 1822.

Key to the species

- 1a. Inflorescence umbellate; leafy when flower.....*B. fischeri*
 1b. Inflorescence racemose; leafless when flower.....*B. proudlockii*

Bulbophyllum fischeri Seidenf., Dansk Bot. Ark. 29: 202. (1973) 1974; FTC 3(3): 1591. 1983; Joseph, Orchids of Nilgiris 126. p. 64. f. 5-8. 1987; FTN 3: 5. 1989; OEG 51. 2019.

Epiphyte or lithophyte. Rhizome creeping, woody, branched, pseudobulbs brownish red, smooth, globose-ovoid. Leaf coriaceous, sessile. Sepals yellow with base densely striped and mottled with maroon. Petals erect, ovate-oblong, cream with maroon striations. Lip mobile, yellow with deep maroon striation at the base. Stigma oblong-orbicular. Pollinia 4, oblong-ovate. Dense forest. **Fl. & Fr.:** Oct.-Nov. **Sp.Ex.:** VN 78904 (MH).

Bulbophyllum proudlockii (King & Pantl.) J.J. Sm., Bull. Jard. Bot. Buitenzorg 2. 8: 27. 1912; Joseph, Orchids of Nilgiris 120. p. 61. f. 1-3. 1987; FTN 3: 5. 1989. *Cirrhopetalum proudlockii* King & Pantl., J. Asiat. Soc. Bengal, Pt. 2. Nat. Hist. 66: 588. 1897; FPM 3: 993. 1957.

Epiphytic, rhizome slender, pseudobulb small, wrinkled. Leafless when flowering. Flowers yellow-reddish. Petals moderately fimbriate. Lip short, straight, spatulate. Rare in evergreen forest. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** VS 18190, 18913 (FRC).

CALANTHE R. Br., Bot. Reg. 7: ad t. 573 ["578"]. 1821.

Calanthe triplicata (Willem.) Ames, Philipp. J. Sci. 2: 326. 1907, '*triplicatis*'; FTC 3(3): 1573. 1983; Joseph, Orchids of Nilgiris 65. p. 32. 1987; FTN 3: 6. 1989; OEG 60. 2019. *C. veratrifolia* (Willd.) Ker- Gawl., Bot Reg. 9: t. 720. 1823; FBI 5: 851. 1890; FSIHS 3: 574. t. 498. 1932; FPM 3: 1001. 1957.

Terrestrial herb; rhizome creeping, woody, pseudobulbs crowded. Inflorescence sparsely pubescent, racemes densely many flowered. Floral bracts shorter than ovary. Flowers white with red-orange callus. Lip sessile, 3-lobed, disc tubercled, spur cylindrical. Column white, truncate. Capsule ellipsoid.

Streams of evergreen forest. **Fl. & Fr.:** June-Oct. **Sp.Ex.:** LP 1284 (SACONH).

COELOGYNE Lindl., Coll. Bot. ad t. 33. 1821.

Coelogyne nervosa A. Rich., Ann. Sci. Nat. Bot. Ser. 2. 15: 16. 1841; FSIHS 3: 572. t. 466. 1932; FPM 3: 1000. 1957; Joseph, Orchids of Nilgiris 157. p. 81. f. 1-2. 1987; FTN 3: 7. 1989; OEG 71. 2019.

Epiphytic or lithophytic, rhizome horizontal, creeping woody, pseudobulbs crowded. Leaves 2, coriaceous, keeled, linear-oblong. Inflorescence terminal or arising from the base of pseudobulb, racemes laxly. Floral bracts as long as or longer than ovary, brown. Flowers scented, white. Column white, oblong, winged. Stigma orbicular. Pollinia 4, pyriform. Capsule ellipsoid. Rare in moss crowded tree trunk and rocks of evergreen forest. **Fl. & Fr.:** June-Oct. **Sp.Ex.:** LP 1876 (SACONH).

CONCHIDIUM Griff., Not. Pl. Asiat. 3: 321. 1851.

Conchidium braccatum (Lindl.) Brieger. in Schlechter, Orchideen 1(11-12): 751. 1981. *Eria reticosa* Wight, Icon. Pl. Ind. Orient. t. 1637. 1851; FBI 5: 787. 1890; FTN 3: 11. 1989. *Conchidium reticosum* (Wight) Ormerod, Taiwan 57: 119. 2012; OEG 75. 2019.

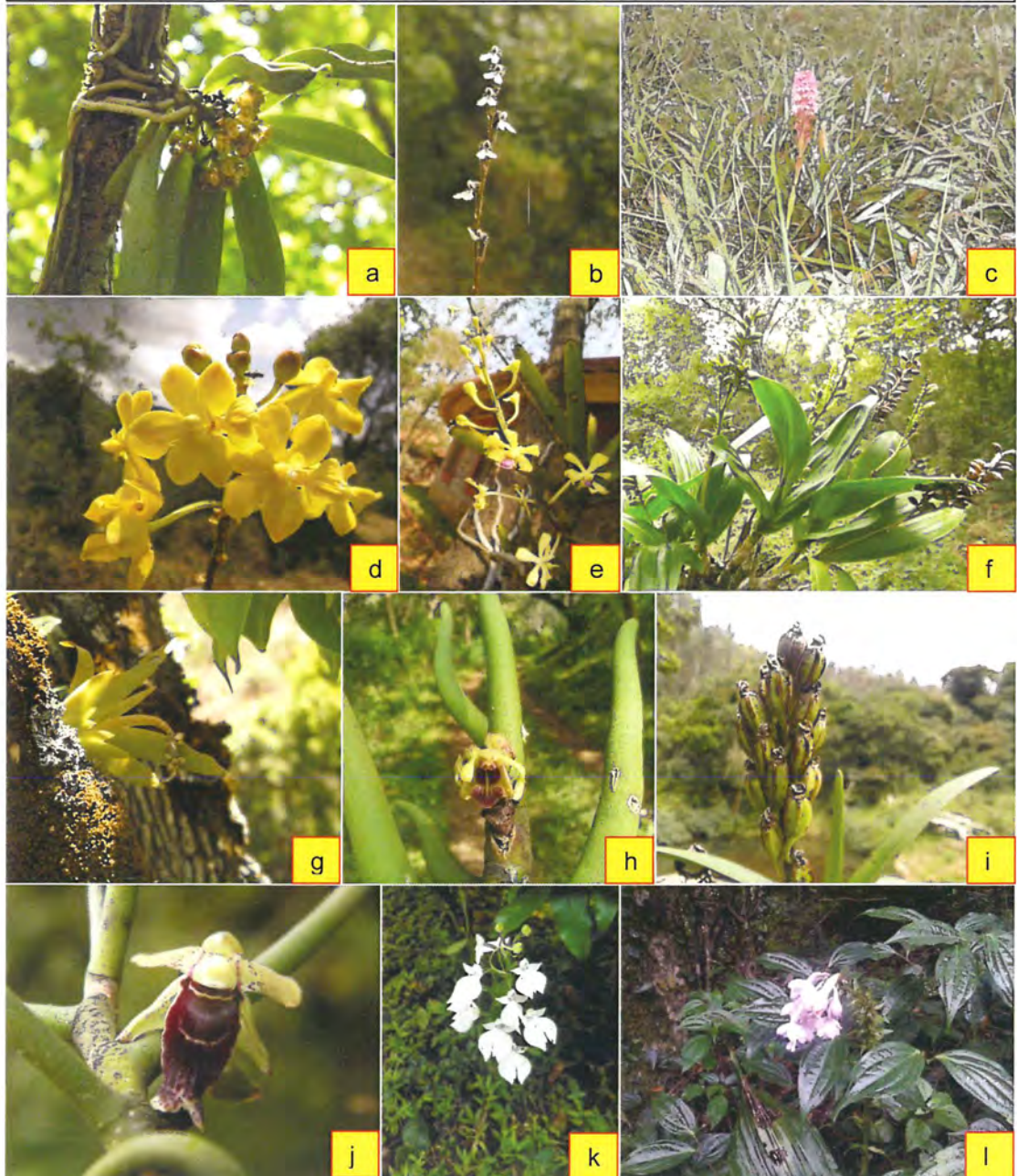
Epiphytic, pseudobulbs compact, depressed, discoid or orbicular, enclosed by reticulate sheath. Leaves 2, fleshy, sessile, elliptic-lanceolate or oblanceolate. Inflorescence from the axile of the scales, filiform, solitary. Flowers white often flushed yellow on lip. Dorsal sepal linear-oblong. Lip strongly recurved. Column white. Pollinia 8, pyriform. Capsule pyriform.

Rare in moss crowded tree trunks of evergreen forest. **Fl. & Fr.:** Aug.-Jan. **Sp.Ex.:** VN 79786 (MH).

CYMBIDIUM Sw., Nova Acta Regiae Soc. Sci. Upsal., ser. 2. 6: 70. 1799.

Cymbidium aloifolium (L.) Sw., Nova. Acta Regiae Soc. Upsal. 6: 73. 1799; FBI 6: 10. 1890; FPM 3: 1004. 1957; FTC 3(3): 1604. 1983; Joseph, Orchids of Nilgiris 162. p. 82. f. 1-4. 1987;

PLATE 23 - ORCHIDACEAE



a) *Acampe praemorsa*, b) *Zeuxine longilabris*, c) *Satyrium nepalense*, d) *Vanda spathulata*, e) *Vanda testacea*, f) *Polystachya concreta*, g) *Oberonia verticillate*, h) *Luisia tristis*, i) *Aerides ringens*, j) *Luisia abrahami*, k) *Habenaria plantaginea* l) *Calanthe triplicata*.

FTN 3: 8. 1989; OEG 83. 2019. *C. pendulum* (Roxb.) Sw. & Lindl., Nova Acta Regiae Soc. Sci. Upsal. 6: 73. 1799; FPM 3: 1004. 1957; Abraham & Vatsala, Introd. Orchids 325. 1981.

Epiphytic, roots copious, with needle like rootlets. Stem tufted, pendulous, pseudobulbs flattened, woody. Leaves curved, thickly coriaceous, keeled, sessile, Inflorescence shorter than leaves, racemes laxly many-flowered. Flowers scented, flashy. Sepals and petals cream coloured stained with reddish-purple. Lip sessile. Column yellow with marron stained. Pollinia 2. Capsule pyriform.

Occasional in Moist deciduous and evergreen forest. **Fl. & Fr.:** Mar.-Aug. **Sp.Ex.:** VS 18727 (FRC); VN 78392 (MH); PSAT 187251 (MH).

DENDROBIUM Sw., Nova Acta Regiae Soc. Sci. Upsal., ser. 2. 6: 82. 1799.

Dendrobium nanum Hook. f., Hooker's Icon. Pl. 19: t. 1853. 1889 & Fl. Brit. India 5: 717. 1891; FSIHS 3: 566. t. 490. 1932; FPM 3: 990. 1957; FTC 3(3): 1587. 1983; Joseph, Orchids of Nilgiris 135. p. 69. f. 1-3. 1987; FTN 2: 9. 1989; OEG 101. 2019.

Epiphytic, pseudobulbs clustered, inconspicuous, fully covered by sheathing leaf bases. Leaves 3-4, sessile, elliptic-lanceolate. Inflorescence terminal on leafy condition, zig-zag; racemes densely flowered. Floral bracts pale, ovate-lanceolate. Flowers white with green lip. Lip clawed, decurved, broadly oblong. Pollinia 4, oblong.

Rare in moist crowded tree trunks of evergreen forest. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** VN 79742 (MH).

DIPLOCENTRUM Lindl., Edwards's Bot. Reg. 18: t. 1522 (1832).

Diplocentrum recurvum Lindl., Edwards's Bot. Reg. 18: t. 1522. 1832 & Gen. Sp. Orch. 218. 1833; FBI 6: 78. 1890; FSIHS 3: 582. t. 510. 1932; FPM 3: 1013. 1957; FTC 3(3): 1602. 1983; Joseph, Orchids of Nilgiris 165. p. 83. f. 1-2. 1987; FTN 2: 10. 1989; OEG 110. 2019.

Epiphytic, stem erect / pendulous. stout, terete. crowded with sheathing leaf bases. Leaves coriaceous, recurved, sessile, linear or linear-oblong, unequally bilobed, green flushed with pink. Inflorescence axillary. Flowers fragrant rose-pink or brownish tinged with pink. Column whitish-rose, clavate. Stigma squarish-orbicular. Pollinia 2, ovoid. Capsule pyriform with marcescent perianth.

Rare in moist crowded tree trunks of evergreen forest. **Fl. & Fr.:** May-July. **Sp.Ex.:** VN 78921, 79744 (MH); SRN 80574 (MH).

ERIA Lindl., Edwards, Bot. Reg. 11: ad t. 904. 1825.

Eria pauciflora Wight, Icon. Pl. Ind. Orient. t. 1636. 1851; FBI 5: 779. 1890; FPM 3: 1425. 1957; FTC 3(3): 1577. 1983; Joseph, Orchids of Nilgiris 147. p. 75. f. 1-2. 1987; FTN 2: 11. 1989; OEG 118. 2019.

Epiphytic or lithophytic, rhizome creeping, woody, stem tufted, erect, brownish, ridged, pseudobulbs ovate-lanceolate. Leaves 2-3, coriaceous, sessile, linear-oblong. Inflorescence terminal from between the leaves, racemes 1-3-flowered. Floral bracts brownish purple. Flowers white. Dorsal sepal hooded. Lip sessile. Column white. Capsule narrowly fusiform.

Rare in moss crowded tree trunks and rocks of evergreen forest. **Fl. & Fr.:** Sept.-Oct. **Sp.Ex.:** KA & PB 1465 (SACONH); VN 78919 (MH).

GEODORUM Andrews, Bot. Repos. 10: ad t. 626. 1811.

Geodorum densiflorum (Lam.) Schltr., Repert. Spec. Nov. Regni. Veg. Beih. 4: 259. 1919; FPM 3: 1004. 1957; FTC 3(3): 1608. 1983; Joseph, Orchids of Nilgiris 59. p. 28. 1987; FTN 2: 9. 1989; OEG 134. 2019.

Terrestrial, corms in chain, greenish-brown, compressed. Leaves 2-4, plicate, oblong-lanceolate. Inflorescence lateral, longer than leaves, apex hooked, racemes densely many-flowered. Flowers whitish-rose. Lip sessile, sub-panduriform, base ventricose. Column whitish-rose. Stigma rounded. Pollinia 2, globose, ellipsoid. Capsule fusiform. Shady conditions in humus soils of moist and dry deciduous forest. **Fl. & Fr.:** June-Nov. **Sp.Ex.:** CECF 50493, 50494 (MH).

HABENARIA Willd., Sp. Pl. 4: 5, 44. 1805.

Key to the species

- 1a. Petals 2-paritite.....*H. rariflora*
- 1b. Petals entire.....2
- 2a. Sidelobes of lip linear-oblong.....*H. furcifera*
- 2b. Sidelobes of lip semi-ovate to recurved, cuneate or fimbriate.....3
- 3a. Ovary sessile; flowers more than 5.....*H. plantagina*
- 3b. Ovary long pedicelled; flowers 1-3.....4
- 4a. Mid-lob of lip 2-lobulate with long tails.....*H. crinifera*
- 4b. Mid-lob of lip simple.....*H. longicorniculata*

Habenaria crinifera Lindl., Gen. Sp. Orchid. Pl. 323. 1835; FBI 6: 142. 1890; FPM 3: 1028. 1957; FTN 3: 13. 1989; OEG 148. 2019.

Terrestrial, tubers ovoid or oblong. Leaves clustered towards base of stem, sessile, oblong-lanceolate. Racemes laxly few-flowered. Flowers white. Lip clawed. Spur longer than the ovary, clavate. Capsule fusiform.

Shady conditions in humus soils of moist and evergreen deciduous forest. **Fl. & Fr.:** Aug.-Nov. **Sp.Ex.:** VS 19342 (FRC).

Habenaria furcifera Lindl., Gen. Sp. Orchid. Pl. 319. 1835; FBI 6: 141. 1890; Joseph, Orchids of Nilgiris 77. p. 38. 1987; FTN 3: 14. 1989; OEG 151. 2019.

Terrestrial, tubers 1-3, ovoid-ellipsoid. Leaves 4-6, clustered below or above the middle of the stem, sub-sessile, ovate-elliptic. Spike cylindrical, densely many flowered. Flowers green. Petals falcate. Lip sessile. Spur short or longer than ovary, green, laterally compressed. Stigmatic lobes 2. Pollina 2. Capsule fusiform.

Occasional in shadow areas of moist deciduous and semi-evergreen forest. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** VS 20781 (FRC).

Habenaria longicorniculata J.Graham, Cat. Pl. Bombay 202. 1839; FSIHS 3: 588. t. 519. 1932; Abraham & Vatsala, Introd. Orchids 238. 1981; FTC 3(3): 1564. 1983; Joseph, Orchids of Nilgiris 89. p. 45. 1987; FTN 3: 15. 1989; OEG 156. 2019. *H. longicalcarata* (Hayata) S.S. Ying, Coloured Ill. Indig. Orchids Taiwan 1(2): 379 (1977); FBI 6: 141. 1890; FPM 3: 1027. 1957.

Terrestrial herb, tubers 1-2. Stem terete. Leaves 3-5, clustered near the base of the stem. Racemes laxly 1-6 flowered at the apex. Flowers fragrant greenish-white. Petals falcate. Lip much longer than the sepals, clawed. Spur much longer than ovary. Stigmatic lobes 2. Pollinia 2, pyriform. Capsule fusiform.

Rare in high altitude grassland. **Fl. & Fr.:** Aug.-Nov. **Sp.Ex.:** CECF 50829, 50830 (MH).

Habenaria plantaginea Lindl., Gen. Sp. Orchid. 323. 1835; FBI 6: 141. 1890; FPM 3: 1027. 1957; FTC 3(3): 1565. 1983; J. Joseph, Orchids of Nilgiris 95. p. 47. 1987; FTN 3: 16. 1989; OEG 164. 2019.

Terrestrial herb, tubers 1-2. Leaves 2-6. Spike densely many-flowered. Flowers white. Lip clawed, spreading, rhomboid. Spur longer than the ovary, cylindrical. Stigmatic lobes 2, clasping. Pollinia 2. Capsule fusiform.

Common in open places of the dry deciduous and moist deciduous forest. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** KA & PB 1463, 1502 (SACONH); PSAT 186951 (MH).

Habenaria rariflora A.Rich., Ann. Sci. Nat. Bot. ser. 2, 15: 70. t. 2D. 1841; FBI 6: 136. 1890; FSIHS 3: 587. t. 516. 1932; FPM 3: 1027. 1957; FTC 3(3): 1562. 1983; Joseph, Orchids of Nilgiris 73. p. 35. 1987; FTN 3: 16. 1989; OEG 166. 2019.

Terrestrial or lithophytic herb, tubers 1-2. Leaves 3-6, clustered near the base of the stem. Racemes lax 1-7 flowered. Flowers white, variable in size. Lip spreading. Spur longer than the ovary. Stigmatic lobes 2. Pollinia 2. Capsule fusiform.

Rare in high altitude grasslands and rocky cervices. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** CECF 50756, 50758, 50759 (MH).

LUISIA Gaudich., Voy. Uranie, Bot. 426. 1829.

Key to the species

- 1a. Flowers conspicuous with exerted large lip; mid lip oblong.....2
- 1b. Flowers small with more or less concealed lip; mid lobe rhomboid.....*L. tristis*
- 2a. Leaves 7-10 cm long; sepals and petals dissimilar; disc lip 5-ridged; fruits 3 cm long; polina ovoid.....*L. tenuifolia*
- 2b. Leaves 15-20 cm long; sepals and petals similar; disc lip 3-ridged; fruits 5 cm long; polina slightly oblong.....*L. abrahamii*

Luisia abrahami Vatsala in Abraham & Vatsala, Introd. Orchids 489. 1981; OEG 183. 2019.

Epiphytic herb. Stem scandent, woody. Leaves greenish-brown, fleshy, sessile, terete. Inflorescence leaf-opposed; racemes densely 3-6-flowered. Sepals and petals similar, pale green flushed with purple, incurved. Lip dark purple. Column purple. Pollinia 2.

Rare in moss covered tree trunk of moist deciduous forest. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** LP 3151, 3187, 3149 (SACONH).

Luisia tenuifolia Blume, Rumphia 4: 50. 1849; FBI 6: 24. 1890; FSIHS 3: 578. t. 503. 1932; FPM 3: 1006. 1957. *L. birchea* Blume, Rumph. 4: 50. 1849; FTC 3(3): 1594. 1983; Joseph, Orchids of Nilgiris 106. p. 53. f. 3 & 4. 1987; FTN 3: 18. 1989; OEG 184. 2019.

Epiphytic herb, stem erect or pendulous. Leaves pale green with purple spots, fleshy terete. Inflorescence extra-axillary, condensed. Racemes densely 2-6 flowered. Petals greenish yellow with purple spots. Lip dark purple, fleshy. Column pale yellow. Stigma sub-quadrangular. Pollinia 2. Capsule oblong-fusiform.

Common in moist deciduous forest. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** LP 3086 (SACONH); KA & PB 1548 (SACONH); PSAT 187531, 187532, 187551, 187552 (MH).

Luisia tristis (G.Forst.) Hook.f., Fl. Brit. India 6(17): 25 (1890). FBI 6: 25. 1890. *L. trichorrhiza* (Hook.) Blume, Rumphia 4: 50. 1849; FBI 6: 23. 1890; OEG 186. 2019.

Epiphytic herbs. Leaves, terete, fleshy, sheathing at base. Inflorescence condensed racemes, extra-axillary. Flowers 2-4, greenish-yellow with purple tinge. Lip oblong, concave towards the base, dark purple. Column yellowish purple, oblong. Stigma subquadrate. Pollinia 2. Capsules clavate or cylindric.

Occasional in moist deciduous forest. **Fl. & Fr.:** Mar.-July. **Sp.Ex.:** KA & PB 1549 (SACONH); CECF 6259 (FRC); KCF 81405 (FRC).

NERVILIA Comm. ex Gaudich., Voy. Uranie, Bot. 421. 1829.

Nervilia plicata (Andr.) Schltr., Bot. Jahrb. Syst. 45: 403. 1911; FPM 3: 1020. 1957; Joseph, Orchids of Nilgiris 23. p. 8. 1987; FTN 3: 18. 1989; OEG 198. 2019. *N. biflora* (Wight) Schltr., Bot. Jahrb. 45: 403. 1911; FPM 3: 1549. 1957.

Terrestrial hysteroanthous herb, corm globose. Leaf flat on ground, plicate, orbicular. Inflorescence 2-flowered. Lip whitish-purple with yellow median stripe ending before the apex, epichile margins crenulated. Column white, elongated. Stigma quadrangular or sub-orbicular. Pollinia 2, pyriform. Capsule drooping, ellipsoid.

Deep shadow conditions in humus-rich soils of moist deciduous forest. **Fl. & Fr.:** June-July. **Sp.Ex.:** LP 1880 (SACONH).

OBERONIA Lindl., Gen. Sp. Orchid. Pl. 15. 1830.

Key to the species

- 1a. Later lobes of lip prominent, not acicular.....*O. wightiana*
- 1b. Later lobes of lip not prominent, acicular.....*O. verticillata*

Oberonia verticillata Wight, Icon. Pl. Ind. Orient. t. 1626. 1851; FBI 5: 677. 1888; FSIHS 3: 561. 1932; FPM 3: 984. 1957; FTC 3(3): 1579. 1983; Joseph, Orchids of Nilgiris 115. p. 58. f. 4-6. 1987; FTN 3: 21. 1989; OEG 211. 2019.

Epiphytic, pendulous, acaulescent. Leaves equitant, coriaceous, oblong-ensiform. Leaves longer than leaves, pendulous, terete. Spike laxly many flowered. Flowers in verticillate, yellowish green. Lip antrorse. Pollinia 4, obovoid. Capsule ellipsoid.

Rare in moss crowded tree trunks in semi-evergreen forest. **Fl. & Fr.:** Sept.- Oct. **Sp.Ex.:** KA & PB 1693 (SACONH); VN 78905, 79088 (MH).

Oberonia wightiana Lindl., Edwards's Bot. Reg. 25. Misc. 14. 1839; FBI 5: 683. 1888; FSIHS 3: 562. t. 487. 1932; FPM 3: 984. 1957; FTC 3(3): 1579. 1983; Joseph, Orchids of Nilgiris 115. p. 58. f. 1-3. 1987; FTN 3: 21. 1989; OEG 212. 2019.

Epiphytic, erect or pendulous, acaulescent herb. Leaves equitant, coriaceous, falcate, oblong-ensiform. Spike densely many-flowered. Flowers yellowish green. Lip antrorse, spreading, quadrate. Column pale yellow, sub-globose. Stigma crescent-shaped. Pollinia 4. Capsule oblong-obovoid.

Rare in moss crowded tree trunks in moist deciduous and semi-evergreen forest. **Fl. & Fr.:** June-Nov. **Sp.Ex.:** VS 18915 (FRC).

PAPILIONANTHE Schltr., Orchis. 9: 78. 1915.

Papilionanthe subulata (Willd. ex J. Koenig) Garay, Bot. Mus. Leaf. 23: 372. 1972; FTC 3(3): 1596. 1983; FTN 3: 21. 1989; OEG 216. 2019. *Aerides cylindrica* Lindl., Gen. Sp. Orchid. Pl. 240. 1833; FBI 6: 44. 1890; FSIHS 2: t. 506. 1932; FPM 3: 1008. 1957.

Epiphytic scandent herb. Stem erect, elongate, terete. Leaves flashy, terate or subulate. Inflorescence erect, shorter than the leaves with 1-3 flowered. Flowers fragrant, whitish-purple and lip with yellow spot at apex and pinkish white spot at below. Lip infundibuliform. Spur conical, mouth funnel shaped. Column pale white. Stigma quadrate-orbicular. Pollinia 2. Capsules fusiform.

Rare in moist deciduous forest. **Fl. & Fr.:** Mar.-May. **Sp.Ex.:** VN 78920 (MH).

POLYSTACHYA Hook. f., Exot. Fl. 2: ad t. 103. 1824.

Polystachya concreta (Jacq.) Garay & H.R. Sweet, Orquideol. 9(3): 206. 1974; FTC 3(3): 1592. 1983; Joseph, Orchids of Nilgiris 164. p. 83. f. 1-3. 1987; FTN 3: 23. 1989; OEG 237. 2019. *P. purpurea* Wight, Icon. Pl. Ind. Orient. t. 1679. 1851; FBI 6: 21. 1890; FSIHS 3: 577. t. 502. 1932; FPM 3: 1005. 1957.

Epiphytic herb, pseudobulbs clustered, green, compressed. Leaves 2-5, coriaceous, plicate. Panicle lax many flowered. Flowers non-resupinate, greenish yellow Lip sessile, cuneate. Column greenish yellow. Stigma broadly sub-orbicular. Pollinia 4. Capsule elliptic-oblong.

Rare in moss crowded tree trunks of semi-evergreen forest. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** VS 18195 (FRC).

SATYRIUM Sw., Kongl. Vetensk. Acad. Nya Handl. 21: 214. 1800.

Satyrium nepalense D. Don, Prodr. Fl. Nepal. 26: 1825; FBI 6: 168. 1890; FSIHS 3: 595. t. 529. 1932; FPM 3: 1032. 1957; Abraham & Vatsala, Introd. Orchids 210. 1981; FTC 3(3): 1568. 1983; Joseph, Orchids of Nilgiris 30. p. 12. 1987; FTN 3: 24. 1989; OEG 244. 2019.

Terrestrial herb, tubers 1-2. Leaves fleshy, sessile. Spike cylindrical densely many-flowered. Flowers non-resupinate, pink or rarely white. Lip hooded, 2-spurred, spurs parallel. Column enclosed by lip, white terete. Stigma 3-lobed, lobes flat. Pollinia 2, clavate. Capsule fusiform.

Rare in high altitude grasslands. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** VS 19344 (FRC); CECF 86037 (MH).

VANDA Jones ex R. Br., Bot. Reg. 6: ad t. 506. 1820.**Key to the species**

- 1a. Stem long, slender, scandent; leaves scattered, obscurely unequally cleft or emarginate at the tip.....*V. spathulata*
1b. Stem stout, erect, caespitose; leaves crowded, praemorseate the tip.....*V. testacea*

Vanda spathulata (L.) Spreng., Syst. Veg. ed. 16. 3: 719. 1826; FBI 6: 50. 1890; FPM 3: 1010. 1957; FTC 3(3): 1599. 1983; Joseph, Orchids of Nilgiris 175. p. 88. f. 1-2. 1987; FTN 3: 26. 1989. *Taprobanea spathulata* (L.) Christenson, Lindleyana 7: 91. 1992; OEG 255. 2019.

Scandent shrub with non-pseudobubous stem, roots long, vermiform, internodes black spotted. Racemes leaf opposed. Flowers golden yellowish. Lip 3-lobed, spur conical, very short. Capsule fusiform.

Common in dry deciduous scrub forest. **Fl. & Fr.:** Sept.-Jan. **Sp.Ex.:** VS 18729 (FRC); PSAT 186574, 186572, 186922 (MH).

Vanda testacea (Lindl.) Rehb. f., Gard. Chron. (n.s) 8: 166. 1877; FTC 3(3): 1599. 1983; J. Joseph, Orchids of Nilgiris 177. p. 90. f. 1-2. 1987; FTN 3: 26. 1989; OEG 263. 2019. *V. parviflora* Lindl. in Edwards, Bot. *Vanda testacea* Reg. 30: Misc. 57. 1844; FBI 6: 50. 1890; FPM 3: 1010. 1957.

Epiphytic herb, stem erect. Leaves coriaceous, sessile, linear-oblong. unequally lobed. Inflorescence axillary, erect. Flowers yellowish with brownish-pink or white lip. Lip sessile 3-lobed. Spur laterally compressed, cylindrical. Column yellow with purple spotted, cylindrical-truncated. Pollinia 2. Capsule oblong-elliptic.

Occasional in dry and moist deciduous forest. **Fl. & Fr.:** Mar. -Aug. **Sp.Ex.:** LP 2516 (SACONH); CECF 6263 (FRC); VS, 18689, 18730, 18916, 19343 (FRC); CECF 50566. 50567 (MH); KCJ 81316 (MH); PSAT 186564, 186565 (MH).

VANILLA Plumier ex P.Mill., Gard. Dict. Abr., ed. 4. 1754.

Vanilla wightii Lindl. ex Wight, Icon. Pl. Ind. Orient. 3: t. 931. 1845; FBI 6: 54. 1890; FPM 3: 1010. 1957; FTC 3(3): 1558. 1983, "*wightiana*"; FTN 3: 26. 1989; OEG 268. 2019.

Terrestrial, robust, climbing herb. Nodal roots clasping the tree trunks. Stem greenish with pink dots. Leaves deciduous, flashy, sessile. Inflorescence axillary. Racemes congested, densely few flowered. Flowers small, whitish. Capsule dark green, cylindrical.

Rare in dry deciduous forest. **Fl. & Fr.:** Mar.- April. **Sp.Ex.:** PSAT 186907 (SACONH).

ZEUXINE Lindl., Orchid. Scelet. 9. 1826.

Zeuxine longilabris (Lindl.) Trimen., Syst. Cat. Fl. Pl. Ceylon 90. 1885; FBI 6: 107. 1890; FPM 3: 1018. 1957; FTC 3(3): 1558. 1983; Joseph, Orchids of Nilgiris 63. p. 30. 1987; FTN 3: 26. 1989; OEG 273. 2019.

Terrestrial herb. Rhizome underground, greenish, creeping, stem decumbent at the base, terate. Leaves green, ovate-lanceolate. Spike laxly-flowered. Pedicel with ovary fusiform. Flowers whitish with base brown. Lip white. Hypochile cymbiform with one papillose gland on each side. epichile 2-lobelate. Pollinia pyriform, clavate. Capsule fusiform.

Common in humus rich soils in moist deciduous forest. **Fl. & Fr.:** Dec.-April. **Sp.Ex.:** LP 1286 (SACONH); KCJ 81390 (MH); PSAT 187196 (MH).

ZINGIBERACEAE Martinov, Tekhno-Bot. Slovar: 682. 1820.

Key to the genera

- 1a. Lateral staminodes large and broad.....2
- 1b. Lateral staminodes small and narrow or absent.....*Zingiber*
- 2a. Spike crowned by coma; corolla-tube funnel-shaped.....*Curcuma*
- 2b. Spike not crowned by coma; corolla-tube elongate.....*Hedychium*

CURCUMA L., Sp. Pl. 2. 1753.

Curcuma neilgherrensis Wight, Icon. Pl. Ind. Orient. t. 2006. 1853; FBI 6: 210. 1890; FSIHS 3: 598. t. 532. 1932; FPM 3: 1036. 1957; FTC 3(3): 1615. 1983; FTN 3: 28. 1989.

Root-tubers globose to ellipsoid. Leaves lanceolate to oblong-lanceolate, tuberculate pubescent. Spike dense, coma-bracts rose, oblong, fertile bracts pale yellowish green. Calyx-tube. Corolla yellow. Labellum broadly ovate or suborbicular. Ovary oblong.

Occasional in high altitude grasslands. **Fl. & Fr.:** April-Oct. **Sp.Ex.:** LP 3022, 3123, 1564 (SACONH); KA & PB 1707 (SACONH); VS 19394 (FRC); VN 79696, 79701, 79706 (MH); KCJ 81434 (MH).

HEDYCHIUM J. Koenig., Observ. Bot. 3: 61. 1783.

Hedychium coronarium Koen. in Retz., Obs. Bot. 3: 73. 1783; FBI 6: 225. 1892; FSIHS 3: 599. t. 533. 1932; FPM 3: 1039. 1957; FTC 3(3): 1617. 1983; FTN 3: 29. 1989; Sabu, Zingiberaceae & Costaceae of Sou. India 196. 2006.

Rhizome extensive. Shoots several. Leaves distichous, lanceolate-oblong, sheath elongate. Spike terminal, dense, bracts overlapping. Flowers fragrant. Calyx tubular. Corolla yellowish, lobes linear. Labellum broadly obovate-suborbicular, 2-fid, clawed. Staminodes petaloid. Ovary globose. Stigma funnel-like.

Occasional in clumps near stream banks and marshy areas. **Fl. & Fr.:** July-Aug. **Sp.Ex.:** VN 79851 (MH).

ZINGIBER Boehm., Def. Gen. ed. Boehm. 89. 1760.

Zingiber zerumbet (L.) Roscoe ex Sm., Exot. Bot. 2: 105. 1804; FBI 6: 247. 1892; FPM 3: 1040. 1957; FTN 3: 30. 1989. *Amomum zerumbet* L., Sp. Pl. 1. 1753.

Rhizomatous herbs. Leaves oblong or oblong-lanceolate, base obtuse, apex acuminate, pubescent below. Spikes ovoid or oblong. Bracts broadly ovate, rounded, margin membranous, green, turning blood-red on maturity. Flowers white. Labellum 3-lobed, mid-lobe suborbicular, lateral lobes ovate. Capsule oblong. Seeds globose.

Occasional in moist localities of hilly areas. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** VS 18910 (FRC).

AMARYLLIDACEAE J.St.-Hil., Expos. Fam. Nat. 1: 134. 1805.**CRINUM** L., Sp. Pl. 291. 1753.**Key to the species**

- 1a. Flowers sessile or nearly so; perianth purplish red, particularly abaxially.....*C. latifolium*
1b. Flowers distinctly pedicellate; perianth white.....*C. asiaticum*

Crinum asiaticum L., Sp. Pl. 292. 1753; FBI 6: 280. 1892; FPM 3: 1051. 1957; FTC 3(3): 1624. 1983; FTN 3: 32. 1989.

Herbs, bulbs globose. Leaves clustered from the apex of bulbs, oblong, flat, coriaceous, glabrous, narrow at base, margin entire, apex gradually tapering. Umbels 30(50)-flowered, bracts hooded, ovate-lanceolate. Perianth salver-shaped, lobes white, oblong-linear. Ovary 3-celled.

Occasional in hill slopes. **Fl. & Fr.:** June-Aug. **Sp.Ex.:** LP 2191 (SACONH).

Crinum latifolium L. Sp. Pl. 291. 1753; FBI 6: 283. 1892; FPM 3: 1051. 1957; FTC 3(3): 1625. 1983; FTN 3: 33. 1989.

Herbs, bulbs globose. Leaves clustered from the apex of bulbs, oblong, flat, lorate, scabrid. Umbels 8-10 (20) flowered. Bracts lanceolate. Perianth funnel-shaped, lobes white with pinkish to reddish streaks. Capsule globose.

Occasional in exposed localities. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** VN 79702 (MH).

COLCHICACEAE DC., Essai Propr. Méd. Pl. 56. 1804.**Key to the genera**

- 1a. Scandent herb, with tendrils; flowers > 5 cm across.....*Gloriosa*
1b. Erect herb, without tendrils; flowers <1 cm across.....*Iphigenia*

GLORIOSA L., Sp. Pl. 1: 305. 1753.

Gloriosa superba L., Sp. Pl. 305. 1753; FBI 6: 358. 1892; FPM 3: 1061. 1957; FTC 3(3): 1643. 1983; FTN 3: 40. 1989.

Climber, branchlets glabrous. Leaves alternate, opposite or whorled, oblong-lanceolate, sessile, flat. Flowers bisexual, axillary, solitary or subcorymbose. Perianth lobes 6, oblong-lanceolate. Stamens 6. Ovary oblong, 3-celled. Capsule ellipsoid-oblong.

Common in plains. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** LP 1879 (SACONH); VN 79635 (MH); PSAT 186904, 187565, 187566 (MH).

IPHIGENIA Kunth, Enum. Pl. 4: 212. 1843.

Iphigenia indica (L.) A. Gray ex Kunth, Enum. Pl. 4: 213. 1843; FBI 6: 357. 1892; FSIHS 3: 612. t. 547. 1932; FPM 3: 1067. 1957; FTC 3(3): 1643. 1983; FTN 3: 40. 1989.

Small perennial herb. Corm small, subglobose, tunicate, narrowed into a short neck, stem unbranched, glabrous, winged. Leaves alternate linear, flat or canaliculate. Flowers bisexual,

solitary, rarely 2 or 3. Perianth lobes 6, deep purple, linear-oblong. Stamens 6. Ovary 3-celled. Capsule oblong.

Occasional in moist areas of hilly regions. **Fl. & Fr.:** Oct.-Nov. **Sp.Ex.:** LP 1658 (SACONH); CECE 52063, 52064 (MH).

DIOSCOREACEAE R. Br., Prodr. 294. 1810.

DIOSCOREA L., Sp. Pl. 1032. 1753.

Key to the species

- 1a. Leaves and inflorescence glabrous; leaves simple.....2
- 1b. Leaves and inflorescence hispid or silky tomentose; leaves compound.....3
 - 2a. Leaves deeply cordate at base.....*D. bulbifera*
 - 2b. Leaves not deeply cordate at base.....*D. oppositifolia*
 - 3a. Leaves densely white tomentose beneath.....*D. tomentosa*
 - 3b. Leaves sparsely hispid hairy beneath.....*D. pentaphylla*

Dioscorea bulbifera L., Sp. Pl. 1033. 1753; FPM 3: 1511. 1928; FTC 3(3): 1633. 1983; FTN 3: 36. 1989. *D. sativa* Thunb., Fl. Japan. 15. 1784, non L. 1753; FBI 6: 295. 1892.

Vines with tuberous root stocks. Stem terete, twining left. Leaves ovate-suborbicular, base deeply cordate. Bulbils frequent in leaf axils and in inflorescence. Male flowers in slender, axillary panicle spikes, pendulous. Perianth light green, lobes 6, biseriate. Stamens 6 free. Female spikes 1-3 together, staminodes 3, ovary triquetrous, 3-locular, ovules 2-per locule, styles 3, stigma 2-fid, reflexed. Capsules oblong, 3-winged.

Occasional in moist deciduous forest. **Fl. & Fr.:** Sept.-Oct. **Sp.Ex.:** PSAT 187597, 187598 (MH).

Dioscorea oppositifolia L., Sp. Pl. 1033. 1753, var. *oppositifolia*; FBI 6: 292. 1892; FSIHS 3: 604. 1932; FPM 3: 1056. 1957; FTC 3(3): 1634. 1983; FTN 3: 36. 1989.

Vine, branchlets twining right. Leaves opposite, ovate-orbicular, thin coriaceous. Male flowers in spikes, panicle, clustered, bracts linear, perianth lobes oblanceolate, stamens 6. Female flowers in spikes or solitary or paired, distant, perianth lobes ovate. capsule obovoid.

Common in dry hill slopes. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** LP 2943 (SACONH); KA & PB 1713 (SACONH); VS 20670, 19379, 18930 (FRC); CECF 51601 (MH); SRN 80573 (MH); EV 142064, 142065, 142108, 142109 (MH); CECF 6326 (FRC); PSAT 187123, 187519, 187520, 187527, 187528 (MH).

Dioscorea pentaphylla L., Sp. Pl. 1032. 1753; FBI 6: 289. 1892; FPM 3: 1056. 1957; FTC 3(3): 1635. 1983; FTN 3: 36. 1989.

Vine, branchlets twining left, sometimes prickled. Leaves 3(5)-foliate. Male flowers solitary-clustered, axillary, sparsely prickled, perianth lobes coriaceous, stamens 3, pistillodes distinct. Female flowers in solitary or paired, perianth lobes ovate, ovary oblong. Capsule oblong. Common in foot hills. **Fl. & Fr.:** Aug.-Oct. **Sp.Ex.:** LP 2032, 3138 (SACONH); VS 18691, 18692, 20743, 20685 (FRC); CECF 51540 (MH); VN 78398, 79654 (MH); PSAT 187571, 187572 (MH).

Dioscorea tomentosa J. Koenig ex Spreng., Pl. Min. Cogn. Pugill. 2: 92. 1815; FBI 6: 289. 1892; FPM 3: 1055. 1957; FTC 3(3): 1636. 1983; FTN 3: 37. 1989.

Vine, branchlets twining left, tomentose, rarely sparsely prickled. Leaves 3(5) foliate, ovate-broadly-elliptic or lanceolate. Male inflorescence spikes axillary or terminal, solitary or paired. Perianth lobes coriaceous, tomentose. Stamens 3, staminodes 3. Female spikes axillary, paired, perianth-lobes ovate, ovary oblong, stigma capitate. Capsule oblong.

