

# **FLORA OF THIRUVANANTHAPURAM KERALA**

**M. MOHANAN and A.N. HENRY**

**Flora of India - Series 3**

**FLORA OF  
THIRUVANANTHAPURAM**

**M. MOHANAN**

**A. N. HENRY**



**BOTANICAL SURVEY OF INDIA**

**Government of India, 1994**

**Date of Publication :**

**Price : RS. 332-00  
\$ 64-00**

**Published by the Director, Botanical Survey of India,  
P-8, Brabourne Road, Calcutta-700 001 and printed at  
Akshara Offset Printers, 126, Sarojini Street, Ramnagar,  
Coimbatore-641 009. Phone : 234527**

## **FOREWORD**

Botanical Survey of India has been actively engaged in the preparation of detailed accounts on the flora of India in different series. Flora of Thiruvananthapuram, Kerala is a contribution towards series - 3, District Floras.

Thiruvananthapuram, the southern-most district of Kerala, lying adjacent to Kanyakumari is physiographically divisible into coastal zone, having an extensive system of backwaters (Kayals), midland zone mostly under cultivation; and mountainous zone consisting of hills of elevations varying between 1000 and 1869 m. Owing to its significant geographic position in the southern end of W. Ghats, varied climate and altitude, the flora of this district has become very rich and diverse. Agastyarkudam (Agastiar Peak), the highest point in the mountainous tract is a unique natural unit possessing a number of endemics, rare and threatened plants and potential resources of economic plants. Since Tropical rain forest is entering a period of rapid decline as a world natural resource, Agastyamalai must be regarded as a prime example of this ecosystem in Southern India, requiring urgent conservational practices. In addition to providing an authentic inventory of the plants of this district, the speedy establishment of a Biosphere Reserve in and around Agastyamalai region is also proposed.

I am sure, the flora of Thiruvananthapuram, Kerala by M. Mohanan and A.N. Henry should not only serve the purpose of identification, but also should be useful for students, teachers, ecologists, agriculturalists, foresters and persons concerned with the utilization and conservation of plant resources. The information will also be useful for phytogeographers, environmental biologists and those revising the flora of Kerala.

Botanical Survey of India  
Calcutta

**P. K. HAJRA**  
Director

## **ACKNOWLEDGEMENTS**

The authors wish to express their deep gratitude to the Director, Botanical Survey of India for the facilities and the interest shown in the publication of this work;

- to Dr. N.C. Nair and Dr. N.P. Balakrishnan, ex-Joint Directors, Botanical Survey of India, Coimbatore for their kind and invaluable help and encouragement;
  - to Dr. E. Vajravelu Joint Director, Botanical Survey India, Southern Circle for his kind help and encouragement;
  - to the Deputy Director, Central National Herbarium for permission to work in the herbarium ;
  - to the Professor and Head of the Department of Botany, University College, Thiruvananthapuram for permission to work in the herbarium ;
- to the Director, Royal Botanic Garden, Kew, for confirming the identity of some specimens ;
- to Dr. V. J. Nair, Liason officer, Royal Botanic Garden, kew for rendering the Latin translation of the descriptions of new taxa, and Dr. P. Daniel, Scientist 'SD' for helpful suggestions ;
  - to the Managers of Bonecord and Braemore Tea Estates for arranging accommodation and for their warm hospitality during field work ;
  - to the Staff and Research Scholars of Botanical Survey of India, Southern Circle, Coimbatore and National Orchidarium, Yercaud for their wholehearted cooperation ;
  - to Dr. V. B. Hosagoudar, Pool Officer, C S I R for his constant help ;
  - to the Meteorologist, Meteorological Centre, Thiruvananthapuram for providing meteorological data ;

- to the Chief Conservator of Forests, Thiruvananthapuram, and Range Officer, Kottur and Pallode Forest Ranges for providing field assistants;
  - to Sri. C. Raju and Sri. J. Raveendran of Pulimath and Sri. S. Nadar of Kottur for their wholehearted assistance in the field;
  - to Dr. P. V. Sreekumar, Scientist 'B', A & N Circle, Port Blair, for his help in the preparation of the family Poaceae;
  - to Sri. K. Sivanandan, Sr. Artist, for the illustrations, Sri A. T. Durgadas for the cover design, and Sri. N. G. R. Nair for neatly typing the manuscript;
- and finally to Sri. K. K. Krishnadass, Akshara Offset Printers, Coimbatore for neatly printing the work.