Common in hill slopes and forest margins. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** CECF 51486 (MH); VN 79692 (MH); PSAT 186895, 186962 (MH).

SMILACACEAE Vent., Tabl. Règne Vég. 2: 146. 1799.

SMILAX L., Sp. Pl. 2: 1028. 1753.

Key to the species

- 1a. Leaves hastate-lanceolate; umbels sessile.....*S. aspera*
- 1b. Leaves other than hastate-lanceolate; umbels pedunculate.....2
- 2a. Umbels 1-3; leaf sheath not auricled.....*S. zeylanica*
- 2b. Umbels many; leaf sheath auricled.....*S. perfoliata*

Smilax aspera L., Sp. Pl. 1028. 1753; FBI 6: 306. 1892; FSIHS 3: 606. t. 538. 1932; FPM 3: 1060. 1957; FTN 3: 42. 1989.

Climbing shrubs, stems prickly. Leaves broadly ovate, acuminate, base broadly cordate, coriaceous, margins crispate, petiole twisted, tendrils axillary from the very base, coiled. Umbels sessile on axillary racemes. Male flowers perianth lobes greenish, lanceolate, stamens 6. Flowers unisexual, Ovary globose, 3-celled. Berry globose.

Common in deciduous forest. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** LP 3167 (SACONH); KCJ 81462 (MH).

Smilax perfoliata Lour., Fl. Cochinch. 2: 622. 1790; FTC 3(3): 1647. 1983; FTN 3: 42. 1989. *S. prolifera* Wall, ex Roxb., Fl. Ind. 3: 795. 1832; FBI 6: 312. 1892; FSIHS 3: 607. t. 542. 1932; FPM 3: 1061. 1957.

Vine, branchlets glabrous, prickles recurved. Leaves broadly ovate or elliptic-lanceolate, coriaceous, margin undulate. Male flowers in umbel, alternate or verticillate, perianth lobes greenish, stamens 6. Female flowers in umbels axillary, alternate, alternate or verticillate. Berry globose.

Occasional in moist deciduous forest. **Fl. & Fr.:** Feb.-April. **Sp.Ex.:** KNS 8171, 8172, 8173, 8174 (FRC); CECF 8873 (FRC); VS 18734 (FRC); KCJ 81373 (MH); EV 142066, 142067 (MH).

Smilax zeylanica L., Sp. Pl. 1029. 1753; FBI 6: 309. 1892; FSIHS 3: 606. t. 539. 1932; FPM 3: 1061. 1957; FTC 3(3): 1648. 1983; FTN 3: 42. 1989. *S. macrophylla* Roxb., Fl. Ind. 3: 793. 1832; FBI 6: 310. 1892; FSIHS 3: 607. t. 540. 1932.

Vine, branchlets sparsely prickled, glabrous. Leaves oblong-broadly elliptic or ovate. Male flowers in umbel, axillary, perianth lobes greenish, stamens 6. Female flowers ovary 3-lobed, 3-celled, staminodes 3-6. Berry globose.

Occasional in moist deciduous forest. **Fl. & Fr.:** June-Sept. **Sp.Ex.:** VS 18693 (FRC).

CONVALLARIACEAE Horan., Prim. Linn. Syst. Nat. 53. 1834.

OPHIOPOGON Ker-Gawl., Bot. Mag. t. 1063. 1807.

Ophiopogon intermedius D. Don, Prodr. Fl. Nep. 48. 1825, var. *intermedius*; FBI 6: 269. 1892; FPM 3: 1048. 1957; FTC 3(3): 1645. 1983; FTN 3: 31. 1989.

Rootstock rhizomatous, elongate, roots somewhat spongy, clustered. Leaves radical, oblong, flat. Racemes 1 or 3. Flowers bisexual. Perianth campanulate, shallowly 6-lobed, lobes purplish, lanceolate. Stamens 6. Ovary inferior, 3-celled. Berry globose.

Occasional in moist and evergreen forest floor. **Fl. & Fr.:** Aug.-Oct. **Sp.Ex.:** LP 3168 (SACONH); VS 18918 (FRC); VS 79750 (MH).

COSTACEAE Nakai, J. Jap. Bot. 17: 203. 1941.

CHEILOCOSTUS C.D. Specht, Taxon 55: 159 (2006), nom. superfl.

Cheilocostus speciosus (J. Koenig) C.D. Specht, Taxon 55: 159. 2006. *Costus speciosus* (J. Koen.) Sm., Trans. Linn. Soc. 1: 249. 1800; FBI 6: 249. 1892; FPM 3: 1041. 1957; FTC 3(3): 1613. 1983; FTN 3: 30. 1989.

Leaves spiral, oblong-lanceolate, chartaceous. Spikelets terminal, globose or obovoid, reddish. Calyx tubular, glabrous. Corolla white, lobes elliptic to oblong. Labellum white with a yellow centre. Stamen median, on an oblong, petaloid process. Ovary globose, 3-lobed, 3-celled. Common in evergreen forest. **Fl. & Fr.:** Sept.-Oct. **Sp.Ex.:** VN 79775 (MH).

ASPARAGACEAE Juss., Gen. Pl. 40. 1789.

ASPARAGUS L., Sp. Pl. 313. 1753.

Asparagus racemosus Willd., Sp. Pl. 2: 152. 1799; FBI 6: 316. 1892; FPM 3: 1060. 1957; FTC 3(3): 1639. 1983; FTN 3: 38. 1989.

Armed vine, branchlets glabrous, spines erect. Leaves scaly, triangular, staff-acuminate. Cladodes 2-6, linear. Racemes solitary or 3 in a cluster. Flowers bisexual. Perianth-lobes 6, white, oblong-obovate. Stamens 6. Ovary obovoid, 3-celled. Style terminal. Stigma 3, recurved. Berry globose.

Common in scrub jungles and dry deciduous forest. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** KA & PB 1708 (SACONH); VS 18282, 18690, 18911 (FRC); VN 79624 (MH); EV 142026, 142027 (MH); PSAT 186701, 186702, 187396, 187559, 187560 (MH).

AGAVACEAE Dumort., Anal. Fam. Pl. 57, 58. 1829.

AGAVE L., Sp. Pl. 323. 1753.

Key to the species

- 1a. Leaves growing erect, usually 200-250, apex straight.....*A. sisalana*
1b. Leaves usually 30-40, curved upwards at the base and with bent apices.....*A. americana*

Agave americana L., Sp. Pl. 323. 1753; FBI 6: 277. 1892; FPM 3: 1052. 1957. *A. cantula* Roxb., Fl. Ind. 2: 167. 1832; FPM 3: 1052. 1957; FTN 3: 34. 1989.

Perennial stout shrub. Stem woody. Leaves grey-green in rosettes, margins spinescently dentate, apex with a dark spine. Scape stout. Flowers in panicles. Stamens 6.

Common dry regions of plains and hill slopes. **Fl. & Fr.:** April-Aug. **Sp.Ex.:** LP 1837 (SACONH).

Agave sisalana Perrine ex Engelm., Trans. Acad. Sci. St. Louis 3: 314. 1875; FPM 3: 1052. 1957; FTN 3: 34. 1989.

Perennial stout shrub. Stem woody. Leaves greenish, rosettes, margins finely spinescent towards apex, apex with a dark spine. Scape stout. Flowers in panicles. Stamens 6.

Common moist places of plains and hill slopes. **Fl. & Fr.:** Oct. **Sp.Ex.:** LP 1857 (SACONH).

DRACAENACEAE Salisb., Gen. Pl.: 73. 15-31 Mai 1866, nom. cons.

Key to the genera

- 1a. Leaves basal, thick fleshy, base terete or subterete.....*Sansevieria*
1b. Leaves cauline, coriaceous, flat.....*Dracaena*

DRACAENA Vand. ex L., Syst. Nat., ed. 12. 2: 229, 246. 1767.

Dracaena terniflora Roxb., Fl. Ind. 2: 159. 1832; FBI 6: 328. 1892; FPM 3: 1062. 1928; FTN 3: 34. 1989. *D. terminalis* Wight, Icon. Pl. Ind. Orient. t. 2054. 1853.

Shrub. Stems somewhat sprawling, simple or few branched, internodes often longer than wide. Leaves spaced along distal part of stem, distinctly petiolate. Leaf blade elliptic-lanceolate or elliptic. Inflorescence terminal, simple, rachis glabrous. Flowers solitary or in clusters of 2 or 3. Perianth white. Berry globose, 1-3-seeded.

Occasional in along riversides. **Fl. & Fr.:** Aug.-May. **Sp.Ex.:** LP 1495 (SACONH).

SANSEVIERIA Thunb., Prod. Pl. Cap. 65. 1794.

Sansevieria roxburghiana Schult. f., Syst. Veg. 7: 357. ff. 12 D & E. 1829; FBI 6: 271. 1892; FPM 3: 1061. 1957; FTC 3(3): 1631. 1983; FTN 3: 34. 1989.

Rootstock, firm-rooted. Leaves basal, sessile, subterete at base, apex flat, fleshy. Scape often solitary, stout. Flowers bisexual. Perianth lobes 6, greenish. Stamens 6. Ovary 3-celled, obovoid. Stigma simple, obscurely lobed. Berry globose.

Common in dry hill slopes. **Fl. & Fr.:** June-Dec. **Sp.Ex.:** LP 3034 (SACONH); PSAT 187110 (MH).

HYPOXIDACEAE R. Br., Voy. Terra Austral. 2: 576. 1814.

CURCULIGO Gaertn., Fruct. Sem. Pl. 1: 63, t. 16, f. 11. 1788.

Curculigo orchioides Gaertn., Fruct. Sem. Pl. 1: 63, t. 16, f. 11. 1788; FBI 6: 279. 1892; FSIHS 3: 602. t. 536. 1932; FPM 3: 1050. 1957; FTC 3(3): 1627. 1983; FTN 3: 35. 1989.

Stemless evergreen perennial herb. Rhizome elongate. Leaves lanceolate, plicate or flat, prominently nerved below, densely or sparsely villous or glabrous. Scape 3-5 or more, slender. Flowers bisexual, sessile, regular. Perianth lobes 6, yellowish, oblong-elliptic. Stamens 6. Ovary 3-celled, oblong. Stigma 3, lobes elongate. Fruits oblong.

Common in forest floor. **Fl. & Fr.:** May-Sept. **Sp.Ex.:** LP 2087 (SACONH); KA & PB 1542 (SACONH); VS 18798, 19402 (FRC); CECF 51366, 51388 (MH); VN 79649 (MH); PSAT 186959 (MH).

LILIACEAE Juss., Gen. Pl. 48. 1789.

LILIUM L., Sp. Pl. 302. 1753.

Lilium wallichianum Schul. f. in J.A. & J.H. Schul., Syst. Pl. 7: 1689. 1830, var. **neilgherrense** (Wight) H. Hara, Fl. E. Himalaya 3rd. Rep 132. 1975; FTC 3(3): 1644. 1983; FTN 3: 40. 1989. *L. neilgherrense* Wight, Icon. Pl. Ind. Orient. tt. 2031 & 2032. 1853; FBI 6: 350. 1892; FSIHS 3: 611. t. 545. 1932; FPM 3: 1064. 1957.

Herb, bulb globose, stem unbranched, glabrous. Leaves alternate, lanceolate, thin coriaceous. Umbels terminal, 3-flowered, rarely solitary. Flowers bisexual. Perianth funnel-shaped, lobes 3+3, white, broadly ovate. Stamens 6, free. Ovary 3-celled, oblong, 6-furrowed, 3-lobed. Capsule oblong.

Rare in evergreen forest. **Fl. & Fr.:** Sept. **Sp.Ex.:** VS 18194 (FRC).

PONTEDERIACEAE Kunth, Nov. Gen. Sp. Pl. 1, ed. qu. 265. 1816.

EICHHORNIA Kunth, Enum. Pl. 4: 129. 1843.

Eichhornia crassipes (Mart.) Solms. in A. DC., Monog. Phan. 4: 527. 1883; FPM 3: 1069. 1957; FTC 3(3): 1649. 1983.

Free floating or rooted herb, stolones lender, roots elongate, fibrous. Leaves broadly ovate-rhomboid, thin coriaceous. Petiole elongate, spongy with a fusiform bulbous portion about the middle. Spike terminal, ca. 15-flowered. Flowers irregular. Perianth tube greenish, suberect-curved, lobes 3+3, ovate-oblongate, upper one liliac, with a blue-bordered, yellow median blotch. Stamens 3+3. Ovary 3-celled. Stigma globose glandular-pubescent.

Common in still or slow-flowing waters and irrigation canals. **Fl. & Fr.:** January-April. **Sp.Ex.:** LP 1494 (SACONH).

MONOCHORIA C. Presl, Reliq. Haenk. 1: 127. 1827.

Monochoria vaginalis (Burm. f.) C. Presl, Reliq. Haenk. 1: 128. 1827; FBI 6: 363. 1892; FPM 3: 1068. 1957 incl. var. *plantaginea* (Roxb.) Solms-Laub.; FTC 3(3): 1650. 1983; FTN 3: 42. 1989.

Rooted aquatic herb, rootstock thick, erect. Leaves ovate, thin coriaceous, base cordate, margin entire. Racemes solitary, terminal, 6-10 flowered. Flower regular. Perianth campanulate, deeply lobed, lobes 3+3, deep blue, oblong-obovate. Stamens 6. Ovary 3-celled, globose. Capsule oblong.

Occasional in marshy areas. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** KR 138923, 138924 (MH).

COMMELINACEAE Mirb., Hist. Nat. Pl. 8: 177. 1804.

Key to the genera

- 1a. Inflorescence leaf opposed.....*Commelina*
- 1b. Inflorescence terminal or axillary.....2
- 2a. Petals connate below into a tube.....*Cyanotis*
- 2b. Petals free.....*Murdannia*

COMMELINA L., Sp. Pl. 40. 1753.

Key to the species

- 1a. Leaves ovate.....2
- 1b. Leaves other than ovate.....3
- 2a. Leaf base contracted into a petiole; seeds closely pitted.....*C. benghalensis*
- 2b. Leaf base rounded or subcordate, sessile; seeds 4-7 transverse ridged.....*C. petersii*
- 3a. Capsule 2-celled.....4
- 3b. Capsule 3-celled.....8
- 4a. Ovule one in each cell of ovary.....5
- 4b. Ovules 2 in anterior and 1 in posterior cell.....*C. clavata*
- 5a. Sheath with rusty hairs at the summit.....6
- 5b. Sheath lacking rusty hairs.....7
- 6a. Capsule trigonus, dehiscent.....*C. paludosa*
- 6b. Capsule subglobose, indehiscent.....*C. indehiscens*
- 7a. Flowers pink.....*C. ensifolia*
- 7b. Flowers blue.....*C. paleata*
- 8a. Seeds reticulate.....*C. diffusa*
- 8b. Seeds smooth.....9
- 9a. Flowers blue.....*C. longifolia*
- 9b. Flowers purple to violet.....*C. erecta*

Commelina benghalensis L., Sp. Pl. 41. 1753; FBI 6: 370. 1892; FPM 3: 1075. 1957; FTC 3(3): 1657. 1983; FTN 3: 43. 1989.

Root stock with cleistogamous flowers. Leaves ovate or oblong-ovate, membranous, margin ciliate. Spathes clustered, funnel shaped. Upper cyme 2-flowered. Lower one or two flowered. Sepals 3. Petals blue. Ovary glabrous. Capsule ellipsoid. Seeds subquadrate, pitted.

Common in moist and shady locations. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** LP 2560, 2617 (SACONH); VS 19192 (FRC); KCJ 58169, 78203 (MH).

Commelina clavata C.B. Clarke., Commelyn. & Cyrtandr. Bengal. 15. t. 5. 1874; FBI 6: 371. 1892; FSIHS 3: 615. t. 551. 1932; FPM 3: 1075. 1957; FTC 3(3): 1657. 1983; FTN 3: 44. 1989.

Erect herb. Leaves lanceolate. Cymes axillary. Spathe broadly ovate, acuminate, base cordate. Petals obovate. Ovary oblong. Stigma globose. Capsule 2-celled. Seeds 4, pitted.

Occasional in wet areas of moist deciduous forest. **Fl. & Fr.:** Sept.-June. **Sp.Ex.:** LP 3109 (SACONH); KCJ 81323 (MH).

Commelina diffusa Burm. f., Fl. Indica. 18. t. 7. f. 2. 1768; FTC 3(3): 1658. 1983; FTN 3: 44. 1989. *C. nudiflora* sensu FBI 6: 369. 1892, non L. 1753; FPM 3: 1074. 1957.

Spreading diffuse herbs. Leaves oblong to lanceolate. Peduncle ovate-lanceolate, base subcordate, complicate. Petals blue. Stamens and staminodes naked. Capsule oblong, 3-celled, apex beaked. Seeds tuberculate and reticulate.

Common in wastelands. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** VS 18914, 19196, 19204, 19205 (FRC); VN 78977 (MH); KCJ 81323, 81448, 81498 (MH).

Commelina ensifolia R. Br., Prodr. Fl. Nov. Holl. 269. 1810; FBI 6: 374. 1892; FPM 3: 1075. 1957; FTC 3(3): 1658. 1983. *C. undulata* var. *setosa* C.B. Clarke in A. & C. DC., Monogr. Phan. 3: 179. 1881; FBI 6: 373. 1892; FPM 3: 1075. 1957; FTN 3: 44. 1989.

Trailing herbs. Leaves linear or linear-lanceolate, glabrescent, puberulous. Spathe solitary, cucullate, ovate, apex acute, pubescent. Capsule 2-celled. Seeds ovoid, smooth.

Occasional in grasslands. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** LP 2168 (SACONH); VS 18737, 19201, 19203 (FRC); CECF 78235 (FRC); VN 79092, 79700, 79705 (MH); SRN 80529, 80547 (MH); PSAT 186855 (MH).

Commelina erecta L., Sp. Pl. 41. 1753, var. *erecta*; FTC 3(3): 1659. 1983; FTN 3: 44. 1989. *C. kurzii* C.B. Clarke, J. Linn. Soc. 11: 444. 1871; FBI 6: 373. 1892; FPM 3: 1075. 1957.

Decumbent herbs, pubescent on one side. Leaves narrowly elliptic-lanceolate, acute at base, scabrid. Spathe shortly peduncled. Cymes few in a spathe, 2-4-flowered. Sepals obovate, acute. Petals clawed, blue. Stamens 3. Ovary 3-celled, 3-ovuled, glabrous. Capsule 3-celled, glabrous. Seeds oblong, powdery.

Occasional in moist deciduous forest and grasslands. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** VS 19199 (FRC).

Commelina indehiscens E. Barnes, J. Bombay Nat. Hist. Soc. 46: 74. 1949; FTN 3: 45. 1989.

Prostrate herbs. Leaves ovate to broadly lanceolate, acute, base rounded, bulbous based hairy. Spathes broadly cordate. Inflorescence a cyme, bracts spathaceous. Sepals boat-shaped. Petals reniform or deltoid. Stamens 3. Staminodes 3. Capsules subglobose, indehiscent, 1-seeded. Rare in along the stream sides of evergreen forest. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** EB K000794487, K000794486 (K).

Commelina longifolia Lam., Tabl. Encycl. 1: 129. 1783; FTC 3(3): 1659. 1983; FTN 3: 45. 1989. *C. salicifolia* Roxb., Fl. Ind. 1: 176. 1820; FBI 6: 370. 1892; FPM 3: 1074. 1957.

Slender decumbent herb. Leaves linear to lanceolate, chartaceous, glabrous. Spathe complicate, ovate-narrowly lanceolate. Capsule oblong, 3-celled. Seeds 5, ovoid-subglobose, truncate. Common in along the margins of moist deciduous forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1492 (SACONH).

Commelina paleata Hassk. in Miq., Pl. Jungh. 139. 1852; FBI 6: 372. 1892; FPM 3: 1075. 1957; FTN 3: 45. 1989.

Herbs. Leaves lanceolate. Spathe ovate-acuminate, clearly stalked. Sepals 3, odd one lanceolate, laterals obovate. Petals 3, odd one lanceolate, laterals rounded. Stamens 3. Staminodes 3. Ovary oblong, pilose. Style twisted. Capsule oblong.

Occasional in evergreen forest. **Fl. & Fr.:** Mar.-Sept. **Sp.Ex.:** CECF 52228 (MH).

Commelina petersii Hassk., Flora 46: 385. 1863. *C. persicariifolia* Wight ex C.B. Clarke, Monogr. Phan. 3: 171. 1881; FBI 6: 372. 1892; FPM 3: 1539. 1957.

Herb. Leaves linear to lanceolate, chartaceous, sparsely scattered-pubescent above, glabrous below. Spathes narrowly lanceolate. Flowers blue. Capsule oblong, 2-celled. Seeds whitish-appendaged at the ends.

Occasional in moist places. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** SRR 78101, 81059 (MH).

Commelina paludosa Blume, Enum. Pl. Javae 1: 2. 1827; FTN 3: 45. 1989. *C. obliqua* Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 45. 1825, non Vahl, 1805; FBI 6: 372. 1892; FPM 3: 1075. 1957.

Diffuse herbs. Leaves lanceolate, apex acute or acuminate, base narrowed, scabrous or softly villous. Spathes infundibular, base cordate, solitary in terminal heads. Flowers blueish. Sepals unequal. Ovary 3-celled, 3-ovuled. Capsule trigonous, 3-seeded.

Occasional in evergreen forest. **Fl. & Fr.:** Nov.-Dec. **Sp.Ex.:** LP 3115 (SACONH); PSAT 187225 (MH).

CYANOTIS D. Don, Prodr. Fl. Nepal. 45. 1825.

Key to the species

- 1a. Inflorescence covered by leafsheaths.....2
- 1b. Inflorescence not covered by leafsheaths.....3
- 2a. Capsule beaked, glabrous; seeds shortly cylindric.....*C. axillaris*
- 2b. Capsule 3-horned; seeds subquadrate, smooth.....*C. cucullata*
- 3a. Leaves chartaceous; branchlets cottony.....4
- 3b. Leaves membranous; branchlets villous or glabrous.....7
- 4a. Root fibres tuberous; sheath long hairy.....*C. tuberosa*
- 4b. Root fibres not tuberous; sheath pubescent.....5
- 5a. Leafbase obtuse.....6
- 5b. Leafbase cordate.....*C. fasciculata*
- 6a. Bracteoles curved.....*C. arachnoidea*
- 6b. Bracteoles lanceolate.....*C. thwaitesii*
- 7a. Cymes solitary, recurved; leaf sheath to 5 mm.....*C. cristata*
- 7b. Cymes clustered, strait or obscurely recurved; leaf sheath more than 1 cm.....*C. pilosa*

Cyanotis arachnoidea C.B. Clarke in A. DC & C. DC., Monogr. Phan. 3: 250. 1881, var. *arachnoidea*; FBI 6: 386. 1892; FSIHS 3: 618. t. 556. 1932; FPM 3: 1081. 1957; FTC 3(3): 1661. 1983; FTN 3: 46. 1989.

Herbs suberect, densely covered with white-cottony hairs. Leaves ovate to linear-lanceolate, cottony hairy. Cymes terminal. Flowers densely packed. Sepals united at the base, densely long hairy. Corolla lobes triangular. Ovary densely hairy at apex. Style bearded. Capsule oblong, hairy. Seeds transversally rugose, black.

Occasional in grasslands. **Fl. & Fr.:** Aug.-Nov. **Sp.Ex.:** VS 19207 (FRC); CECF 52467, 52468, 52469 (MH); KCJ 73061, & 3063 (MH); VN 78804 (MH).

Cyanotis axillaris (L.) Schult. & Schult. f., Syst. Veg. 7: 1154. 1830; FBI 6: 388. 1892; FPM 3: 1082. 1957. *Amischophacelus axillaris* (L.) R.S. Rao & Kammathy, J. Linn. Soc. Bot. 59. 306. 1966; FTC 3(3): 1655. 1983. *Tonningia axillaris* (L.) Kuntze, Revis. Gen. Pl. 2: 721. 1891; FTN 3: 50. 1989.

Fleshy decumbent, glabrous herbs, rooting at lower nodes, often purple-suffused. Leaves linear. Inflorescence in axillary cymose clusters. Calyx connate, pilose, lobes lanceolate. Corolla tube blueish, lobes ovate. Stamens 6, with purple pilose hairs. Ovary woolly, 3-celled. Stigma 3-fid. Capsule oblong.

Occasional in grasslands. **Fl. & Fr.:** Aug.-Sept. **Sp.Ex.:** PSAT 187505, 187506 (MH).

Cyanotis cristata (L.) D.Don, Prodr. Fl. Nepal. 46. 1825; FBI 6: 385. 1892; FPM 3: 1081. 1957; FTC 3(3): 1662. 1983; FTN 3: 46. 1989.

Fleshy, robust herbs. Leaves ovate-oblong, base rounded or cordate, sparsely ciliate on margins. Cymes mostly terminal, recurved, solitary. Calyx lobes hirsute. Corolla pale blue to purple. Staminal filaments bearded, violet. Ovary globose. Capsule subglobose. Seeds trigonous, with 2 large pits on either side.

Occasional in grasslands and moist localities. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** VS 18694, 19194, 19200 (FRC); KCJ 79684 (MH); SRN 80543 (MH); CECF 88412 (MH).

Cyanotis cucullata (Roth.) Kunth, Enum. Pl. 4: 107. 1843; FBI 6: 389. 1892; FPM 3: 1082. 1957. *Tonningia cucullata* (Roth) Kuntze, Revis. Gen. Pl. 2: 722. 1891; FTN 3: 50. 1989.

Decumbent herbs, branches rooting at lower nodes. Leaves sessile, narrowly linear or linear lanceolate, succulent, distichous, recurved. Flowers generally 1-2 in all axils. Corolla violet-blue. Stamens yellowish. Style blue with colourless 2-lipped stigma. Fruit a trigonous capsule.

Occasional in marshy areas. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** SRR 81048, 81049 (MH).

Cyanotis fasciculata (B. Heyne ex Roth) Schult. in Roem. & Schultr., Syst. Nat. 7: 1152. 1830; FBI 6: 387. 1892; FSIHS 3: 619. 1932; FPM 3: 1082. 1957; FTC 3(3): 1662. 1983; FTN 3: 46. 1989.

Annual herb. Branchlets cottony or cobwebby. Leaves linear to lanceolate. Inflorescence terminal or axillary, sparsely cobwebby. Cyme terminal and/or axillary, subcorymbose, Calyx-lobes pilose. Petals ovate-suborbicular. Seeds 6, pyramidal, pitted.

Occasional in moist localities of rock crevices. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** LP 2563 (SACONH); CECF 52470, 52471 (MH).

Cyanotis pilosa Schult. f. in Roem. & Schultr., Syst. Veg. 7: 1155. 1830; FBI 6: 387. 1892; FSIHS 3: 617. t. 555. 1932; FPM 3: 1081. 1957; FTC 3(3): 1663. 1983; FTN 3: 47. 1989.

Robust perennial, rosette herb, root fibrous. Leaves spirally arranged, linear to lanceolate, sparsely villose. Inflorescence composed of many, axillary and terminal cincinni. Calyx lobes pilose. Petals ovate-suborbicular. Stamens yellow. Ovary obovate. Seeds 6, pyramidal, pitted.

Common and gregarious in hill slopes. **Fl. & Fr.:** **Sp.Ex.:** VS 19193, 19197 19206 (FRC).

Cyanotis thwaitesii Hassk., Commelin. Ind. 136. 1870. *C. arachnoidea* C.B. Clarke var. *thwaitesii* (Hassk.) Rolla Rao & Kammathy, Bull. Bot. Surv. India 6: 2. 1964; FTN 3: 46. 1989.

Prostrate perennial herbs, densely covered with white-cottony hairs. Leaves ovate to linear-lanceolate, cottony hairy. Inflorescence composed of one to numerous terminals and axillary cincinni. Flowers densely packed. Sepals united at the base, densely long hairy. Corolla lobes triangular. Ovary densely hairy at apex. Style bearded. Capsule oblong, hairy. Seeds transversally rugose, black.

Occasional in evergreen forest margins. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** LP 3117 (SACONH).

Cyanotis tuberosa (Roxb.) Roem. & Schult., Syst. Veg. 7: 1153. 1830; FBI 6: 386. 1892; FSIHS 3: 618. 1932; FPM 3: 1081. 1957; FTC 3(3): 1663. 1983; FTN 3: 47. 1989.

Perennial herbs with tuberous roots, branchlets softly villous. Basal leaves, oblong, upper leaves linear-ensiform, margin white, serrulate, glabrous, cauline leaves much smaller. Inflorescences terminal or axillary scorpioid cymes, many flowered. Sepals oblanceolate, hairy. Corolla campanulate, violet. Style bearded and bulged below stigma. Capsule ovoid. Seeds faintly rugose, black.

Common in grasslands and wet rocks. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** LP 2878 (SACONH); KA & PB 1661 (SACONH); CECF 52442, 53441 (MH); VN 79695 (MH).

MURDANNIA Royle, Illu. Bot. Himal. t. 95. 1839.

Key to the species

- 1a. Leaves 1 mm broad; bracts ochreate, apiculate.....*M. semiteres*
- 1b. Leaves 3-8 mm broad; bracts ovate.....2
- 2a. Thyrses axillary; 1-7 flowered.....*M. lanuginosa*
- 2b. Thyrses terminal or terminal and axillary; >7 flowered.....3
- 3a. Inflorescences lax thyrses; fertile stamens 3; seeds > 2 per locule.....*M. dimorpha*
- 3b. Inflorescences appressed thyrses; fertile stamens 2; seeds 1-2 per locule.....4
- 4a. Plants with cauline leaves.....*M. nudiflora*
- 4b. Plants with basal rosette.....5
- 5a. Pedicels 3-5 mm long; flowers 12-15 mm wide; capsule ovoid to sub-globose, 5 × 3.5 mm.....*M. simplex*
- 5b. Pedicels 2-3 mm long; flowers 9-12 mm wide; capsule ovoid, 4-5 × 2.5 m.....*M. loriformis*

Murdannia dimorpha (Dalz.) Bruckn. in Engl. & Prantl, Pflanzenfam. ed. 2. 15a: 173. 1930; FTN 3: 48. 1989. *Aneilema dimorphum* Dalzell., Hookers J. Bot. 138. 1851; FBI 6: 377. 1892; FPM 3: 1078. 1957.

Erect herb. Leaves lanceolate, cordate at base, glandular below, thinly pubescent above. Cymes paniced, terminal. Flowers pedicelled. Sepals ovate. Petals obovate, glabrous. Stamens 3. Staminodes 3-lobed. Capsule oblong, glabrous. Seeds cubical, pitted.

Occasional in grasslands. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** VS 19195, 19208, 20759, 20760 (FRC); PSAT 186623, 186624 (MH).

Murdannia lanuginosa (Wall. ex C.B. Clarke) G. Bruckn., Nat. Pflanzenfam. ed. 2. 15a: 173. 1930; FTN 3: 49. 1989. *Aneilema lanuginosum* Wall. ex C.B. Clarke. in DC., Monogr. Phan. 3: 214. 1881; FBI 6: 380. 1892; FPM 3: 1079. 1957.

Erect herbs, fibrous roots often tuberous, stem angular. Leaves cauline, alternate, oblong-lanceolate, margin undulate. Flowers in axillary. Calyx lobes 3, free, slightly unequal, straw-coloured, persistent. Petals 3, free, orange-yellow, bluish when dry, obovate, slightly longer than calyx lobes. Fertile stamens 3. Capsule oblong, trigonous. Seeds 3 or more, angular, pitted.

Occasional in grasslands. **Fl. & Fr.:** Nov.-Dec. **Sp.Ex.:** LP 1498 (SACONH).

Murdannia loriformis (Hassk.) R.S. Rao & Kammathy, Bull. Bot. Surv. India 3: 393. 1961; FTN 3: 49. 1989. *Aneilema loriforme* Hassk. in Miq., Pl. Jungh. 143. 1852. *A. nudiflorum* var. *terminalis* (Wight) C.B. Clarke, Commel. & Cyrt Beng. 211. 1874; FBI 6: 379. 1892.

Perennial herbs. Roots fibrous, glabrous or tomentose. Leaves linear, margin ciliate. Inflorescence terminal, solitary or rarely 2 or 3. Sepals ovate-elliptic. Petals purple-red or blue, obovate-orbicular. Fertile stamens 2. Staminodes 3. Capsule ovoid-globose, trigonous.

Occasional in Grasslands. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** VS 18920 (FRC).

Murdannia nudiflora (L.) Brenan, Kew Bull. 1952: 189. 1952; FTN 3: 49. 1989. *Commelina nudiflora* L., Mant. 177. 1771 (non Sp. Pl. 41. 1753); FTC 3(3): 1666. 1983. *Aneilema nudiflorum* (L.) R. Br., Prodr. Nov. Holl. 271. 1810; FBI 6: 378. 1892; FPM 3: 1078. 1957.

Procumbent herbs, rooting at lower nodes. Leaves sessile, linear or linear-lanceolate, base rounded, margin ciliate. Flowers in terminal and axillary few-flowered, subglobose or subcorymbose panicles. Sepals oblong, obtuse. Petals oblong, bluish-purple. Staminal filaments bearded. Ovules 2 in each cell. Capsule globose. Seeds 2- per locule, cuboid, deeply pitted. Occasional in Grasslands. **Fl. & Fr.:** Sept.-Nov. **Sp.Ex.:** CECF 52355, 72978 (MH).

Murdannia semiteres (Dalzell) Santapau, Poona Agric. Coll. Mag. 41: 284. 1951; FTC 3(3): 1666. 1983; FTN 3: 49. 1989. *Aneilema paniculatum* Wall. ex C.B. Clarke. in DC., Monogr. Phan. 3: 215. 1881 non Wight, 1853; FBI 6: 381. 1892; FPM 3: 1079. 1957.

Erect, tufted slender herbs. Leaves linear, filiform, semiterete. Panicles terminal, lax, peduncles reddish. Flowers blue. Sepals obovate. Petals bluish, obovate. Staminal filaments naked. Ovary glabrous. Capsule subglobose or ovoid.

Occasional in high altitude moist exposed rocks and stream banks. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** VS 19202 (FRC).

Murdannia simplex (Vahl) Brenan, Kew Bull. 7: 186. 1952; FTN 3: 49. 1989. *Aneilema sinicum* Herb.Berol. ex C.B. Clarke, Bot. Reg. 8: t. 659. 1822; FBI 6: 379. 1892; FPM 3: 1078. 1957.

Suberect herbs, roots tuberous. Leaves basal and cauline, linear-lanceolate, cauline leaves smaller. Cymes terminal, paniced. Flowers 5-20 in a cymes; sepals elliptic; petals obovate, obtuse, narrow; staminodes 3, yellow, 3-lobed. Capsule, ellipsoid. Seeds ellipsoid, rugose, brown. Occasional in moist localities of moist deciduous forest and grasslands. **Fl. & Fr.:** Sept.-Nov. **Sp.Ex.:** VN 79782 (MH).

ANTHERICACEAE J. Agardh, Theoria Syst. Pl. 27. 1858.

CHLOROPHYTUM Ker-Gawl., Bot. Mag. t. 1071. 1807.

Key to the species

- 1a. Leaves falcate; scape 6-20 cm; capsules oblong.....*C. tuberosum*
- 1b. Leaves not falcate; scape up to 6 cm; capsules obcordate.....*C. laxum*

Chlorophytum laxum R. Br., Prodr. Fl. Nov. Holland. 277. 1810; FBI 6: 336. 1892; FPM 3: 1066. 1957; FTN 3: 39. 1989.

Herb. Leaves linear-oblong, acute, glabrous, bifarious. Racemes slender. Flowers paired at nodes. Tepals oblong, chartaceous, white. Ovary 3-lobed, ovules one in each cell, stigma terminal, entire. Capsule 3-lobed. Seeds reniform, rugose.

Rare in Grasslands. **Fl. & Fr.:** Sept.-Dec. **Sp.Ex.:** CECF 52029, 52030 (MH).

Chlorophytum tuberosum (Roxb.) Baker, J. Linn. Soc. 15: 332. 1876; FBI 6: 334. 1892; FPM 3: 1066. 1957; FTC 3(3): 1642. 1983; FTN 3: 39. 1989.

Herb, tuberous roots. Leaves ensiform, flat, coriaceous. Scape solitary, racemes branched. Perianth lobes white, oblong-oblongeolate. Stamens 6. Ovary 3-celled, oblong. Capsule oblong, triquetrous. Seeds subquadrate, irregularly pitted.

Occasional in Fallow lands. **Fl. & Fr.:** Sept.-Oct. **Sp.Ex.:** VN 79707 (MH).

ARECACEAE Bercht. & J. Presl, Pflr. Rostlin: 266. 1820.

Key to the genera

- 1a. Stem climbing by hooked spines; leaves scattered; fruit scaly.....*Calamus*
- 1b. Stem not climbing by hooked spines; leaves in a terminal crown; fruit not scaly.....2

- 2a. Leaves simple; circular or lunate in outline.....*Borassus*
 2b. Leaves compound.....3
 3a. Leaves pinnate; leaflets linear or linear-lanceolate; lower pairs of leaflets transformed into spines.....*Phoenix*
 3b. Leaves bipinnate; leaflets cuneate or fan-shaped.....*Caryota*

BORASSUS L., Sp. Pl. 707. 1753.

***Borassus flabellifer* L., Sp. Pl. 1187. 1753; FBI 6: 482. 1892; FPM 3: 1090. 1957; FTC 3(3): 1670. 1983; FTN 3: 51. 1989. *B. flabelliformis* Roxb., Pl. Coromandel 1: 50. tt. 71 & 72. 1796 & Fl. Ind. 3: 790. 1832.**

Unbranched tall tree, stem obscurely hooped. Leaves simple, palmate (fan-shaped), plicately multifid. Leaflets 60-80. Spadices interfoliar, dioecious, branched. Male flowers small, clustered, sepals 3, petals 3, stamens 6. Female flowers large, globose, perianth flashy, sepals ramiform, petals smaller, ovary globose, stigma 3, staminodes 6-9. Drupe yellow when ripe. Very common in along the roadsides of the plains and dry deciduous forest. **Fl. & Fr.:** Feb. May. **Sp.Ex.:** LP 1356 (SACONH).

CALAMUS L., Sp. Pl. 325. 1753.

***Calamus rotang* L., Sp. Pl. 325. 1753; FBI 6: 447. 1892; FPM 3: 1094. 1957; FTC 3(3): 1671. 1983; FTN 3: 52. 1989. *C. roxburghii* Griff., Calcutta J. Nat. Hist. 5: 43. 1845.**

Armed scandent shrub, stem ringed at nodes. Leaves pinnatisect. Leaflets many, narrowly lanceolate, margins bristly ciliate, rachis apically trigonus. Spadices axillary, elongate, branched. Flowers small, polygamo dioecious. Male flowers in 3 or 4 series; calyx cupular 3-lobed; petals 3, yellow, free; stamens 6. Fruit subglobose, mucronate, seeds solitary. Occasional forest margins of the moist and evergreen forest. **Fl. & Fr.:** Mar.-April. **Sp.Ex.:** LP 2016 (SACONH).

CARYOTA L., Sp. Pl. 1: 325. 1753.

***Caryota urens* L., Sp. Pl. 1189. 1753; FBI 6: 422. 1892; FPM 3: 1089. 1957; FTC 3(3): 1672. 1983; FTN 3: 52. 1989.**

Unbranched tree, stem annulate, shining. Leaves 2-pinnate, pinnae 10 pairs. Leaflets clustered or alternate, margin premorse, irregularly serrate. Spadices interfoliar, spathes 3-5. Flowers many monoecious, solitary and male flowers in three. Male flowers sepals 3, rounded, imbricate; petals linear-oblong, valvate; stamens ca.40. Female flowers subglobose; sepals broader; petals rounded, valvate; ovary trigonous; stigma pilose. Fruit globose. Seeds 1 or 2, albumen ruminate. Occasional in moist and evergreen forests. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** LP 2999 (SACONH).

PHOENIX L., Sp. Pl. 1188. 1753.

Key to the species

- 1a. Plants less than 4 m tall, 20-30 cm in diam; leaves 20-55 cm long; fruit 1-2 cm long.....*P. loureirii*
 1b. Plants 8-15 m tall, 35-50 cm in diam; leaves 1-4 m long; fruit 2.5 cm long.....*P. sylvestris*

***Phoenix loureiroi* Kunth, Enum. Pl. 3: 257. 1841; FTC 3(3): 1674. 1983; FTN 3: 53. 1989. *P. humilis* var. *lourierii* (Kunth) Becc., Males. 3: 348, 379, t. 44, f. 16-17. 1890; FBI 6: 427.**

1892. *P. humilis* Royle ex Becc. var. *pedunculata* (Griff.) Becc., Males. 3: 379, 387. t. 44. f. 13-15, 18-21, 25-27. 1890; FBI 6: 427. 1892; FPM 3: 1088. 1957.

Tree, trunk covered with persistent base of petioles. Leaves pinnate, leaflets many, spinous. Spadices dioceous, interfoliar. Male flowers in spadix, spikes in cluster; calyx lobes triangular; petals oblong; stamens 6. Female flowers in spadix. Drupe oblong.

Common in along roadsides of the plains and dry deciduous forest. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** KA & PB 1651 (SACONH); VS 18735, 19410 (FRC).

Phoenix sylvestris (L.) Roxb., Fl. Ind. 3: 787. 1832; FBI 6: 425. 1892; FPM 3: 1088. 1957; FTC 3(3): 1674. 1983; FTN 3: 53. 1989. *Elate sylvestris* L., Sp. Pl. 1189. 1753.

Tree, trunk covered with persistent base of petioles. Leaves pinnate, leaflets many, spinous, lower leaflets spiny. Inflorescence in spadices. Male flowers angular, dense; calyx cupular, lobes rounded; petals 2 or 3 time longer than sepals; stamens 6. Female flowers distant. Drupe oblong-ellipsoid.

Common in dry deciduous forest and dry savannah. **Fl. & Fr.:** Jan.-May. **Sp.Ex.:** LP 1866 (SACONH); PSAT 187380 (MH).

TYPHACEAE Juss., Gen. Pl. 25. 1789.

TYPHA L., Sp. Pl. 971. 1753.

Typha angustifolia L., Sp. Pl. 971. 1753. *T. domingensis* Pers., Syn. Pl. 2: 532. 1807. *T. angustata* Bory & Chaub., Exped. Sci. Moree Bot. 1: 338. 1833; FBI 6: 489. 1893; FPM 3: 1096. 1957; FTC 3(3): 1684. 1983; FTN 3: 54. 1989.

Robust herb, stem terete. Leaves distichous, linear, erect. Male flowers in spike, stamens 2 or 3. Female flowers in spike, cushion like, gynophore white, ovary linear, stigma flattened. Fruit fusiform.

Gregarious in marshy lands, river banks and ponds. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2017 (SACONH).

LEMNACEAE Gray, Nat. Arr. Brit. Pl. 2: 729. 1822, nom. cons.

LEMNA L., Sp. Pl. 2: 970. 1753.

Lemna minor L., Sp. Pl. 970. 1753; FBI 6: 556. 1893. *L. perpusilla* Torr., Fl. New York 2: 245. 1843; FTC 3(3): 1705. 1983; FTN 3: 59. 1989. *L. paucicostata* Hegelm. Lemnac. 139. t. 8. 1868; FBI 6: 556. 1893; FPM 3: 1096. 1957.

Frond(s) in groups of 2 or 3, sometimes solitary, ovate-obovate. Stipe hyaline. Root 1. Budding pouches 2, triangular. Inflorescence 1, in the budding pouch with 1 male and 1 female flowers. Fruit ellipsoid. Seed with prominent longitudinal ribs.

Common in water logged areas like ponds, irrigation tanks etc., **Fl. & Fr.:** throughout the year. **Sp.Ex.:** LP 2015 (SACONH).

ARACEAE Juss., Gen. Pl. 23. 1789.

Key to the genera

- 1a. Leaves peltate.....*Colocasia*
- 1b. Leaves pinnatisect or pedatisect or radiate.....*Arisaema*

ARISAEMA Mart., Flora 14: 459. 1831.

Key to the species

- 1a. Spadix with appendage much longer than the spathe. Leaves usually pedatisect, sometimes nearly radiate.....*A. tortuosum*

1b. Spadix with appendage shorter than the spathe, rarely exerted from the tube. Leaves always radiate..... *A. leschenaultii*

Arisaema leschenaultii Blume, Rumphia 1: 93. 1836; FBI 6: 504. 1893; FSIHS 3: 623. t. 562. 1932; FPM 3: 1105. 1957; FTC 3(3): 1688. 1983; FTN 3: 55. 1989.

Corms subglobose, light pinkish to green with purple spots. Leaflets 5-12, usually 7, radiatset, elliptic-oblong, pinnately veined. Spathe with the basal convolute tubular portion. Spadix usually dioecious, rarely monoecies. Berry 2-3 seeded.

Occasional in shady areas of the hill station. **Fl. & Fr.:** May-July. **Sp.Ex.:** LP 1884 (SACONH).

Arisaema tortuosum (Wall.) Schott, Meletem. Bot. 1: 17. 1832; FBI 6: 502. 1893; FSIHS 3: 622. t. 561. 1932; FPM 3: 1105. 1957; FTC 3(3): 1689. 1983; FTN 3: 56. 1989. *A. neglectum* Schott, Bonplandia 7: 26. 1859; FBI 6: 504. 1893.

Corm thick, petioles with greenish with purplish mottles or spots. Leaflets 5-7. Spathe with basal convolute tubular portion. Spadix usually monoecious, rarely dioecious. Male flower arranged in loosely, anthers cream to purplish. Berry orange-red, 1-2 seeded.

Occasional in hill station. **Fl. & Fr.:** May-July. **Sp.Ex.:** LP1909, 2051 (SACONH); KA & PB 1536 (SACONH).

COLOCASIA Schott & Endl., Meletem. Bot. 1: 18. 1832.

Colocasia esculenta (L.) Schott. in Schott. & Endl., Meletem. Bot. 1: 18. 1832; FTC 3(3): 1691. 1983; FTN 3: 56. 1989. *C. antiquorum* Schott. in Schott. & Endl., Meletem. Bot. 1: 18. 1832; FBI 6: 523. 1893; FPM 3: 1102. 1957.

Tall tubers herb, sheathing leaf base. Leaves peltate, cordate-sagittate. Inflorescence with peduncle shorter than petiole. Spathe elliptic, green. Male flowers cream coloured, appendix cream colour. Female flower many arranged in close spirals, green in colour. Stigma 3-5 lobed, white. Neuter flowers occur at the constriction of the spathe.

Common in irrigation ponds and small canals. Also cultivated for edible tubers. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** LP 2556 (SACONH).

ALISMATACEAE Vent., Tabl. Règne Vég. 2: 157. 1799.

LIMNOPHYTON Miq., Fl. Ind. Bot. 3: 242. 1856.

Limnophyton obtusifolium (L.) Miq., Fl. Ned. Ind. Bot. 3: 242. 1856; FBI 6: 560. 1893; FPM 3: 1113. 1957; FTC 3(3): 1708. 1983; FTN 3: 60. 1989.

Leaves broadly sagittate, chartaceous, stellate pubescent, base broadly cordate. Panicles, branches in whorls of 2-6, basal whorls with 2 elongate branches, 10-15 flowered per whorl. Flower bisexual at basal whorls, male flowers in apical. Male flowers sepals 3, oblong; petals 3, white; stamens 6. Bisexual flowers sepals 3, oblong-ovate; petals 3, white; stamens 6; Ovaries 12-20, free, obovoid. Achenes cluster.

Occasional in moist localities, drainages and water logged areas. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KCJ 81318 (MH); CECF 86019 (MH).

ERIOCAULACEAE Martinov, Tekhno-Bot. Slovar: 237. 1820.

ERIOCAULON L., Sp. Pl. 1: 87. 1753.

Key to the species

- 1a. Inflorescence head white; involucre bract broadly ovate, receptacle villous.....*E. odoratum*
- 1b. Inflorescence head grey; involucre bract obovate, receptacle sparsely villous..*E. quinqueangulare*

Eriocaulon odoratum Dalzell, Hooker's J. Bot. Kew Gard. Misc. 3: 280. 1851; FBI 6: 584. 1893; FSIHS 3: 629. 1932; FPM 3: 1128. 1957; FTC 3(3): 1720. 1983; FTN 3: 64. 1989. *E. collinum* Hook. f., Fl. Brit. India 6: 584. 1893; FSIHS 3: 628. t. 566. 1932; FPM 3: 1128. 1957; FTN 3: 63. 1989.

Leaves lanceolate. Inflorescence head grey. *Male floret* sepals 3, connate; petals unequal, one much enlarged, apically glandular. Stamens 3+3, dark. *Female floret* sepals 2 or 3, dark, free, keeled, obovate; petals 3, free, oblanceolate. Seeds orange-yellow.

Occasional in moist localities in hill slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1395 (SACONH); VN 79921, 79928 (MH).

Eriocaulon quinquangulare L., Sp. Pl. 87. 1753; FBI 6: 582. 1893; FSIHS 2: 204. 1921; FPM 3: 1128. 1957; FTC 3(3): 1721. 1983; FTN 3: 64. 1989.

Leaves lanceolate, purplish red. Inflorescence head globose, white. Male floret calyx spathaceous, 3-partite; petals subequal, ciliate, glandular. Stamens 3, free, oblanceolate; petals 3, subequal, pilose. Seeds oblong-ellipsoid, pale brown.

Occasional in moist localities in hill slopes. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2623 (SACONH).

CYPERACEAE Juss., Gen. Pl. 26. 1789.

Key to the genera

- 1a. Flowers unisexual.....2
- 1b. Flowers bisexual.....3
- 2a. Nut enclosed in an urticula.....*Carex*
- 2b. Nut not enclosed in an urticula.....*Scleria*
- 3a. Spikelets 1-2-flowered.....*Kyllinga*
- 3a. Spikelets few to many flowered.....4
- 4a. Glumes distichous.....5
- 4b. Glumes spiral.....6
- 5a. Stigmas 2; nut laterally flattened, with one angle facing the rachilla.....*Pycneis*
- 5b. Stigmas 3 (rarely 2 or with a subentire style); nut trigonous, triquetrous, at time lenticular, with one face opposite the rachilla.....*Cyperus*
- 6a. Flowers with a perianth of hypogynous scales or bristles or of both.....7
- 6b. Flowers without perianth of hypogynous scales or bristles.....12
- 7a. Leaves with a prominent ligule.....*Fuirena*
- 7b. Leave eligulate.....8
- 8a. Perianth consists of bristles.....9
- 8b. Perianth consists of scales.....10
- 9a. Inflorescence simple; glumes cuneate.....*Lipocarpa*
- 9b. Inflorescence decompound; glumes ovate.....*Actinoscirpus*
- 10a. Leaves well developed.....*Rhynchospora*
- 10b. Leaves reduced to bladeless sheaths.....11
- 11a. Inflorescence reduced into a single terminal spike; style articulated with the ovary.....*Elaeocharis*
- 11b. Inflorescence psuedolateral; style continuous with the ovary.....*Schoenoplectus*
- 12a. Nut with a button - like thickening formed by the persistent style base.....*Bulbostylis*
- 12b. Nut without a button-like thickening formed by the persistant style base.....*Fimbristylis*

ACTINOSCIRPUS (Ohwi) R.W. Haines & Lye, Bot. Not. 124: 481. 1971.

Actinoscirpus grossus (L. f.) Goetgh. & D.A. Simpson, Kew Bull. 46: 171. 1991. *Scripus grossus* L. f., Suppl. Pl. 104. 1781; FBI 6: 659. 1893; FPM 3: 1156. 1957; FTC 3(3): 1786. 1983; FTN 3: 84. 1989.

Stem tufted, erect, sharply triquetrous, nodulose, winged, base spongy. Leaves basal, apically flat, base triquetrous, septate-nodulose, sheaths spongy. Inflorescence terminal, decompound. Spikelets solitary, subglobose, terete. Glumes oblong-obovate, appressed, reddish brown. Stamens 3, red crested. Nut obovoid, trigonous, brown, smooth, apiculate. Common in marshy areas. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1098 (SACONH).

BULBOSTYLIS DC., Prodr., 5: 138. 1836.

Key to the species

- 1a. Glumes mucronate at apex.....*B. barbata*
1b. Glumes acute at apex.....*B. densa*

Bulbostylis barbata (Rottb.) C.B. Clarke in Hook. f., Fl. Brit. India 6: 651. 1893; FPM 3: 1153. 1957; FTC 3(3): 1725. 1983; FTN 3: 65. 1989.

Erect herb. Leaves capillary much reduced. Inflorescence capitate, compound, 5-18-spikeletted. Spikelets oblong, sessile, 6-12-flowered. Glumes ovate - lanceolate, cymbiform, mucronulate. Stamens 2. Nut broadly obovoid, smooth, stramineous.

Very common in plains and foothills. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** LP 3001 (SACONH); VS 19185, 19189 (FRC); SRR 81044 (MH).

Bulbostylis densa (Wall.) Hand.-Mazz. in Karsten & Schenk, Vegetations bilder 20(7): 16. 1930; FTC 3(3): 1726. 1983; FTN 3: 65. 1989. *B. capillaris* var. *trifida* (Ness) Clarke in FBI 6: 652. 1893; FPM 3: 1153. 1957.

Erect herb. Leaves capillary, much reduced. Inflorescence anthelate, simple or subcompound, 1-numerous spikeletted. Spikelets solitary, oblong-ovoid, pedicelled, 4-12-flowered. Glumes ovate, cymbiform. Stamens 3. Nut obovoid, stramineous.

Occasional in moist localities and along the stream sides. **Fl. & Fr.:** June-Sept. **Sp.Ex.:** LP 2284, 3182 (SACONH).

CAREX L., Sp. Pl. 2: 972. 1753.

Key to the species

- 1a. Terminal spikelets with male flowers only.....2
1b. All spikelets with male and female flowers.....3
2a. Urlicles grey tomentose.....*C. phacota*
2b. Urlicles not grey tomentose.....*C. breviculmis*
3a. Stigmas 2.....4
3b. Stigmas 3.....6
4a. Spikelets ovoid to subglobose.....*C. nubigena*
4b. Spikelets elongate, cylindric.....5
5a. Urlicle elliptic, dark brown.....*C. brunnea*
5b. Urlicle ovoid, pale greenish.....*C. dissitiflora*
6a. Leaves scattered; leaf sheath pinkish.....*C. ligulata*
6b. Leaves subbasal; leaf sheath not pinkish.....7
7a. Spikelets > 2 cm long.....*C. baccans*
7b. Spikelets < 1.5 cm long.....*C. filicina*

Carex baccans Nees in Wight, Contr. Bot. India 122. 1834; FBI 6: 722. 1893; FPM 3: 1169. 1957; FTN 3: 65. 1989.

Erect herb. Leaves linear, flat. Inflorescence decompound, partial panicles 5-10, single at nodes. Lower bracts foliaceous, upper bracts filiform. Spikelets cylindrical, androgynous female

part longer than male part. Glumes ovate-oblong. Stamens 3. Utricle obovoid to subglobose. Nut ellipsoid, 3-gonous.

Occasional in evergreen forest borders. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** SRN 80556 (MH); KCJ 81473 (MH).

Carex breviculmis R. Br., Prodr. Fl. Nov. Holl. 242. 1810; FBI 6: 746. 1893; FPM 3: 1168. 1957; FTN 3: 65. 1989.

Erect herb, tufted, rhizomatous perennials, stem trigonous. Leaves basal and sub-basal, exceeding the stem. Inflorescence simple, erect, with 3-7 spikelets, terminal one male, lateral one female. Male spikelet linear. Female spikelet cylindrical. Glumes ovate-acute, brown with white hyaline margins. Style base thickened. Stigmas 3. Utricle ellipsoid, trigonous. Nut triquetrous, ellipsoid.

Occasional in grasslands. **Fl. & Fr.:** Dec.-Jan. **Sp.Ex.:** LP 2951 (SACONH).

Carex brunnea Thunb., Syst. Veg. ed. 14: 844. 1784; FBI 6: 705. 1894; FPM 3: 1168. 1957. *C. lenta* D. Don ex Spreng., Trans. Linn. Soc. London 14: 327. 1825; FTN 3: 66. 1999.

Erect herb. Leaves equal, linear - elongate. Inflorescence with 3-8 fascicles of 2- 8 Spikelets. Lower bracts foliaceous, upper bracts much reduced. Spikelets cylindric, androgynous, Female part thicker and longer. Glume ovate to ovate-lanceolate. Stamens 3. Utricle ovoid. Nut ovoid-oblong.

Occasional in shade places of evergreen forest floor. **Fl. & Fr.:** Aug.-Nov. **Sp.Ex.:** KCJ 81489 (MH).

Carex dissitiflora Franch., Bull. Soc. Philom. Paris 8. 7: 32. 1895. *C. longipes* D. Don var. *dissitiflora* Hook. f., Fl. Brit. India 6: 705. 1894; FPM 3: 1168. 1957; FTN 3: 66. 1999.

Stem erect, rigid, striate-sulcate. Leaves flat or canaliculate. Panicles distant, elongate. Spikelets alternate, elongate, terete male flowers in apex, many flowered. Male flowers glume oblong, oblanceolate. Stamens 3. Female flowers glume broadly ovate. Style 3-fid. Utricle equal to glume, planocanvex, 2-fid. Nut ellipsoid, trigonous.

Occasional in stream sides. **Fl. & Fr.:** Aug.-Nov. **Sp.Ex.:** VN 79894 (MH).

Carex filicina Nees in Wight, Contrib. 123. 1834; FBI 6: 717. 1894; FSIHS 2: t. 581. 1932; FPM 3: 1169. 1957; FTC 3(3): 1727. 1983; FTN 3: 65. 1989.

Stem sparsely tufted, rigid. Leaves as long as stem, flat canaculate. Panicles distant, pyramidal. Spikelets >30, linear, slender. Glumes imbricate, ovate, persistent, mucro elongate, erect, rigid, sides purplish. Stamen 3. Style 3-fid. Utricles trigonous. Nut ellipsoid, sides concave, yellow.

Occasional in Swampy and moist localities. **Fl. & Fr.:** May-Aug. **Sp.Ex.:** VN 78397 (MH).

Carex ligulata Nees in Wight, Contr. Bot. India 127. 1834; FBI 6: 747. 1894; FPM 3: 1169. 1957. *C. hebecarpa* C. A. Mey. var. *ligulata* (Nees) Kuek. in Engler, Pflanzenr. 28: 745. 1909; FPM 3: 1168. 1957; FTC 3(3): 1728. 1983; FTN 3: 66. 1989.

Stem triquetrous. Leaves scattered on the stem, flat. Sheaths purplish. Spikelets erect or suberect, terminal one male and others female, densely flowered. Glumes ovate, mucronulate. Utricles trigonous, densely white-hispid. Nut ellipsoid, triquetrous.

Occasional clumps in evergreen forest border and marshy areas. **Fl. & Fr.:** Jan.-June. **Sp.Ex.:** VN 79836 (MH).

Carex nubigena D. Don ex Tilloch & Taylor, Philos. Mag. J. 62: 455. 1823; FBI 6: 702. 1894; FSIHS 2: t. 579. 1932; FPM 3: 1168. 1957; FTC 3(3): 1730. 1983; FTN 3: 67. 1989.

Stem slender, trigonous, ribbed, Leaves canaliculate. Inflorescence spicate. Spikelets 10 in a cluster, ovoid or oblong, condensed. 7-10 flowered, apically male, basally female. Glumes

ovate-lanceolate. Stamens 2. Style 2-fid. Utricles plano-convex, ellipsoid, yellow, ribbed. Nut biconvex, ovoid, yellow.

Occasional in evergreen forest. **Fl. & Fr.:** May-Sept. **Sp.Ex.:** LP 2625 (SACONH).

Carex phacota Spreng., Syst. Veg. 3: 826. 1826; FBI 6: 708. 1894; FPM 3: 1169. 1957; FTC 3(3): 1730. 1983; FTN 3: 67. 1989.

Stem erect, rigid, stout, striate-sulcate. Leaves flat or canaliculate as long as stem. Inflorescence spicate. Spikelets solitary, terete, elongate, drooping, terminal one male laterals female. Glumes obovate-linear. Stamens 2 or 3. Style 3-fid, Utricles biconvex, ellipsoid, planoconvex. Nut plano-convex, yellow, glossy, obtuse.

Occasional in moisty places. **Fl. & Fr.:** Nov.-April. **Sp.Ex.:** BOU 74015 (MH).

CYPERUS L., Sp. Pl. 1: 44. 1753.

Key to the species

- | | |
|---|-----------------------|
| 1a. Rachilla persistent..... | 2 |
| 1b. Rachilla disarticulating..... | <i>C. squarrosus</i> |
| 2a. Spikelets spicately arranged on a more or less elongated rachis..... | 3 |
| 2b. Spikelets digitate or stellately arranged on a much abbreviated rachis..... | 11 |
| 3a. Spikes cylindrical..... | 4 |
| 3b. Spikes ovoid or obovoid..... | 5 |
| 4a. Spike 1.5 cm wide..... | <i>C. exaltatus</i> |
| 4b. Spike < 8 mm wide..... | <i>C. nutans</i> |
| 5a. Rachilla broadly winged..... | 6 |
| 5b. Rachilla not or hardly winged..... | 9 |
| 6a. Rhizome creeping with stolons; glumes closely imbricate..... | 7 |
| 6b. Rhizome not creeping, without stolons; glumes scarcely imbricate..... | <i>C. distans</i> |
| 7a. Stem trigonus..... | <i>C. rotundus</i> |
| 7b. Stem subterete..... | 8 |
| 8a. Stem articulated when dry..... | <i>C. corymbosus</i> |
| 8b. Stem not articulated when dry..... | <i>C. pangorei</i> |
| 9a. Nuts about as long as the subtending glumes..... | <i>C. iria</i> |
| 9b. Nuts about half as long as the subtending glumes..... | 10 |
| 10a. Rootstock with stolon; achene 1 per spikelet..... | <i>C. paniceus</i> |
| 10b. Rootstock without stolon; achene 2 per spikelet..... | <i>C. compressus</i> |
| 11a. Inflorescence compact in a head or cluster, without rays..... | <i>C. rubicundus</i> |
| 11b. Inflorescence open with 1 or more rays..... | 12 |
| 12a. Spikelets with single flowered..... | <i>C. clarkei</i> |
| 12b. Spikelets with 2-6 flowered..... | 13 |
| 13a. Stem base thickened by sheaths..... | <i>C. dubius</i> |
| 13b. Stem bases not thickened by sheaths..... | 14 |
| 14a. Inflorescence compound umbel..... | <i>C. cyperoides</i> |
| 14b. Inflorescence simple..... | 15 |
| 15a. Secondary rays present..... | <i>C. auriculatus</i> |
| 15b. Secondary rays absent..... | <i>C. difformis</i> |

Cyperus articulatus L., Sp. Pl. 44. 1753. FBI 6: 611. 1893; FPM 3: 1140. 1957; FTC 3(3): 1734. 1983; FTN 3: 68. 1989.

Stem erect, rigid, terete, stout. Leaves bladeless. Sheaths brown to grey-purple. Inflorescence compound. Spikes corymbose or shortly racemose, 2-15-spikeleted. Spikelets digitate, oblong, narrow, linear, fulvous, compressed, ca. 35-flowered. Glumes ovate, mucronate. Stamens 3. Stigma 3. Nut obovoid or ellipsoid, trigonous.

Common along the stream banks. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** KCJ 53298, 53299, 53301, 773537 (MH); EV 142074, 142075 (MH).

Cyperus clarkei T. Cooke, Fl. Bombay 2: 873. 1908; FTN 3: 65. 1989. *Mariscus clarkei* (T. Cooke) T. Koyama, J. Jap. Bot. 51: 313. 1976; FTC 3(3): 1770. 1983.

Rhizome stolonifer, clothed with brown scales. Culms solitary. Leaves linear, acuminate, shorter than stem. Inflorescence umbel. Spikes cylindrical, sessile. Spikelets oblong. Glumes 2, one sterile and one fertile. Achenes oblong-elliptic, trigonous.

Occasional in seasonally flooded marshy areas in grasslands. **Fl. & Fr.:** Oct.-Dec. **Sp.Ex.:** LP 2045 (SACONH); VS 19175 (FRC).

Cyperus compressus L., Sp. Pl. 46. 1753; FBI 6: 605. 1893; FPM 3: 1140. 1957; FTC 3(3): 1734. 1983; FTN 3: 69. 1989.

Stem, erect, rigid, triquetrous. Leaves flat or channelled. Sheaths purplish grey. Inflorescence compound. Spikes racemose or digitately clustered with ca.10 spikelets. Spikelets oblong, compressed, ca. 40 flowered. Glume broadly ovate, thick, mucronate. Stamens 3. Stigmas 3. Nut obovoid, trigonous.

Common in scrub jungles and foothills. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2116 (SACONH); VS 18696, 19190 (FRC); VN 79708 (MH).

Cyperus corymbosus Rottb., Descr. Icon. Rar. Pl. 42. t. 7. f. 4. 1773; FBI 6: 612. 1893; FPM 3: 1140. 1957; FTC 3(3): 1735. 1983; FTN 3: 69. 1989.

Stem erect, rigid, triquetrous. Leaves reduced to sheaths. Inflorescence compound. Spikes ca.10, slender, 5-10 spikeleted. Spikelets spicate, suberect, 15-30 flowered. Glume oblong-ovate. Stamens 3. Stigmas 3. Nut obovoid, triquetrous.

Common and gregarious in marshy lands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2141, 2283 (SACONH); KCJ 53307, 53309, 73579 (MH).

Cyperus cyperoides (L.) Kuntze, Revis. Gen. Pl. 3(2): 333. 1898; FTN 3: 69. 1989. *Mariscus cyperoides* (Roxb.) A. Dietr. in L., Sp. Pl. (ed.6) 2: 438. 1833; FTC 3(3): 1772. 1983.

Stoloniferous herbs, stolon covered with brown coloured scales. Leaves linear, shorter than stem. Inflorescence umbel in terminal. Spikelets one flowered. Glumes oblong, yellowish green. Stamens 3. Ovary ovoid. Nut narrowly oblong, brownish.

Common in moist places of dry and moist deciduous forest. **Fl. & Fr.:** July-Aug. **Sp.Ex.:** VS 18922, 19181 (FRC).

Cyperus difformis L., Cent. Pl. 2: 6. 1756; FBI 6: 599. 1893; FPM 3: 1139. 1957; FTC 3(3): 1756. 1983; FTN 3: 69. 1989.

Stem erect, slender, triquetrous. Leaves flat or slightly canaliculate. Sheaths stramineous or brown. Inflorescence simple or compound. Spikes globose or capitate. with many spikelets. Spikelets narrowly linear, compressed, 5-15 flowered. Glumes broadly obovate or suborbicular. Stamens 2. Stigmas 3. Nut obovoid, triquetrous.

Common in marshy areas. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1633, 1818 (SACONH); VS 18933 (FRC).

Cyperus distans L., Suppl. Pl. 103. 1782, var. *distans*; FBI 6: 607. 1893; FPM 3: 1140. 1957; FTC 3(3): 1737. 1983; FTN 3: 70. 1989.

Stem tufted, erect, slender, trigonous. Leaves flat, as long as stem, thin. Sheaths purplish. Inflorescence decompose. Spikes ovate, with 15-20 patent spikelets. Spikes narrowly linear, sessile, purplish, 15-20 flowered. Glumes half imbricate, elliptic, conduplicate, purplish. Stamens 3. Stigmas 3. Nut ellipsoid or obovoid.

Common along the streams and roadsides. **Fl. & Fr.:** Oct.-Nov. **Sp.Ex.:** VS 18695 (FRC); KCJ & JD 81108, 81254 (MH).

Cyperus dubius Rottb., Descr. Icon. Rar. Pl. 20. 1773. *Mariscus dubius* (Rottb.) Kuck. ex Gamble, Fl. Madras 1644. 1931 & 3: 1140. 1957; FTC 3(3): 1772. 1983.

Rhizome short, stem tufted, erect, slender, triquetrous, base bulbous. Leaves several, flat or canaliculate as long. Sheaths pale or pinkish brown. Inflorescence simple capitate or globose. Spikelets many in a cluster, ovate to lanceolate, 3-6 flowered. Glumes broadly ovate, subcoriaceous, mucronate. Stamens 3. Nut ellipsoid, trigonous.

Common shady places in dry and moist deciduous forest and hill slopes. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** LP 1420, 2502 (SACONH); CECF 53346 (MH); VS 19177, 19179, 19182, 19184 (FRC); SRN 80533 (MH); PSAT 186850 (MH).

Cyperus exaltatus Retz., Observ. Bot. 5: 11. 1788; FBI 6: 617. 1893; FPM 3: 1141. 1957; FTC 3(3): 1737. 1983; FTN 3: 70. 1989.

Stem tufted, erect, rigid, trigonous. Leaves flat or folded, thick. Sheaths brown to purple, spongy. Inflorescence decompound. Spikes digitate, terete, loose, >50 spikeleted. Spikelets spicate, oblong, 20 flowered, compressed. Glumes ovate, thin, mucronate. Stamens 3. Style 3-fid. Nut obovate to ellipsoid, trigonous, fulvous, smooth.

Common in marshy localities. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 3011 (SACONH); TRN 78628, 78632 (MH).

Cyperus iria L., Sp. Pl. 45. 1753; FBI 6: 606. 1893; FPM 3: 1140. 1957; FTC 3(3): 1738. 1983; FTN 3: 71. 1989.

Stem sparsely tufted or solitary, erect, slender or rigid, triquetrous. Leaves flat or channelled, scaberulous. Sheaths purplish. Inflorescence compound or decompound. Spikes ovoid, 15-20-spikeleted. Spikelets spicate, oblong, >20 flowered. Glumes broadly obovate, thick, rigid. Stamens 2 or 3. Stigmas 3. Nut obovoid or ellipsoid, trigonous, pale yellow to grey.

Common moist localities. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1431, 2267 (SACONH); KA & PB 1552 (SACONH); VS 19171, 19172, 19191 (FRC); SRR 80595, 80607 (MH); PSAT 187040 (MH).

Cyperus nutans Vahl, Enum. Pl. Obs. 2: 363. 1805, var. **eleusinoides** (Kunth) Haines, Bot. Bihar Orissa 5: 898. 1924. *C. eleusinoides* Kunth, Enum. Pl. 2: 39. 1837; FBI 6: 608. 1893; FPM 3: 1140. 1957; FTC 3(3): 1740. 1983; FTN 3: 72. 1989.

Stem erect. Leaves as long as stem, thick. Inflorescence decompound. Spikes oblong, densely spikeleted. Spikelets narrow, 10-20 flowered. Glume ovate, sides pinkish nerved. Nut obovoid, triquetrous.

Common in dry and moist deciduous forest. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** KA & PB 1675 (SACONH); CECF 6459 (FRC); KCJ 53283, 53284, 53285, 81497 (MH); CECF 73545 (MH); TRN 78663 (MH); PSAT 186510, 186511 (MH).

Cyperus pangorei Rottb., Descr. Icon. Rar. Pl. 31. 1773; FPM 3: 1140. 1957; FTC 3(3): 1740. 1983; FTN 3: 72. 1989. *C. tegetum* Roxb., Fl. Ind. 1: 211. 1820; FBI 6: 613. 1893.

Stem solitary or sparsely tufted, erect, rigid, trigonous, ribbed, sulcate. Leaves flat. Sheaths purplish or grey. Inflorescence compound. Involucral bracts 3-5, unequal, overtopping. Spikes corymbose, 2-10 spikeleted. Spikelets spicate, narrow oblong, purplish brown, compressed. Glumes closely imbricate. Stamens 3. Nut obovoid or ellipsoid, trigonous.

Common along the stream and river sides. **Fl. & Fr.:** Aug.-Jan. **Sp.Ex.:** TRN 78667 (MH); VN 78976 (MH).

Cyperus paniceus (Rottb.) Boeckeler, *Linnaea* 36: 381. 1870; FTN 3: 72. 1989. *Mariscus paniceus* (Rottb.) Vahl, *Enum. Pl.* 2: 373. 1805; FBI 6: 620. 1893; FPM 3: 1143. 1957; FTC 3(3): 1774. 1983.

Rhizome creeping, stoloniferous. Sheaths striate, lanceolate. Stem slender, erect, triquetrous, base not bulbous. Leaves several, flat. Inflorescence simple. Spikes 3-9, oblong, terete, many spikeleted. Spikelets narrowly linear, 1-flowered. Glumes 4, 3rd glume bisexual, pale green. Stamens 3. Nut oblong-ellipsoid, trigonous.

Common in margins of the ponds, rivers and streams. **Fl. & Fr.:** Aug.-Sept. **Sp.Ex.:** LP 2206 (SACONH).

Cyperus rotundus L., *Sp. Pl.* 45. 1753, subsp. *rotundus*; FBI 6: 614. 1893; FPM 3: 1140. 1957; FTC 3(3): 1742. 1983; FTN 3: 74. 1989.

Stem sparsely tufted, erect, rigid, triquetrous. Leaves several, flat. Sheaths stramineous or brown. Inflorescence simple or compound. Spikes 2-8 spikeleted. Spikelets spicate, narrow-oblong, pale or purplish, 10-20 flowered. Glumes closely imbricating, ovate. Stamens 3, red crested. Stigmas 3. Nut oblong, trigonous.

Common in moist localities, stream sides and ponds. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** LP 2272, 2994 (SACONH).

Cyperus rubicundus Vahl, *Enum. Pl. Obs.* 2: 308. 1805; FTC 3(3): 1743. 1983; FTN 3: 75. 1989. *C. teneriffae* Poir. in Lam., *Encycl.* 7: 245. 1806; FBI 6: 601. 1893; FPM 3: 1139. 1957.

Stem tufted, slender, erect, trigonous. Leaves folded, thin acuminate. Inflorescence simple, capitate. Spikelets 5-7 in a cluster, digitate, stellate, oblong, purple, 15-40 flowered. Rachilla persistent, corky, wingless. Glumes ovate, thin. Stamens 3, red crested. Stigmas 3. Nut obovoid, triquetrous.

Common in rocky hill slopes. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** LP 1520 (SACONH); VS 19173, 19174 (FRC).

Cyperus squarrosus L. *Cent. Pl.* 2: 6. 1756; FTN 3: 75. 1989. *C. aristatus* Rottb., *Descr. Pl. Rar.* 22. 1772; FBI 6: 606. 1893; FPM 3: 1140. 1957.

Erect herb. Stem tufted. Leaves reduced to sheaths. Inflorescence compound, umbellate. Spikes digitate, 8-15-spikeleted. Spikelets oblong, linear, 25-40- flowered. Glumes ovate-oblong. Stamens 3. Nut obovoid or ellipsoid.

Common along the stream banks and seasonally flooded areas. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 3174 (SACONH); CECF 53251, 73525 (MH); SRN 80597, 80598 (MH); VS 19186, 19187 (FRC).

ELEOCHARIS R. Br., *Prodr. Nov. Holl.* 224. 1810.

Eleocharis acutangula (Roxb.) Schult., *Mant.* 2: 91. 1824; FTC 3(3): 1746. 1983; FTN 3: 75. 1989. *E. fistulosa* Schult. in Roem. & Schult., *Mant.* 2: 89. 1824; FBI 6: 626. 1893; FPM 3: 1145. 1957.

Stem erect, stout, tufted, finely ribbed. Sheaths obliquely acute, purplish. Spikelets terete. Glumes many, spiral, broadly ovate. Stamens 3. Style 3-fid. Nut unequally obovoid, biconvex, turgid, glossy, fulvous, striate.

Common and gregarious by marshy banks of ponds. **Fl. & Fr.:** June-Nov. **Sp.Ex.:** KCJ 81324 (MH).

FIMBRISTYLIS Vahl, Enum. Pl. 2: 285. 1805.**Key to the species**

- 1a. Spikelets a few to many, anthelate.....2
- 1b. Spikelets 1 or 2 rarely 3.....10
- 2a. All spikelets sessile.....*F. argentea*
- 2b. All spikelets stalked.....3
- 3a. Nut terete with clavate outgrowth.....*F. dipsacea*
- 3b. Nut other than terete with clavate outgrowth 0.....4
- 4a. Style 2-fid; nut biconvex.....5
- 4b. Style 3-fid; nut tetragonous.....7
- 5a. Spikelets globose; glumes mucous; nut verruculose.....*F. cymosa*
- 5b. Spikelets ovoid-terete; glumes with mucro; nut smooth.....6
- 6a. Spikelets 1-1.5 mm wide; nut dull stramineous.....*F. bisumbellata*
- 6b. Spikelets 2-4 mm wide; nut glossy white.....*F. dichotoma*
- 7a. Ligule absent.....8
- 7b. Ligule of dense hairs present.....9
- 8a. Cauline leaves well-developed.....*F. tenera*
- 8b. Cauline leaves of fertile shoots reduced to sheaths.....*F. quinquangularis*
- 9a. Leaves shortly liguled.....*F. complanata*
- 9b. Leaves leaves not liguled.....*F. uliginosa*
- 10a. Lower glumes distichous.....*F. ovata*
- 10b. Lower glumes spiral.....*F. acuminata*

Fimbristylis acuminata Vahl, Enum. Pl. Obs. 2: 285. 1805; FBI 6: 631. 1893; FPM 3: 1150. 1957.

Densely tufted perennials with fibrous roots. Culms slender, obtusely trigonous, smooth. Inflorescence a single terminal spikelet. Spikelets erect, ovate-lanceolate, terete. Lowest glumes empty, the remaining flower-bearing, spirally imbricate, broadly ovate. Stamens 2. Styles flattened, glabrous, base dilated. Stigmas 2. Nut obovoid-orbicular, biconvex.

Occasional in open wet and moisty places. **Fl. & Fr.:** Oct.-Nov. **Sp.Ex.:** VS 19188 (FRC).

Fimbristylis argentea (Rottb.) Vahl., Enum. Pl. Obs. 2: 294. 1805; FBI 6: 640. 1893; FPM 3: 1151. 1957; FTC 3(3): 1752. 1983; FTN 3: 77. 1989. *Scirpus argenteus* Rottb., Descr. Pl. Rar. 27. 1772 & Descr. Icon. Rar. Pl. 51. t. 17. f. 6. 1773.

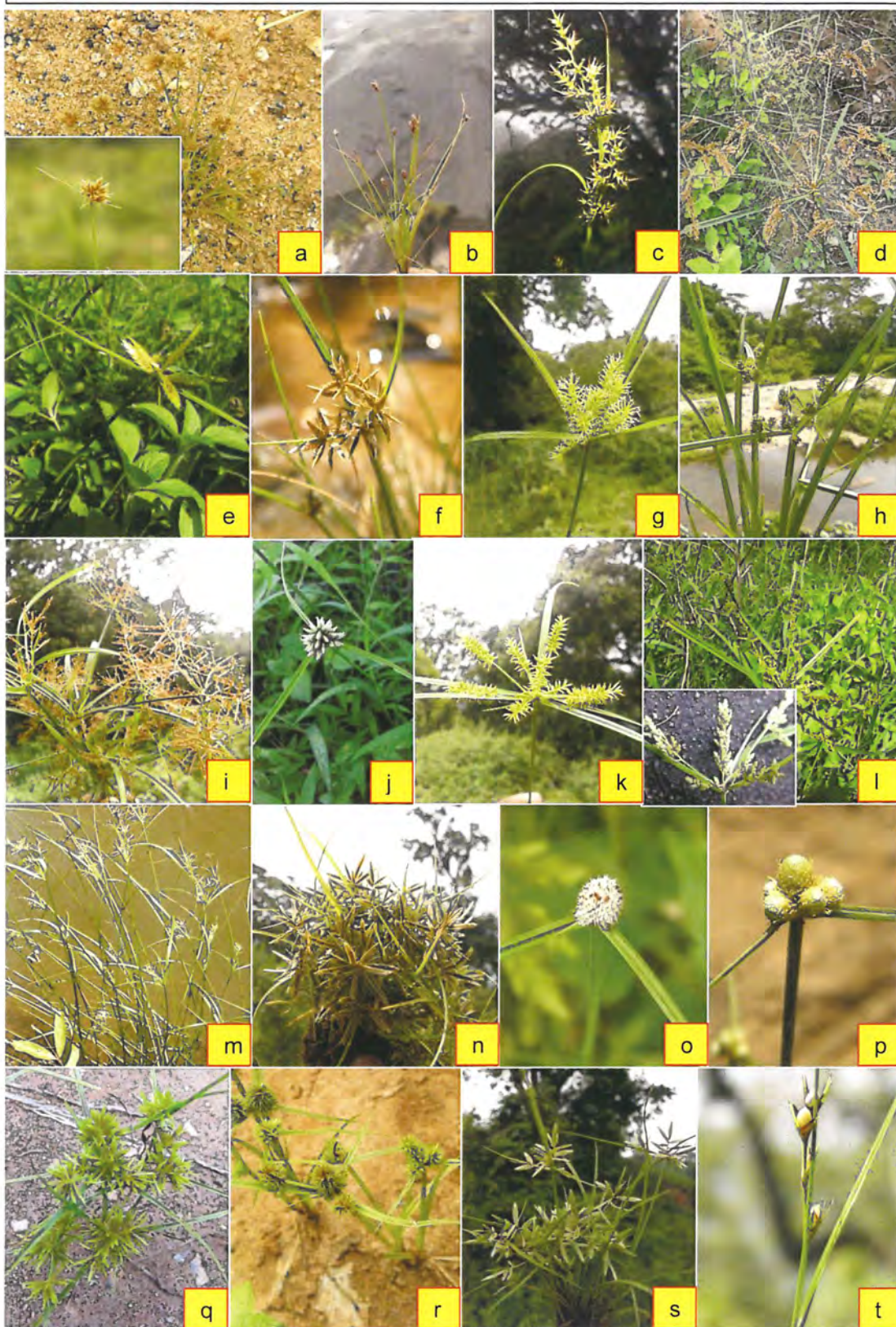
Stem tufted, suberect, setaceous, trigonous, striate. Leaves flat, involute, filiform, sparsely scabrid. Inflorescence capitate, 5-12 in a cluster. Spikelets sessile, terete, angular, obtuse many-flowered. Rachilla narrowly winged. Glumes spiral, ovate, mucronate. Stamen 1. Style 2-fid, fimbriate. Nut obovoid, biconvex, fulvous.

Common in marshy localities. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2271 (SACONH); TRN 78637 (MH).

Fimbristylis bisumbellata (Forssk.) Bubani, Dodecanthea 30. 1850; FPM 3: 1151. 1957; FTC 3(3): 1752. 1983; FTN 3: 77. 1989.

Stem tufted, slender, trigonous, scabrid. Leaves flat, rarely folded, pubescent. Inflorescence terminal, rarely pseudolateral, decompound. Spikelets solitary, terete or oblong, many flowered. Rachilla narrowly winged. Glume broadly ovate, glabrous, greenish-red. Stamen 1. Style 2-fid, fimbriate. Nut obovoid, biconvex, tuberculate with 7 vertical ridges.

PLATE 24- CYPERACEAE



a) *Bulbostylis barbata*, b) *Bulbostylis densa*, c) *Carex baccans*, d) *Cyperus articulatus*, e) *Cyperus compressus*, f) *Cyperus corymbosus*, g) *Cyperus cyperoides*, h) *Cyperus difformis*, i) *Cyperus distans*, j) *Cyperus dubius*, k) *Cyperus exaltatus*, l) *Cyperus iria*, m) *Cyperus rotundus*, n) *Cyperus rubicundus*, o) *Kyllinga nemoralis*, l) *Lipocarpa chinensis*, q) *Pycnus flavescens*, r) *Pycnus polystachyos*, s) *Pycnus pumilus*, t) *Scleria lithosperma*.

Common in marshy areas. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2910 (SACONH); VS 19180 (FRC).

Fimbristylis complanata (Retz.) Link, Hort. Berol. 1: 292. 1827; FBI 6: 646. 1893; FPM 3: 1151. 1957; FTC 3(3): 1753. 1983; FTN 3: 77. 1989.

Stem densely capitate, apex compressed, base trigonous. Leaves flat, rigid. Sheaths compressed, keeled. Inflorescence decompound. Spikelets solitary, narrowly oblong, terete or angular, 12-flowered. Rachilla winged. Glume ovate, grey purplish. Stamens 3. Style 3-fid. Stigma papillose. Nut obovoid, trigonous, strongly verruculose.