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## **INTRODUCTION**

Plants and plant products have been the primary base upon which the modern civilization has been built. The study of plants appears to have originated from a purely utilitarian point of view. Man depended directly or indirectly on plants for his welfare. In fact, plants have been a source of extensive supply of materials to man for the last 2000 years. Admittedly, the primitive man must have had an economic interest in the plants around him particularly in those that were of direct use to him. Medicinal plants no doubt attracted him the most and as a result, various systems of folk medicine developed all over the world independently.

The development of modern chemistry and technology gave a new phase to pharmaceutical industry wherein chemical composition of plants was analysed and chemical synthesis in several cases effected. As a consequence, most of the mystic remedies of the ancient 'herbalists' have given way to modern, more efficacious drugs. In addition, plants yield a wide variety of raw materials for the modern industry.

Despite the enormous efforts made in the past towards the economic utilization of the natural potentialities of our rich forests, there still remains a lot of work to be done for an accurate appraisal of our plant wealth. Floristic investigations have a vital role to play in the development of plant-based industries in a developing country like India. For the standardisation of plant products and for effective utilization of economic plants, it is imperative that the correct identity and nomenclature of the plants concerned are determined. Therefore a reliable floristic inventory is a pre-requisite for a just assessment of the plant wealth of a given area, more so in a tropical country like India wherein the population pressure continues to lead to the over-exploitation and consequent disappearance of the precious forests. Such an inventory may also help the conservationists to take adequate protective measures against rare and threatened plant communities / species in time lest they get wiped out from the face of earth.

The forests of Kerala are considered to be an inestimable reservoir of timbers of diverse kinds. That the wood from these forests was used in building ships centuries ago might corroborate this fact. In addition, Kerala forests harboured a wide variety of economically important plants. Kerala has been a well-known important centre of world trade in spices especially pepper, cardamom and ginger. A better understanding of the floristic composition of Kerala may certainly open more avenues for such trades and accrue foreign exchange earnings in their wake. Much work has been done in the past by foreigners, but the information gathered is inadequate and a relatively larger area of Kerala State remains still underexplored.

Thiruvananthapuram is one of the botanically less explored districts in Kerala and no concerted effort appears to have been made in the past, to completely explore the district, possibly due to its difficult terrain and inaccessibility of certain areas. The present work was, therefore undertaken with a view to providing an authentic inventory and other adequate information pertaining to the flora of this relatively underexplored district. It is further hoped that this work will greatly help in the preparation of the State Flora of Kerala.

Although the primary objective of this work is purely botanical to critically study all the angiospermic plants and provide the correct identity and nomenclature of the same, it is ardently desired that this work would certainly prove useful to the students and teachers of Botany as well as to the practical plant users of this region, whose main source of reference so far are the out-dated floras like Hooker *et. al.* (1872-1897), and Gamble and Fischer (1915-1936 Repr. ed. 1957).

#### PAST BOTANICAL EXPLORATIONS

The first reference bout the plants of this district can be found in Rheede's *Hortus Indicus Malabaricus* (1678-1703). Barber, Beddome, Bourdillon, Jacob, Lawson, Narayanaswami, Rama Rao, Venkoba Rao and Wight are the pioneers who botanised this district while it was part of the erstwhile Travancore State, but no comprehensive account on the flora is available. Wight's *Icones Plantarum Indiae Orientalis* (1838-1853), and *Illustrations to Indian Botany* (1840-1850) include many plants from this region. The collections of Cullen, a resident of Thiruvananthapuram formed the basis for the publication of Drury (1864).

Bourdillon (1893) presented a report on the Forest Trees of Travancore which formed the basis of his later monumental work on the *Forest Trees of Travancore* (1908). Nagam Ayya (1906) and Velu Pillai (1940) gave a delightful description of the vegetation of the erstwhile Travancore State. Lawson visited Ponmudi, Merchiston and Thiruvananthapuram in 1893-94 and recorded his visits in *Notes of a tour in Travancore etc.* (1894). In 1914, Rama Rao, the then Conservator of Forests of Travancore compiled, "A Preliminary List of 3335 plants with the help of Curator Venkoba Rao who was a devoted plant collector of this area.

Thomas (1962) explored the hills and swamps of Veli with special reference to ecological factors. He has also studied the aquatic vegetation of Thiruvananthapuram (1976), and the changing pattern of ecosystem in Kerala (1981). Rao and Sastri (1971, 1972, 1974a 1974b) have given an account of the floristics and ecology of Veli.