Occasional in wet open grasslands. **Fl. & Fr.:** Aug.-Oct. **Sp.Ex.:** LP 1456, 1287 (SACONH).

Fimbristylis cymosa R. Br., Prodr. Fl. Nov. Holl. 228. 1810, var. **spathacea** (Roth) T. Koyama, J. Jap. Bot. 46: 66. 1971. *F. spathacea* Roth, Vov. Pl. Sp. 24. 1821. 1821; FBI 6: 640. 1893; FPM 3: 1151. 1957. *F. cymosa* sensu R. Br., 1810; FTC 3(3): 1754. 1983; FTN 3: 78. 1989.

Stem densely clustered, rigid, trigonous or subterete. Leaves flat or folded, rigid scabrid. Inflorescence compound or decompound, anthelate. Spikelet(s) solitary or clustered, globose, rarely ovate. Rachilla winged. Glumes orbicular to ovate. Stamens 2. Nut obovoid, biconvex, verruculose.

Common in near the marshy areas of the foot hills. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** LP 1696, 2071, 2604 (SACONH); KCJ 53554, 81121, 82221 (MH); VN 78974 (MH).

Fimbristylis dichotoma (L.) Vahl., Enum. Pl. Obs. 2: 287. 1805; FBI 6: 635. 1893; FPM 3: 1151. 1957; FTN 3: 78. 1989.

Stem caespitose, rigid. Leaves canaliculate, rarely flat, as long as or shorter than stem. Sheaths rusty or pinkish. Inflorescence simple or decompound. Spikelets solitary, ovoid, oblong-ovoid, or terete. Rachilla winged. Glumes broadly ovate to sub-orbicular, red brown. Stamen 1. Style 2-fid. Stigmas ciliate. Nut obovoid, biconvex.

Common in moist localities of hill slopes. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** LP 2695, 3107 (SACONH); KA & PB 1652 (SACONH); SRN 80588, 80593 (MH).

Fimbristylis dipsacea (Rottb.) C.B. Clarke in Hook. f., Fl. Brit. India 6: 635. 1893; FPM 3: 1151. 1957; FTC 3(3): 1755. 1983; FTN 3: 78. 1989.

Stem caespitose, dwarf, slender, capillary. Leaves filiform. Sheaths membranous, obliquely truncate, pinkish-grey. Inflorescence simple or compound. Spikelets solitary, globose or ovoid, squarrose. Rachilla terete, winged. Glumes lanceolate. Stamen 1. Style dilated at base. Stigmas fimbriate. Nut subterete or narrow-obovoid.

Occasional in riverbanks. **Fl. & Fr.:** April-May. **Sp.Ex.:** LP 2280 (SACONH).

Fimbristylis ovata (Burm. f.) Kern, Blumea 15: 126. 1967; FTC 3(3): 1758. 1983; FTN 3: 80. 1989. *F. monostachyos* (L.) Hassk., Pl. Jav. Rar. 6. 1848, '*monostachya*'; C.B. Clarke in Hook. f., Fl. Brit. India 6: 649. 1893; FPM 3: 1152. 1957.

Stem densely tufted, slender, trigonous, incrassate at base. Leaves flat, margins inrolled. Inflorescence 1(2)-spikeletted. Spikelets terete, oblong, turgid at base, rachilla winged. Glumes broadly distichous, apically spiral, ovate. Stamens 3. Style 3-fid, fuscous, trigonous, margin hyaline, ciliate, base pyramidal. Stigma papillate. Nut oblong, trigonous.

Common in foot hills and scrub jungles. **Fl. & Fr.:** July-Sept. **Sp.Ex.:** LP 1575, 2127, 2291, 2517 (SACONH); CECF 53628 (MH).

Fimbristylis quinquangularis (Vahl) Kunth, Enum. Pl. 2: 229. 1837; FBI 6: 644. 1893; FPM 3: 1151. 1957.

Erect, tufted, non-rhizomatous annuals. Culms compressed, 4-sided with 2 sharp edges, glabrous. Leaves basal, linear, laterally flattened, scabrid on margins. Inflorescence compound.

Spikelets solitary, globose, obtuse, rusty-brown, rachilla wingless. Glumes spiral, ovate, obtuse. Stamens 1-2. Style linear, triquetrous, ciliate at the base of stigmas. Stigmas 3-fid. Nut obovoid, trigonous, verruculose.

Occasional in moisty places of grasslands. **Fl. & Fr.:** Oct.-Nov. **Sp.Ex.:** LP 3180 (SACONH); TRN 78635 (MH); VN 79179 (MH).

Fimbristylis tenera Roem. & Schul., Mant. 2: 57. 1824; FBI 6: 666. 1893; FPM 3: 1158. 1957; FTN 3: 81. 1989.

Erect herb. Leaves linear, sheaths papery. Inflorescence decomound, few-many spikelets. Spikelets solitary, rarely in pairs, ovate-lanceolate, many-flowered. Glumes spiral, ovate. Stamens 1 or 2, filaments flat. Ovary oblong-obovoid. Stigmas 3. Nut trigonous, obovoid, verrucose.

Occasional in open grasslands. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** LP 1513, 1676 (SACONH).

Fimbristylis uliginosa Hochst. ex Steud., Syn. Pl. Glumac. 2: 109. 1855; FBI 6: 648. 1893; FSIHS 2: t. 576. 1932; FPM 3: 1152. 1957; FTC 3(3): 1765. 1983; FTN 3: 82. 1989.

Stem angular, leaves short, flat, rarely folded, scaberulous. Inflorescence simple-subcompound. Spikelets 1 or 3, subterete, rachilla winged. Glumes ovate, mucronate. Stamens 3. Style 3-fid, basally pyramidal, ciliate. Nut obovoid, trigonous.

Occasional in open grasslands. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** LP 1441 (SACONH); KA & PB 1674 (SACONH).

FUIRENA Rottb., Descr. Icon. Rar. Pl. 70. 1773.

Fuirena cuspidata (Roth) Kunth, Enum. Pl. 2: 187. 1837. *F. wallichiana* Kunth, Enum. Pl. 2: 182. 1837; FBI 6: 665. 1893; FPM 3: 1158. 1957; FTN 3: 82. 1989.

Stem erect, rigid, sharply trigonous, hollow, smooth. Leaves rigid, 3-nerved, glaucous. Inflorescence solitary or 2-5 in a cluster, compact. Spikelets subterete, many flowered. Glumes oblong, thin, scabrid without. Anthers linear. Style 3-fid. Ovary fusiform.

Occasional in marshy areas. **Fl. & Fr.:** Oct.-July. **Sp.Ex.:** KCJ 53775, 53776, 53777, 53778, 73922 (MH).

KYLLINGA Rottb., Descr. Icon. Rar. Pl. 12. 1773.

Key to the species

- 1a. Glumes winged on keel; spikes solitary.....*K. nemoralis*
- 1b. Glumes not winged on keel.....2
- 2a. Rhizome densely tufted; heads lobed with 3 or 4 spikes.....*K. bulbosa*
- 2b. Rhizome not tufted; heads of a single spike.....3
- 3a. Involucral bract short, spreading, < 6 cm long; rhizome thin.....*K. brevifolia*
- 3b. Involucral bract elongate, deflexed, > 15 cm long; rhizome thick.....*K. melanosperma*

Kyllinga brevifolia Rottb., Descr. Icon. Rar. Pl. 13. 1773; FBI 6: 588. 1893; FPM 3: 1130. 1957; FTC 3(3): 1765. 1983; FTN 3: 68. 1989.

Key to the varieties

- 1a. Glume 2.5-3 mm long with ciliate keel.....var. *brevifolia*
- 1b. Glume 2 mm long with glabrous keel.....var. *stellulata*

var. *brevifolia*

Stem spaced, erect, slender, triquetrous. Leaves many, flat or canaliculate, as long as stem. Spikes solitary, bracts 3. Spikelets many in a cluster, lanceolate or oblong, compressed.

1(2)-flowered. Glumes 4, 3rd & 4th glume boat shaped, compressed, boat shaped, compressed. Stamens (2)3. Nut biconvex, obovoid to elliptic, laterally compressed, grey or yellow.

Common along the roadsides. **Fl. & Fr.:** July-Oct. **Sp.Ex.:** LP 2021 (SACONH); VS 19176 (FRC).

var. **stellulata** (Valck.Sur.) S.S.Hooper ex Karthik., in S. Kaarthykeyan *et al.*, Fl. Ind. Enumerat. - Monocot. 60 (1989): (1989).

Perennial, flexuose, erect, triquetrous, slender, creeping rhizome. Leaves shorter than stems, linear. Lowermost bract erect. Inflorescence globose head, golden yellow.

Occasional in along the roadsides in a dry deciduous forest. **Fl. & Fr.:** July-Nov. **Sp.Ex.:** LP 3153 (SACONH).

Kyllinga bulbosa P. Beauv., Fl. Oware 1: 11. 1805. *Cyperus bulbosus* Vahl, Enum. Pl. 2: 342. 1805; FBI 6: 611. 1893; FPM 3: 1140. 1957; FTN 3: 68. 1989.

Stem triangular, bulbs small. Leaves few, linear, recurved. Inflorescence in a terminal cluster of spikes. Spikelets reddish, compressed, linear-lanceolate, 8-20 flowered. Glumes imbricate, prominently nerved. Flowers bisexual. Stamens 3. Fruits small, obovoid, dark brown or black in colour.

Common in marshy areas. **Fl. & Fr.:** Aug.-Oct. **Sp.Ex.:** LP 3158 (SACONH).

Kyllinga melanosperma Nees in Wight, Contr. Bot. India 91. 1834; FBI 6: 588. 1893; FPM 3: 1130. 1957; FTC 3(3): 1767. 1983. *Cyperus melanospermus* (Nees) Valck., *Cyperus* 50. t. 2. f. 8. 1898; FTN 3: 72. 1989.

Stem close, erect, rigid, stout, triquetrous. Leaves 1 or 2, flat or folded. Spikes oblong, solitary. Spikelets ellipsoid or oblong, many in cluster, 1(2)-flowered. Glumes 4, ovate or elliptic, mucronulate, smooth, spinulose. Stamens 3. Nut obovoid, biconvex, laterally compressed.

Common in shady and marshy areas. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** BOU 73399 (MH); PSAT 187067 (MH).

Kyllinga nemoralis (J.R.Forst. & G.Forst.) Dandy ex Hutchinson & Dalziel, Fl. W.Trop. Afr. 2: 487. 1936; FTC 3(3): 1767. 1983. *K. monocephala* Rolib., Descr. Icon. Rar. Pl. 13. t. 4. f. 4. 1773; FBI 6: 588. 1893; FPM 3: 1130. 1957. *Cyperus kyllinga* Endl., Cat. Hort. Acad. Vindb. 1: 94. 1842; FTN 3: 71. 1989.

Stem close or distant, erect, triquetrous. Leaves several, flat or canaliculate, flaccid. Spikes globose, white. Spikelets ovate or elliptic, rachilla wingless. Glumes 4(5), lower ones narrow-linear, 3rd bisexual. Upper moat bisexual or male, boat shaped. Stamens 3. Nut obovoid, biconvex, fuscous or yellow, dorsally compressed.

Common in moist localities of plains. **Fl. & Fr.:** May-Dec. **Sp.Ex.:** LP 2503, 2648 (SACONH).

LIPOCARPHA R. Br., Narr. Exped. Zaire. 459. 1818.

Lipocarpus chinensis (Osbeck) J.Kern, Blumea, Suppl. 4: 167. 1958; FTC 3(3): 1769. 1983; FTN 3: 83. 1989. *L. argentea* (Vahl.) R. Br. in Tuckey, Narr. Exped. Zaire App. 477. 1818; FBI 6: 667. 1893; FPM 3: 1158. 1957.

Stem rigid. Leaves stiff, half as long, or longer than stem. Spikelets 3-8 in a cluster, ovoid or ellipsoid, glumes pale or fuscous. Stamens 2. Stigma 2. Nut ellipsoid or ovoid.

Common in wet places. **Fl. & Fr.:** Oct.-Nov. **Sp.Ex.:** LP 2596 (SACONH); VN 79924 (MH).

PYCREUS P. Beauv., Fl. Oware. 2: 48. 1816.

Key to the species

- 1a. Rachilla not winged.....2
- 1b. Rachilla winged.....3

- 2a. Spikes fulvous-brown; nut trigonus.....*P. flavescens*
 2b. Spikes fuscous; nut biconvex.....*P. flavidus*
 3a. Glumes < 1.5 mm long; spikelets 2 mm wide.....*P. pumilus*
 3b. Glumes > 2 mm long; spikelets 1.5 mm wide.....*P. polystachyos*

Pycreus flavescens (L.) P. Beauv. ex Reichb., Fl. Germ. Excurs. 72. 1830; FBI 6: 589. 1893; FTC 3(3): 1776. 1983. *Cyperus flavescens* L., Sp. Pl. 46. 1753; FTN 3: 71. 1989.

Stem tufted, slender, erect, triquetrous. Leaves basal, flat or canaliculate, flaccid. Sheaths reddish brown. Inflorescence subcompound or compound. Spikes pale or fulvous-brown, spikeletted, horizontal. Spikelets spicate, oblong, 15-40 flowered. Glumes broadly ovate. Stamens 2. Nut obovoid, trigonus.

Common in wetlands and marshy areas. **Fl. & Fr.:** Oct.-Nov. **Sp.Ex.:** LP 1514 (SAONH); KCJ 53150, 81224 (MH).

Pycreus flavidus (Retz.) T. Koyama, J. Jap. Bot. 51: 316. 1976; FTC 3(3): 1777. 1983. *Cyperus flavidus* Retz., Observ. Bot. 5: 13. 1789; FTN 3: 71. 1989.

Key to the varieties

- 1a. Leaves about 1 mm wide; glumes 2/3 overlapping.....var. *nilgiricus*
 1b. Leaves about 3 mm wide; glumes 1/2 overlapping.....var. *flavidus*

var. *flavidus*

Stem tufted, slender, erect, trigonous, striate-sulcate, scaberulous. Leaves basal, flat or folded, sheaths purple. Inflorescence compound. Spikes pale or fuscous, 10-15 spikelets, spicate. Spikelets oblong, >30 flowered. Glumes ovate, thin, sides purplish or dark. Stamens 2. Nut biconvex, ellipsoid or obovoid, laterally compressed.

Common in along the river beds, marshy lands and irrigation ponds. **Fl. & Fr.:** April-May. **Sp.Ex.:** LP 2277 (SACONH); VS 18708 (FRC).

var. *nilagiricus* (Hochst. ex Steud.) Karthik. in Karthikeyan *et al.*, Fl. Ind. Enum.- Monocot. 65. 1989. *P. cappilaris* Nees, var. *nilagiricus* Hook. f., Fl. Brit. India 6: 593. 1893.

Annual herb. Stem erect. Leaves stiff. Inflorescence once anthelate. Spikes globose to oval. Spikelets linear. Glumes ovate-oblong, dark bred-brown to black with pale keel and margin. Stamens 2. Nut indehiscent.

Common in marshy lands and irrigation ponds. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** KCJ 81263 (MH).

Pycreus polystachyos (Rottboell) P. Beauv., Fl. Oware 2: 48. t. 86. f. 2. 1807; FBI 6: 592. 1893; FTC 3(3): 1777. 1983. *Cyperus polystachyos* Rottb. Descr. Pl. Rar. 21. 1772; FTN 3: 73. 1989.

Stem tufted, erect, rigid, triquetrous. Leaves several, flat or canaliculate. Inflorescence simple or sub-compound, densely clustered. Spikes 15-spikeletted, suberect, spicate or fascicular. Spikelets oblong, 15-20 flowered. Glumes ovate-oblong. Stamen(s) 1(2). Nut oblong, ovoid, biconvex, laterally compressed, asymmetrical.

Common in marshy areas. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** PSAT 187379 (MH).

Pycreus pumilus (L.) Nees, Linnaea 9: 283. 1834; FBI 6: 591. 1893, quoad basionym; FTC 3(3): 1778. 1983. *Cyperus pumilus* L., Cent. Pl. 2: 6. 1776; FTN 3: 73. 1989.

Stem tufted, often dwarfed and filiform, triquetrous, erect, spreading. Leaves several, flat or canaliculate. Inflorescence compound, patent or close. Spikes 5-15 spikelets, spicate, horizontal, green or yellow. Spikelets oblong, 10-20 flowered, persistant, winged. Glumes ovate. Stamens 2. Nut biconvex, obovoid, laterally compressed.

Common in marshy areas. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** CECF 6471 (FRC); SRN 80587, 80596 (MH).

REMIREA Aubl., Hist. Pl. Guiane. 1: 44. 1775.

Remirea maritima Aubl. Hist. Pl. Guiane 1: 45. 1775. *Cyperus pedunculatus* (R. Br.) J. Kern, Acta Bot. Neerl. 7: 798. 1958.

Herb with creeping rhizome, terete, rooting at nodes and producing erect stem. Stem subtrigonus. Leaves crowded, rigid, linear, recurved, triquetrous. Inflorescence a terminal solitary or digitate head. Spikelets ellipsoid, 1-flowered. Glumes 4. Stamens 3, Achenes linear-oblong.

Rare not common. **Fl. & Fr.:** Aug. **Sp.Ex.:** LP 2794 (SACONH).

RHYNCHOSPORA Vahl, Enum. Pl. 2: 229. 1805.

Key to the species

- 1a. Spikelets ovate to oblong.....2
- 1b. Spikelets lanceolate.....*R. wightiana*
- 2a. Leaves > 1 cm wide, keeled below.....*R. colorata*
- 2b. Leaves < 3 mm wide, not keeled.....*R. rugosa*

Rhynchospora colorata (L.) H. Pfeiff. Repert. Spec. Nov. Regni Veg. 38: 89 1935. *Kyllinga colorata* (L.) Druce, Rep. Bot. Soc. Exch. Club Brit. Isles 1916: 630. 1917.

Rhizome slender flexuous, creeping, stem distant. Leaves often as long as the stem or shorter. Spikes usually solitary, ovoid, white. Achenes bearing glume broadly winged on the upper part of keel, wing gland dotted. Achenes obovoid, yellowish brown.

Rare in along the riverbanks. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2542 (SACONH).

Rhynchospora rugosa (Vahl.) Gale, Rhodora 46: 275. 1944; FTC 3(3): 1781. 1983; FTN 3: 84. 1989. *R. glauca* Vahl, Enum. Pl. 2: 233. 1805; FBI 6:671. 1893; FPM 3: 1160. 1957.

Stem tufted, erect, trigonous. Leaves mostly basal, flat or canaliculate. Inflorescence narrowly paniced. Spikelets terete, 2(4)-flowered. Glumes 7, brown or pink. Stamens (1)2. Style deeply 2-fid. Nut biconvex, obovoid, brown or purple, vertically ridged.

Occasional in marshy areas in grasslands. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** VN 79925 (MH).

Rhynchospora wightiana (Nees) Steud., Syn. Pl. Glumac. 2: 148. 1855; Boeck., Linnaea 37: 544. 1873. *Haplostylis wightianus* Nees, Nov. Act. Acad. Nat. Cur. 19. Suppl. 1: 101. 1843.

Stem tufted. Stem slender, trigonous. Leaves many, near the base of the stem. Inflorescence capitate. Inflorescence capitate. Spikelets lanceolate, reddish brown. Glume 6-7, elliptic to lanceolate. Hypogynous bristles 5-6, unequal. Achenes narrowly oblong, compressed.

Occasional in grasslands. **Fl. & Fr.:** Oct.-Nov. **Sp.Ex.:** VN 79923 (MH).

SCHOENOPLECTUS (Rchb.) Palla, Verh. K.K.Zool.-Bot. Ges. Wien. 38 (Sitzungsber.): 49. 1888.

Schoenoplectiella articulata (L.) Lye, Lidia 6: 20. 2003. *Schoenoplectus articulatus* (L.) Palla in Engl., Bot. Jahrb. Syst. 10: 299. 1889; FTC 3(3): 1783. 1983, "*articulatus*", *Scirpus articulatus* L., Sp. Pl. 47. 1753; FBI 6: 689. 1893; FPM 3: 1163. 1957; FTN 3: 84. 1989.

Stem tufted, erect, terete, spongy. Sheaths stramineous-brown, obliquely truncate. Inflorescence pseudolateral, capitate, globose or spherical. Spikelets in cluster, ovoid or oblong, pink-fulvous. Glumes broadly ovate. Stamens 3. Nut obovoid, triquetrous.

Common and gregarious in marshy places. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** EV 142082, 142083 (MH).

SCLERIA P.J. Bergius, Kongl. Vetensk. Acad. Handl. 26: 142. 1765.

Key to the species

- 1a. Nuts smooth, shining white.....2
- 1b. Nuts cancellate.....*S. terrestris*
- 2a. Hypogynous disc absent.....*S. lithosperma*
- 2b. Hypogynous disc present.....*S. levis*

Scleria levis Retz., Observ. Bot. 4: 13. 1786; FTN 3: 86. 1989. *S. hebecarpa* Nees in Wight, Contr. 117. 1834; FBI 6: 689, 1893; FPM 3: 1163. 1957.

Rhizomes woody, stems slender, triquetrous. Leaves chartaceous. Inflorescences in terminal panicle, with 1 or 2 lateral branches. Spikelets 1 or 2 in a cluster, brown, unisexual, sessile. *Male flowers* stamens 3. *Female flowers* stigmas 3, disk pale yellow, slightly narrower than nutlet, deeply 3-lobed, lobes lanceolate-triangular. Nutlet whitish.

Occasional in open moist places. **Fl. & Fr.:** June-Sept. **Sp.Ex.:** LP 2627 (SACONH).

Scleria lithosperma (L.) Sw., Prodr. Veg. Ind. Occ. 18. 1788; FBI 6: 685. 1893; FPM 3: 1163. 1957; FTC 3(3): 1787. 1983; FTN 3: 86. 1989. *Scirpus lithospermus* L., Sp. Pl. 51. 1753.

Stem tufted, ridged. Leaves clustered about the middle of the stem. Panicle narrow, spicate. Spikelets bisexual, solitary or clustered, one female and 1 or 2 female others empty. Glumes lanceolate, purplish, mucronate. Stamens 1 or 2. Nut trigonous, whitish, glossy.

Common in moist deciduous forest. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2809 (SACONH).

Scleria terrestris (L.) Fassett, Rhodora 26: 159. 1924; FTC 3(3): 1788. 1983; FTN 3: 86. 1989. *S. cochinchinensis* (Lour.) Druce, Bot. Soc. Exch. Club Brit. Isles 4: 646. 1917; FPM 3: 1163. 1957.

Stem solitary, slender or stout, triquetrous, scaberulous. Leaves scattered, flat, sheaths apically broad, scabrid, 3-winged. Panicles spreading. Peduncles elongate. Spikelets solitary or clustered, unisexual. *Male spikelets*, subterete, many flowered, stamens 3. *Female spikelets*, disc 3-lobed, appressed. Nut ovoid or globose.

Occasional in riverbanks and marshy lands. **Fl. & Fr.:** Sept.-Nov. **Sp.Ex.:** LP 1258 (SACONH).

POACEAE Barnhart, Bull. Torrey Bot. Club 22: 7. 1895, nom. cons., nom. alt.: Gramineae.

Key to the genera

- 1a. Tall woody arborescent or shrubby plants.....2
- 1b. Perennial or annual herbs.....3
- 2a. Spikelets in globose heads; basal node with spinaceous root..... *Dendrocalamus*
- 2b. Spikelets not in globose heads; basal node with fibrous roots..... *Bambusa*
- 3a. Spikelets unisexual.....4
- 3b. Spikelets bisexual.....5
- 4a. Female spikelets completely enclosed in a bead like urticel..... *Coix*
- 4b. Female spikelets not enclosed in a bead like urticel..... *Chionachne*
- 5a. Stamens 6.....6
- 5b. Stamens 1 to 3.....7
- 6a. Glumes absent or reduced to rim..... *Leersia*
- 6b. Glumes present, minute or scale like..... *Oryza*
- 7a. Glumes deciduous along with spikelets; Spikelets strictly 2-flowered.....8
- 7b. Glumes persistent; Spikelets 1-many flowered.....46

8a. Spikelets laterally compressed in pairs, 1 sessile & 1 pedicelled, dissimilar and awned....	9
8b. Spikelets dorsally compressed, solitary, similar and awnless.....	30
9a. Inflorescence a panicle.....	10
9b. Inflorescence 1-many digitate or subdigitate racemes.....	18
10a. Spikelets in groups of three, one sessile and two pedicelled.....	11
10b. Spikelets paired.....	12
11a. Panicles interrupted by spathes.....	<i>Apluda</i>
11b. Panicles not interrupted by spathes.....	13
12a. Spikelets in threes, one sessile, 2 pedicelled.....	<i>Chrysopogon</i>
12b. Spikelets paired, one sessile, one pedicelled.....	<i>Sorghum</i>
13a. Panicles densely covered with long silky hairs.....	14
13b. Panicles not as above.....	15
14a. Glumes hairy; panicles cylindrical and spiciform.....	<i>Imperata</i>
14b. Glumes glabrous; panicles lax.....	<i>Saccharum</i>
15a. Panicle of paired racemes, one sessile, one pedicelled.....	16
15b. Panicles not as above.....	17
16a. Leaves aromatic; racemes supported by spathes.....	<i>Cymbopogon</i>
16b. Leaves non-aromatic; racemes not supported by spathes.....	<i>Andropogon</i>
17a. Panicles interrupted by spathes.....	<i>Themeda</i>
17b. Panicles not interrupted by spathes.....	<i>Capillipedium</i>
18a. Racemes solitary.....	19
18b. Racemes 2- many.....	24
19a. Second lemma of sessile spikelets awnless.....	20
19b. Second lemma of sessile spikelets awned.....	22
20a. Sessile spikelet spherical in shape; lower glume pitted.....	<i>Hackelochloa</i>
20b. Sessile spikelet not spherical in shape; lower glume not pitted.....	21
21b. Keels of the lower glume in sessile spikelet winged.....	<i>Manisuris</i>
21b. Keels of the lower glume in sessile spikelet not winged.....	<i>Rottboellia</i>
22a. Lower spikelets of racemes awnless, upper spikelets awned, twisted together...	<i>Heteropogon</i>
22b. All spikelets of the racemes awned, awns not as above.....	23
23a. Upper glumes awned; spikelets similar.....	<i>Pogonatherum</i>
23b. Upper glumes not awned; spikelets dissimilar.....	<i>Dichanthium</i>
24a. Racemes 2 on each peduncle.....	25
24b. Racemes more than 2 on each peduncle.....	27
25a. Spikes solitary; lower glumes channelled on the back.....	<i>Sehima</i>
25b. Spikes 2-7; lower glumes not channelled on the back.....	26
26a. Lower glume margins of sessile spikelet rounded below and narrowly inflexed and keeled towards apex.....	<i>Ischaemum</i>
26b. Lower glume margins of sessile spikelet evenly inflexed from base to apex.....	<i>Polytrias</i>
27a. Spikelets of each pair similar.....	28
27b. Spikelets of each pair dissimilar.....	29
28a. Upper lemma minutely 2-toothed at the tip; lower glume convex on the back, not 2 keeled.....	<i>Eulaliopsis</i>
28b. Upper lemma deeply bifid at the tip; lower glume flat on the back, the margins sharply inflexed- sometimes 2-keeled at the tip.....	<i>Eulalia</i>
29a. Lower glumes of sessile spikelets pitted.....	<i>Bothriochloa</i>

29b. Lower glumes of sessile spikelets not pitted.....	<i>Arthraxon</i>
30a. Rachis of racemes broad, flat, disarticulating.....	<i>Trachys</i>
30b. Rachis of the racemes not jointed and disarticulating.....	31
31a. Spikelets awned or aristate.....	32
31b. Spikelets not awned or aristate.....	34
32a. Racemes more than 8 cm long, arranged digitally.....	<i>Alloteropsis</i>
32b. Raceme to 5 cm long, arranged on a central axis.....	33
33a. Leaves lanceolate; lower glumes awned.....	<i>Oplismenus</i>
33b. Leaves linear; lower glume awnless.....	<i>Echinochloa</i>
34a. Lower glumes absent or reduced to a minute scale.....	35
34b. Lower glume well developed.....	36
35a. Spikelets paired; lemma of upper floret thin with hyaline margins.....	<i>Digitaria</i>
35b. Spikelets solitary; lemma of upper florets crustaceous.....	<i>Paspalum</i>
36a. Spikelets subtended by bristles.....	37
36b. Spikelets not subtended by bristles.....	38
37a. Upper lemma smooth; bristles caducous.....	39
37b. Upper lemma transversely rugose; bristles persistent.....	<i>Setaria</i>
38a. Involucre of free, naked or plumose bristles.....	<i>Pennisetum</i>
38b. Involucre of spines or rigid bristles united at the base into a hard cup.....	<i>Cenchrus</i>
39a. Inflorescence of racemes arranged on a central axis.....	40
39b. Inflorescence of lax or contracted panicle.....	43
40a. Lower glume turned away from the axis or spikelets abaxial.....	41
40b. Lower glume turned towards the axis or spikelets adaxial.....	<i>Brachiaria</i>
41a. Upper lemma mucronate.....	42
41b. Upper lemma not mucronate.....	<i>Paspalidium</i>
42a. Awned from notched tips of upper glume and lower lemma.....	<i>Melinis</i>
42b. Unawned or if awned than subsessile in false second variously arranged spikes or racemes and awns from entire tips of upper glume and lower lemma.....	<i>Urochloa</i>
43a. Lower glume and lowest internodes of rachilla with annular callus at base of spikelet.....	<i>Eriochloa</i>
43b. Lower glume and lowest internodes of rachilla without callus.....	44
44a. Panicle very much contracted, cylindrical.....	<i>Sacciolepis</i>
44b. Panicle lax, not cylindrical.....	45
45a. Spikelets gibbous and laterally compressed.....	<i>Cyrtococcum</i>
45b. Spikelets not gibbous and laterally compressed.....	<i>Panicum</i>
46a. Spikelets awned.....	47
46b. Spikelets awnless.....	54
47a. Spikelets with one floret.....	48
47b. Spikelets with 2 or more florets.....	52
48a. Awns of the spikelets trifid.....	<i>Aristida</i>
48b. Awns of the spikelets simple.....	49
49a. Inflorescence a panicle.....	50
49b. Inflorescence a solitary raceme.....	51
50a. Spikelets jointed on the pediceles.....	<i>Garnotia</i>
50b. Spikelets not jointed on the pedicels.....	<i>Agrostis</i>
51a. Upper glume 5 - ribbed, armed with spinulose.....	<i>Tragus</i>

51b. Upper glume neither ribbed not spinulose.....	<i>Perotis</i>
52a. Spikelets with 3-7 fertile florets.....	<i>Tripogon</i>
52b. Spikelets with one fertile floret.....	53
53a. Inflorescence of 3-15 digitate racemes, upper lemma empty or reduced.....	<i>Chloris</i>
53b. Inflorescence a panicle or of racemes arranged on a central axis, upper lemma developed.....	<i>Arundinella</i>
54a. Inflorescence of solitary, digitate or subdigitate racemes.....	55
54b. Inflorescence a panicle.....	57
55a. Spikelets with one floret.....	<i>Cynodon</i>
55b. Spikelets with 2-many florets.....	56
56a. Upper glumes aristate; rachis ends in a point.....	<i>Dactyloctenium</i>
56b. Upper glumes not aristate rachis ends in a spikelets.....	<i>Eleusine</i>
57a. Lemmas 9- nerved and 9 - awned.....	<i>Enneapogon</i>
57b. Lemmas, 4- nerved and lobed, 1 -5- awned.....	58
58a. Inflorescence paniced or if spicate than not secund.....	59
58b. Inflorescence of sessile or subsessile spikelets in 2-ranked, secund, dense, solitary, digitate or racemosely arranged spikes.....	65
59a. Spikelets with one floret.....	<i>Sporobolus</i>
59b. Spikelets with 2-many florets.....	60
60a. Lemmas scabrid.....	61
60b. Lemmas glabrous.....	62
61a. Lowest floret bisexual; rachilla glabrous; lemma hairy.....	<i>Arundo</i>
61b. Lowest floret male or empty; rachilla villous; lemma glabrous.....	<i>Phragmites</i>
62a. Glumes equal to or longer than the spikelets.....	<i>Isachne</i>
62b. Glumes shorter than the spikelets.....	63
63a. Paleas 2-keeled, keels ciliate or scabrid.....	64
63b. Paleas not 2-keeled; glabrous.....	<i>Zenkeria</i>
64a. Upper glume 1-nerved.....	<i>Leptochloa</i>
64b. Upper glume 3-5-nerved.....	<i>Eragrostis</i>
65a. Spikelets more or less sunk in the rhachis.....	<i>Oropetium</i>
65b. Spikelets not sunk in the rhachis.....	66
66a. Spikelets secund or subsecund; unawned.....	67
66b. Spikelets not as above; awned.....	<i>Enteropogon</i>
67a. Panicles unbranched.....	<i>Eragrostiella</i>
67b. Panicles branched.....	<i>Desmostachya</i>

AGROSTIS L., Sp. Pl. 1: 61. 1753.

Agrostis peninsularis Hook. f., Fl. Brit. India 7: 255. 1896; FPM 3: 1253. 1957; GBCIP 389. 1960; FTN 3: 87. 1989; FTNG 69. f. 9. 2009.

Tufted annuals. Culms erect to geniculate. Leaf blade linear-lanceolate, margin serrulate. Panicle effuse. Racemes 2-6 per nodes. Spikelets oblong-lanceolate, greenish yellow to purplish. Lower glume oblong-lanceolate. Upper glume oblong-lanceolate. Floret 1, bisexual. Stamens 3, yellow to brownish. Stigma plumose. Ovary oblong, brownish. Caryopsis oblong. Occasional in higher plants. **Fl. & Fr.:** Nov.-Jan. **Sp.Ex.:** LP 3127 (SACONH).

ALLOTEROPSIS J. Presl, Reliq. Haenk. 1: 343. 1830.

Alloteropsis cimicina (L.) Stapf in Prain, Fl. Trop. Africa 9: 489. 1919; FPM 3: 1223. 1957; GBCIP 276. 1960; FTC 3(3): 1799. 1983; FTN 3: 88. 1989; FTNG 211. 2009.

Tufted annuals. Culms geniculate at base, nodes brownish, internodes hollow. Leaf blade ovate to lanceolate, margin cartilaginous. Racemes 4-8, whorled or subdigitate. Spikelets solitary, ovate-elliptic. Lower glume smaller than upper glume, ovate-lanceolate. Florets 2, lower male, upper bisexual. Stamens 3, exserted. Caryopsis dorsally compressed, ovate-elliptic.

Common in scrub jungle and along the roadsides. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2638, 2676, 3134, 3136 (SACONH); CECF 55191 (MH); SRN 82494 (MH); CECF 95021 (MH).

ANDROPOGON L., Sp. Pl. 2: 1045. 1753.

Andropogon pumilus Roxb., Fl. Ind. 1: 277. 1820; FBI 7: 170. 1896; FPM 3: 1215. 1957; GBCIP 93. 1960; FTC 3(2): 1799. 1983; FTN 3: 88. 1989; FTNG 358. 2009.

Tufted annuals. Culms geniculate at base, nodes glaucous to brownish. Leaf blade mostly at base, linear to oblong-lanceolate. Inflorescence panicle, spathulate at nodes, racemes 2 in spathulate, yellowish purple. Lower and upper glume ovate-lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, yellowish to brown. Stigma plumose, greenish. Caryopsis oblong to narrowly lanceolate.

Common in open grasslands and sandy areas. **Fl. & Fr.:** Sept. April. **Sp.Ex.:** LP 2532 (SACONH).

APLUDA L., Sp. Pl. 1: 82. 1753.

Apluda mutica L., Sp. Pl. 82. 1753; FPM 3: 1212. 1957; GBCIP 93. 1960; FTC 3(3): 1800. 1983; FTN 3: 89. 1989; FTNG 359. 2009.

Tufted perennials. Culms erect, basal ones rooting. Leaf blade elliptic to linear. Inflorescence a false panicle. Racemes solitary in each spathulate. Spikelets 3 in group. Lower glume slightly curved, ovate-lanceolate. Upper glume ovate-lanceolate, boat shaped. Florets 2, lower male, upper bisexual. Stamens 3, yellowish brown. Stigma purplish brown. Ovary oblong, greenish brown.

Common along roadsides and scrub jungles and dry deciduous forests. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 1101, 2216, 2615, 2653, 2690, 3140 (SACONH); KA & PB 1417, 1562 (SACONH); VS 18697, 18699, 19169, 19170 (FRC); KCJ 81109 (MH); TRN 82146 (MH); VN 82190 (MH); KCJ 82530, 82584 (MH).

ARISTIDA L., Sp. Pl. 1: 82. 1753.

Key to the species

- 1a. An auriculation between the awn and the lemma present.....2
- 1b. An auriculation between the awn and the lemma absent.....3
- 2a. Auriculation present between the tip of the lemma and base of the column.....*A. funiculata*
- 2b. Auriculation present just below the spreading of awns.....*A. mutabilis*
- 3a. Panicle effuse.....*A. hystrix*
- 3b. Panicle contracted.....4
- 4a. Glumes long awned; awns 3-5 mm long.....*A. setacea*
- 4b. Glumes unawned or short awned; awns upto 2 mm long.....*A. adscensionis*

Aristida adscensionis L., Sp. Pl. 82. 1753; FBI 7: 224. 1896; GBCIP 407. 1960; FTC 3(3): 1801. 1983; FTN 3: 89. 1989; FTNG 110. 2009. *A. depressa* Retz. Observ. Bot. 4: 22. 1786; FPM 3: 1252. 1957; GBCIP 409. 1960.

Tufted perennial. Culms greenish-purple. Leaf blade linear to oblong-lanceolate, margins ciliate. Inflorescence a panicle, 2-4 racemes on a rod. Spikelets linear. Glumes divergent, persistent. Lower glume lanceolate, mucronate to shortly aristate. Upper glume lanceolate. Floret 1, bisexual. Stamens 3, yellowish. Stigma purplish. Ovary elliptic to narrowly oblong. Caryopsis oblong.

Common along the roadsides and floor of scrub jungle. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 1669, 2279 (SACONH); KNS 1875 (FRC); VS 20730, 20731 (MH); VN 78981, 82187 (MH); SRR 81041 (MH); KCJ 82606 (MH); CECF 95330 (MH).

Aristida funiculata Trin. & Rupr., Sp. Gram. Stipac. 159. 1842; FBI 7: 226. 1896; FPM 3: 1253. 1957; GBCIP 410. 1960; FTC 3(3): 1802. 1983; FTN 3: 89. 1989; FTNG 111. f. 21. 2009.

Tufted annual. Culms, yellowish, nodes light brownish. Leaf blade linear-lanceolate, margins serrulate. Spikelets paired, narrowly elliptic-lanceolate. Glumes slightly unequal. Lower glume narrowly elliptic-lanceolate. Upper glume similar to lower glume. Floret 1, bisexual, purplish. Stamens 3, purple. Stigma plumose, purple. Caryopsis oblong, brownish.

Occasional in exposed localities. **Fl. & Fr.:** Nov.-May. **Sp.Ex.:** LP 3135 (SACONH).

Aristida hystrix L. f., Suppl. Pl. 113. 1782; FBI 7: 225. 1896; FPM 3: 1252. 1957; GBCIP 410. 1960; FTC 3(3): 1802. 1983; FTN 3: 89. 1989; FTNG 111. 2009.

Tufted perennials with thick woody base. Culms erect to prostrate, nodes brownish, internodes hollow. Leaf blade linear-lanceolate. Panicle effuses. Racemes alternate, pilose at base. Spikelets pedicelled. Lower glume elliptic to linear-lanceolate. Upper glume similar to lower glume. Floret 1, bisexual. Stamens 3, yellow to brown. Stigma purplish brown. Ovary oblong to elliptic.

Occasional in exposed localities. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** LP 1536 (SACONH); KCJ 57288, 57289, 57290, 82604 (MH).

Aristida mutabilis Trin. & Rupr., Sp. Gram. Stipac. 150. 1842; FBI 7: 226. 1896; FPM 3: 1253. 1957; GBCIP 411. 1960; FTN 3: 90. 1989; FTNG 113. 2009.

Decumbent perennials. Culms geniculate, Leaf blade linear-lanceolate, margin serrulate. Racemes with few to 13 spikelets. Spikelets oblong-lanceolate. Lower glume oblong to elliptic-lanceolate. Floret 1, bisexual. Stigma plumose, purplish brown. Caryopsis oblong, brown.

Occasional in dry sandy soils. **Fl. & Fr.:** Aug. Mar. **Sp.Ex.:** LP 1626 (SACONH).

Aristida setacea Retz., Observ. Bot. 4: 22. 1786; FBI 7: 225. 1896; FPM 3: 1252. 1957; GBCIP 412. 1960; FTC 3(3): 1803. 1983; FTN 3: 90. 1989; FTNG 114. 2009.

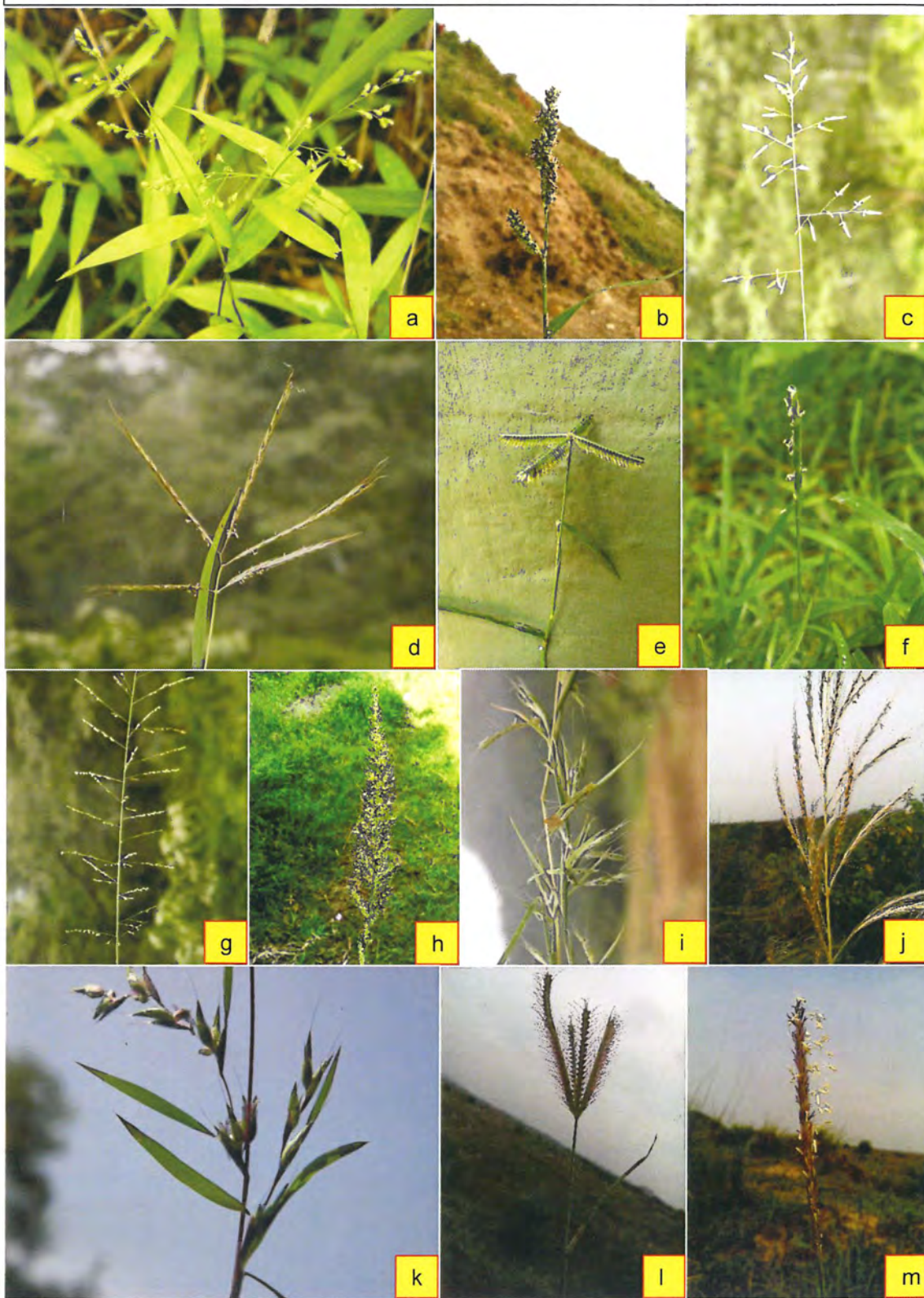
Tufted perennials with rhizomatous base. Culms internodes solid, nodes with purple dots below. Leaf blade linear-lanceolate. Panicle contracted. Racemes 2-6 in a node. Spikelets paired. Lower glume ovate-linear to lanceolate. Upper glume similar to lower glume. Floret 1, bisexual. Stamens 3, yellowish brown. Stigma purple to brownish. Caryopsis oblong, brownish to black.

Common in scrub jungle, dry and moist deciduous forest, along the roadsides and wastelands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2536 (SACONH); KCJ 81101 (MH); VN 82160 (MH).

ARTHRAOXON P. Beauv., Ess. Agrostogr. 111. 1812.

Arthraxon lanceolatus (Roxb.) Hochst., Flora 39: 188. 1856, non Roxb., Fl. Ind. 1820; FBI 7: 143. 1896; FPM 3: 1198. 1957; GBCIP 100. 1960; FTN 3: 90. 1989; FTNG 366. f. 68. 2009.

PLATE 25 - POACEAE



a) *Cyrtococcum patens*, b) *Echinochloa colona*, c) *Eragrostis cilianensis*, d) *Bothriochloa pertusa*, e) *Dactyloctenium aegyptium*, f) *Leersia hexandra*, g) *Sporobolus diandrus*, h) *Setaria intermedia*, i) *Cymbopogon nardus*, j) *Saccharum spontaneum*, k) *Apluda mutica*, l) *Chloris barbata*, m) *Imperata cylindrica*.

Tufted annuals. Culms decumbent to geniculate, smooth, purplish green. Leaf blade ovate-lanceolate thick to cartilaginous at margins with undulation. Inflorescence of 2-4 digitate racemes. Spikelets paired towards apex. Lower glume oblong-linear-lanceolate. Upper glume oblong to elliptic-lanceolate. Florets 2, lower barren, upper bisexual, awned. Stamens 3, yellowish brown. Stigma plumose purplish brown. Ovary narrowly oblong. Occasional in roadsides and rock crevices. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** LP 2541 (SACONH).

ARUNDINELLA Raddi, Agrostogr. Bras. 36. 1823.

Key to the species

- 1a. Upper lemma with 2-setae.....*A. setosa*
 1b. Upper lemma without setae.....2
 2a. Panicles effuse; spikelets less than 2 cm long.....*A. pumila*
 2b. Panicles contracted; spikelets more than 2 cm long.....*A. ciliata*

Arundinella ciliata (Roxb.) Nees ex Miq., Verh. Nederl. Inst. 3. 4: 30 1851; GBCIP 421. 1960; FTC 3(3): 1806. 1983; FTN 3: 91. 1989; FTNG 335. 2009.

Tufted annuals. Culms more or less ribbed, greenish, nodes densely villous, lower ones rooting. Leaf blade linear-lanceolate, margins inrolled to flat. Panicle crowned, compact, spiciform to spreading at maturity. Racemes alternate. Spikelets similar, laterally compressed. Lower glume ovate-lanceolate, arista barbellate. Upper glume ovate-lanceolate. Florets 2, lower male, upper bisexual. Stamens 3, brownish. Stigma plumose, purplish. Ovary ovate, greenish. Caryopsis ovate-oblong, brownish.

Occasional in hill slopes. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** KA & PB 1515 (SACONH).

Arundinella pumila (Hochst. ex A.Rich.) Steud., Syn. Pl. Glumac. 1: 114. 1854; FPM 3: 1247. 1957; GBCIP 423. 1960; FTC 3(3): 1806. 1983; FTN 3: 92. 1989; FTNG 341. 2009.

Tufted annuals. Culms decumbent, smooth to more or less ribbed, nodes whitish hairy. Leaf blade linear to elliptic-lanceolate, margins finely serrulate. Panicle effuse, many noded. Racemes 2-3 per nodes. Spikelets pedicelled. Lower glume ovate-lanceolate. Upper glume ovate-lanceolate. Floret 2, lower male or barren, upper bisexual. Stamens 2 or 3, brown to ash coloured. Stigma plumose, purple-brown. Ovary oblong, green-purple. Caryopsis oblong.

Rare in scrub jungles. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** LP 2242, 3179 (SACONH); KA & PB 1468 (SACONH).

Arundinella setosa Trin., Gram. Panic. 63 1826, var. *setosa*; GBCIP 424. 1960; FTC 3(3): 1807. 1983; FTN 3: 92. 1989; FTNG 342. 2009.

Tufted perennials. Culms straight to geniculate, nodes brownish. Leaf blade lanceolate, margins serrulate. Panicle with 4-7 racemes. Racemes alternate. Spikelets loosely arranged, paired. Lower glume ovate-lanceolate, chartaceous. Upper glume ovate-lanceolate, boat shaped. Florets 2, lower male, upper bisexuals. Stamens 3, greenish brown to purple. Stigma plumose, purplish. Ovary ovate-oblong, greenish.

Occasional in hill slopes. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** KA & PB 1418 (SACONH).

ARUNDO L., Sp. Pl. 1: 81. 1753.

Arundo donax L., Sp. Pl. 81. 1753; FBI 7: 302. 1896; FPM 3: 1250. 1957; GBCIP 413. t. 44. 1960; FTC 3(3): 1807. 1983; FTN 3: 93. 1989; FTNG 99. 2009.

Tufted perennials. Culms erect with thick rhizomatous base, internodes hollow. Panicle dense to effuse. Racemes compact, alternate. Spikelets paired, similar. Lower glume oblong-

lanceolate. Upper glume similar to lower glume. Florets 2 or 3, bisexual upper one reduced. Stamens 3, yellowish brown. Ovary oblong, brown. Stigma plumose, purplish. Common in plains along roadsides and bunds of riverbanks. **Fl. & Fr.:** July- Mar. **Sp.Ex.:** VN 82201 (MH).

BAMBUSA Schreb., Gen. Pl. 236. 1789.

Bambusa bambos (L.) Voss, Vilm. Blumengärtn. ed. 3. 1: 1189. 1895. *B. arundinacea* (Retz.) Roxb., Pl. Coromandel t. 79. 1796; FPM 3: 1286. 1957; FTC 3(3): 1808. 1983; FTN 3: 93. 1989.

Woody perennials. Culms thick. Leaves lanceolate, sheaths linear, glabrous; ligule short; petiole short. Inflorescence a compound panicle with the spikelets in heads. Spikelets 1-many-flowered, oblong, terete. Bracts glume-like. Glumes broadly ovate, mucronate. Lemmas coriaceous, lanceolate, glabrous, mucronate. Palea ciliate. Stamens 6. Stigmas 3. Caryopsis linearly cylindric.

Common and one of the dominant species in dry and moist deciduous forests. **Fl. & Fr.:** Jan.-April. **Sp.Ex.:** LP 2977 (SACONH); KCJ 83155, 84319 (MH).

BOTHRIOCHLOA Kuntze, Revis. Gen. Pl. 2: 762. 1891.

Bothriochloa pertusa (L.) A. Camus, Ann. Soc. Linn. Lyon, n.s., 76: 164. 1931; GBCIP 109. 1960; FTC 3(3): 1809. 1983; FTN 3: 94. 1989; FTNG 373. 2009. *Amphilophis pertusa* (L.) Nash ex Stapf in Barbados, Agric. News W. Ind. 15: 179. 1916; FPM 3: 1200. 1957.

Tufted annuals at times stoloniferous. Culms yellowish, nodes hairy when young, brown to yellow, lower ones rooting. Leaf blade linear-lanceolate, margins sparse tuberculate. Inflorescence 5-8 digitate to subdigitate racemes. Spikelets paired, sessile. Lower glume elliptic-lanceolate, acute with bifid apex. Upper glume ovate to elliptic-lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, greenish yellow. Ovary ovate to oblong. Stigma plumose, purplish. Caryopsis oblong-lanceolate.

Common in dry and moist deciduous forests and along the roadsides. **Fl. & Fr.:** Sept.-June. **Sp.Ex.:** LP 1517, 1659, 1675, 2125, 2577, 3141 (SACONH); KCJ 82544, 82572 (MH).

BRACHIARIA (Trin.) Griseb. in Ledeb., Fl. Ross. 4: 469. 1853.

Key to the species

- 1a. Panicle narrow, linear; fertile florets smooth.....*B. eruciformis*
- 1b. Panicle not as above; fertile florets rugulose.....2
- 2a. Spikelets less than 2mm long.....*B. reptans*
- 2b. Spikelets 2 mm and above.....3
- 3a. Spikelets crowded, secund on rachis.....4
- 3b. Spikelets distant.....5
- 4a. Racemes up to 4 cm long; rachis wing like flat dorsally.....*B. distachya*
- 4b. Racemes up to 7 cm long; rachis not as above.....*B. subquadriflora*
- 5a. Leaf margin undulate; spikelets <2.5 mm long.....*B. semiundulata*
- 5b. Leaf margin not undulate; spikelets >2.5 long.....6
- 6a. Spikelets turgid, apiculate at apex.....*B. ramosa*
- 6b. Spikelets not turgid, acute at apex.....*B. kurzii*

Brachiaria distachyos (L.) Stapf. in Oliver, Fl. Trop. Afr. 9: 565. 1919; FPM 3: 1226, 1957; GBCIP 285. 1960; FTC 3(3): 1811. 1983; FTN 3: 95. 1989; FTNG 215. 2009.

Decumbent to stoloniferous annuals. Culms geniculate, nodes white hairy, lower ones rooting, internodes hollow. Leaf blade linear-lanceolate, margins cartilaginous, serrulate. Inflorescence of subdigitate to subconjugate racemes. Racemes 2-5, straight to curved. Spikelets secund, solitary, alternate, 2-rowed. Lower glume broadly ovate. Upper glume broadly ovate-lanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, yellowish brown. Ovary oblong. Stigma stipitate or simple, yellow to white. Caryopsis broadly elliptic. Occasional in roadsides and forest floor. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** LP 2300, 2624, 2300 (SACONH).

Brachiaria eruciformis (Sm.) Griseb. in Ledeb., Fl. Ross. 4: 469. 1853; FPM 3: 1226. 1957; GBCIP 283. 1960; FTC 3(3): 1812. 1983; FTN 3: 95. 1989; FTNG 216. 2009.

Tufted annuals. Culms decumbent, more or less ribbed. nodes pubescent, white, lower ones rooting. Leaf blade lanceolate, margins inrolled, cartilaginous, serrulate. Panicle narrowed, straight, many racemed. Spikelets sessile. Lower glume ovate, cup shaped. Upper glume ovate to oblong-lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, greenish to purplish brown. Ovary oblong. Stigma plumose. Caryopsis obovate to elliptic, brownish. Occasional along the road sides. **Fl. & Fr.:** July-May. **Sp.Ex.:** LP 2290, 2696 (SACONH); CECF 6559 (FRC); VN 82151 (FRC).

Brachiaria kurzii (Hook. f.) A. Camus in Lacomte, Fl. Indo-Chine 7: 438. 1992; FPM 3: 1226. 1957; GBCIP 283. 1960; FTN 3: 95. 1989; FTNG 21. f. 42. 2009.

Erect to decumbent annuals. Culms pubescent to ciliate, nodes whitish hairy, lower ones rooting. Leaf blade oblong-lanceolate, margins cartilaginous. Panicle diffuse. Racemes alternate, rachis triquetrous. Spikelets few in number, distantly arranged, paired. Lower glume ovate-lanceolate, clasping the spikelets. Upper glume broadly elliptic-lanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, yellow. Ovary oblong-elliptic. Stigma plumose, brownish.

Occasional in along stream banks of the hilly areas. **Fl. & Fr.:** June. **Sp.Ex.:** LP 1681 (SACONH).

Brachiaria ramosa (L.) Stapf in Prain, Fl. Trop. Africa 9: 542. 1919; FPM 3: 1226. 1957; GBCIP 284. 1960; FTC 3(3): 1812. 1983; FTN 3: 96. 1989; FTNG 220. 2009.

Tufted annual, sometimes rosette like. Culms decumbent, more or less furrowed at the middle, nodes pubescent hairy, lower nodes rooting. Leaf blade linear lanceolate, margin thick serrulate. Panicle effuse, racemes alternate. Lower glume broadly ovate, cup shaped. Upper glume broadly ovate-elliptic, boat shaped. Florets 2, lower empty, upper bisexual. Stamens 3, brownish purple to yellowish orange when mature. Ovary ovate-elliptic to oblong. Stigma plumose, purplish. Caryopsis elliptic, greenish brown.

Common along the roadsides and wet localities. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** VS 19149 (FRC); SRR 81038, 81039 (MH); VN 82268 (MH).

Brachiaria reptans (L.) C.A. Gardner & C.E. Hubb., Hooker's Icon. Pl. 34: t. 3363. 1938; GBCIP 285. 1960; FTC 3(3): 1814. 1983; FTN 3: 96. 1989; FTNG 222. 2009. *Urochloa reptans* (L.) Stapf in Prain, Fl. Trop. Africa 9: 601. 1920; FPM 3: 1230. 1957.

Tufted annuals. culms decumbent, nodes bearded with appressed golden yellow to white hairs, lower ones rooting. Leaf blade ovate-lanceolate, margins slightly wavy. Panicle of 6-12 racemes, alternate. Spikelets compactly arranged, paired, similar. Lower glume ovate, cup shaped. Upper glume ovate-lanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, yellow to brown. Ovary oblong-elliptic. Stigma plumose, purplish green. Caryopsis broadly elliptic, yellowish green.

Occasional in moist localities and roadsides. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** LP 2269 (SACONH); SRR 81046 (MH).

Brachiaria semiundulata (Hochst. ex A. Rich.) Stapf in Prain, Fl. Trop. Africa 9: 556. 1919; FPM 3: 1226. 1957; GBCIP 285. 1960; FTC 3(3): 1814. 1983; FTN 3: 96. 1989; FTNG 223. f. 43. 2009. *Panicum villosum* auct. non Lam. 1791; FBI 7: 34. 1896; FSIHS 2: t. 586. 1932.

Tufted annuals. Culms decumbent, nodes pubescent, lower ones rooting. Leaf blade ovate-lanceolate to elliptic, margin cartilaginous, serrulate. Panicles of 3-12 racemes. Spikelets solitary to paired. Lower glume ovate to lanceolate, membranous. Upper glume ovate to oblong-elliptic, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, purplish green. Ovary oblong, greenish. Stigma plumose, purplish. Caryopsis obovate, truncate, brownish.

Occasional in road sides. **Fl. & Fr.:** June-Jan. **Sp.Ex.:** LP 1539 (SACONH); KA & PB 1423 (SACONH).

Brachiaria subquadrifida (Trin.) Hitchc., Lingnan Sci. J. 7: 214. 1931; GBCIP: 286. 1960; FTNG 226. 2009. *B. miliiformis* (J. Presl) Chase, Contr. U.S. Nat. Herb. 22: 35. 1920; FPM 3: 1769. 1934; GBCIP: 283. 1960; FTN 3: 95. 1989.

Tufted annuals or perennials. Culms geniculate, nodes sparsely villose, lower ones rooting. Leaf blade linear to lanceolate, margin cartilaginous, serrulate. Panicle of 2-7 racemes alternating on central axis. Spikelets subsessile, oblong-elliptic when young. Lower glume adpressed to pedicel apex, ovate, cup like. Upper glume oblong to oblanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, brown. Ovary oblong, greenish brown. Stigma plumose, greenish. Caryopsis obovate to elliptic, flat, greenish.

Occasional along the road sides and along the stream banks. **Fl. & Fr.:** July-Feb. **Sp.Ex.:** LP 2956 (SACONH).

CAPILLIPEDIUM Stapf, Fl. Trop. Africa. 9: 169. 1917.

Key to the species

- 1a. Culms slender, filiform, decumbent or trailing; leaves delicate upto 1 cm long....*C. filiculme*
- 1b. Culms stout, erect and robust; leaves chartaceous up to 20 cm long.....*C. huegelii*

Capillipedium filiculme (Hook. f.) Stapf., Hooker's Icon. Pl. 31: t. 3085. 1922; FPM 3: 1199. 1957; GBCIP 111. 1960; FTN 3: 97. 1989.

Annual. Culms slender, creeping or geniculate, nodes villous or glabrous. Leaves lanceolate or elliptic-lanceolate. Panicles open or contracted. Spikelets oblong or elliptic, villous or glabrous. Lower glume ovate, subcoriaceous. Upper glume oblong-lanceolate, chartaceous. Florets 2, lower floret empty, upper floret bisexual. Stamens 3. Ovary oblong.

Occasional in Dry rocky areas. **Fl. & Fr.:** Dec.-Mar. **Sp.Ex.:** VN 79920 (MH).

Capillipedium huegelii (Hack.) A. Camus, Rev. Bot. Appl. Agric. Colon. 1: 306. 1921; FPM 3: 1199. 1957; GBCIP 111. 1960; FTN 3: 98. 1989. *C. assimile* (Steud.) A. Camus in Lecomte, Fl. Indo-Chine 7: 314. 1922; FTNG 375. 2009.

Tufted perennials. Culms erect to geniculate, smooth and robust to slender, purplish green. nodes densely bearded, lower nodes rooting. Leaf blade linear-lanceolate, margins finely serrulate. Racemes capillary with few spikelets pairs towards apex. Lower glume oblong, chartaceous, greenish purple. Upper glume ovate to elliptic-lanceolate. Stamens 3. Ovary ovate to oblong. Stigma plumose, brownish.

Occasional in hill slopes, stream sides and road sides. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** KCJ 81449, 82552, 82555 (MH); KA & PB 1402, 1669 (SACONH).

CENCHRUS L., Sp. Pl. 2: 1049. 1753.**Key to the species**

- 1a. Involucre united at base to a cup 1.3-1.6 mm long; caryopsis brownish.....*C. pennisetiformis*
 1b. Involucre united at base to a cup ca. 0.5 mm long; caryopsis yellowish brown.....*C. ciliaris*
Cenchrus ciliaris L. Mant. Pl. 2: 302. 1771; FPM 3: 1242. 1957; GBCIP 287. t. 33. 1960; FTC 3(3): 1816. 1983; FTN 3: 98. 1989; FTNG 229. 2009. *Pennisetum cenchroides* Rich. in Pers. Syn. 1: 72. 1805; FBI 7: 88. 1896.

Stoloniferous perennials. Culms tufted, geniculate. Leaf blade linear, margins ciliate. Inflorescence spiciform, linear-oblong. Spikelets spirally arranged, lanceolate. Lower glume ovate. Upper glume ovate-lanceolate. Floret 2, lower barren, upper bisexual. Stamens 3. Ovary oblong. Caryopsis oblong, yellowish brown.

Common along roadsides. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** SRR 81065 (MH).

Cenchrus pennisetiformis Hochst. & Steud. ex Steud., Syn. Pl. Glumac. 1: 109. 1854; GBCIP 289. 1960; FTN 3: 98. 1989; FTNG 232. 2009.

Tufted perennials. Culms geniculate, nodes glabrous to pubescent. Leaf blade linear to lanceolate, margins incurved, thick. Racemes terminal, cylindrical to narrow pyramidal, greenish to yellow and purple when mature. Spikelets ovate-lanceolate. Lower glume Ovate-lanceolate, chartaceous. Upper glume ovate to oblong. Florets 2, lower barren or male, upper bisexual. Stamens 3. Ovary oblong. Stigma plumose. Caryopsis oblong, brownish.

Occasional in wet localities in sandy areas. **Fl. & Fr.:** Mar.-Aug. **Sp.Ex.:** VS 18927 (FRC).

CHIONACHNE R. Br., Pl. Jav. Rar. 15, 18. 1838.

Chionachne gigantea (J.Koenig) Veldkamp., Blumea 47: 559. 2002; FTNG 390. 2009. *Coix gigantea* J. Koeng, Naturforscher (Halle) 23: 211. 1788; FPM 3: 1705. 1934; GBCIP: 264. 1960; FTN 3: 102. 1989. *Coix lacryma-jobi* L. var. *gigantea* (J.Koenig) Stapf ex FBI 7: 100. 1896.

Densely tufted perennials. Culms erect, stilt rooted. Leaf blade linear, margin scabrid. Inflorescence suberect to drooping false spike. *Male spikelets* mostly in three on short. Lower glume elliptic to ovate, broadly winged towards apex. Upper glume lanceolate. Florets 2, lower male, upper sterile. Stamens 3. *Female spikelets* globose, consists of 1 sessile fertile spikelet and 2 pedicelled rudimentary sterile spikelets. Caryopsis broadly ovate.

Occasional in water logged areas. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** CECF 55895, 55896, 55897, 55898 (MH); KCJ 81493 (MH).

CHLORIS Sw., Prodr. 25. 1788.**Key to the species**

- 1a. Spikelets racemosely arranged.....*C. roxburghiana*
 1b. Spikelets digitate.....2
 2a. Perfect florets 3-4.....*C. bournei*
 2b. Perfect florets 1.....3
 3a. Empty lemma solitary.....*C. virgata*
 3b. Empty lemma 2-4.....*C. barbata*

Chloris barbata Sw., Fl. Ind. Occid. 1: 200. 1797; FBI 7: 292. 1896; FPM 3: 1272. 1957; GBCIP 465. 1960; FTC 3(3): 1820. 1983; FTN 3: 99. 1989. *C. inflata* Link, Enum. Hort. Berol. Alt. 1: 105. 1821; FTNG 189. 2009.

Tufted annuals. Culms geniculate, more or less ribbed, lower nodes rooting. Leaf blade linear-lanceolate, margins serrulate, inrolled. Inflorescence 6-14 digitate spikes. Spikelets secund, subsessile, distichous, greenish purple. Lower glume ovate-lanceolate, membranous, upper glume ovate-lanceolate. Florets 3, lowest bisexual, upper 2 represented by awned epaleate empty lemmas. Stamens 3, whitish yellow. Ovary elliptic-globose. Stigma plumose, purplish to brown. Caryopsis narrowly oblong to elliptic, greenish brown.

Common along the road sides, also common weed. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2815 (SACONH); VS 19150 (FRC); VN 78702, 82181 (MH).

Chloris bournei Rangach. & Tadul., Journ. Ind. Bot. 2: 189. 1921 & Handb. South Indian Grass. tt. 202 & 203. 1921; FPM 3: 1272. 1957; GBCIP 466. 1960; FTN 3: 99. 1989; FTNG 186. 2009.

Tufted stoloniferous perennials. Culms decumbent, nodes brownish, lower ones rooting. Leaf blade linear to lanceolate. Spike 5 or 6, digitate. Spikelets secund, alternate, subsessile. Lower glume ovate-lanceolate, membranous. Upper glume oblanceolate, chartaceous, greenish purple. Florets 4 or rarely 5-awned, lower 2 florets fertile, upper 2 or 3 sterile. Stamens 3, yellowish green. Ovary oblong to elliptic. Stigma plumose, purplish brown. Caryopsis oblanceolate to narrowly elliptic, greenish brown.

Occasional in field bunds and waste places. **Fl. & Fr.:** Aug.-May. **Sp.Ex.:** KCJ 81197, 82534 (MH).

Chloris roxburghiana Schult., Mant. 2: 339. 1824; GBCIP 468. 1960; FTN 3: 100. 1989; FTNG 191. 2009. *C. polystachya* Roxb. Fl. Ind. 1: 332. 1820, non Lag., 1816; FBI 7: 292. 1896; FPM 3: 1272. 1957.

Tufted rhizomatous perennials. Culms geniculate, nodes few, internodes elongated. Leaves fastigate. Leaf blade linear-lanceolate, margins serrulate. Inflorescence of 14-28 compact digitate to subdigitate spikes. Spikelets secund, compactly arranged. Lower glumes lanceolate, chartaceous to membranous. Lower glume oblong-lanceolate. Florets 3, lower one bisexual, others sterile. Stamens 3, greenish yellow. Stigma plumose, purplish. Caryopsis obovate to oblanceolate.

Occasional in sheltered pockets in scrub jungles and rock edges. **Fl. & Fr.:** July-June. **Sp.Ex.:** VS 18738 (FRC); SRR 81064, 82481 (MH).

Chloris virgata Sw., Fl. Ind. Occid. 1: 203. 1797; FBI 7: 291. 1896; FPM 3: 1272. 1957; GBCIP 468. 1960; FTN 3: 100. 1989; FTNG 192. 2009.

Tufted perennials, Culms decumbent with flowering culms erect, lower nodes rooting. Leaf blade linear, margins finely serrulate. Spikes 4-9, digitate, closely crowded. Lower glume lanceolate. Upper glume oblong-lanceolate. Florets 2, lower fertile, upper sterile. Stamens 3. Ovary oblong. Stigma purplish. Caryopsis oblong, brownish.

Common along the field bunds and wastelands. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** LP 2020, 2288, 2293 (SACONH).

CHRYSOPOGON Trin., Fund. Agrost. 187. 1820.

Key to the species

- 1a. Pediceled spikelets 2.....2
- 1b. Pediceled spikelets 1.....*C. lawsonii*
- 2a. Pedicels glabrous.....*C. aciculatus*
- 2b. Pedicels hairy.....3
- 3a. Pedicels upto half or less than half of the sessile spikelet.....4
- 3b. Pedicels more than half of the sessile spikelets.....5

- 4a. Upper glume of spikelet densely pectinate-ciliate, brown or golden hairy.....*C. fulvus*
 4b. Upper glume of smooth or ciliate but not as above.....*C. hackelii*
 5a. Lower glume of pedicelled spikelets acuminate to at times aristate.....*C. nodulibarbis*
 5b. Lower glume of pedicelled spikelets definitely awned.....*C. asper*

Chrysopogon aciculatus (Retz.) Trin., Fund. Agrost. 188. 1820; FPM 3: 1205. 1957; GBCIP 115. 1960; FTC 3(3): 1822. 1983; FTN 3: 100. 1989; FTNG 380. 2009. *Andropogon aciculatus* Retz., Obs. Bot. 5: 22. 1789; FBI 7: 188. 1896.

Tufted perennials. Culms decumbent with rhizomatous base. Leaf blade lanceolate, margins infolded. Panicle open, basal branches whorled. Spikelets hairy on both sides, yellow to purple. Lower glume oblong-lanceolate, chartaceous to subcoriaceous. Upper glume ovate-lanceolate, boat shaped, purplish green. Florets 2, lower barren, upper bisexual. Stamens 3, yellowish brown. Ovary oblong. Stigma plumose, purplish brown to white. Caryopsis oblong, greenish yellow.

Common in dry deciduous forest. **Fl. & Fr.:** April-Nov. **Sp.Ex.:** LP 2626 (SACONH).

Chrysopogon asper B. Heyne ex Blatt. & McCann, Sci. Monogr. Imp. Council Agric. Res. India 5: 68. 1935; FPM 3: 1205, 1957; GBCIP 116. 1960; FTN 3: 100. 1989; FTNG 381. 2009.

Tufted perennials, rhizomatous or not. Culms straight to geniculate, more or less ribbed to smooth, nodes brownish, lower ones rooting. Leaf blade fastigate below, linear-lanceolate. Inflorescence panicle, branches verticillate, 6-10 racemes in a node. Spikelets 3 together. Lower glume oblong-lanceolate, narrowly boat shaped. Upper glume similar to the lower in sharpened texture. Florets 2, lower male or barren, upper bisexual. Stamens 3. Ovary oblong. Stigma plumose, golden yellow.

Common in hill slopes. **Fl. & Fr.:** July-Jan. **Sp.Ex.:** LP 1499 (SACONH).

Chrysopogon fulvus (Spreng.) Chiov., Fl. Somalia 1: 327. 1929; GBCIP 116. 1960; FTC 3(3): 1823. 1983; FTN 3: 100. 1989; FTNG 383. 2009. *C. montanus* Trin. ex Spreng. Neue Entd. 2: 93. 1821; FPM 3: 1205, 1957.

Tufted, rhizomatous perennials. Culms geniculate, nodes brownish. Leaf blade linear to oblong, serrate along margins. Panicle with branches whorled. Racemes ending in a group of 3 spikelets. Spikelets ovate-elliptic. Lower glume oblong to oblanceolate. Upper glume elliptic-lanceolate. Florets 2, lower bisexuals, upper empty. Stamens 3, yellow. Ovary ovate. Stigma plumose, purplish. Caryopsis narrowly elliptic-oblong.

Occasional in hill slopes and roadsides. **Fl. & Fr.:** Aug.-May. **Sp.Ex.:** VS 19168 (FRC); VN 82168 (MH); KCJ 82605 (MH).

Chrysopogon hackelii (Hook. f.) C.E.C. Fisch. in Gamble, Fl. Madras 1739. 1934 & 3: 1205. 1957; GBCIP 117. 1960; FTN 3: 100. 1989; FTNG 384. 2009.

Tufted, reed like perennials. Culms erect, nodes brown. Leaf blade linear to lanceolate, finely serrulate at margins. Inflorescence panicle, racemes whorled at nodes, nodes hairy. Racemes end with a group of 3-spikelets. Spikelets oblong-lanceolate. Lower glume oblong-lanceolate, chartaceous. Upper glume oblong-lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3. Ovary narrowly elliptic. Stigma plumose, purplish yellow.

Occasional in open hill slopes. **Fl. & Fr.:** July-Feb. **Sp.Ex.:** LP 2549 (SACONH).

Chrysopogon lawsonii (Hook. f.) Veldkamp., Austrobaileya 5: 515. 1999. *Vetiveria lawsonii* (Hook. f.) Blatt. & MaCann, J. Bombay Nat. Hist. Soc. 32: 409. 1928; FPM 3: 1205. 1957; GBCIP 258. 1960; FTN 3: 145. 1989; FTNG 486. f. 87. 2009.

Tufted rhizomatous perennials. Culms erect, nodes brownish. Leaf blade oblong to linear-lanceolate, sparsely ciliate to tuberculate hairy along basal margins. Panicle with racemes in whorled at nodes. Spikelets oblong-lanceolate, 4-6 pairs. Lower glume oblong, boat shaped. Upper glume oblong-lanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, yellowish to brown. Caryopsis oblong-elliptic, brownish.

Rare in open grasslands. **Fl. & Fr.:** June-Feb. **Sp.Ex.:** KCJ & JD 82538, 82573 (MH).

Chrysopogon nodulibarbis (Hochst. ex Steud.) Henrard, Blumea 4: 534. 1941; FTNG 385. 2009. *C. zeylanicus* (Nees ex Steud.) Thwaites, Enum. Pl. Zeyl. 366. 1864; FPM 3: 1206. 1957; GBCIP 119, 1960; FTN 3: 101. 1989.

Tufted, rhizomatous perennials. Culms usually geniculate, more or less ribbed. Leaf blade mostly basal, narrowly linear. Panicle mostly enclosed by upper leaf sheath. Racemes whorled to sub-whorled. Spikelets 1-3 groups per racemes. Lower glume oblong-lanceolate, boat shaped. Upper glume oblong-lanceolate, subcoriaceous. Florets 2, lower barren, upper bisexual. Stamens 3, brownish yellow. Ovary oblong, greenish brown.

Occasional in high altitude hill slopes. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** LP 1861, 2123 (SACONH); VN 79919, 82285 (MH); SRN 82484 (MH).

COIX L., Sp. Pl. 2: 972. 1753.

Coix lacryma-jobi L., Sp. Pl. 972. 1753; FBI 7: 100. 1896; FPM 3: 1182. 1957; GBCIP 264. 1960; FTC 3(3): 1826. 1983; FTN 3: 102. 1989; FTNG 390. 2009.

Culms tufted, lower nodes rooting. leaf blade linear, margins cartilaginous, serrulate. Racemes oblong, terminal to axillary. Spikelets unisexual, consisting of many male spikelets in terminal and 1 or 2 female spikelets in towards base. *Female spikelets* enclosed in globose. *Male spikelets* loosely imbricate, subsecund. Lower glume ovate-lanceolate. Upper glume narrowly lanceolate. Caryopsis subglobose, compressed, furrowed in middle.

Occasional in along the river and stream sides. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** CECF 6499 (FRC); VN 79810, 82277 (MH).

CYMBOPOGON Spreng., Pl. Min. Cogn. Pug. 2: 14. 1815.

Key to the species

- 1a. Awn of sessile spikelet short and not exerted or absent.....*C. citratus*
- 1b. Awn of sessile spikelet well exerted.....2
- 2a. Lower glumes of sessile spikelet with a deep slot-like depression.....*C. gidarba*
- 2b. Lower glumes not as above.....3
- 3a. Pedicel of lowest pedicelled spikelet in the sub-sessile raceme swollen.....4
- 3b. Pedicel of lowest pedicelled spikelet in the sub-sessile raceme not swollen.....6
- 4a. Leaves cordate at the base.....*C. martinii*
- 4b. Leaves rounded at the base.....5
- 5a. Lower glume of the sessile spikelet with shallow depressions.....*C. coloratus*
- 5b. Lower glume of the sessile spikelet with a narrow slit in the lower half.....*C. caesioides*
- 6a. Panicle dense, drooping when mature with flexuous branches.....*C. flexuosus*
- 6b. Panicle congested or at times interrupted, erect.....*C. nardus*

Cymbopogon caesioides (Nees ex Hook. & Arn.) Stapf., Bull. Misc. Inform. Kew 1906: 341 & 360. 1906; FPM 3: 1217. 1957; GBCIP 125. 1960; FTC 3(3): 1827. 1983; FTN 3: 102. 1989; FTNG 392. 2009.

Tufted rhizomatous perennials. Culms geniculate, woody at base, lower nodes rooting. Leaf blade mostly basal nodes, linear-lanceolate. Panicles spathaceous. Racemes 2, one sessile, compact divergent. Lower glume oblong-lanceolate, subcoriaceous. Upper glume oblong-lanceolate, subcoriaceous. Florets 2, lower barren, upper bisexual. Stamens 3, brown. Ovary ovate-oblong, greenish brown. Stigma plumose, purplish to brown. Caryopsis oblong-lanceolate. Occasional in exposed localities. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** VS 18740, 18741 (FRC); VN 78986, 82164 (FRC); SRR 81043 (MH); KCJ 82535 (MH).

Cymbopogon citratus (DC.) Stapf., Bull. Misc. Inform. Kew 1906: 322. 1906; FPM 3: 1216. 1957; GBCIP 126. 1960; FTN 3: 103. 1989; FTNG 393. 2009.

Tufted perennials, shortly rhizomatous at base. Leaf blade linear-lanceolate, narrowed towards at base. Panicle compound, composed racemes, terminal and axillary. Racemes 2, paired. Spikelets in pairs, sessile. Lower glume lanceolate, as long as spikelets. Upper glume lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3.

Common along the forest margins and grasslands. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** LP 2514, 1537, 1587, 2106 (SACONH).

Cymbopogon coloratus (Hook. f.) Stapf., Bull. Misc. Inform. Kew 1906: 321. 1906; FPM 3: 1217. 1957; GBCIP 126. 1960; FTC 3(3): 1828. 1983; FTN 3: 103. 1989; FTNG 393. 2009.

Tufted, rhizomatous perennials. Culms yellowish to brownish. Leaf blade linear-lanceolate, aromatic when crushed. Inflorescence panicle, in interrupted congested groups along nodes, reddish yellow, brownish. Spikelets paired, dissimilar. Lower glume oblong to elliptic-lanceolate. Upper glume oblong-lanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, brownish. Ovary narrowly oblong, brownish.

Occasional in hill slopes. **Fl. & Fr.:** Oct.-May. **Sp.Ex.:** LP 2671 (SACONH); KCJ 56957, 81209 (MH); TRN 82148 (MH).

Cymbopogon flexuosus (Nees ex Steud.) W. Watson, Bot. Himalayan Dist. N.W. Prov. 392. 1882, var. *flexuosus*; FPM 3: 1216. 1957; GBCIP 127. 1960; FTN 3: 103. 1989; FTNG 394. 2009.

Tufted, rhizomatous perennials. Culms erect with thick woody base, yellow, nodes brownish. Leaf blade narrowly linear-lanceolate, margins serrulate. Panicle more or less reddish brown, large and effuse. Spikelet in a group of 3, one sessile, 2-pediselled. Lower glume ovate-lanceolate, chartaceous. Upper glume ovate-lanceolate, greenish yellow. Florets 2, lower barren, upper bisexual. Stamens 3, yellow. Ovary oblong to obovate. Stigma plumose, light greenish.

Occasional in grasslands. **Fl. & Fr.:** July-April. **Sp.Ex.:** KA & PB 1518 (SACONH); VS 19148 (FRC).

Cymbopogon gidarba (Buch.-Ham. ex Steud.) A. Camus, Bull. Mus. Natl. Hist. Nat. 26: 562. 1920; FPM 3: 1217. 1957; GBCIP 128. 1960; FTN 3: 103. 1989; FTNG 395. 2009.

Tufted perennials. Culms erect to geniculate, rhizomatous, nodes purple. Leaf blade linear to lanceolate, margins thick, finely serrulate. Panicle with spathe and spatheoles with shortly peduncled binate racemes. Racemes 2. Lower glume oblong-lanceolate, purplish yellow. Upper glume ovate-lanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3. Ovary oblong, greenish brown. Caryopsis oblong to obovate, yellow to brown.

Rare in along the hillslopes. **Fl. & Fr.:** Nov.-Mar. **Sp.Ex.:** KCJ 83265 (MH).

Cymbopogon martini (Roxb.) W. Watson in E.F.T. Atk., Gaz. N.W. Prov. Ind. 392. 1882; FPM 3: 1217. 1957; GBCIP 129. 1960; FTC 3(3): 1828. 1983; FTN 3: 103. 1989; FTNG 397. 2009.

Tufted rhizomatous perennials. Culms usually erect to geniculate, glaucous towards nodes, internodes purplish to yellowish. Leaf blade lanceolate to linear-lanceolate. Inflorescence

panicle with spatheate and spatheolate racemes along axis, spathe narrowly oblong-lanceolate. Racemes sessile and subsessile. Lower glume oblong to elliptic-lanceolate, yellow to brownish. Upper glume oblong-lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, yellowish. Ovary narrowly oblong-elliptic, brownish. Stigma plumose, purplish.

Common in grasslands. **Fl. & Fr.:** Aug.-Mar. **Sp.Ex.:** KCJ 81206 (MH).

Cymbopogon nardus (L.) Rendle, Cat. Welw. Afr. Pl. 2: 155. 1899, var. *nardus*; FPM 3: 1216. 1957; GBCIP 130. 1960; FTN 3: 103. 1989; FTNG 398. 2009.

Tufted, tussock-forming perennials. Leaf blade linear-lanceolate, reddish brown at maturity. Inflorescence panicle, racemes congested at nodes, alternate and zig-zag. Racemes 2, paired. Spikelets paired, dissimilar. Lower glume oblong to elliptic-lanceolate, brownish yellow. Upper glume oblong-lanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, brownish. Ovary oblong, greenish brown. Caryopsis oblong-lanceolate, brownish.

Occasional in grasslands. **Fl. & Fr.:** July-April. **Sp.Ex.:** CAB 56960, 56962, 94876, 94876 (MH); KCJ & JD 82537 (MH).

CYNODON Rich., Syn. Pl. 1: 85. 1805.

Key to the species

- 1a. Rachis flexible, often reflexed when mature, margin winged.....*C. radiatus*
- 1b. Rachis straight and stiff, not reflexed when mature, margin not winged.....2
- 2a. Lemmas longer than upper glume.....*C. dactylon*
- 2b. Lemmas shorter than or equal to upper glume.....*C. barberi*

Cynodon barberi Rang. & Tadul., J. Bombay Nat. His. Soc. 24: 846. 1916; FPM 3: 1270. 1957; GBCIP 469. 1960; FTN 3: 104. 1989; FTNG 194. 2009.