Contributions have been made by Raizada and Chatterjee (1963) Maheswari (1964), Vasudevan Nair (1956) Nayar (1966, 1969), and, Ravi (1970), based on sporadic collections. Joseph and Chandrasekharan 1973, 1974, 1978, 1982) have undertaken 3 exploration tours to Bonecord, Neyyar Wildlife Sanctuary and the western slopes of Agastyarkudum. Observations on the pteridophytic flora have been made by Nair and Ghosh (1974, 1976, 1977a, 1977b). More recently Abraham and Vatsala (1981) have collected orchids from Ponmudi and Bonecord. Mamen and Mamen (1974) and Pempahishey (1976) conducted one expedition each to Agastyar peak and collected *Paphiopedilum druryi*.

Ponmudi and Veli were frequently visited by Students from various colleges. A perusal of the herbaria in Coimbatore (MH), Calcutta (CAL) and the University College, Thiruvananthapuram shows that collections of specimens from this district are meagre compared to other districts of the Peninsula.

#### PRESENT WORK

Field explorations were planned in such a way that collections and observations could be made every month in all seasons. During the field work, special care was taken to note down data on phenology, habit and habitat, frequency of distribution and association with other plants and any other characteristics that are likely to disappear in a herbarium specimen. For such of those plants that were

observed in vegetative condition in a trip the localities were noted down so as to facilitate their easy relocation in the subsequent trips. Every attempt was made to collect the plants in flower and fruit and to find out the occurrence of every plant throughout the district so as to get a clear picture of its range of distribution and relative abundance in the district.

The specimens collected were identified provisionally in fresh condition using the descriptions and keys of Bourdillon (1908) and Gamble & Fischer (1915-1936, repr. ed. 1957). They were then poisoned in a saturated solution of mercuric chloride in rectified spirit. Thereafter they were pressed and herbarium sheets prepared according to conventional methods. The flowers of delicate specimens were preserved in 4% formaldehyde. Live specimens of many rare and interesting plants were brought and introduced into the garden at Coimbatore and Yercaud and observations made on their phenology and life cycles.

Each plant was critically studied and identified using Gamble and Fischer (1957) and Hooker *et al.* (1872-1897). The identities were later confirmed by comparing the specimens with authentic or type specimens in MH, and CAL, and referring to the recent monographs and revisions. All specimens collected are deposited in MH.

The nomenclature of each species has been brought up-to-date as per the rules given in the *International Code of Botanical Nomenclature* (1988). The correct identity and taxonomic status of each taxon were also fixed by using the 'type method'.

#### PLAN OF THE FLORA

The families are arranged according to Gamble and Fischer's *Flora of the Presidency of Madras* (1915-1936, repr. ed. 1957) which is about the same as Hooker *et al.* *Flora of British India* (1872-1897). But the circumscription of a number of families are restricted following Hutchinson (1959) and Ariv Shaw (Willis, A Dictionary of Flowering Plants and Ferns, 8th ed. 1973).

Dichotomous keys are provided to families, genera, species and infraspecific categories. These are artificial and based mainly on the exomorphic characters wherever possible. The keys are intended for the identification of plants from the area of study only. The genera under a family and species of a genus are arranged alphabetically.

The treatment of each species includes the original citation of the correct name followed by relevant synonyms if any, thereby facilitating a reference to various Indian Floras and Publications. The abbreviations of reference given in the text are as given in Botanico-Periodicum-Huntianum (1968). However, a few unusual abbreviations have been adopted for those references commonly made in the work and these are as follows :

|        |   |
|--------|---|
| Bor    | - Bor, N L. Grasses of Burma, Ceylon, India and Pakistan (excluding Bambaceae) 1960.            |
| Bourd. | Bourdillon, T. F. Forest Trees of Travancore 1908.  |
| Dunn   | - Dunn, S. T. In Gamble, Flora of the Presidency of Madras. Vol. 1 : 1 - 132. 1957 (repr. ed.). |
| FBI    | Hooker et al. Flora of British India VII Vol. 1872-1892.  |
| Gamble | Gamble, J. S. - Flora of the Presidency of Madras Vol. 1 : 133-408 & Vol. 2. 1957 (repr. ed.)   |
| Rao    | - Rame Rao, M. Flowering plants of Travancore, 1914.  |

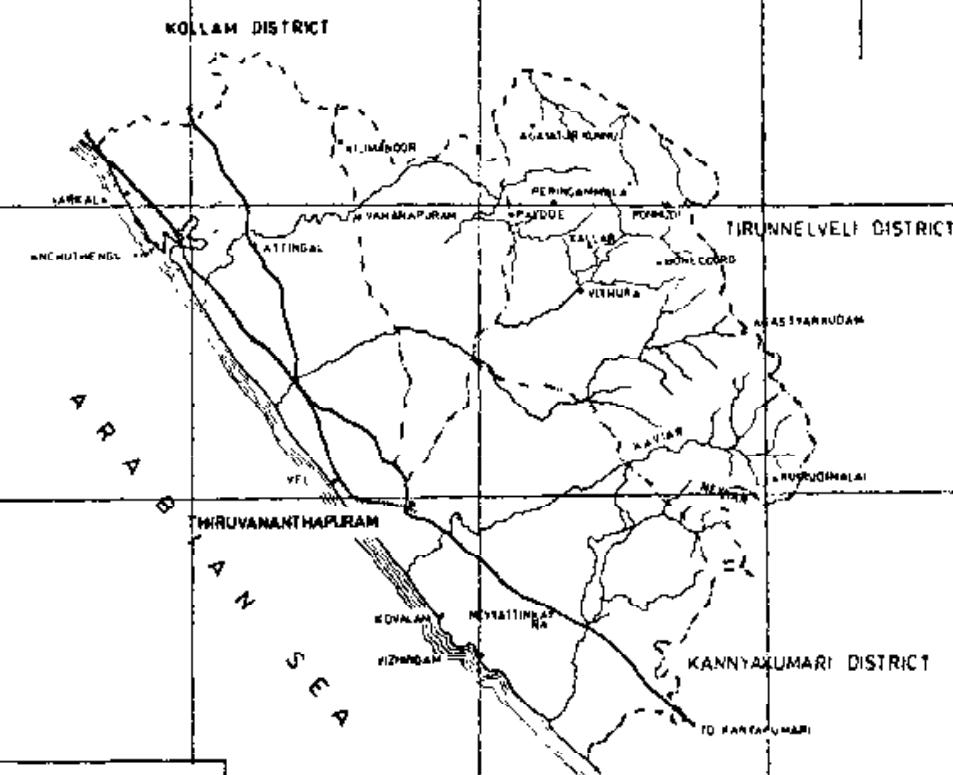
The citation of nomenclature is followed by a short description of the plants. Concise descriptions of the species reflecting only the distinguishing characters are given. The descriptions are based on present collections and earlier collections (if any from the area) available in the Herbarium of M.H., CAL and University College, Thiruvananthapuram.

The frequency of distribution and a short note on the ecological preference of the plant are given after the description, based on original observations in the field. In most of the cases, localities and forest types from where the collections were made are also furnished along with notes on ecology. Economic uses and ethnobotanical information of the plants are given, wherever original information could be gathered. This is followed by local names if any and flowering and fruiting periods.

Any additional information about plants such as variation on floral or vegetative characters, critical notes on the identity and nomenclature and other relevant data on distribution are given in 'notes' in the last part of enumeration of each species.

## THIRUVANANTHAPURAM DISTRICT

SCALE CM = 25 KM



### REFERENCE

- District Boundary
- State Highway
- National Highway
- Rail Way
- ← Rivers & Streams



## THE AREA OF STUDY

### 1. *Origin of the Name Thiruvananthapuram :*

The name Thiruvananthapuram is believed to be originated from 'Thiru-ananthapuram' which is presumed to be after 'Anantha' the many headed serpent supporting Sri Padmanabha, the deity of Sri Padmanabha Swami Temple. The erstwhile 'Trivandrum' is an abbreviated form of Thiruvananthapuram. It was also called 'Syanandrum' (Sreedhara Menon, 1962; Velu Pillai, 1940).

### 2. *Location and boundary :*

This district came into being on November 1, 1956 with a total area of 2191.92 sq. km. This one of the smallest district in the southern-most part of the state lies between north latitude 8°17' 50" and 8°53' 42" and east longitudes 76° 40' 24" and 70° 17' 00". It is bounded on the east by Tirunelveli District and south by Kanyakumari District of Tamil Nadu, north by Kollam District and west by the Arabian sea.