Decumbent annuals or stoloniferous perennials. Culms geniculate, lower nodes rooting. Leaf blade linear-lanceolate, margins cartilaginous. Inflorescence digitate with erect to spreading 4-7 racemes, nodes ciliate. Spikelets alternate, subsessile, ovate to oblong, solitary. Lower glume straight or slightly bent, ovate-lanceolate. Upper glume subequal. Floret one, bisexual. Stamens 3, yellowish purple. Ovary oblong to elliptic, brown. Stigma plumose, purplish. Caryopsis oblong, more or less triquetrous.

Occasional along the roadsides and open places. **Fl. & Fr.:** June-Feb. **Sp.Ex.:** LP 1562, 2590 (SACONH); KCJ 82574 (MH).

Cynodon dactylon (L.) Pers., Syn. Pl. 1: 85. 1805; FBI 7: 288. 1896; FPM 3: 1270. 1957; GBCIP 469. t. 52. 1960; FTC 3(3): 1829. 1983; FTN 3: 104. 1989; FTNG 195. 2009.

Stoloniferous perennials. Culms decumbent, more or less ribbed, purple to yellow, lower nodes rooting. Leaf blade linear-lanceolate, margins inrolled to flat, serrulate. Inflorescence with 4-6 digitate racemes, nodes hairy to pubescent. Racemes straight to curved. Spikelets closely secund, subsessile, ovate-oblong. Lower glume ovate-lanceolate, prominently 1-nerved. Upper glume similar to lower glume. Florets one, bisexual. Stamens 3, purplish yellow. Ovary ovate to narrowly oblong. Stigma plumose. Caryopsis oblong-elliptic.

Common along the roadsides and wastelands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2519, 2603, 2664 (SACONH); KCJ 81382 (MH); VN 821382 (MH).

Cynodon radiatus Roth ex Roem. & Schult., Syst. Veg. ed.15. 2: 411. 1817; FTNG 196. f. 39. 2009. *C. arcuatus* J. Persl in C. Presl, Reliq. Haenk. 1: 290. 1830; GBCIP: 469. 1960; FTN 3: 104. 1989.

Stoloniferous rhizomatous perennials. Culms decumbent, lower nodes rooting. Leaf blade linear-lanceolate, margins finely serrulate. Inflorescence 4 or 5 spicate racemes. Racemes triquetrous, margins winged. Spikelets secund, subsessile. Glumes persistent. Lower glume lanceolate, prominently 1-nerved. Floret one, bisexual. Stamens 3. Ovary ovate to elliptic. Stigma plumose, purplish. Caryopsis oblanceolate, brownish.

Common weed in cultivated lands. **Fl. & Fr.:** July-Feb. **Sp.Ex.:** LP 2120, 2509 (SACONH).

CYRTOCOCCUM Stapf., Fl. Trop. Africa. 9: 15. 1917.

Key to the species

- 1a. Panicles contracted; pedicels as long as or shorter than the spikelets.....2
- 1a. Panicles lax; pedicels often much longer than the spikelets.....3
- 2a. Glumes slender, creeping.....*C. trigonum*
- 2b. Glumes stouter, creeping or erect; leaves upto 20 cm long.....*C. oxyphyllum*
- 3a. Spikelets very few in a panicle.....*C. deccanense*
- 3b. Spikelets numerous in a panicle.....*C. patens*

Cyrtococcum deccanense Bor, Kew Bull. 11: 255. 1956; GBCIP 291. 1960; FTN 3: 105. 1989; FTNG 233. 2009.

Stoloniferous annuals. Culms decumbent, lower nodes rooting. Leaf blade narrowly elliptic-lanceolate, margins more or less cartilaginous, finely serrulate. Inflorescence panicle. Racemes divergent, less branched. Spikelets paired. Lower glume ovate, green to brownish purple. Upper glume broadly ovate. Florets 2, lower barren, upper bisexual. Stamens 3, brownish purple. Ovary ovate-lanceolate. Caryopsis oblong to obovate, smooth, turgid, yellow.

Common in evergreen forest floor. **Fl. & Fr.:** May-Feb. **Sp.Ex.:** VN 82282 (MH).

Cyrtococcum oxyphyllum (Steud.) Stapf., Hooker's Icon. Pl. 31: t. 3096. 1922; FPM 3: 1237. 1957; GBCIP 291. 1960; FTC 3(3): 1830. 1983; FTN 3: 105. 1989; FTNG 236. 2009.

Tufted, stoloniferous perennials. Culms decumbent, green to purple yellow, lower nodes rooting. Leaf blade lanceolate to narrowly oblong-elliptic, margins finely serrulate. Inflorescence panicle, nodes white hairy. Spikelets rhomboid, bulged on one side, greenish brown. Lower glume ovate, chartaceous, greenish brown. Upper glume elliptic, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3. Ovary oblong. Caryopsis oblong, yellowish green.

Common in forest floor near stream banks. **Fl. & Fr.:** July-April. **Sp.Ex.:** LP 2692, 3169 (SACONH); KCJ 81494, 82560 (MH).

Cyrtococcum patens (L.) A. Camus, Bull. Mus. Natl. Hist. Nat. 27: 118. 1921; FPM 3: 1237. 1957; GBCIP 292. 1960; FTN 3: 105. 1989; FTNG 236. 2009.

Stoloniferous annuals. Culms decumbent, sparsely pubescent, lower nodes rooting. Inflorescence panicle. Spikelets paired. Lower glume lanceolate, greenish. Upper glume oblanceolate to obovate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3. Ovary ovate. Stigma plumose, purplish brown. Caryopsis turgid, oblong to elliptic.

Occasional in shady and moist places and along the margins of forests. **Fl. & Fr.:** July-May. **Sp.Ex.:** VN 82282 (MH).

Cyrtococcum trigonum (Retz.) A. Camus, Bull. Mus. Natl. Hist. Nat. 27: 118. 1921; FPM 3: 1237. 1957; GBCIP 292. 1960; FTC 3(3): 1831. 1983; FTN 3: 105. 1989; FTNG 237. 2009.

Stoloniferous rambling perennials, Culms decumbent, nodes sparsely villous hairy, lower nodes rooting. Leaf blade elliptic-lanceolate. Panicle contracted. Spikelets gibbous on one side.

Lower glume ovate, greenish. Upper glume ovate, prominently 3-nerved. Florets 2, lower empty, upper bisexual. Stamens 3, brownish. Ovary oblong, greenish. Caryopsis oblong-elliptic. Common in forest floors of dry and moist deciduous forest. **Fl. & Fr.:** July-April. **Sp.Ex.:** LP 2640 (SACONH); CECF 6590 (FRC); KCJ 81113, 82531, 82576 (MH); VN 82166 (MH).

DACTYLOCTENIUM Willd., Enum. Pl. 2: 1029. 1809.

Dactyloctenium aegyptium (L.) Willd., Enum. Pl. Hort. Berol. 1029. 1809; FPM 3: 1273. 1957; GBCIP 489. t. 54. 1960; FTC 3(3): 1831. 1983; FTN 3: 105. 1989; FTNG 122. 2009.

Tufted annuals. Culms decumbent, more or less ribbed, nodes at times beared, brownish, lower ones rooting. Leaf blade linear to lanceolate, margins cartilaginous. Inflorescence of 2-9 digitate spike. Spikelets secund, biseriate. Lower glume broadly ovate-lanceolate, boat shaped. Upper glume broadly ovate-lanceolate, boat shaped. Florets 2-5, bisexual. Stamens 3, yellowish green. Ovary ovate or globose. Stigma plumose, greenish. Caryopsis ovate to elliptic, wrinkled. Common in moist localities and scrub jungles. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2274, 3032 (SACONH); VS 18934 (FRC); VN 82186 (MH).

DENDROCALAMUS Nees, Linnaea. 9: 476. 1835.

Dendrocalamus strictus (Roxb.) Nees, Linnaea 9: 476. 1835; FBI 7: 404. 1896; FPM 3: 1286. 1957; FTN 3: 106. 1989. *Bambos stricta* Roxb., Pl. Coromandel t. 80. 1798.

Woody perennials. Culms erect, unarmed. Leaves ovate-lanceolate, ligule dentate. Panicles of dense spaced heads on long spikes. Heads of spikelets globose. Spikelets spinescent, ovate, hairy. Lower glume ovate. Stamens 6, filaments free. Caryopsis ovoid. Common along margins of moist and dry deciduous forest. **Fl. & Fr.:** Jan.-Mar. **Sp.Ex.:** VS 19155 (FRC); VN 79816, 89279 (MH); PSAT 186721, 186722, 187285, 187286 (MH).

DESMOSTACHYA (Stapf.) Stapf., Fl. Cap. 7: 316. 1898.

Desmostachya bipinnata (L.) Stapf., Fl. Cap. 7: 632. 1900; FPM 3: 1259. 1957; GBCIP 491. 1960; FTC 3(3): 1832. 1983; FTN 3: 106. 1989; FTNG 124. 2009.

Decumbent rhizomatous perennials. Culms more or less ribbed, lower nodes rooting. Leaf blade linear-lanceolate, margins serrulate. Panicles narrow. Spikelets in clusters, compactly arranged, oblong. Lower glume ovate, boat shaped. Florets b9-15, greenish yellow with purple tinge, brown at maturity. Stamens 3, yellowish brown. Ovary elliptic. Stigma plumose, yellowish white.

Common in canals and roadsides. **Fl. & Fr.:** Aug. **Sp.Ex.:** CECF 8886 (FRC).

DICHANTHIUM P. Willemet, Ann. Bot. (Usteri). 18: 11. 1796.

Key to the species

- 1a. Racemes solitary; lower glumes of sessile spikelets pitted.....*D. foveolatum*
- 1b. Racemes subdigitate, rarely solitary; lower glume of sessile spikelet not pitted.....2
- 2a. Lower glume of sessile spikelet broadly winged.....*D. caricosum*
- 2b. Lower glume of sessile spikelet not winged.....*D. annulatum*

Dichanthium annulatum (Forssk.) Stapf. in Prain, Fl. Trop. Afr. 9: 178. 1917; FPM 3: 1206. 1957; GBCIP 133. 1960; FTC 3(3): 1833. 1983; FTN 3: 106. 1989; FTNG 403. 2009. *Andropogon annulatus* Forssk. Fl. Aeg.-Arab. 173. 1775; FBI 7: 196. 1896.

Tufted annuals, rhizomatous. Culms erect to decumbent, sometimes furrowed, lower nodes rooting. Leaf blade linear-lanceolate. Inflorescence of 1-8 digitate or subdigitate racemes. Spikelets compactly arranged, paired. Lower glume oblong-lanceolate. Upper glume oblong-lanceolate, greenish. Florets 2, lower barren, upper bisexual. Stamens 3, yellow. Ovary elliptic. Stigma plumose, purplish brown to violet. Caryopsis oblanceolate to narrowly elliptic.

Occasional in moist places. **Fl. & Fr.:** May-Feb. **Sp.Ex.:** LP 2259 (SACONH); VN 78935 (MH). **Dichanthium caricosum** (L.) A. Camus, Bull. Mus. Natl. Hist. Nat. 27: 549. 1921; FPM 3: 1206. 1957; FTC 3(3): 1834. 1983; FTN 3: 106. 1989; FTNG 404. 2009.

Decumbent perennial. Culms geniculate, more or less ribbed, nodes white bearded to glabrous, lower ones rooting. Leaf blade lanceolate, margins cartilaginous. Racemes single, 2 or rarely 3. Spikelets paired, closely imbricate. Lower glume obovate-elliptic. Upper glume narrowly elliptic to lanceolate. Florets 2, lower sterile, upper bisexual. Stamens 3, greenish. Ovary narrowly oblong. Stigma plumose, purplish. Caryopsis narrowly ovate-lanceolate.

Occasional in barren lands and moist places. **Fl. & Fr.:** Sept.-Mar. **Sp.Ex.:** VS 18709 (FRC); KCJ 81106, 81225, 82536, 82588 (MH).

Dichanthium foveolatum (Delile) Roberty, Boissiera 163. 1960; FTC 3(3): 1834. 1983. *Eremopogon foveolatus* (Delile) Stapf, in Prain, Fl. Trop. Afr. 9: 178. 1917; FPM 3: 1206. 1957; GBCIP 133. 1960; FTN 3: 116. 1989; FTNG 420. 2009.

Tufted perennials. Culms geniculate, yellowish, nodes whitish bearded. Leaf blade linear-lanceolate. Inflorescence panicle. Spikelets paired. Lower glume ovate-lanceolate, yellowish brown. Upper glume elliptic-ovate, purple to yellowish brown. Florets 2, lower empty, upper bisexual. Stamens 3. Ovary oblong. Stigma plumose, purplish brown. Caryopsis oblanceolate, brownish green.

Occasional in sandy localities. **Fl. & Fr.:** May-Mar. **Sp.Ex.:** LP 1527 (SACONH); VN 79626 (MH).

DIGITARIA Haller, Hist. Stirp. Helv. 2: 244. 1768.

Key to the species

- 1a. Rachis winged.....2
- 1b. Rachis triquerous, usually not winged, rarely narrowly winged.....7
- 2a. Spikelets 1-2 mm long; hairs on the spikelets verrucose.....3
- 2b. Spikelets 2-4 mm long; hairs on the spikelets not verrucose.....4
- 3a. Culms slender, creeping; leaves oblong to lanceolate.....*D. longiflora*
- 3b. Culms stouter, erect; leaves often linear.....*D. violascens*
- 4a. Spikelets with glassy bristles.....*D. bicornis*
- 4b. Spikelets without glassy bristles.....5
- 5a. Lower glume absent or reduced to a rim.....*D. setigera*
- 5b. Lower glume a triangular scale.....6
- 6a. Rachis distinctly serrate; racemes 2-12 in number.....*D. ciliaris*
- 6b. Rachis smooth; racemes 2-4 in number.....*D. radicata*
- 7a. Spikelets glabrous.....*D. fuscescens*
- 7b. Spikelets hairy.....*D. abludens*

Digitaria abludens (Roem. & Schul.) Veldkamp., Blumea 21: 53. 1973; FTN 3: 107. 1989; FTNG 239. 2009. *D. pedicellaris* (Trin. ex Hook. f.) Prain, Bengal Pl. 1182. 1903; FPM 3: 1223. 1957.

Tufted annuals. Culms geniculate, nodes brownish. Leaf blade linear-lanceolate, margins cartilaginous. Inflorescence of 2-9 racemes, digitate to subdigitate. Spikelets 3-4 in a group, distinctly arranged. Lower glume usually absent. Upper glume oblong to elliptic, greenish yellow. Florets 2, lower barren, upper bisexual. Stamens 3, yellowish brown. Caryopsis oblong-elliptic. Occasional in margins of grasslands. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** VS 19157 (FRC); PSAT 187063 (MH).

Digitaria bicornis (Lam.) Roem. & Schul., Syst. Veg. 2: 470. 1817; GBCIP 299. 1960; FTC 3(3): 1836. 1983; FTN 3: 107. 1989; FTNG 241. 2009.

Tufted annuals to stoloniferous perennials. Culms decumbent to geniculate, terete to angled, nodes glabrous. Leaf blade ovate-lanceolate. Inflorescence of 1-9 digitate to subdigitate racemes. Spikelets paired. Spikelets narrowly elliptic-lanceolate. Lower glume absent. Upper glume lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, yellow to brown. Ovary oblong to elliptic, brownish. Caryopsis ovate to oblong, turgid, greenish.

Common in open sandy localities. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** LP 2297, 2693 (SACONH); KA & PB 1475 (SACONH); VS 19146 (FRC).

Digitaria ciliaris (Retz.) Koeler, Descr. Gram. 27. 1802; FTC 3(3): 1837. 1983; FTN 3: 107. 1989; FTNG 242. 2009. *D. marginata* Link, Enum. Pl. Hort. Berol. 1: 102. 1821; FPM 3: 1222. 1957 incl. var. *fimbriata* (Link) Stapf, 1919.

Annuals. Culms geniculate, more or less ribbed, purplish yellow, lower nodes rooting. Leaf blade linear to oblong-lanceolate. Inflorescence of 2-17 digitate to subdigitate racemes. Spikelets paired. Lower glume reduced to a triangular scale. Upper glume lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, brownish. Ovary narrowly oblong-lanceolate, brownish. Caryopsis oblong.

Common in moist localities. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2661 (SACONH); CECF 6546 (FRC); TRN 82150 (MH); VN 82195 (MH); KCJ 82545 (MH).

Digitaria fuscescens (J.Presl) Henrard, Meded. Rijks-Herb. 61: 8. 1930; GBCIP 298. 1960; FTNG 243. 2009.

Tufted annuals. Culms decumbent, nodes bearded, glabrous at maturity, lower ones rooting. Leaf blade linear to narrowly lanceolate. Racemes 2, digitate. Spikelets secund. Lower glume absent. Upper glume oblong-elliptic, boat shaped. Florets 2, lower barren, upper one bisexual. Stamens 3, brown to purple. Ovary oblong to elliptic, brownish. Stigma plumose.

Rare in open moist and dry localities at high altitudes. **Fl. & Fr.:** Oct.-Mar. **Sp.Ex.:** LP 2825 (SACONH).

Digitaria longiflora (Retz.) J. Pers., Syn. Pl. 1: 85. 1805; FPM 3: 1223, 1957; GBCIP 302. 1960; FTC 3(3): 1838. 1983; FTN 3: 107. 1989; FTNG 244. 2009.

Tufted annuals. Culms decumbent to geniculate, nodes glabrous, lower nodes rooting. Leaf blade ovate-lanceolate. Inflorescence of 2-4 digitate racemes, straight to curved. Spikelets in a group of 3 or paired. Lower glume absent or reduced to a rim. Upper glume ovate to elliptic. Florets 2, lower barren, upper bisexual. Stamens 3, yellowish brown. Ovary oblong. Stigma plumose, purplish. Caryopsis elliptic to obovate.

Common along the roadsides and moist rock crevices. **Fl. & Fr.:** June-Feb. **Sp.Ex.:** LP 2643 (SACONH); KA & PB 1568 (SACONH); VN 79914, 82283 (MH); KCJ 82594 (MH).

Digitaria radicata (J. Presl) Miq., Fl. Ned. Ind. 3: 437. 1857; FTC 3(3): 1838. 1983; FTN 3: 108. 1989; FTNG 245. f. 47. 2009. *Panicum radicosum* J. Presl, Reliq. Haenk. 1: 297. 1830 excl. syn. *D. timorensis* (Kunth) Balansa in Morot, J. Bot. 4: 138. 1890; GBCIP 306. 1960.

Tufted annuals to stoloniferous perennials. Culms geniculate, more or less ribbed, lower nodes rooting. Inflorescence of 2-4 digitate racemes, straight to curved. Spikelets paired, narrowly elliptic to lanceolate. Lower glume absent or like a minute rim. Upper glume lanceolate, flat. Florets 2, lower barren, upper bisexual. Stamens 3. Ovary narrowly oblong. Stigma plumose, golden yellow.

Occasional in open places, forest fringes and riverbanks. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** LP 2126, 2682 (SACONH).

Digitaria setigera Roth. in Roem. & Schult., Syst. Veg. 2: 474. 1817; GBCIP 305. 1960; FTC 3(3): 1839. 1983; FTN 3: 108. 1989; FTNG 247. 2009. *D. microbachne* (J. Presl) Henrard in Meded. Rijks-Herb. n. 16: 13. 1930; GBCIP 302. 1960.

Annuals. Culms erect to creeping, geniculate, more or less ribbed, internodes purplish, nodes brownish. Inflorescence of 3-16 digitate racemes, subdigitate or whorled below. Racemes straight or flexible. Spikelets homomorphous, sessile. Lower glume mostly absent or a nerveless rim. Upper glume lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, brownish. Ovary narrowly oblong-lanceolate. Stigma plumose, yellow to brown. Caryopsis oblong-elliptic, planoconvex, greenish brown.

Common along the roadsides. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 19137 (FRC); VN 79818, 82269 (MH); KCJ 81341, 82269, 82549 (MH).

Digitaria violascens Link, Hort. Berol. 1: 229. 1827; GBCIP 307. 1960; FTN 3: 108. 1989; FTNG 249. 2009.

Tufted annuals. Culms rhizomatous, geniculate, more or less ribbed. Leaf blade linear to lanceolate, margins serrulate. Inflorescence of 2-6 digitate to subdigitate racemes. Racemes straight to curved. Lower glume absent. Upper glume oblong to elliptic-lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, brownish. Ovary narrowly oblong. Stigma brownish. Caryopsis oblong to elliptic.

Occasional along the hill slopes and road sides. **Fl. & Fr.:** June-Sept. **Sp.Ex.:** VS 19163 (FRC).

ECHINOCHLOA P. Beauv., Ess. Agrostogr. 53. 1812.

Key to the species

- 1a. Ligules present as fringes of hairs; spikelets awned.....*E. stagnina*
- 1b. Ligules absent; spikelets awned or not.....2
- 2a. Spikelets 2.5-3.0 mm long.....*E. colonum*
- 2b. Spikelets 3-4 mm long.....*E. crus-galli*

Echinochloa colona (L.) Link, Hort. Berol. 2: 209. 1833; FPM 3: 1230. 1957 "*colonum*"; GBCIP 308. t. 34. 1960; FTC 3(3): 1845. 1983; FTN 3: 110. 1989; FTNG 252. 2009.

Tufted annuals. Culms geniculate, nodes brownish, lower nodes rooting. Leaf blade linear to lanceolate, margins more or less cartilaginous. Panicle with spiciform racemes alternating on central axis. Racemes usually 7-30 together. Spikelets paired, arranged in 2-4 rows. Lower glume ovate, greenish. Upper glume ovate-elliptic, boat shaped. Florets 2, lower barren to male, upper bisexual. Stamens 3, greenish yellow. Ovary oblong, greyish. Stigma plumose, purplish to brown. Caryopsis elliptic to oblong, planoconvex, brown.

Common in moist localities and near drainages. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2959, 3128 (SACONH); VS 18700, 19138, 19147, 19160 (FRC); VN 79771, 82273 (MH); SRN 81035, 82495, 82502 (MH); KCJ 81385, 82547, 82570, 82609 (MH).

Echinochloa crus-galli (L.) P. Beauv., Ess. Agrostogr. 53. 1812; FPM 3: 1231. 1957; GBCIP 310. 1960; FTN 3: 111. 1989; FTNG 253. 2009. *Panicum crusgalli* L., Sp. Pl. 56. 1753; FBI 7: 31. 1896 p.p. *E. glabrescens* Munro ex Eggel., Ann. List Grass. Burma Ceylon India Pakistan 311. 1960; FTC 3: 1846. 1983.

Tufted annuals. Culms geniculate, more or less ribbed, nodes brownish, lower ones rooting. Leaf blade lanceolate, margins cartilaginous. Panicle lanceolate to pyramidal. Spikelets paired. Lower glume broadly ovate. Upper glume broadly ovate, boat shaped. Florets 2, lower male, upper bisexual. Stamens 3, yellow to brown. Ovary oblong, greenish to brown. Stigma plumose, purplish. Caryopsis elliptic to oblong.

Common in wet localities. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 1641 (SACONH).

Echinochloa stagnina (Retz.) P. Beauv., Ess. Agrostogr. 161. 1812; FPM 3: 1231. 1957; GBCIP 311. 1960; FTN 3: 111. 1989. *E. picta* (J. Koenig) P.W. Michael, Philipp. J. Weed Sci. 5: 18. 1978; FTC 3(3): 1847. 1983; FTN 3: 111. 1989; FTNG 255. 2009.

Tufted rhizomatous annuals. Culms erect to geniculate, nodes brownish, lower ones rooting. Leaf blade linear to lanceolate, margins cartilaginous. Panicle more or less ribbed. Spikelets paired, 2-4 rowed. Lower glume broadly cuspidate. Upper glume broadly ovate to elliptic, boat shaped. Florets 2, lower male, upper bisexual. Stamens 3, brownish. Ovary oblong, obtuse, brownish yellow. Stigma plumose, purplish.

Occasional in marshy areas. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** EV 142076, 142077 (MH).

ELEUSINE Gaertn., Fruct. Sem. Pl. 1: 7. 1788.

Eleusine indica (L.) Gaertn, Fruct. Sem. Pl. 1: 8. 1788; FBI 7: 293. 1896; FPM 3: 1273. 1957; GBCIP 493. 1960; FTC 3(3): 1848. 1983; FTN 3: 112. 1989; FTNG 128. f. 25. 2009.

Tufted annuals. Culms geniculate, more or less ribbed, nodes brownish, lower ones rooting. Leaf blade linear-lanceolate, margins finely serrulate, inflorescence of digitate or subdigitate racemes or spikes, straight. Spikes 2-9. Spikelets sessile, secund. Lower glume ovate-lanceolate, greenish. Upper glume ovate-lanceolate, chartaceous. Florets 3-7, bisexual. Stamens 3, yellow. Ovary ovate to elliptic. Stigma plumose, greenish to brown. Caryopsis ovate, brownish.

Common along roadsides and weed of cultivated lands. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 1433, 2606 (SACONH); JS 57844 (MH); PSAT 186508, 186509 (MH).

ENNEAPOGON Desv. ex P. Beauv., Ess. Agrostogr. 81. 1812.

Enneapogon persicus Boiss., Diagn. Pl. Orient. 5: 71. 1844. *E. schimperianus* (Hochst. ex A. Rich.) Renvoize, Kew Bull. 22: 400. 1968; FTC 3(3): 1847. 1983; FTN 3: 112. 1989; FTNG 115. 2009. *E. elegans* (Nees ex Steud.) Stapf, Bull. Misc. Inform. Kew 1907: 224. 1907; FPM 3: 1841. 1934; GBCIP 610. 1960.

Tufted perennial. Culms geniculate, hairy throughout, nodes white hairy. Leaf blade linear to lanceolate, margins infolded. Panicle Pilosa. Racemes short with 4-6 spikelets. Spikelets paired. Lower glume ovate-lanceolate. Upper glume similar to lower glume. Florets 3 or 4, lower bisexual, others male or barren. Stamens 3, greenish to purplish. Ovary elliptic to purplish yellow. Ovary elliptic to obovate. Stigma plumose, greenish. Caryopsis elliptic to oblong, medianly furrowed to channelled on one side, brownish.

Common in scrub jungles. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** LP 2061, 2062, 3129 (SACONH); SRR 81060, 82501 (MH); KCJ 82599 (MH).

ENTEROPOGON Nees, Intr. Nat. Syst. Bot., ed. 2. 448. 1836.**Key to the species**

- 1a. Clumes to 70 cm; spikes 4.....*E. dolichostachyus*
 1b. Clumes to 150 cm; spike 1 or rarely 2.....*E. monostachyos*

Enteropogon monostachyus (Vahl) K. Schum. ex Engl., Abh. Königl. Akad. Wiss. Berlin 1894; 17. 1894; FPM 3: 1269. 1957; GBCIP 472. 1960; FTC 3(3): 1820. 1983; FTN 3: 112. 1989; FTNG 199. 2009.

Tufted perennials. Culms geniculate, fastigate, nodes glaucous, brownish, lower ones rooting. Leaf blade narrowly linear-lanceolate, infolded or inrolled. Inflorescence a spikelets racemes, curved at maturity. Spikelets alternate, closely imbricate, secund. Lower glume narrowly lanceolate, mucronate to shortly acute. Upper glume lanceolate. Florets 3 with extended rachilla, lower 2 bisexual, upper one male or reduced. Stamens 3, greenish. Ovary elliptic, brownish greenish. Stigma plumose purplish brown. Caryopsis oblanceolate to narrowly oblong-elliptic, slightly 4-angled.

Occasional in rocky areas as occasional clumps. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** LP 1432, 1554, 1558, 1648, 1656 (SACONH).

Enteropogon dolichostachyus (Lag.) Keng, Clav. Gen. Sp. Gram. Prim. Sin. 197. 1957. *Chloris dolichostachya* Lag., Gen. Sp. Pl. 5. 1816; GBCIP 466. 1960; FTC 3(3): 1820. 1983; FTN 3: 99. 1989; FTNG 188. 2009. *C. incompleta* Roth, Nov. Pl. Sp. 60. 1821; FBI 7: 466. 1896; FPM 3: 1272, 1957.

Tufted perennials. Culms erect to decumbent, nodes brownish. Leaf blade linear, margins flat to inrolled. Inflorescence of 3-11 digitate to subwhorled spikes. Spikes slender, drooping linear. Spikelets second, 2-seriate, sessile to subsessile. Lower glume ovate-lanceolate. Upper glume ovate-lanceolate, hyaline to slightly purple. Florets 2, lower bisexual, upper reduced to awn. Stamens 3, greenish to yellowish brown. Ovary elliptic, greenish. Caryopsis laterally compressed, oblong to elliptic.

Common in hill tracks, wastelands and scrub jungles. **Fl. & Fr.:** Sept.- Mar. **Sp.Ex.:** LP 2681 (SACONH); VS 18704 (FRC); VN 82185 (MH); KCJ 82595 (MH).

ERAGROSTIELLA Bor, Indian Forester. 66: 269. 1940.

Eragrostiella bifaria (Vahl) Bor, Indian Forester 66: 270. 1940 & GBCIP 494. 1960; FTC 3(3): 1851. 1983; FTN 3: 112. 1989; FTNG 130. 2009. *Eragrostis bifaria* (Vahl) Wight ex Steud. Nomencl. Ed. 2. 1: 562. 1840; FBI 7: 325. 1896.

Tufted perennials. Culms geniculate, more or less ribbed, nodes brownish. Leaf blade linear to lanceolate, filiform. Spikes terminal, erect. Lower glume ovate-lanceolate, yellowish. Upper glume ovate-lanceolate. Florets 7-14. Stamens 3, yellowish purple. Ovary ovate, stipitate, greenish. Stigma plumose, greenish purple. Caryopsis ovate-globose.

Common in moist places, rocky areas and roadsides. **Fl. & Fr.:** Aug.-May. **Sp.Ex.:** LP 1412, 2665, 3033 (SACONH); KNS 2017 (FRC); VS 18710, 19167 (FRC); SRR 81061 (MH); VN 82169 (MH).

ERAGROSTIS Wolf, Gen. Pl. 23. 1776.**Key to the species**

- 1a. Spikelets disarticulated from apex.....2
 1b. Spikelets disarticulated from base.....6

2a. Panicles effuse.....	3
2b. Panicles contracted, spiciform.....	5
3a. Keels of paleas smooth or scabrid.....	<i>E. aspera</i>
3b. Keels of paleas ciliate.....	4
4a. Culms viscous below the inflorescence.....	<i>E. viscosa</i>
4b. Culms not viscous.....	<i>E. amabilis</i>
5a. Stamens 2; panicles 2.5-3 cm long; leaf blade 1-3 cm long.....	<i>E. ciliaris</i>
5b. Stamens 3; panicles up to 7 cm long; leaf blade up to 11 cm long.....	<i>E. riparia</i>
6a. Spikelets > 2 mm wide, if more, than spikelets brackish or greyish.....	7
6b. Spikelets 2-4 mm wide, if more, than spikelets blackish or greyish.....	14
7a. Palea deciduous along with lemma or subpersistent and falling later.....	8
7b. Palea persistent on rachilla.....	11
8a. Spikelets linear to oblong or lanceolate; culms glandular.....	<i>E. pilosa</i>
8b. Spikelets ovate-oblong; culms eglandular.....	9
9a. Spikelets greenish yellow; stamens 2.....	<i>E. gangetica</i>
9b. Spikelets leaden-grey to blackish.....	10
10a. Panicle branches divided from near base; spikelets oblong-lanceolate 0.5-2 mm wide.....	<i>E. nigra</i>
10b. Panicle branches not divided from near base; spikelets ovate or ovate-oblong 2-3 mm wide.....	<i>E. atrovirens</i>
11a. Plant eglandular.....	<i>E. nutens</i>
11b. Plant glandular.....	12
12a. Lemma mucronate.....	<i>E. patula</i>
12b. Lemma not mucronate.....	13
13a. Lemmas broadly elliptic, acute; caryopsis truncate at both ends.....	<i>E. maderaspatana</i>
13b. Lemmas broadly ovate, obtuse; caryopsis sub-globose.....	<i>E. minor</i>
14a. Leaf margin glandular.....	<i>E. cilianensis</i>
14b. Leaf margin eglandular.....	<i>E. unioloides</i>

Eragrostis amabilis (L.) Wight & Arn., Cat. Indian Pl. 2: 105. 1834; FSIHS 3: 676. t. 604. 1932; FTNG 135. 2009. *E. tenella* (L.) P. Beauv. ex Roem. & Schult., Syst. Veg. ed. 15. 2: 576. 1817, var. *tenella*; FBI 7: 315. 1896, incl. var. *pumila*; GBCIP 513. 1960; FTNG 135. 2009.

Tufted annuals. Culms geniculate, more or less ribbed. Leaf blade linear-lanceolate, margins inrolled. Panicle elliptic to pyramidal. Racemes subverticillate to alternate. Spikelets ovate to oblong-lanceolate. Lower glume oblong-lanceolate. Upper glume lanceolate, prominently 1-nerved. Florets 4-8, bisexual. Stamens 3, greenish yellow to purple. Ovary ovate-oblong. Caryopsis ovate-lanceolate to elliptic, brownish.

Common along bunds of cultivated lands, roadsides, riverbeds. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2804, 2213 (SACONH); VN 82159, 82191 (MH); SRN 82500 (MH).

Eragrostis aspera (Jacq.) Nees, Fl. Afr. Austral. Illu. 408. 1841; FBI 7: 314. 1896; FPM 3: 1263. 1957; GBCIP 501. t. 55. 1960; FTC 3(3): 1853. 1983; FTN 3: 113. 1989; FTNG 136. 2009. *Poa aspera* Jacq. Hort. Vindob. 3: 32. t. 56. 1776.

Annuals. Culms more or less ribbed, greenish, nodes brownish. Panicle broadly ovate, usually long pilose or floccose at nodes. Spikelets pedicelled, oblong. Lower glume ovate-lanceolate, mucronate. Upper glume ovate-lanceolate. Florets 4-11, bisexual, rachis more or less zigzag. Stamens 3, yellowish purple. Ovary ovate-elliptic. Stigma whitish green. Caryopsis ovate to elliptic.

Common along the road sides and on hill slopes. **Fl. & Fr.:** Nov.-Feb. **Sp.Ex.:** CECF 6639 (FRC); VN 78983; TRN 82149 (MH); VN 82189 (MH); SRN 82199 (MH).

Eragrostis atrovirens (Desf.) Trin. in Steud., Nomencl. Bot. ed. 2. 1: 562. 1840; GBCIP 503. 1960; FTC 3(3): 1814. 1983; FTN 3: 113. 1989; FTNG 137. 2009.

Tufted annuals. Culms geniculate, more or less ribbed, nodes brownish. Leaf blade linear to lanceolate, flat to inrolled. Inflorescence a panicle. Spikelets oblong, leaden grey with purple dots. Lower glume ovate to lanceolate, greenish with purple dots. Florets 8-28, similar, bisexual, rachilla slightly zigzag. Stamens 3. Ovary narrowly elliptic to oblanceolate. Stigma plumose, greenish to brown. Caryopsis oblong-elliptic.

Occasional in waste places and banks of rivers. **Fl. & Fr.:** July-Feb.: **Sp.Ex.:** VS 19154 (FRC); PSAT 187064 (MH).

Eragrostis cilianensis (All.) Vignolo ex Janch., Mitt. Naturwiss. Vereins Univ. Wien 5: 110. 1907; FPM 3: 1264. 1957; GBCIP 503. 1960; FTN 3: 113. 1989; FTNG 138. 2009.

Tufted annuals. Culms erect to geniculate, smooth. Leaf blade linear to lanceolate. Panicle lax. Spikelets broadly oblong to ovate-lanceolate, greenish yellow. Lower glume lanceolate, greenish, with a glandular pit like depression along keels. Upper glume ovate-lanceolate. Florets 4-35, rachilla zigzag. Stamens 3, dull white to yellow. Ovary elliptic to oblong. Stigma plumose, purple.

Occasional in riverbeds. **Fl. & Fr.:** May-Dec. **Sp.Ex.:** CECF 6649 (FRC); VN 78697, 79711, 82148, 82180 (MH); KCJ 81340, 82548, 82590 (MH); TRN 82147 (MH); SRN 82487 (MH).

Eragrostis ciliaris (L.) R. Br. in Tuckey, Narr. Exped. Zaire 478. 1818; FBI 7: 314. 1896; FPM 3: 1263. 1957; GBCIP 506. 1960; FTN 3: 113. 1989; FTNG 139. 2009. *Poa ciliaris* L. Syst. Nat. ed. 10. 875. 1759.

Tufted annuals. Culms decumbent to geniculate, nodes brownish. Leaf blade oblong-lanceolate. Inflorescence panicle, compact and more or less densely spiciform. Spikelets oblong, greenish to purplish brown. Lower glume oblong-lanceolate, boat shaped. Upper glume similar to lower glume. Florets 5-9, bisexual, loosely imbricate. Stamens 2, purplish. Ovary ovate to oblong. Caryopsis oblong to elliptic.

Occasional in wet sandy areas. **Fl. & Fr.:** May-Jan. **Sp.Ex.:** VN 82272 (MH).

Eragrostis gangetica (Roxb.) Steud. Syn. Pl. Glumac. 1: 266. 1854; FPM 3: 1264. 1957; GBCIP 508. 1960; FTC 3(3): 1854. 1983; FTN 3: 114. 1989; FTNG 142. 2009.

Tufted annuals. Culms geniculate, more or less ribbed, greenish, nodes brownish. Inflorescence panicle, branches alternate. Spikelets oblong to linear-lanceolate, greenish. Lower and upper glume ovate-lanceolate, greenish to yellow. Florets 8-19, bisexual, rachilla slightly zigzag to straight. Stamens 2, purplish brown. Ovary oblong. Stigma plumose, purplish to green. Caryopsis elliptic to subglobose, brownish.

Common in the cultivated lands. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VN 79772, 82275 (MH); KCJ 81263, 82542, 82583 (MH); SRR 86393 (MH).

Eragrostis minor Host, Fl. Austriac. 1: 135. 1827; FBI 7: 321. 1896; FTC 3(3): 1855. 1983; FTN 3: 114. 1989; FTNG 144. 2009. *E. poaeoides* P. Beauv. Ess. Agrost. 162. 1812; FPM 3: 1264. 1957; GBCIP 512. 1960.

Tufted annuals. Culms geniculate ascending, glandular below the nodes. Leaf blade linear linear-lanceolate, flat to infolded, gland pitted along mid nerve and margins. Panicle open and dense or loose. Spikelets oblong, solitary, laterally compressed, greenish yellow. Lower glume ovate, prominently 1-nerved. Upper glume as long as lower glume. Florets 6-10 bisexual, loosely imbricate. Stamens 3. Caryopsis broadly oblong to elliptic-globose, brownish.

Common in hill tracks. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** SRR 81037 (MH).

Eragrostis nigra Nees ex Steud., Syn. Pl. Glumac. 1: 267. 1854; FBI 7: 324. 1896. FSIHS 2: t. 606. 1932; FPM 3: 1265. 1957; GBCIP 511. 1960; FTC 3(3): 1856. 1983; FTN 3: 114. 1989; FTNG 146. f. 28. 2009.

Tufted perennials. Culms geniculate, more or less ribbed, nodes brownish. Leaf blade linear-lanceolate, margins finely serrulate. Panicle effuse with many long lateral branches. Spikelets ovate to oblong-lanceolate. Lower glume ovate-lanceolate greenish white with purple tinge at apex. Florets 3-14, bisexual, rachilla solid, more or less zigzag. Stamens 3, yellow to purple. Ovary oblong-elliptic, yellowish green. Stigma plumose. Caryopsis oblong to obovate or elliptic.

Common in roadsides and fallow lands. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** KCJ 81364, 82551, 82593 (MH); VN 82183 (MH).

Eragrostis nutans (Retz.) Nees ex Steud., Nomencl. Bot. ed. 2. 1: 563. 1840; FPM 3: 1264. 1957; GBCIP 511. 1960; FTC 3(3): 1856. 1983; FTN 3: 115. 1989; FTNG 148. 2009.

Tufted annuals. Culms geniculate, nodes brownish with purple dots near nodes. Leaf blade linear-lanceolate. Inflorescence panicle with alternate one or 2 or 3 racemes per nodes. Spikelets oblong to linear, olive green to greyish. Panicle glabrous. Spikelets oblong-linear. Glumes ovate-lanceolate. Florets compactly arranged 14-26. Stamens 3 or rarely 2. Ovary elliptic, greenish. Stigma plumose, greenish. Caryopsis elliptic to globose, brownish.

Occasional in fallow lands and scrub jungles. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 19139 (FRC).

Eragrostis patula (Kunth) Steud., Nomencl. Bot. ed. 2. 1: 564. 1840. *E. tenuifolia* (A. Rich.) Hochst. ex Steud., Syn. Pl. Glumac. 1: 268. 1854; FBI 7: 322. 1896; FSIHS 2: t. 605. 1932; FPM 3: 1265. 1957; GBCIP 514. 1960; FTC 3(3): 1858. 1983; FTN 3: 116. 1989; FTNG 153. 2009.

Tufted annuals. Culms geniculate, more or less ribbed, nodes brownish. Leaf blade linear-lanceolate. Panicle with alternate racemes. Racemes with 7-12 spikelets per racemes. Spikelets pedicelled, laterally compressed. Lower glume scale like, ovate to scale like, ovate to lanceolate. Upper glume oblong to ovate-lanceolate. Florets 7-9, closely imbricate, rachilla zigzag. Stamens 3. Ovary ovate. Stigma plumose, greenish brown. Caryopsis obovate.

Occasional in hilly areas and fallow lands and common in agricultural fields. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** LP 3126 (SACONH); VS 18923 (FRC); SRN 82485 (MH).

Eragrostis pilosa (L.) P. Beauv., Ess. Agrost. 71, 162 & 175. 1812; FBI 7: 321. 1896; FPM 3: 1265. 1957; GBCIP 512. 1960; FTC 3(3): 1856. 1983; FTN 3: 115. 1989; FTNG 148. 2009.

Tufted annuals. Culms geniculate, nodes brownish. Leaf blade linear-lanceolate, flat to folded. Inflorescence panicle, branches usually whorled at lower nodes and alternate in upper ones, pitted glands present. Spikelets long pedicelled. Lower glume lanceolate. Upper glume ovate to lanceolate. Florets 5-7, rachilla zigzag. Stamens 3. Ovary oblong-elliptic, greenish. Stigma plumose, purplish yellow. Caryopsis oblong to globose.