### 3. *Topography :*

On a physiographic basis, the district is divided into 3 zones: coastal, midland and mountainous (Sreedhara Menon, 1962)

a) *The Coastal Zone :* The coastal zone comprises flat undulating lands except the hills at Veli and Varkala. One of the many natural advantages of this district is the presence of an extensive system of backwaters and canals for navigation. The main backwaters ('Kayals') are Veli, Veillayani, Kadangulam and Anjengo.

b) *Midland Zone :* This zone consists of the undulating land lying between the coastal and mountainous zones and is mostly under cultivation.

c) *Mountainous Zone :* It consists of hills which form the southern-most part of the Western Ghats. The main ghats stretch along the eastern border with elevations varying between 1000 and 1869 m presenting a picturesque of "a panorama of inexpressible grandeur". (Nagam Aiya, 1906). Several streams originating from the slopes of higher ridges form numerous water falls and emerge as gentle rivers in the bottom of valleys. The top and higher slopes of the ghats are very steep and rocky and in many places inaccessible. Such places

are usually barren. The lower slopes of the ghats on the other hand are covered with a dense vegetation. The highest point in the tract is the Agastyarkudum with an altitude of 1869 m. Other important peaks are Aduppukal mottai, Chemungi mottai, Klamala and Ponmudi. This system of hills forms a barrier between Tamil Nadu and Kerala. After the closure of the 'Aryanad Pass' the only entrance now is a trunk road, from Tirunelveli to Trivandrum although there are foot-paths in the forests from Kannikatti to Bonecord.

*Main river system :* The following are the main rivers.

- i) *Attungal Vamanapuram river* (66 km). Originating from the peak of Chemungi mottai (1706) passes through Nellanad, Vamanapuram, Attungal, Chirayankil and empties itself into the Anchuthengu estuary.
- ii) *Karamana* (65.6 km). Rises on Chemungi mottai (1706 m) and joins the Arabian Sea at Punthura near Kovalam.
- iii) *Neyyar* (66 km.) takes its origin in the slopes of Agastyarkudum (1869) and discharges itself into the Arabian Sea near Paravur lake where a lagoon is formed. There are several small rivers which join the main ones forming a river system.

#### 4. *Geology, Rock and Soil :*

The area is geologically divisible into 3 minor belts, viz., a coastal belt of recent deposits, a narrow belt of pleistocene or late tertiary (Varkala beds) and a narrow belt of laterite and a high mountain belt of crystalline rocks.

The crystalline rocks consist of leptynites and charnockites, hornblende and gneisses, schists and granulites.

Varkala beds ('Warkalai beds') can be clearly seen in cliffs edging the seashore. It consists of a succession of sand stones and sandy clay. A grey clay with patches of lignified wood and carbonaceous clay with pieces of resin and marcasite are common.

The laterite extending up to 160 m below the surface occurs extensively between Neyyatinkara and Thiruvananthapuram. Sandy coast consists of quartz sand, ilmenite and monazite.

Building stones ('*Vetukal*') are charnockites and leptynites and occur in the interior parts of the district. Gemstones ('quartz') and banded agate jasper ('*Vaiduryam*') are reported from Nedumangad and Chirayankil taluks. Glass sand, graphite, ilmenite, lignite, mica etc. also occur in this district.

Soil is almost wholly loam of varying depth in different places. In the coastal line soil is usually deficient in potash. Clayey soil is reported from Varkala and Kazhakottam. On the top of hills and elevated grounds which are subjected to heavy run off, laterite grave and broken pieces of rocks at different stages of disintegration are found in a large proportion.

*Climate :*

The climate of this area is moderately humid. The variation in temperature is a little. The maximum mean daily temperature in the plains during the hottest month (March) is 32.4°C. Mean daily minimum temperature in the coldest month (January) is 22.2°C. (Table 1). On the hills, it is 25°C and 16°C respectively varying slightly with altitude.

*Rainfall :* The district receives both southwest and northeast monsoons. Southwest monsoon commences from June and continues up to September. After a pause, northeast monsoon sets in. The average annual rainfall is 1874 mm (Based on 6 years average from 1977-1982 Source : Meteorological Centre, Thiruvananthapuram). There are 98 rainy days on an average. The rainfall varies depending upon the topography (Table 2). Rainfall generally decreases from the northwest to the southeast due to its position in the southern end of the peninsula.