Common along the roadsides and fallow lands. **Fl. & Fr.:** May-Mar. **Sp.Ex.:** LP 2257, 2680, 2697 (SACONH); SRN 82496 (MH); KCJ 825932 (MH).

Eragrostis riparia (Willd.) Nees, Fl. Bras. Enum. Pl. 2: 512. 1829; FPM 3: 1263. 1957; GBCIP 513. 1960; FTC 3(3): 1857. 1983; FTN 3: 115. 1989; FTNG 149. 2009.

Tufted perennials. Culms with purple dots near nodes. Leaf blade mostly basal. Panicle spiciform, glandular on axis and racemes base. Rachis with crowded spikelets. Spikelets ovate-oblong, purple to yellowish green. Glumes ovate to lanceolate. Florets 5-11, similar, rachilla zigzag, fragile. Stamens 3, purplish. Stigma plumose, greenish brown. Caryopsis ovate to elliptic.

Common along the roadsides and sandy slopes. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 18926 (FRC); VN 82272 (MH).

Eragrostis unioides (Retz.) Nees ex Steud., Syn. Pl. Glumac. 1: 264. 1854; FPM 3: 1264. 1957; GBCIP 515. 1960; FTC 3(3): 1858. 1983; FTN 3: 116. 1989; FTNG 155. 2009.

Tufted annuals. Culms nodes brownish, lower ones rooting. Leaf blade linear-lanceolate, margins infolded. Panicle lax. Racemes with 10-15 pedicelled spikelets. Spikelets ovate. Lower glume ovate-lanceolate. Upper glume mucronate at apex. Florets up to 80, bisexual, disarticulating from below upwards. Stamens 2, purple. Ovary oblong to elliptic. Stigma plumose, purplish brown. Caryopsis narrowly elliptic to obovate.

Common in marshy areas, drainages, field bunds and fallow lands. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KA & PB 1495, 1537 (SACONH); VS 19141 (FRC); KCJ 81479 (MH).

Eragrostis viscosa (Retz.) Trin., Mém. Acad. Imp. Sci. St.-Pétersbourg, Sér. 6, Sci. Math. 1: 397. 1831; FPM 3: 1264. 1957; GBCIP 515. 1960; FTC 3(3): 1859. 1983; FTN 3: 116. 1989; FTNG 155. 2009.

Tufted annuals. Culms geniculate, more or less ribbed, glandular below nodes. Leaf blade linear to lanceolate, margins inrolled. Panicle spiciform to effuse. Spikelets ovate to oblong-lanceolate. Lower glume ovate-lanceolate, prominently 1-nerved, Upper glume similar to lower glume. Florets 7-11, bisexual, loosely imbricate, rachilla zigzag. Stamens 3, purplish. Ovary oblanceolate. Stigma plumose, brownish. Caryopsis ovate-lanceolate to elliptic.

Occasional in sandy areas. **Fl. & Fr.:** May-Mar. **Sp.Ex.:** LP 1854 (SACONH); KCJ & JD 82532 (MH).

ERIOCHLOA Kunth, Nov. Gen. Sp. 1: 94. 1816.

Eriochloa procera (Retz.) C.E. Hubbard, Bull. Misc. Inform. Kew 1930: 256. 1930; FPM 3: 1224. 1957; GBCIP 312. 1960; FTC 3(3): 1859. 1983; FTN 3: 116. 1989; FTNG 256. 2009.

Tufted annuals. Culms geniculate, more or less ribbed, greenish, nodes minutely villous to pubescent. Leaf blade linear-lanceolate. Panicle lax, greenish to dark purplish. Racemes with alternate pedicelled spikelets. Spikelets ovate-lanceolate. Lower glume absent. Upper glume ovate-lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, greenish yellow. Ovary oblong to elliptic. Stigma plumose, greenish purple. Caryopsis obovate to elliptic.

Common in along the roadsides and semiaquatic areas. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2905, 3133 (SACONH); VN 78989, 82161 (MH).

EULALIA Kunth, Révis. Gramin. 1: 160. 1829.

Eulalia phaeothrix (Hack.) Kuntze, Revis. Gen. Pl. 2: 775. 1891; FPM 3: 1189. 1957; GBCIP 156. 1960; FTN 3: 117. 1989; FTNG 421. 2009.

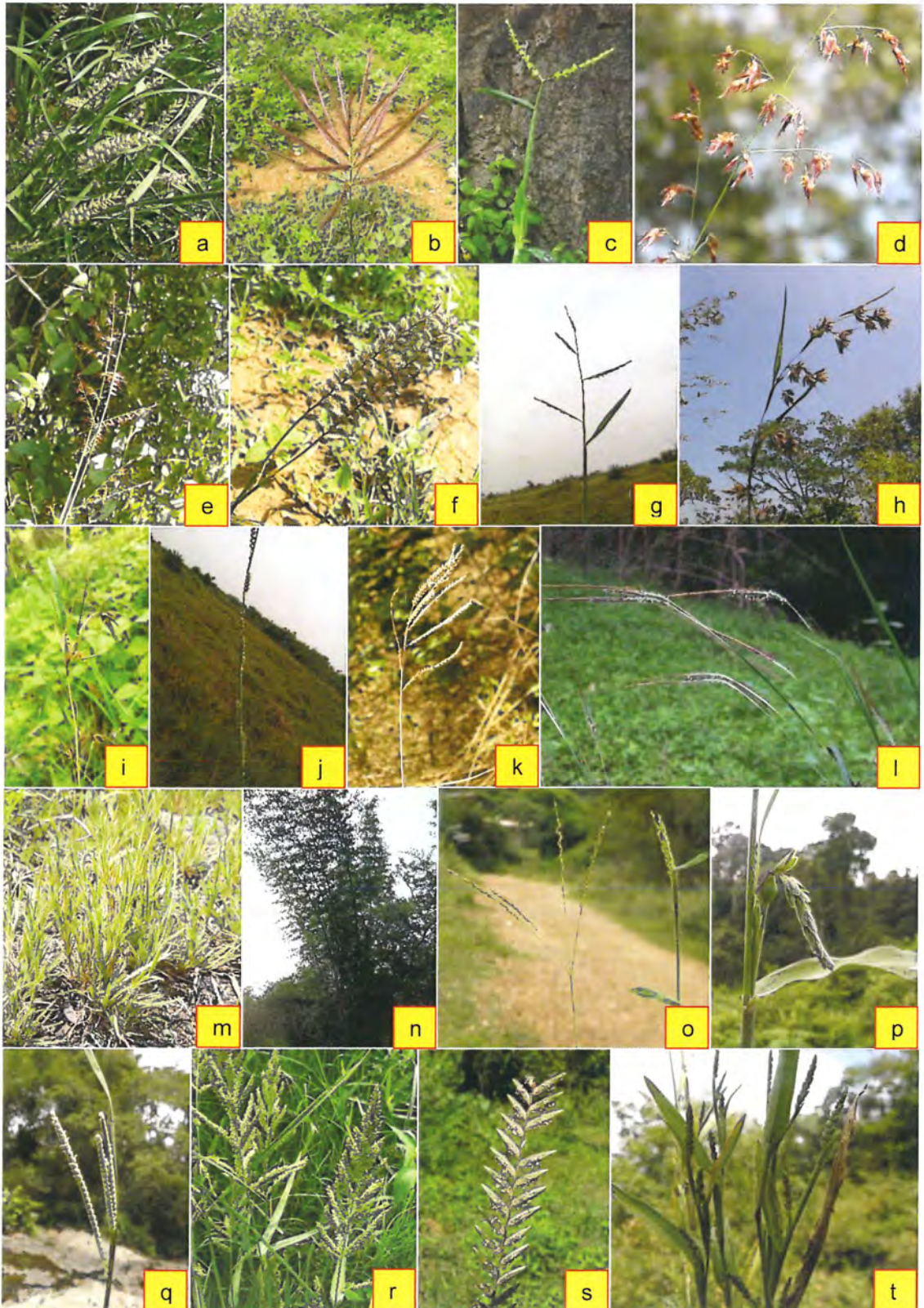
Tufted perennials. Culms decumbent, greenish to brown or purplish. Leaf blade linear-lanceolate, flat to inrolled. Inflorescence of 2-6 digitate to subdigitate racemes. Racemes fragile. Spikelets sessile and pedicelled. Lower glume narrowly elliptic to oblong, greenish, prominently 2-nerved. Upper glume oblong-elliptic, emarginate to 2-lobed. Florets 2, lower barren, upper bisexual. Stamens 3, yellowish. Ovary-oblong. Stigma plumose, purplish brown. Caryopsis oblong to obovate, brownish purple.

Occasional in grasslands. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** LP 2562 (SACONH); VS 19159 (FRC); SRN 82489 (FRC); KCJ 83259 (MH).

EULALIOPSIS Honda in Tokyo, Bot. Mag. 38: 56. 1924.

Eulaliopsis binata (Retz.) C.E. Hubb., Hooker's Icon. Pl. 33: t. 3262. 1935. GBCIP 158. 1960. *Pollinidium binatum* (Retz.) C.E. Hubb., Kew Bull. 1932. 72. 1932; FPM 3: 1190. 1957.

PLATE 26 - POACEAE



a) *Cenchrus ciliaris*, b) *Chloris roxburghiana*, c) *Trachys muricata*, d) *Melinis repens*, e) *Oplismenus compositus*, f) *Tragus roxburghii*, g) *Urochloa setigera*, h) *Themeda triandra*, i) *Themeda quadrivalvis*, j) *Paspalidium flavidum*, k) *Leptochloa chinensis*, l) *Heteropogon contortus*, m) *Oropetium thomaeum*, n) *Bambusa bambos*, o) *Alloteropsis cimicina*, p) *Coix lacryma-jobi*, q) *Paspalum dilatatum*, r) *Echinochloa crus-galli*, s) *Eragrostiella bifaria*, t) *Hackelochloa granularis*.

Perennial, caespitose. Culms erect, nodes glabrous, or bearded. Leaf blades flat, or convolute. Inflorescence composed of racemes, terminal and axillary. Racemes 2–4 digitate. Rachis fragile at the nodes, flattened. Spikelets in pairs. Fertile spikelets comprising 1 basal sterile floret; 1 fertile floret. Spikelets lanceolate; dorsally compressed. Lower glume elliptic, chartaceous. Upper glume lanceolate, chartaceous. Basal sterile florets male. Stamens 3. Occasional in hill slopes and sandy areas. **Fl. & Fr.:** June. **Sp.Ex.:** VN 82178 (MH).

GARNOTIA Brongniart, Voy. Monde, Phan. 2: 132. 1832.

Garnotia elata (Arn. ex Miq.) Janowski, Repert. Spec. Nov. Regni Veg. 17: 86. 1921; GBCIP 567. 1960; FTN 3: 118. 1989; FTNG 348. 2009. *G. scoparia* Stapf ex Hook. f., Fl. Brit. India 7: 242. 1896, non. Thw. 1864; FPM 3: 1254. 1957

Very robust, tufted perennials. Culms nodes brownish. Leaf blade narrowly linear-lanceolate, margins serrulate. Panicle with many racemes at nodes. Racemes with many spikelets. Spikelets paired similar, lanceolate. Lower glume ovate-lanceolate, prominently 3-nerved. Upper glume ovate-lanceolate. Floret 1, bisexual. Stamens 1, purplish yellow. Ovary oblanceolate to obovate. Stigma plumose, purplish. Caryopsis oblong, greenish brown, shallowly depressed on dorsal side.

Occasional in massive clumps on bare slopes and rocky crevices. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** KA & PB 1455 (SACONH); VS 19162 (FRC).

HACKELOCHLOA Kuntze, Revis. Gen. Pl. 2: 776. 1891.

Hackelochloa granularis (L.) Kuntze, Revis. Gen. Pl. 2: 776. 1891; FPM 3: 1218. 1957; GBCIP 159. 1960; FTC 3(3): 1862. 1983; FTN 3: 119. 1989; FTNG 425. 2009.

Tufted annuals. Culms more or less ribbed, sparsely tuberculate. Leaf blade lanceolate. Inflorescence racemes, axillary, single or 2-4 or more per axil of leaf sheath. Spikelets paired. Lower glume ovate to globose, boat shaped. Upper glume ovate-oblong, yellowish. Florets 2, lower sterile, upper bisexual. Stamens 3, yellow. Ovary oblong, greenish brown. Stigma plumose, yellowish brown.

Common along the field bunds and exposed rocky hill slopes of hilly areas. **Fl. & Fr.:** May-Jan. **Sp.Ex.:** LP 1425 (SACONH); CECF 56460 (MH).

HETEROPOGON Pers., Syn. Pl. 2: 533. 1807.

Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult., Syst. Veg. 2: 836. 1817; FPM 3: 1208. 1957; GBCIP 163. t. 6. 1960; FTN 3: 120. 1989; FTNG 427. 2009.

Tufted decumbent. Culms geniculate, yellowish, lower nodes rooting. Leaf blade linear to lanceolate, margin serrulate. Racemes with basal 6-8 homogamous spikelets, and upper heterogamous spikelets, greenish to purple. Spikelets paired. Lower glume linear to lanceolate, chartaceous. Upper glume linear-lanceolate. Florets 2, lower empty, upper bisexual. Stamens 3, yellowish. Ovary oblong, brown when mature. Stigma reduced.

Common along the roadsides, waste places and scrub jungles. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2270, 3012, 3125, 2217 (SACONH); KA & PB 1437 (SACONH); VS 13701 (FRC); SRR 81062 (MH); KCJ 81164, 82533, 82585 (MH).

IMPERATA Cirillo, Pl. Rar. Neapol. 2: 26. 1792.

Imperata cylindrica (L.) Raeusch., Nomencl. Bot. ed. 3: 10. 1797; GBCIP 170. 1960; FTC 3(3): 1864. 1983; FTN 3: 121. 1989; FTNG 429. 2009.

Decumbent, rhizomatous perennial. Culms more or less ribbed, nodal base hairy. Leaf blade linear to lanceolate, flat to inrolled. Panicle cylindrical spiciform. Racemes compact on central axis, nodes silky villous. Spikelets long and short pedicelled, both similar. Lower glume oblong to ovate-lanceolate, creamy white to yellow. Upper glume ovate-lanceolate yellowish white. Florets 2, lower sterile, upper bisexual. Stamens 2, yellowish. Ovary ovate to oblong. Caryopsis greenish brown.

Common along bunds of lakes, rivers and other similar wet places. **Sp.Ex.:** LP 2605 (SACONH); KA & PB 1483 (SACONH); CECF 6502 (FRC); VN 79765, 82271 (MH).

ISACHNE R. Br., Prodr. Nov. Holl. 196. 1810.

Key to the species

- 1a. Spikelets 3.5 mm long; leaves up to 20 cm long.....*I. walkeri*
1b. Spikelets 1.5-3.5 mm long; leaves up to 10 cm long.....*I. globosa*

Isachne globosa (Thunb.) Kuntze, Revis. Gen. Pl. 2: 778. 1891; GBCIP 580. 1960; FTC 3(3): 1866. 1983; FTN 3: 122. 1989; FTNG 329. 2009. *I. dispar* auct. non Trin., 1828; FBI 7: 26. 1896. FPM 3: 1244. 1957; GBCIP 580. 1960.

Annuals. Culms erect to decumbent, nodes sparsely villose. Leaf blade lanceolate to linear-lanceolate. Panicle compact to effuse. Spikelets subglobose with or without glandular bands. Glumes ovate, boat shaped, rigidly membranous. Lower glume ovate-oblong, chartaceous. Florets unequal, lower male, upper bisexual. Stamens 3, yellowish. Ovary oblong. Stigma plumose, purplish. Caryopsis elliptic, subglobose.

Occasional in moist places. **Fl. & Fr.:** May-Feb. **Sp.Ex.:** LP 2854 (SACONH); KA & PB 1458 (SACONH).

Isachne walkeri (Arn. ex Steud.) Wight & Arn. ex Thwaites, Enum. Pl. Zeyl. 361. 1864; FBI 7: 26. 1896; FPM 3: 1244. 1957; GBCIP 582. 1960; FTN 3: 123. 1989; FTNG 333. 2009.

Perennials. Culms decumbent, geniculate, nodes brownish, lower ones rooting. Leaf blade linear to lanceolate. Panicle pyramidal, more or less ribbed. Racemes glandular. Spikelets usually paired, solitary towards apex. Lower glumes broadly ovate to elliptic, boat shaped. Upper glume similar to lower glume. Florets 2, both similar, bisexual. Stamens 3. Ovary oblong to narrowly elliptic. Stigma plumose, yellow to brown. Caryopsis broadly elliptic.

Occasional in hill slopes. **Fl. & Fr.:** Sept.-June. **Sp.Ex.:** VS 19161 (FRC).

ISCHAEMUM L., Sp. Pl. 2: 1049. 1753.

Ischaemum commutatum Hack., Monogr. Phan. 6: 209. 1889; FBI 7: 131. 1896; FPM 3: 1194. 1957; GBCIP 178. 1960; FTC 3(3): 1868. 1983; FTN 3: 123. 1989; FTNG 433. f. 79. 2009.

Tufted perennials. Culms geniculate. Leaf blade narrowly oblong to elliptic-lanceolate. Racemes 2, appearance of single racemes. Lower glume oblong, yellow. Upper glume oblong to ovate-lanceolate. Florets 2, lower male, upper bisexual. Stamens 3, yellowish brown. Ovary brownish. Stigma plumose, purplish brown. Caryopsis elliptic to oblong or oblanceolate.

Occasional in moist shady places. **Fl. & Fr.:** June-April. **Sp.Ex.:** KA & PB 1583 (SACONH); KCJ 81508, 82562 (MH).

LEERSIA Sol. ex Sw., Prodr. 21. 1788.

Leersia hexandra Sw., Prodr. Veg. Ind. Occ. 21. 1788; FBI 7: 94. 1896; FPM 3: 1277. 1957; GBCIP 599. t. 68. 1960; FTC 3(3): 1871. 1983; FTN 3: 125. 1989; FTNG 42. 2009.

Decumbent, semiaquatic annuals. Culms more or less ribbed, nodes with raised rim, lower nodes rooting. Leaf blade linear-lanceolate, margins inrolled. Inflorescence panicle. Racemes 8-12, short, alternate, greenish purple, rachis wavy to zigzag. Lower glume reduced to a rim or absent. Upper glume absent. Floret 1, bisexual. Stamens 6, greenish white to creamy yellow. Ovary ovate to elliptic, greenish. Stigma plumose, greenish to creamy white.

Common in wet areas. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** CECF 6668 (FRC); KCJ 82562 (MH).

LEPTOCHLOA P. Beauv., Ess. Agrostogr. 71. 1812.

Key to the species

- 1a. Spikelets 3-6 flowered; leaves linear, often much longer.....*L. chinensis*
- 1b. Spikelets 1-flowered; leaves oblong or ovate-elliptic, up to 10 cm long.....*L. uniflora*

Leptochloa chinensis (L.) Nees, Syll. Pl. Nov. 1: 4. 1824; FBI 7: 299. 1896; FPM 3: 1260. 1957; GBCIP 516. 1960; FTC 3(3): 1872. 1983; FTN 3: 125. 1989; FTNG 158. 2009.

Perennials. Culms geniculate, nodes glabrous, lower nodes rooting. Leaf blade linear to lanceolate. Panicle open, effuse, pyramidal, curved at maturity. Racemes alternate or subfasciculate in 2 or 3 basal nodes, rachis zigzag. Lower glume lanceolate, greenish, 1-nerved. Upper glume oblong-lanceolate. Florets 4-9, bisexual, similar. Stamens 3. Ovary elliptic to oblong. Stigma plumose, greenish when young and purplish at maturity. Caryopsis turgid, elliptic-oblong.

Occasional in wet localities. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** TRN 82145 (MH).

Leptochloa uniflora Hochst ex A. Rich, Tent. Fl. Abyss. 2: 409. 1850; FBI 7: 297. 1896; FPM 3: 1260. 1957; GBCIP 517. 1960; FTN 3: 126. 1989; FTNG 162. 2009.

Tufted annals. Culms geniculate. Leaf blade elliptic-lanceolate. Inflorescence panicle, racemes many, alternate or subwhorled. Spikelets sessile, secund. Lower glume oblong-lanceolate, prominently 1-nerved. Upper glume similar to lower glume. Floret one, bisexual. Stamens 3, yellowish. Ovary obovate to elliptic, yellowish green. Caryopsis oblong-lanceolate, brownish.

Common along the roadsides. **Fl. & Fr.:** Oct.-Feb. **Sp.Ex.:** LP 1597 (SACONH).

MANISURIS L., Mant. Pl. 2: 164, 300. 1771.

Manisuris myurus L., Mant. Pl. 2: 300. 1771; FPM 3: 1220. 1957; GBCIP 192. t. 10. f. 5. 1960; FTN 3: 126. 1989; FTNG 451. 2009.

Tufted rhizomatous perennials. Culms geniculate, yellowish brown, nodes brownish. lower nodes rooting. Leaf blade linear to lanceolate. Racemes terminal, cylindrical. green to yellow when young. Glume ovate-lanceolate to oblong. Floret one, bisexual. Stamens 3, brownish. Ovary flat, wedge shaped. Caryopsis ovate-lanceolate to oblong.

Occasional in dry localities. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** VS 19145 (FRC).

MELINIS P. Beauv., Ess. Agrostogr. 54. 1812.

Melinis repens (Willd.) Zizka, Biblioth. Bot. 38: 55. 1988; FTNG 262. 2009. *Rhynchelytrum repens* (Willd.) C.E. Hubb., Bull. Misc. Inform. Kew 1934: 110. 1934; GBCIP 355. 1960; FTC 3(3): 1893. 1983; FTN 3: 136. 1989.

Tufted annuals. Culms geniculate, lower nodes rooting. Leaf blade linear to lanceolate, margins finely serrulate. Inflorescence panicle, with 5-8 alternate racemes. Spikelets pedicelled, ovate to oblanceolate. Lower glume oblong, yellowish green. Upper glume ovate-boat shaped.

Florets 2, lower male, upper bisexual. Stamens 3, greenish yellow to brown. Ovary ovate-oblong. Stigma plumose, purplish brown.

Common along the roadsides and open dry places. **Fl. & Fr.:** Almost throughout the year.

Sp.Ex.: PSAT 186869 (MH).

OPLISMENUS P. Beauv., Fl. Oware. 2: 14. 1810.

Oplismenus compositus (L.) P. Beauv., Ess Agrost. 54, 168 & 169. 1812; FBI 7: 66. 1896; FPM 3: 1231. 1957; GBCIP 317. 1960; FTC 3(3): 1877. 1983; FTN 3: 129. 1989; FTNG 264. 2009.

Decumbent to creeping annuals. Culms geniculate, purplish, nodes glabrous. Leaf blade ovate-lanceolate to elliptic. Inflorescence panicle. Racemes 4-10, alternate, distichous, rachis flat or triquetrous. Spikelets subsecund, paired. Lower glume turned away from rachis, ovate-lanceolate, greenish purple. Upper glume ovate, greenish. Florets 2, Lower empty or male, upper bisexual. Stamens 3, purplish yellow. Ovary oblong, greenish. Stigma plumose, purplish green. Caryopsis oblong-elliptic, persistent style, brownish.

Common in shady regions of moist and evergreen forest. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** LP 1333, 1518, 2629, 3147 (SACONH); KA & PB 1561, 1590 (SACONH); VS 19158 (FRC); KCJ 81260, 82541 (MH); SRN 82488 (MH).

OROPETIUM Trin., Fund. Agrost. 98. 1820.

Oropetium thomaeum (L. f.) Trin., Fund. Agrost. 98. 1820; FBI 7: 366. 1896; FPM 3: 1267. 1957; GBCIP 474. 1960; FTC 3(3): 1878. 1983; FTN 3: 129. 1989; FTNG 163. 2009.

Tufted perennials. Leaf blade linear, tuberculate hairy with hairs. Inflorescence a terminal spike raceme, straight to curved, rachis furrowed, winged. Spikelets sessile, sunk and appressed to rachis, laterally compressed, lanceolate. Lower glume awl shaped. Upper glume oblong. Floret one, bisexual. Stamens 3, greenish yellow. Ovary elliptic, brownish. Stigma plumose, brownish. Caryopsis ovate.

Common in hill slopes and dry deciduous forest. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KCJ 82603 (MH).

ORYZA L., Sp. Pl. 1: 333. 1753.

Key to the species

- 1a. Ligules of the lower leaves mostly less than 6 mm long.....**O. meyeriana**
- 1b. Ligules of the lower leaves 10-50 mm long.....**O. sativa**

Oryza meyeriana (Zoll. & Mor.) Baill., Hist. Pl. 12: 166. 1894, var. *granulata* (Nees & Arn. ex Watt) Duist., Blumea 32: 185. 1987; FTN 3: 129. 1989; FTNG 43. 2009.

Tufted perennials. Culms decumbent. Leaf blade linear-lanceolate, flat to inrolled, margins finely serrulate. Inflorescence spiciform or racemose. Spikelets few, 2-6 per racemes, alternate, paired or solitary, oblong-lanceolate. Floret one bisexual. Lower glume represented as thickened flap like scar at pedicel apex. Upper glume absent. Stamens 6, yellow, brown at maturity. Ovary oblong to elliptic, greenish. Stigma plumose, yellowish green.

Occasional in lower hills. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** VN 82276 (MH).

Oryza sativa L., Sp. Pl. 333. 1753; FBI 7: 92. 1896; FPM 3: 1276. 1957; GBCIP 605. 1960; FTC 3(3): 1878. 1983; FTN 3: 130. 1989; FTNG 46. 2009.

Tufted annuals. Culms erect, lower nodes rooting. Leaf blade lanceolate to linear. Panicle lax. Spikelets oblong to ovate. Glumes reduced. Florets 2, lower barren, upper bisexual. Stamens 6, creamy white to yellowish. Caryopsis oblong, tightly enclosed by lemma and palea.

Cultivated species but we collected on the stream banks. **Fl. & Fr.:** Sept.-June. **Sp.Ex.:** CECF 6667 (FRC).

PANICUM L., Sp. Pl. 1: 55. 1753.

Key to the species

- 1a. Upper lemma transversely rugose; nerves of the upper glume and lower lemma obscure.....*P. maximum*
- 1b. Upper lemma smooth; nerves of the upper glume and lower lemma conspicuous.....2
- 2a. Lower glume more than half the length of the spikelet.....3
- 2b. Lower glume less than half the length of the spikelet.....7
- 3a. Spikelets 4-6 mm long.....*P. miliaceum*
- 3b. Spikelets 1-4 mm long.....4
- 4a. Lower glumes or both glumes cuspidate-acuminate at apex.....*P. curvifolium*
- 4b. Lower glumes acute to obtuse at apex; upper glume acute to acuminate, not cuspidate at apex.....5
- 5a. Spikelets 1-2 mm long.....*P. humidorum*
- 5b. Spikelets more than 2 mm long.....6
- 6a. Leaves ovate-lanceolate to broadly lanceolate, cordate at base; panicles effuse.....*P. notatum*
- 6b. Leaves linear-lanceolate, narrow or rounded at base; panicle not effuse.....*P. antidotale*
- 7a. Lower glume longer than broad, cuspidate-acuminate; spikelets widely gaping.....*P. pilosum*
- 7b. Lower glume broad than long, not cuspidate-acuminate; spikelets not gaping.....8
- 8a. Spikelets ovate-oblong to elliptic, acute or obtuse; lower glume broadly ovate, acute.....*P. sumatrense*
- 8b. Spikelets oblong-lanceolate to narrowly lanceolate, acute; lower glume orbicular, obtuse.....9
- 9a. Culms tough, rhizomatous; leaves distichous, usually involute, glaucous.....*P. repens*
- 9b. Culms spongy, not rhizomatous; leaves not distichous, flat, green.....*P. paludosum*

Panicum antidotale Retz., Observ. Bot. 4: 17. 1786; FBI 7: 52. 1896; FPM 3: 1235. 1957; GBCIP 322. 1960; FTN 3: 130. 1989; FTNG 267. 2009.

Tufted annuals. Culms stout, more or less ribbed, whitish hairy, nodes pubescent, lower one rooting. Leaf blade linear to lanceolate, margins serrulate. Panicles effuse, racemes alternate to subwhorled. Spikelets ovate to oblong-lanceolate. Lower glume ovate-lanceolate, boat shaped. Upper glume ovate-lanceolate. Florets 2, lower male, upper bisexual, gaping at anthesis. Stamens 3, brownish to yellow. Ovary oblong. Stigma plumose, brownish to purplish.

Occasional in sandy areas. **Fl. & Fr.:** May-Jan. **Sp.Ex.:** KCJ 83273 (MH).

Panicum curviflorum Hornem. Hort. Bot. Hafn. Suppl. 116. 1819; FTNG 269. 2009. *P. trypheron* Schult., Mant. 2: 244. 1824; FBI 7: 47. 1896; FPM 3: 1235. 1957; GBCIP 1235. 1960; FTC 3(3): 1883. 1983; FTN 3: 132. 1989; FTNG 269. 2009.

Tufted annuals. Culms geniculate, lower nodes rooting. Leaf blade linear-lanceolate, margins serrulate. Panicle effuse, alternate to whorled. Lower racemes, alternate. Spikelets ovate-lanceolate, purplish green to yellowish. Lower glume ovate to lanceolate, cup like at base. Upper glume elliptic to ovate. Florets 2, lower barren, upper bisexual. Stamens 3, yellow to brownish. Ovary oblong-elliptic, greenish. Stigma plumose, purplish brown. Caryopsis elliptic, brownish. Common in moist waste places, dr deciduous forest and open grassland. **Fl. & Fr.:** May-Feb. **Sp.Ex.:** LP 1377, 1506 (SACONH); KA & PB 1452 (SACONH); VN 82199 (MH); KCJ 83246 (MH).

Panicum humidorum Buch.-Ham. ex Hook. f., Fl. Brit. India 7: 53. 1896. *P. perakense* (Hook. f.) Merr., Philipp. J. Sci., C. 11: 52. 1916.

Perennials. Culms decumbent or erect, nodes glabrous. Leaf blade, linear-lanceolate. Panicles effuse, alternate or rarely opposite, angular, scaberulous. Spikelets ovate, green. Lower glume, ovate-lanceolate, chartaceous, 3-nerved, glabrous. Upper glume ovate, chartaceous, 5-nerved, glabrous. Florets 2, lower empty, upper bisexual. Stamens 3. Ovary oblong. Stigmas, pink, feathery.

Rare in along stream sides. **Fl. & Fr.:** Feb.-Mar. **Sp.Ex.:** VS 19136 (FRC).

Panicum maximum Jacq., Icon. Pl. Rar. 1: t. 13. 1781; FBI 7: 49. 1896; FPM 3: 1235. 1957; GBCIP 327. t. 37. 1960; FTC 3(3): 1879. 1983; FTN 3: 131. 1989; FTNG 272. 2009.

Tufted, robust perennials. Culms furrowed on one side, solid, glaucous, lower nodes rooting. Leaf blade lanceolate to linear, margins serrulate. Inflorescence panicle, branches whorled at base, alternate elsewhere. Racemes tuberculate hairy at base, rachis scabrid. Spikelets ovate to oblong. Lower glume ovate, cup shaped. Upper glume ovate-lanceolate. Florets 2, lower male, upper bisexual. Stamens 3, yellowish brown. Ovary ovate-oblong to elliptic. Stigma plumose, purplish. Caryopsis ovate, flat, dorsally compressed.

Common in moist places in dry deciduous forest. **Fl. & Fr.:** June-April. **Sp.Ex.:** SRR 81066 (MH).

Panicum miliaceum L., Sp. Pl. 58. 1753; FBI 7: 45. 1896; FPM 3: 1234. 1957; GBCIP 327. 1960; FTC 3(3): 1880. 1983; FTN 3: 131. 1989; FTNG 273. 2009.

Tufted annuals. Culms decumbent, nodes white bearded. Leaf blade linear to lanceolate, margins finely serrulate. Panicle effuse, many branched. Racemes alternate, rachis angled. Spikelets paired, persistent. Lower glume ovate. Upper glume broadly ovate to elliptic-lanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, purplish. Ovary oblong, greenish. Stigma plumose, purplish to brown. Caryopsis plump, elliptic to globose.

Cultivated species also naturalised in wild. **Fl. & Fr.:** Nov. **Sp.Ex.:** LP 1504 (SACONH).

Panicum notatum Retz., Observ. Bot. 4: 18. 1786; GBCIP 701. 1960; FTC 3(3): 1881. 1983; FTN 3: 131. 1989; FTNG 274. 2009. *P. montanum* Roxb., Fl. Ind. 1: 315. 1820; FBI 7: 53. 1896; GBCIP 329. 1960.

Tufted perennials. Culms decumbent, more or less ribbed, nodes brownish, lower nodes rooting. Leaf blade broadly ovate-lanceolate. Panicle effusely spreading, nodes with alternate branching, rachis triquetrous, serrulate. Spikelets ovate to elliptic, greenish brown. Lower glume ovate to lanceolate, greenish brown and purple when mature. Upper glume ovate to elliptic-lanceolate, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, brownish. Ovary ovate to oblong. Stigma plumose, yellowish purple, Caryopsis oblong-lanceolate.

Occasional in shady areas of the forest margins. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** LP 2234 (SACONH); KA & PB 1514, 1565 (SACONH); VS 19153 (FRC); KCJ 81355, 82550 (MH).

Panicum paludosum Roxb., Fl. Ind. 1: 310. 1820; FPM 3: 1235. 1957; GBCIP 329. 1960; FTC 3(3): 1881. 1983; FTN 3: 131. 1989; FTNG 274. 2009.

Aquatic perennials. Culms geniculate, more or less ribbed, nodes brown, lower ones rooting. Leaf blade linear to lanceolate, margins cartilaginous, finely serrulate. Panicle effuse, rachis triquetrous, scabrid. Spikelets gapping at maturity. Lower glume ovate, cup like. Upper glume broadly ovate to elliptic-lanceolate. Florets 2, lower male or barren, upper bisexual. Stamens 3, purple to brown, size reduced in lower florets. Ovary oblong. Stigma plumose, purplish. Caryopsis turgid, oblong to elliptic, yellowish brown.

Occasional in hill slopes. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** LP 2683 (SACONH); EV 142088, 142089 (MH).

Panicum pilosum Sw., Prodr. Veg. Ind. Occ. 22. 1788.

Tufted annuals. Culms nodes glabrous. Leaf blade linear-lanceolate. Inflorescence panicle, branches alternate. Spikelets ellipsoid, gaping at maturity, glabrous. Glumes ovate. Lower glume 3-5 nerved. Upper glume 7-9 nerved. Stamens 3. Ovary oblong. Caryopsis ovoid. Rare in fallow lands. **Fl. & Fr.:** June-July. **Sp.Ex.:** VN 82163 (MH); KCJ 82571 (MH).

Panicum repens L., Sp. Pl. ed. 2: 87. 1763; FBI 7: 49. 1896; FPM 3: 1235. 1957; GBCIP 330. 1960; FTC 3(3): 1882. 1983; FTN 3: 131. 1989; FTNG 277. 2009.

Tufted perennials. Culms decumbent, nodes brownish. Leaf blade linear-lanceolate. Panicle lax to compact. Racemes alternate. Spikelets paired, dissimilar, ovate-oblong. Lower glume broadly ovate, membranous. Upper glume ovate-lanceolate, boat shaped greenish with purple tinge at apex. Florets 2, lower male, upper bisexual. Stamens 3, yellowish to purplish brown. Ovary ovate to elliptic. Stigma plumose, greenish to purple.

Occasional in loamy sandy soil. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** VS 19151 (FRC).

Panicum sumatrense Roth ex Roem. & Schul., Syst. 2: 424. 1817; GBCIP 701. 1960; FTN 3: 131. 1989; FTNG 280. 2009. *P. miliare* auct. non Lam. 1791; FBI 7: 46. 1896; FPM 3: 1234. 1957.

Tufted annuals. Culms nodes brownish, lower ones rooting. Leaf blade linear to lanceolate, flat to infolded. Inflorescence panicle, nodding at maturity. Spikelets paired, dissimilar, oblong-lanceolate. Lower glume broadly ovate to orbicular. Upper glume ovate-lanceolate. Florets 2, lower male or reduced, upper bisexual. Stamens 3, brownish, smaller in lower floret. Ovary lanceolate, greenish. Stigma plumose, greenish. Caryopsis oblong-elliptic.

Occasional in forest edges, roadsides and open glands. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** KA & PB 1494, 1511 (SACONH); SRR 81036 (MH).

PASPALIDIUM Stapf., Prain. Fl. Trop. Africa. 9: 582. 1920.

Paspalidium flavidum (Retz.) A. Camus, Fl. Indo-Chine 7: 419. 1922; FPM 3: 1229. 1957; GBCIP 333. 1960; FTC 3(3): 1884. 1983; FTN 3: 132. 1989; FTNG 281. 2009. *P. flavidum* Retz., Observ. Bot. 4: 15. 1786; FBI 7: 28. 1896.

Tufted annuals to perennials. Culms more or less ribbed, nodes brownish. Leaf blade linear to lanceolate, mucronulate. Inflorescence spikelet, internodes longer than racemes. Racemes 4-7, short, lanceolate. Spikelets second, alternate, 2-rowed, turgid, ovate-elliptic. Glumes ovate, boat shaped. Florets 2, lower male or barren, upper bisexual. Stamens 3, brownish. Ovary oblong. Stigma plumose, brownish. Caryopsis elliptic, globose.

Common in shady places of forest floor and ponds. **Fl. & Fr.:** May-Mar. **Sp.Ex.:** LP 2674, 3108 (SACONH); VN 79813, 82278 (MH); KCJ 82578 (MH).

PASPALUM L., Syst. Nat., ed. 10. 2: 855. 1759.

Key to the species

- 1a. Spikelets with a ciliate fringe from the margins of the upper glume.....*P. dilatatum*
- 1b. Spikelets without a ciliate fringe, rarely fimbriate with tubercle-based hairs, but than the leaves oblong-elliptic.....2
- 2a. Spiklets obovate or orbicular, obtuse.....*P. scrobiculatum*
- 2b. Spiklets ovate-elliptic or lanceolate, acute.....*P. distichum*

Paspalum dilatatum Poir. in Lam., Encycl. 5: 35. 1804; FPM 3: 1228. 1957; GBCIP 338. 1960; FTN 3: 132. 1989; FTNG 286. 2009.

Tufted, rhizomatous perennials. Culms erect to geniculate, more or less ribbed, nodes slightly swollen. Leaf blade linear-lanceolate, margins deflexed towards apex. Panicle with 4-6 alternate racemes. Racemes with 4 rows of spikelets. Spikelets second, paired, similar, ovate-lanceolate. Lower glume absent. Upper glume ovate-lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3, purplish. Ovary elliptic, greenish. Stigma plumose, purplish.

Common in shadow regions of the hilly areas. **Fl. & Fr.:** May-Mar. **Sp.Ex.:** LP 3146 (SACONH).

Paspalum distichum L., Syst. Nat. ed. 10. 2: 855. 1759; FBI 7: 12. 1896; FTN 3: 133. 1989; FTNG 287. 2009.

Decumbent, stoloniferous perennials. Culm nodes brownish, lower one rooting. Leaf blade linear-lanceolate, flat to folded or inrolled, margins finely serrulate. Inflorescence of 2 or 3- digitate to subdigitate racemes, nodes hairy. Spikelets in 2-rows, similar, subsessile, lower glume lanceolate. Upper glume broadly ovate-elliptic. Florets 2, lower barren and epaleate, upper bisexual. Stamens 3, purplish brown. Stigma plumose, purplish black. Ovary oblong, brownish. Caryopsis broadly elliptic.

Occasional in moist places. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** LP 2238 (SACONH).

Paspalum scrobiculatum L., Mant. Pl. 1: 29. 1767; FBI 7: 10. 1896; FPM 3: 1227. 1957; FTC 3(3): 1887. 1983; FTN 3: 133. 1989; FTNG 288. 2009. *P. commersonii* Lam., Tabl. Encyl. 1: 175. t. 43. f. 1. 1791; GBCIP 355. t. 38. 1960.

Stoloniferous perennials. Culms geniculate, purplish to green, nodes band like, lower ones rooting. Leaf blade linear-lanceolate, margin finely serrulate towards apex. Inflorescence a digitate, terminal to subterminal racemes. Racemes 1 or 2 up to 5. Spikelets subsessile, compact, alternate. Lower glumes absent. Upper glume obovate to orbicular, boat shaped. Florets 2, lower barren, upper bisexual. Stamens 3, yellow. Stigma plumose, greenish. Ovary ovate. Caryopsis oblong.

Marshy areas. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KCJ 54002 (MH); VN 79819, 82281 (MH); KCJ 82575, 95074 (MH).

PENNISETUM Richard, Syn. Pl. 1: 72. 1805.

Key to the species

- 1a. Involucral bristles scabrid; anthers not beared at apex; leaves folded.....*P. hohenackeri*
1b. Involucral bristles ciliate; anthers beared at apex; leaves flat.....*P. glaucum*

Pennisetum glaucum (L.) R. Br., Prodr. Fl. Nov. Holl. 195. 1810; FTNG 291. 2009. *P. americanum* (L.) Leeke, Z. Naturwiss. 79: 52. 1907; GBCIP 351. 1960; FTC 3(3): 1888. 1983. *P. typhoides* (Burm. f.) Stapf & C.E. Hubb., Bull. Misc. Inform. Kew 1933: 271. 1933; FPM 3: 1233. 1957; GBCIP 350. 1960; FTN 3: 133. 1989.

Perennial grass. Culm more or less ribbed, geniculate, sparsely few hairy below node, nodes white bearded when young, lower one rooting. Leaf blade linear-lanceolate, margins cartilaginous, serrulate. Racemes cylindrical, spiciform, rachis villous throughout. Lower glume oblong-obovate. Upper glume broadly ovate-oblong. Florets 2, lower male, upper bisexual. Stamens 3, purple to yellowish green. Stigma plumose, purplish to white. Ovary oblong. Caryopsis obovate.

Cultivated, escaped from agricultural land. **Fl. & Fr.:** July-Jan. **Sp.Ex.:** CECF 6599 (FRC).

Pennisetum hohenackeri Hochst. ex Steud., Syn. Pl. Glumac. 1: 103. 1854; FPM 3: 1241. 1957; GBCIP 344. 1960; FTC 3(3): 1888. 1983; FTN 3: 133. 1989; FTNG 292. 2009.

Densely tufted perennials. Culms nodes brownish. Leaf blade linear, incurved to infolded, margin serrulate. Inflorescence a long spicate raceme. Spikelets with involucre or densely arranged bristles, each involucre with 1 spikelet. Spikelets sessile. Lower glume oblong, reduced, scale like. Upper glume ovate-oblong. Florets 2, lower epaleate, upper bisexual. Stamens 3, brownish. Stigma plumose, brownish. Ovary oblong-lanceolate.

Occasional in hill stations. **Fl. & Fr.:** Aug.-June. **Sp.Ex.:** CECF 6605, 6605 (FRC); VS 18702 (FRC); KCJ 55718, 55718, 55720, 81122, 92250 (MH); VN 82200 (MH).

PEROTIS Aiton, Hort. Kew. 1: 85. 1789.

Perotis indica (L.) Kuntze, Revis. Gen. Pl. 2: 787. 1891; FPM 3: 1256. 1957; GBCIP 611. t. 72. 1960; FTC 3(3): 1889. 1983; FTN 3: 134. 1989; FTNG 205. 2009.

Tufted annuals. Culms more or less geniculate, more or less ribbed, nodes brownish. Leaf blade lanceolate. Inflorescence a single spike like raceme, fox tail like. Spikelets many, compactly arranged, oblong-lanceolate. Lower glume linear-lanceolate, emarginate, awned. Upper glume linear-lanceolate. Floret 1, bisexual. Stamens 3, yellow. Stigma plumose, purplish. Caryopsis linear-elliptic.

Common in floor of scrub jungles, field bunds, riverbeds, waste places and sandy areas. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** SRR 81038 (MH); KCJ 82607 (MH); VS 19152 (FRC).

POGONATHERUM P. Beauv., Ess. Agrostogr. 56. 1812.

Pogonatherum crinitum (Thunb.) Kunth, Enum. Pl. 1: 478. 1833; FBI 7: 141. 1896; GBCIP 200. 1960; FTC 3(3): 1891. 1983; FTN 3: 135. 1989; FTNG 456. 2009.

Tufted annuals. Culms erect to geniculate. Leaf blade linear-lanceolate, margin flat to inrolled. Racemes terminal, rachis fragile. Spikelets paired, similar. Lower glume oblong-lanceolate, chartaceous. Upper glume ovate to lanceolate. Florets 2, lower barren, upper bisexual. Stamen 1 or 2, yellowish. Stigma plumose, purplish brown. Caryopsis narrowly oblong, greenish brown.

Common in hill slopes, rocky areas and also found in streams. **Fl. & Fr.:** May-Mar. **Sp.Ex.:** KCJ 81283, 82543 (MH); PSAT 187062 (MH).

POLYTRIAS Hack. in Engler & Prantl, Nat. Pflanzenfam. 2(2): 24. 1887.

Polytrias indica (Hout.) Veldkamp, Blumea 36: 180. 1991. *Ischaemum indicum* (Hout.) Merr, J. Arnold, Arbor. 19: 320. 1938; GBCIP 180. 1960; FTC 3(3): 1891. 1983; FTN 3: 123. 1989; FTNG 436. 2009.

Stoloniferous annual. Culms decumbent to geniculate. Leaf blade oblong to linear-lanceolate, margins serrulate, rarely wavy. Racemes usually 2 from the tip of the peduncle. Lower glume ovate-lanceolate, chartaceous to subcoriaceous, greenish to yellowish. Upper glume ovate-lanceolate. Stamens 3. Stigma plumose, purplish. Ovary narrowly elliptic to oblong. Caryopsis oblong to elliptic.

Occasional in moist places of the hill slopes. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KCJ 82562 (MH).

ROTTBOELLIA L. f., Suppl. Pl. 114. 1782.

Rottboellia cochinchinensis (Lour.) Clayton, Kew Bull. 35: 817. 1981; FTN 3: 136. 1989; FTNG 461. f. 82. 2009. *R. exaltata* L. f., Nov. Gram. Gen. 40. t. 1. 1781; FBI 7: 156. 1896; FPM 3: 1219. 1957; GBCIP 206. t. 13. 1960; FTC 3(3): 1894. 1983.

Tufted perennials. Branches of culms more or less furrowed. Leaf blade linear-lanceolate to elliptic to lanceolate, margins serrulate, razor sharp. Racemes solitary, terminal or axillary, spathaceous. Spikelets paired. Lower glume oblong-lanceolate, coriaceous. Upper glume oblong. Florets 2, upper bisexual. Stamens 3, purplish. Stigma plumose, purplish brown. Caryopsis oblong.

Occasional in banks of rivers, streams and canals. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** JS 56419 (MH); SRR 81042 (MH); KCJ 81407 (MH); SRN 82493 (MH).

SACCHARUM L., Sp. Pl. 1: 54. 1753.

Saccharum spontaneum L., Mant. Pl. 2: 183. 1771; FBI 7: 118. 1896; FPM 3: 1185. 1957; GBCIP 214. 1960; FTC 3(3): 1895. 1983; FTN 3: 137. 1989; FTNG 465. 2009.

Tufted, rhizomatous perennials. Culms rigid. Leaf blade linear-lanceolate, margins thick, cartilaginous, finely serrulate. Panicle ample, basal racemes whorled, silver coloured. Spikelets paired. Lower glume ovate to lanceolate; upper glume ovate. Florets 2, both epaleate, upper bisexual. Stamens 3, yellowish. Stigma plumose, purplish to brownish. Ovary oblong, brownish.

Occasional in banks of streams and canals. **Fl. & Fr.:** July-April. **Sp.Ex.:** LP 2281 (SACONH); CECF 6505 (FRC); VN 83145 (MH).

SACCIOLEPIS Nash in Britton, Man. Fl. N. States. 89. 1901.

Sacciolepis interrupta (Willd.) Stapf. in Oliver, Fl. Trop. Afr. 9: 757. 1920; FPM 3: 1238. 1957; GBCIP 357. 1960; FTC 3(3): 1897. 1983; FTN 3: 137. 1989; FTNG 303. 2009.

Decumbent perennial. Internodes of culms hollow to spongy, more or less ribbed, nodes band like, lower ones rooting. Leaf blade linear-lanceolate. Inflorescence cylindrical. Racemes short, tightly appressed to central axis. Spikelets 4-8 per racemes. Lower glume ovate; upper glume ovate-lanceolate, boat shaped. Florets 2, lower barren or male, upper bisexual. Caryopsis turgid, elliptic.

Occasional in ponds and tanks. **Fl. & Fr.:** Aug.-April. **Sp.Ex.:** KA & PB 1513 (SACONH); CECF 6597 (FRC); TRN 82144, 82144 (MH); EV 142087 (MH).

SEHIMA Forssk., Fl. Aegypt.-Arab. 178. 1775.

Sehima nervosum (Rottler) Stapf. in Oliver, Fl. Trop. Afr. 9: 36. 1917; FPM 3: 1195. 1957; GBCIP 218. 1960; FTC 3(3): 1898. 1983; FTN 3: 138. 1989; FTNG 468. 2009.

Tufted, rhizomatous perennials. Culms geniculate, smooth, nodes brownish. Leaf blade linear-lanceolate. Racemes gently curved, hairy towards tip. Spikelets paired, joints flat. Lower glume oblong-lanceolate. Upper glume oblong-lanceolate. Florets 2, lower male, upper bisexual. Stamens 3. Stigma densely plumose. Caryopsis oblanceolate to oblong.

Common in scrub jungles and in rocky areas. **Fl. & Fr.:** July-Mar. **Sp.Ex.:** CECF 6514 (FRC); VN 82167, 82171 (MH); KCJ 82596 (MH).

SETARIA P. Beauv., Ess. Agrostogr. 51. 1812.

Key to the species

- 1a. Inflorescence bristles retrorse barbed; panicle spiciform.....*S. verticillata*
- 1b. Inflorescence bristles antrorse barbed.....2
- 2a. Leaves folded fan-fashion between the longitudinal nerves.....3
- 2b. Leaves folded but not as above.....4
- 3a. Panicles 5-15 cm long, pyramidal.....*S. palmifolia*

- 3a. Panicles 30-60 cm long, contracted.....*S. plicata*
 4a. Inflorescence a cylindric, false spike.....*S. pumila*
 4b. Inflorescence a narrow, lobed panicle.....*S. intermedia*

Setaria intermedia Roem. & Schult., Syst. Veg. 2: 489. 1817; FBI 7: 136. 1896; FPM 3: 1239. 1957; FTN 3: 138. 1989; FTNG 308. 2009. *S. tomentosa* (Roxb.) Kunth, Revis. Gramin. 1: 47. 1829; GBCIP 365. 1960; FTC 3(3): 1901. 1983.

Tufted annual. Culms geniculate, purplish below. Leaf blade narrowly oblong-lanceolate, margins serrulate. Panicle narrows with short racemes. Spikelets many on nodes, ovate, each spikelet with only one bristle. Lower glume broadly ovate; upper glume broadly elliptic. Florets 2, lower barren, upper bisexual. Stamens 3. Stigma plumose, purplish. Caryopsis elliptic, brownish yellow.

Common in banks of streams and rivers. **Fl. & Fr.:** June-Feb. **Sp.Ex.:** LP 2215 (SACONH).

Setaria palmifolia (J. Koenig) Stapf., J. Linn. Soc., Bot. 42: 186. 1914; FPM 3: 1239. 1957; GBCIP 363. 1960; FTC 3(3): 1900. 1983; FTN 3: 138. 1989; FTNG 308. 2009.

Tufted perennials. Culms decumbent. Leaf blade broadly elliptic-lanceolate, plicate from base to apex. Panicle narrowly linear to broadly effuse. Spikelets ovate to elliptic. Lower glume broadly ovate, chartaceous. Upper glume ovate-lanceolate. Florets 2, lower barren, upper bisexual. Stamens 3. Stigma plumose, white to yellow. Caryopsis oblong-elliptic.

Occasional in marshy areas and also along the rocky hill slopes. **Fl. & Fr.:** July-April. **Sp.Ex.:** KCJ 81480, 82557 (MH); SRN 82487 (MH); VN 83149 (MH).

Setaria plicata (Lam.) T. Cooke, Fl. Bombay 2: 919. 1908; GBCIP 360. 1960; FTN 3: 139. 1989. *Panicum plicatum* Lam., Encyl. 4: 736. 1797; FBI 7: 55. 1896.

Perennial. Culms erect or ascending. Leaves elliptic-lanceolate. Panicles lax. Spikelets elliptic or lanceolate. Lower glume ovate. Upper glume elliptic or ovate. Lower lemma elliptic. Upper lemma ovate-lanceolate. Palea elliptic. Stamens 3. Caryopsis oblong-elliptic, obtuse-truncate.

Occasional in shadow places near along the streams. **Fl. & Fr.:** July-April. **Sp.Ex.:** LP 3059 (SACONH).

Setaria pumila (Poir.) Roem. & Schult., Syst. Veg. 2: 891. 1817; FTC 3(3): 1901. 1983; FTN 3: 139. 1989; FTNG 311. 2009. *S. paillde-fusca* (Schumach) Stapf. & C.E.Hubb., Kew Bull. 1930: 259. 1930; FPM 3: 1239. 1957; GBCIP 363. 1960.

Tufted annuals. Culms geniculate, nodes brownish, lower ones rooting. Leaf blade linear to elliptic-lanceolate, finely serrate at margins. Inflorescence a false panicle or more or less spiciform. Rachis flat with furrow like depressions. Spikelets ovate-globose. Lower glume ovate, boat shaped. Upper glume ovate, boat shaped. Florets 2, lower male, upper bisexual. Stamens 3. Ovary ovate-oblong. Stigma plumose, violet to purplish. Caryopsis ovate-elliptic.

Common in hill slopes and open wet areas. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2970, 2978, 3024 (SACONH); CAB 8064 (FRC); CECF 6599, 8064 (FRC); VS 19156, 19164 (FRC); CECF 55553, 55555 (MH); KCJ 81500, 81561, 82582, 83151 (MH); PSAT 186887, 187065 (MH).

Setaria verticillata (L.) P. Beauv., Ess. Agrostogr. 51. 1812; FBI 7: 80. 1896; FPM 3: 1239. 1957; GBCIP 365. 1960; FTC 3(3): 1902. 1983; FTN 3: 139. 1989; FTNG 312. f. 59. 2009.

Erect or decumbent annuals. Culms more or less furrowed along one side, nodes brownish. Leaf blade linear to elliptic linear. False panicle spiciform, cylindrical, solitary, terminal. Spikelets pedicellate, ovate-elliptic. Lower glume ovate; upper glume ovate-lanceolate,

boat shaped. Florets 2. Upper bisexual, greenish yellow. Stamens 3. Caryopsis broadly ovate to elliptic, greenish yellow.

Common along the roadsides. **Fl. & Fr.:** June-April. **Sp.Ex.:** LP 3014 (SACONH); SRN 82483 (MH).

SORGHUM Moench, Methodus. 207. 1794.

Key to the species

- 1a. Nodes densely bearded; spikelets 3-4 mm long, black, rufous-brown.....*S. nitidum*
1b. Nodes entirely glabrous; spikelets 4-6 mm long, cream to brownish, glabrous.....*S. halepense*

Sorghum halepense (L.) Pers., Syn. Pl. 1: 101. 1805; FPM 3: 1203. 1957; GBCIP 222. 1960; FTC 3(3): 1902. 1983; FTN 3: 140. 1989; FTNG 472. 2009. *Andropogon halepensis* (L.) Brot, Fl. Lusit. 1: 89. 1804; FBI 7: 182. 1896.

Rhizomatous perennials. Culms nodes glabrous to pubescent with stilt roots at the lower nodes. Leaf blade linear-lanceolate, margins serrulate. Panicle lax, pyramidal, lower branches whorled. Sessile spikelet elliptic-lanceolate. Glumes subequal. Lower glume oblong-elliptic. Upper glume elliptic to lanceolate. Stamens 3. Caryopsis elliptic-oblong.

Occasional in along the streams and hill slopes. **Fl. & Fr.:** Oct.-Jan. **Sp.Ex.:** KA & PB 1469 (SACONH); CECF 6524 (FRC); KCJ 81442 (MH); SRN 82492 (MH).

Sorghum nitidum (Vahl) Pers., Syn. Pl. 1: 101. 1805. FPM 3: 1203. 1957; GBCIP 245. 1960; FTN 3: 140. 1989; FTNG 473. 2009.

Tufted perennials without rhizomatous base. Culms erect, yellow to purple brown. Leaf blade narrowly linear to lanceolate. Panicle effuse, branches filiform. Racemes capillary, paired spikelets at the end of the branches. Lower and upper glumes oblong-elliptic, boat shaped. Florets 2, both epaleate. Stamens 3, brownish. Stigma plumose. Caryopsis broadly oblong to elliptic, flat, brownish.

Occasional in hill slopes. **Fl. & Fr.:** Aug.-Dec. **Sp.Ex.:** SRN 82490 (MH).

SPOROBOLUS R. Br., Prodr. Nov. Holland. 169. 1810.

Key to the species

- 1a. Spikelets 2-3 mm long.....*S. fertilis*
1b. Spikelets 1-2 mm long.....2
2a. Upper glume less than half of lemma.....3
2b. Upper glume above half or as long as lemma.....*S. capillaris*
3a. Lemma up to 1 mm long; raceme branches and pedicels capillary.....*S. tenuissimus*
3b. Lemma above 1 mm long; racemes branches and pedicels not capillary.....4
4a. Spikelets crowded; basal portion of the racemes with secondary branches.....*S. diandrus*
4b. Spikelets scattered; basal portion of the racemes barren.....*S. wallichii*

Sporobolus capillaris Miq., Anal. Bot. Ind. 2: 25. 1851; GBCIP 627. 1960; FTN 3: 141. 1989; FTNG 166. 2009.

Tufted annuals. Culms geniculate, more or less ribbed, nodes brown band like. Leaf blade ovate to linear-lanceolate. Panicle effuse and pyramid like at maturity. Racemes whorled. Spikelets solitary. Floret 1, bisexual. Stamens 3. Ovary narrowly elliptic. Caryopsis elliptic, obovate or oblong.

Fairly common along road sides. **Fl. & Fr.:** Sept.-Feb. **Sp.Ex.:** LP 2038 (SACONH).

Sporobolus diandrus (Retz.) P. Beauv., Ess. Agrostogr. 26, 147 & 178. 1812; FBI 7: 247. 1896; FPM 3: 1258. 1957; GBCIP 629. 1960. *S. indicus* (L.) R. Br., var. *diander* (Retz.) Jovet & Guedes, Taxon 22: 163. 1973; FTN 3: 142. 1989. *S. indicus* (L.) R. Br. var. *flaccidus* (Roem. & Schult.) Veldkamp in Blumea 35: 433. 1991; FTNG 169. 2009.

Tufted annuals. Culms geniculate, more or less ribbed, nodes brownish. Leaf blade linear-lanceolate. Panicle, basal racemes whorled, subwhorled to alternate towards apex. Spikelets paired with short and long pedicels. Floret 1, bisexual. Stamens 2 or rarely 3. Caryopsis oblanceolate, more or less 4-angled.

Common along road sides and scrub jungles. **Fl. & Fr.:** May-Mar. **Sp.Ex.:** LP 3142, 3183, 1882, 2654 (SACONH); VN 82162 (MH).

Sporobolus fertilis (Steud.) Clayton, Kew Bull. 19: 291. 1965. *S. indicus* (L.) R. Br. var. *major* (Buese) Baijens, Blumea 35: 437. 1991; FTNG 170. 2009. *S. indicus* R. Br. var. *flaccidus* (Steud.) Jovet & Guedes, Taxon 22: 163. 1973; FTN 3: 142. 1989.

Tufted annuals. Culms more or less ribbed or smooth. Leaf blade narrowly linear-lanceolate, margins inrolled and sparsely serrulate. Panicle narrows with many racemes. Spikelets paired with short and long pedicels. Floret 1, bisexual. Stigma plumose. Caryopsis obovate to oblanceolate.

Moist places and wastelands. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 2888 (SACONH).

Sporobolus tenuissimus (Schränk.) Kuntze, Revis. Gen. Pl. 3(3): 369. 1898; GBCIP 629. 1960; FTN 3: 142. 1989; FTNG 175. 2009. *S. multiflorus* (Trin.) Link, Hort. Berol. 1: 88. 1827; FBI 7: 248. 1896; FPM 3: 1258. 1957.

Tufted annuals. Leaf blade linear-lanceolate. Panicle effuse, branches capillary, lax. Spikelets oblong-lanceolate. Lower glume scale like, oblong-lanceolate; upper glume ovate-oblong. Floret 1, bisexual. Stamens 3. Stigma plumose. Ovary obovate. Caryopsis obovate to obcordate.

Rare in along water courses. **Fl. & Fr.:** July-Dec. **Sp.Ex.:** VS 19143 (FRC).

Sporobolus wallichii Munro ex Trim., J. Bot. 27: 171. 1889; FBI 7: 248. 1896; FPM 3: 1258. 1957; GBCIP 634. 1960; FTC 3(3): 1907. 1983; FTN 3: 143. 1989; FTNG 176. 2009.

Tufted annuals. Culms geniculate, smooth, nodes ring like. Leaf blade linear-lanceolate, leaf sheath keeled near basal. Panicle effuse, racemes alternate. Spikelets narrowly elliptic-oblong. Lower glume obovate; upper glume ovate. Stamens 3. Stigma plumose. Caryopsis obovate, wedge shaped.

Scrub jungles and hill slopes. **Fl. & Fr.:** June-Mar. **Sp.Ex.:** LP 2659, 2214 (SACONH).

THEMEDA Forssk., Fl. Aegypt.-Arab. 178. 1775.

Key to the species

1a. Involucral spikelets >6 mm long; awns long.....*T. triandra*

1b. Involucral spikelets <6 mm long; awns short.....*T. quadrivalvis*

Themeda quadrivalvis (L.) Kuntze, Revis. Gen. Pl. 2: 793. 1891; FPM 3: 1210. 1957; GBCIP 252. 1960; FTN 3: 143. 1989; FTNG 481. 2009. *Anthistria ciliata* L. f., Suppl. Pl. 113. 1781; FBI 7: 213. 1896; FSIHS 2: t. 599. 1932.

Annuals, culms erect to geniculate, lower nodes rooting. Leaf blade linear-lanceolate, margins serrulate. Panicle dense, leafy. Involucral pikelets 2, paired. Lower glume oblong-lanceolate, keels winged. Sessile spikelets solitary, bisexual. Glumes narrowly lanceolate to elliptic. Stamens 3.

Common in moist shady places and grasslands. **Fl. & Fr.:** Aug.-Jan. **Sp.Ex.:** LP 2545 (SACONH).

Themeda triandra Forssk., Fl. Aegypt.-Arab. 123 & 178. 1775; FPM 3: 1210. 1957; GBCIP 254. 1960; FTC 3(3): 1908. 1983; FTN 3: 144. 1989; FTNG 483. 2009.

Tufted perennials. Culms erect to geniculate, seldom thickened near nodes. Leaf blade oblong to linear-lanceolate; leaf sheath keeled towards apex. Panicle with spathaceous racemes. Involucral spikelets narrowly elliptic-lanceolate. Stamens 3. Stigma plumose. Ovary oblong, Caryopsis oblong.

Common in hill slopes. **Fl. & Fr.:** May-Mar. **Sp.Ex.:** LP 1310, 2613 (SACONH); KA & PB 1496 (SACONH); VS 18698, 19165 (FRC); CAB 57042, 57093, 94737 (MH); VN 82165 (MH); SRN 82482, 82491 (MH); KCJ 82528, 82587 (MH)

TRACHYS Pers., Syn. Pl. 1: 85. 1805.

Trachys muricata (L.) Pers. ex Trin., Mém. Acad. Imp. Sci. Saint-Petersbourg, Sér. 6, Sci. Math., Seconde Pt. Sci. Nat. 3(3): 189 1834; FPM 3: 1255. 1957; GBCIP 369. t. 42, 1960; FTC 3(3): 1910. 1983; FTN 3: 144. 1989; FTNG 319. 2009.

Annuals, stoloniferous. Culms diffusely branching, prostrate to geniculate, softy villous. Leaf blade linear-lanceolate to ovate -lanceolate. Inflorescence of 2 or 3 divaricating spikes. Lower glume triangular or lanceolate; upper glume linear-lanceolate. Florets 2, lower male or barren, upper bisexual. Stamens 3. Stigma plumose. Ovary oblong. Caryopsis ovate-lanceolate to broadly oblong.

Occasional in Sandy localities. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** LP 2298, 2679 (SACONH); VS 19166 (FRC); SRR 81034 (MH).

TRAGUS Haller, Hist. Stirp. Helv. 2: 203. 1768.

Tragus roxburghii Panigrahi, Kew Bull. 29: 495. 1974; FTC 3(3): 1910. 1983; FTN 3: 144. 1989; FTNG 207. f. 41. 2009. *T. biflorus* Schult., Mant. 2: 205. 1824, quoad descry. excl. basionym *Lappago biflora* Roxb., 1820; FPM 3: 1255. 1957; GBCIP 682. t. 80. 1960.

Tufted stoloniferous, annuals. Culms geniculately ascending, lower nodes rooting. Leaf blade ovate-lanceolate, margins cartilaginous, flat to wavy. Raceme terminal, narrowed. Lower glumes reduced to scales; upper glume ovate-lanceolate, thick ridged like with hooked hispid hairs in dorsally. Stamens 3. Stigma plumose, whitish. Caryopsis narrowly ovate-lanceolate to oblong.

Dry deciduous forest floor. **Fl. & Fr.:** Throughout the year. **Sp.Ex.:** LP 1410, 2211 (SACONH); VS 19140 (FRC).

TRIOGON Roem. & Schul., Syst. Veg. 2: 34. 1817.

Tripogon bromoides Roem. & Schul., Syst. Veg. 2: 600. 1817; FBI 7: 287. 1896; FSIHS 2: t. 603. 1932; FPM 3: 1269. 1957; GBCIP 521. 1960; FTC 3(3): 1911. 1983; FTN 3: 144. 1989; FTNG 179. 2009.

Tufted perennials, Culms erect to geniculate. Leaf blade linear to lanceolate. Inflorescence terminal racemes. Spikelets alternate on opposite rows. Lower glume ovate-oblong. Stamens 3. Stigma plumose, purple. Ovary obovate to elliptic. Caryopsis narrowly oblong.

Roadsides, hill slopes and grasslands. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KA & PB 1678 (SACONH); VN 82270 (MH); KCJ 82591 (MH).

UROCHLOA P. Beauv., Ess. Agrostogr. 52. 1812.

Key to the species

- la. Leaves ciliate along margin only at base; spikelets lanceolate.....*U. setigera*
- lb. Leaves ciliate all along margin; spikelets ovate-elliptic.....*U. panicoides*

Urochloa panicoides P. Beauv., Ess. Agrostogr. 53. t. 11. f. 1. 1812; FPM 3: 1230. 1957; GBCIP 372. 1960 incl. var. *pubescens* (Kunth) Bor. & var. *velutina* (Henrard) Bor, GBCIP 1960; FTC 3(3): 1912. 1983; FTN 3: 145. 1989; FTNG 321. 2009.

Tufted, stoloniferous, annuals. Culms decumbent, nodes hairy, lower ones rooting. Leaf blade broadly ovate-lanceolate. Panicle with 3-8 alternate racemes. Spikelets paired. Lower glumes broadly ovate, cup like. Stamens 3. Stigma plumose. Ovary ovate-elliptic. Caryopsis oblong.

Along roadsides and moist sandy localities. **Fl. & Fr.:** Almost throughout the year. **Sp.Ex.:** KCJ 82579 (MH).

Urochloa setigera Stapf, Fl. Trop. Afr. 9: 598. 1920; FPM 3: 1230, 1957. *Brachiaria setigera* (Retz.) C.E. Hubb. in Hook. f., Hooker's Icon. Pl. 34. 2. Sub t. 3363. 1938; GBCIP 286. 1960; FTN 3: 96. 1989; FTNG 226. 2009.

Tufted to stoloniferous perennials. Culms decumbent to geniculate, nodes bearded, villous to pubescent, lower ones rooting. Leaf blade broadly ovate-lanceolate. Panicle short with 3-8 racemes. Spikelets paired near base and solitary towards apex. Stamens 3. Stigma plumose. Ovary oblong to ovate. Caryopsis broadly elliptic.

Along road sides. **Fl. & Fr.:** Aug.-Feb. **Sp.Ex.:** LP 2689 (SACONH).

ZENKERIA Trin., Linnaea 11: 150. 1837.

Zenkeria elegans Trin., Linnaea 11: 150. t. 3. 1837; FBI 7: 270. 1896; FSIHS 2: t. 601. 1932; FPM 3: 1250. 1957; FTC 3(3): 1914. 1983; FTN 3: 146. 1989; FTNG 106. 2009.

Tufted rhizomatous perennials. Culms erect, nodes brownish. Branches capillary. Leaf blade linear, flat to inrolled, acuminate. Spikelets 2-fid, laterally compressed. Lower glume ovate; upper glume lanceolate, apiculate. Lemmas similar membranous. Palea 2-keeled. Stamens 3. Stigma plumose. Ovary oblong. Caryopsis oblong-elliptic.

Crevices of rocks. **Fl. & Fr.:** June-Jan. **Sp.Ex.:** VS 18739 (FRC).

Summary and Conclusion

Chapter 7

Summary and Conclusion

Sathyamangalam Tiger Reserve (latitude 11° 29' 15" to 11° 43' 11" N and longitude 76° 50' 69" to 77° 27' 22" E) forms a major biodiversity rich area in Eastern Ghats, India with a mixture of both indigenous and exotic species. Sathyamangalam Tiger Reserve has got a high diversity of flora and fauna owing to its unique location which is a confluence of two distinct geographical regions, namely the Eastern Ghats and Western Ghats. The Tiger Reserve is rich in floristic diversity and 14 different types of forests from dry scrub to West-coast semi evergreen forests occur here. A threatened tree species, Sandal (*Santalum album*) occurs predominantly in the dry forests of Sathyamangalam Tiger Reserve. The study area has some major perennial river systems such as Moyar and Bhavani. The major indigenous tribal communities of this region constitute Irulars, Ooralis, Kurumbas and Soligars.

A total of 17 intensive field exploration trips were conducted covering different seasons between August 2014 to March 2017. Plant specimens were collected and preserved. The collected specimens were mounted in standard herbarium sheets and identified with the help of regional floras and relevant monographs and revisions.

In the format and presentation of the thesis, the families are arranged following Bentham and Hooker (1862-1883) system of classification. The dichotomous bracketed keys are provided for families, genera, species and intra specific taxa (which are arranged in alphabetical sequence under respective families and genera. The correct name of the species is followed by the author (s) name and original publication followed by basionym (if any). Relevant synonyms are also provided. Nomenclature citation is followed by description, habitat, phenology, local names, if any. Under specimens examined, collectors name(s) is provided in abbreviated form with field numbers given chronologically.

The present study described a total of 1493 flowering plant species belonging to 723 genera under 151 families, which forms about 26.47 percentage of the total flora of Tamil Nadu. Among the 1493 species, the dicots comprised of 1187 species belonging to 126 families (83.44%) and monocots comprised of 306 species belonging to 25 families (16.56%).

Among Dicots, the group polypetalae dominates with 71 families (47.02%) followed by gamopetalae with 34 families (22.52%) and monochlamydeae with 21 families (13.91%). The highest number of genera were recorded in polypetalae which has 259 genera (35.82%) followed by gamopetalae 241 (33.33%), monocots 135 (18.67%) and monochlamydeae 88 (12.17%). Polypetalae also dominates in the number of species with 531 species (35.57%) followed by gamopetalae with 454 (30.41%), monocots with 306 (20.50%) and monochlamydeae with 202 (13.53%).

Poaceae formed the largest family comprising 151 species followed by Fabaceae (120) and Euphorbiaceae (74). Among the 723 genera recorded in the present study area, *Crotalaria* formed the most dominant genus comprising 21 species followed by *Indigofera*, *Euphorbia*, *Ficus* and *Cyperus* (16 species each).

The life forms of the flora of the Sathyamangalam Tiger Reserve showed that the herbs (34.96%) constituted the dominant growth form followed by trees (22.84%), grasses & sedges (14.07%) climbers (10.52%), shrubs (9.78%), stragglers (4.02%) and epiphytes and parasites (3.82%).

The endemic angiosperms of the study area comprised 149 taxa belonging to 114 genera under 47 families. Acanthaceae is the dominant endemic family (17 species) followed by Poaceae, Orchidaceae and Euphorbiaceae (9 species each). *Andrographis* and *Strobilanthes* (4 species each) constitute the dominant endemic genera. Among the endemic flora, trees (28.19%) constituted the predominant growth form followed by herbs (26.17%), shrubs (20.81%) and other forms (24.83%). Highest number of endemic species was recorded from West-coast semi evergreen forest that occur predominantly in the Minchigully Valley of the Reserve. A total of 17 species of Western Ghats elements and 27 species of southern Western Ghats elements were found in the present study area. Of the 1493 species recorded in Sathyamangalam Tiger Reserve, 273 species form new additions to the Flora of Sathyamangalam Tiger Reserve.

Out of 1493 species found in Sathyamangalam Tiger Reserve, 21 species come under IUCN Red List category ver. 2019.1. Among the 21 species, *Tabernaemontana gamblei* is Critically endangered, three species are Endangered (*Isonandra villosa*, *Guaiacum officinale* and *Swietenia mahagoni*) and 17 species are in Vulnerable.

A total of 107 invasive alien species belonging 39 families were recorded in the study area. Of the 107 invasive species, herbaceous species (73.83%) form the predominant life form followed by shrubs (10.28%), climbers (8.41%), etc. Asteraceae is the predominant family of the invasive species with 16 species, followed by Amaranthaceae (8) and Fabaceae (7 species) (Fig.4). *Ipomoea* and *Senna* (*Cassia*) (6 species each) form the dominant family of the invasive genera followed by *Cleome* (4 species).

The invasive alien species recorded in this study were categorized based on their geographic origin. A total of 17 geographical origins/regions were considered for the analysis. Tropical American elements contributed 59.43% (63 species) of invasive alien species followed by Tropical Africa and South America (11.32%; 12 species each). Of the 107 invasive alien species found in Sathyamangalam Tiger Reserve, highest number was found in the Southern dry deciduous

forest (75 species) followed by Southern thorn forest (54 species) and Southern thorn scrub (53 species). About 50% of the invasive alien species of the study area have medicinal uses.

The indigenous tribal communities of Sathyamangalam Tiger Reserve use plant species for curing various ailments viz., asthma, jaundice, skin diseases, body pain, head ache and cold & cough. A total of 101 plant species enumerated during the present study are used by indigenous tribal communities.

The present study recorded substantial number of flowering plant species in Sathyamangalam Tiger Reserve. The Tiger Reserve has been subjected to heavy anthropogenic disturbances for more than several decades. The Reserve is invaded with exotic species which pose a threat to native plant species. The obnoxious invasive species, *Lantana camara*, *Chromolaena odorata* and *Prosopis juliflora* are found in most of the habitat types and make a stiff competition to the native flora. There is an urgent need to develop conservation strategies for the flowering plants of the Sathyamangalam Tiger Reserve. Restoration of degraded habitats needs to be given priority.

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Publications

Invasive Alien Flora of Sathyamangalam Tiger Reserve in Southern Eastern Ghats, India

The survey was undertaken to document the invasive alien species distributed in Sathyamangalam Tiger Reserve, Eastern Ghats during November 2014 to November 2016. A total of 107 invasive alien plant species were recorded which belonged to 39 families and 82 genera. Asteraceae formed the most dominant family with 16 invasive alien species, followed by Amaranthaceae (8) and Fabaceae (7). Life-form wise, herbs were the major forms (73.83%) among the invasive alien species. Phytogeographical analysis revealed that species of Tropical American origin formed a major proportion (59.43%) of the invasive alien species in the study area. Monitoring and control of the spread of Prosopis juliflora and Lantana camara is required.

Key words: Invasive alien species, Lantana camara, Prosopis juliflora, Eastern Ghats.

Introduction

Invasion by exotic species is one the major causes for loss of biodiversity (Vitousek *et al.*, 1987; Richardson *et al.*, 2000). They are introduced deliberately or unintentionally outside their natural habitats into new areas where they express the capability to establish, invade and outcompete native species (Sujay *et al.*, 2010; Pant and Sharma, 2010; McGeoch *et al.*, 2010). International Union for Conservation of Nature and Natural Resources (IUCN) defines alien invasive species as a non indigenous species which get established in natural or semi-natural ecosystem or habitat, changes the quality of the habitat, alters the functioning of natural ecosystem and ultimately threatens the biological diversity. Investigation of alien invasive species has become an imperative issue as invasion is considered a serious ecological and socio-economic problem in India and also at global level. Considering the negative impacts of invasive alien species invasion in the forest ecosystems, the present study was carried out to enumerate the invasive alien species in Sathyamangalam Tiger Reserve, Tamil Nadu.

Study Area

The study was carried out in Sathyamangalam Tiger Reserve, southern Eastern Ghats during November 2014 to November 2016. This Tiger Reserve is situated in the south-west corner of the Eastern Ghats and falls between the latitudes 11°29' N to 11°43' N and longitudes is 76°50' E to 77°27' E, covering 1,411 km². It is an important wildlife corridor connecting the Western Ghats and the Eastern Ghats. The Tiger Reserve is represented by several forest types such as tropical dry deciduous, tropical scrub, tropical moist deciduous, tropical semi-evergreen forests etc. The study area is very rich in wildlife harbouring a good population of Asian elephants, Tiger and numerous other wild fauna and flora. The average minimum and maximum temperature of the study area are 21.54°C and 32.84°C. The average annual rainfall is 824mm.

Material and Methods

Intensive field studies were carried out to record the invasive alien species from November 2014 to November 2016. Plant specimens were collected and preserved following standard procedures. The identification of plants was done with the help of Flora publications (Hooker, 1872-1897; Gamble,

107 invasive alien species under 82 genera, 39 families were recorded from the Sathyamangalam Tiger Reserve, southern Eastern Ghats.

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(II)

Observations on Epiphytic Germination of *Euphorbia antiquorum* L. in Sathyamangalam Tiger Reserve, Southern Eastern Ghats.

Genus *Euphorbia* belonging to Euphorbiaceae is forms one of the largest angiosperm genera with about 2000 species, and it has long been admired for its great diversity of growth forms, including many xerophytic species. It has a worldwide distribution, especially diverse in arid or semi-arid regions of the tropics and subtropics. The morphological diversity in this genus includes geophytes, herbs, shrubs, understory and canopy trees, and an array of succulent and xerophytic forms.

Euphorbia inhabits a range of intensities of seasonal drought, regardless of growth form. This pattern is consistent with selection to an optimal niche flexible by the effect of other factors. *Euphorbia antiquorum* also called Triangular spurge is a small succulent tree which grows up to 7 m. It is usually shrub-like with plenty of white sap and wide spread throughout Peninsular India.

While on an exploratory tour during 2016-2017 at Thengumangalam (11°34'09.27"N, 76°55'52.25"E; altitude 369 m) in Sathyamangalam Tiger Reserve, Eastern Ghats, authors came across with a rare and interesting observation on *Euphorbia antiquorum*. This species which usually exhibit terrestrial habit was found growing on the trunk of a host plant (Fig. 1). It was found that it exhibiting epiphytic habit, growing on host plant species such as *Hardwickia binata*, *Azadirachta indica* and *Tamarindus indica*.

All the available floras and relevant literature on *Euphorbia* were referred, but nowhere epiphytic habit of this species been mentioned. Epiphytic germination of succulent plant *Euphorbia antiquorum* is quite interesting and hence worth placing on record. In order to understand the developmental morphology of such

teratological feature, further intensive study is required for elucidating the exact cause of such a phenomenon.

The present observation records the epiphytic habit of a terrestrial Euphorbiaceae member, *Euphorbia antiquorum*.



Fig. 1: Epiphytic germination of *Euphorbia antiquorum* on host tree, *Hardwickia binata*.

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A Note on *Luisia abrahami* Vatsala (Orchidaceae) Rare, Endemic Species from Sathyamangalam Tiger Reserve, Eastern Ghats

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ABSTRACT: The extended distribution of a rare, endemic orchid species *Luisia abrahami* Vatsala from Sathyamangalam Tiger Reserve, Southern Eastern Ghats has been reported

KEYWORDS: Eastern Ghats, Endemic species, Orchid, Western Ghats, *Luisia abrahami*.

INTRODUCTION

During a recent plant exploratory trip to Sathyamangalam Tiger Reserve in Eastern Ghats, India, an interesting orchid was collected from the forests near Bejallati village. On critical examination of the specimen and relevant review of literature (Abraham and Vatsala, 1981; Ansari and Dwarakan, 1995), the orchid was identified as *Luisia abrahami* Vatsala. The name is derived from the two authors, Spanish explorer *Don Luis de Torres* and a phytologist *A. Abraham*. The voucher specimen has been deposited at the Herbarium, Salim Ali Centre for Ornithology and Natural History, Coimbatore.

Orchidaceae is one of the largest families of flowering plants with an estimated 24,500 species world-wide (Dressler, 2005). The *Luisia* Guad. is a small genus in the family Orchidaceae comprising 40 species found all over the world. In India, 18 species of *Luisia* were reported from different regions namely, Peninsular India, Northeastern India and Andaman and Nicobar Islands (Gamble, 1935; Bose and Bhattacharjee, 1980; Abraham and Vatsala, 1981; Katoki *et al.* 1984; Deva and Naithani, 1986; Ahmedullah and Nayar, 1986; Nayar, 1996; Srivastava, 1996; Chowdhery, 1998; Rath and Priyadarshini, 2005; Kumar *et al.* 2007; Reddy *et al.* 2007; Sasidharan, 2011; Gogoi *et al.* 2012; Jalal and Jayanthi, 2012; Karthikeyan *et al.* 2014; Khuram and Roy, 2015; Singh *et al.* 2015).

The species of the genus *Luisia* are erect or climbing epiphytes with a monopodial growth and with the same vegetative look as terete. It is a difficult genus with relatively low morphological variations among the species (Seidenfaden, 1971; Misra, 2010). The terete leaves are arranged in alternate in the base of the clumped stems. The inflorescence is short and elongate, produces several flowers in the auxiliary region. The flowers

are also called as 'bee orchid' for the appearance of a bee-like. The fleshy labellum is usually dark red and shows no spur at its base. The labellum is rigid and consists of two parts. The basal part has short side lobes and has cushion-like glands and the apical part is somewhat ovate sometimes shows toothed margins.

METHODOLOGY

Field trips were conducted from November 2013 to January 2015 in Sathyamangalam Tiger Reserve. During the survey, only clumped small populations of *Luisia abrahami* Vatsala were located in the interior forests near the Bejaletti village. In each clump, we observed 3-6 mature individuals. They are distributed in a very limited area and only a few clumps were noticed. Complete material of the species (live plants as well as herbarium specimens) was cross-examined with that of Ansari and Dwarakan (1995). In addition, flowers and fruits collected from the field were examined for confirmation of the identity of the species.

RESULTS

Taxonomic Treatment

Luisia abrahami Vatsala Intr. Orch. 489, 1981; Ansari & Dwarakan, J.Eco.Tax.Bot. Add.Series, No.11.1995; Muktesh, Epiphytic Fl. Western Ghats. 101, 1998; Sathish & Manilal, Orchid Memories 201, 2004;

Epiphytic, roots 2.8-7.5 cm long, 0.3-0.5 cm across. Stem stout, 10-15 cm long, covered with persistent leaf bases, 0.4 cm across, covered with persistent leaf bases, greenish brown, woody, scandent. Leaves 4-8 per shoot, imbricate, 2-5 cm apart, terete, light green to green, 3-9.5 x 0.2-0.3 cm, glaucous with a shallow groove on the ventral side, tip subacute with no apiculum. Inflorescence a leaf-opposed raceme, 2 cm long with 3-6 flowers opening successively. Pedicel with ovary 0.8-1.2 cm long. Flower 1.5 cm across and 2.5 cm from top to bottom. Sepals pale green, flushed with pale purple; odd sepal shorter

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