*Humidity :* The atmosphere is humid throughout the year. From December to May, the humidity is slightly less (Table-1).

*Wind :* The average annual wind velocity in Thiruvananthapuram is 7-9 km/hr. The highest speed is reported from May to September (11-2 km/hr.) and the lowest in December (4-8 km/hr.) (Kareem, 1978). The velocity of wind is higher in subtropical montane forests of Ponmudi, Chemungi and Agastyarkudum.

Special weather phenomena indicating changes are uncommon in this district except, perhaps, the occurrence of thunders in March to June and October to November. The Total number of days with thunder in a year is estimated to be 70 (Kareem, 1978).

## TOPOGRAPHIC DISTRIBUTION OF RAINFALL IN MM\*

| Months | Nedumangad | Thiruvanantha-puram | Neyyattinkara |
|--------|------------|---------------------|---------------|
| Jan.   | 27.2       | 22.9                | 31.7          |
| Feb.   | 22.1       | 20.8                | 17.8          |
| Mar.   | 65.5       | 38.6                | 40.4          |
| Apr.   | 172.5      | 105.7               | 103.9         |
| May    | 227.8      | 207.8               | 185.7         |
| June   | 408.7      | 356.4               | 298.5         |
| July   | 227.6      | 223.0               | 188.7         |
| Aug.   | 190.5      | 145.5               | 119.4         |
| Sept.  | 181.4      | 137.9               | 126.7         |
| Oct.   | 342.4      | 273.3               | 260.1         |
| Nov.   | 246.6      | 205.5               | 235.2         |
| Dec.   | 78.5       | 74.7                | 74.4          |
| Annual | 2240.4     | 1812.1              | 1682.5        |

\* Based on available data up to 1970.

## STATISTICAL ANALYSIS OF THE FLORA

The systematic botanical exploration for a period of over five years in this district has resulted in the collection of 3100 field numbers of 9300 specimens. These specimens belong to a total of 1270 species in 710 genera spreading to 163 families. (Pteridophytes are not included).

The distribution of the families, genera and species with respect to dicots, monocots and gymnosperms are as follows :

|             | Families | Genera | Species |
|-------------|----------|--------|---------|
| Dicots      | 135      | 528    | 939     |
| Monocots    | 25       | 179    | 328     |
| Gymnosperms | 3        | 3      | 3       |
| Total       | 163      | 710    | 1270    |

Except the Gramineae Cyperaceae and Orchidaceae, the monocots in general are poorly represented. Over 50% of the monocots belong to the above three families. Similarly among the dicots, the Leguminosae, Rubiaceae and Euphorbiaceae constitute about one fourth of the total number of species.

A comparison of the 10 largest families in order of their species content with that of India (Hooker, 1904), Madras Presidency (Fischer, 1935), the Western Peninsula (Hooker, 1904) and the Western Ghats (Subramanyam and Nayar, 1974) is given in Table-4.

The Leguminosae and Gramineae take the first two positions as in the case of the Madras Presidency, but in the Western Ghats and Western Peninsula the order is the reverse-the Gramineae supersede the Leguminosae. Orchidaceae which from the largest family in India attain only a third position in the Thiruvananthapuram District, whereas in the Madras Presidency and Western Peninsula including Western Ghats their position is sixth and fourth respectively.

Asteraceae, one of the largest families in the World come only to at sixth position here. Rubiaceae, fourth in the Indian flora and third in the Madras Presidency have come to the fourth position compared to their seventh position in the Western Peninsula and Western Ghats. Euphorbiaceae, the fifth largest family in the Indian flora and Madras Presidency, remain un-altered in their position in this district also whereas the position of Acanthaceae is eighth in this district. In India, Acanthaceae attain the six position and fourth in the Western Peninsula and Western Ghats.

The Cyperaceae, the eight largest family in India and in the Madras Presidency attain the seventh position in this district whereas in the

## COMPARISON OF THE FIRST TEN LARGEST FAMILIES

| India<br>(Hooker 1904) | Madras Presidency<br>(Fischer 1935) | Western Peninsula<br>(Hooker 1904) | Western Ghats<br>(Gubramanyam &<br>Nayar 1974) | Thiruvananthapuram<br>District<br>(Present study) |
|------------------------|-------------------------------------|------------------------------------|--|---|
| ORCHIDACEAE            | LEGUMINOSAE                         | GRAMINEAE                          | GRAMINEAE                                      | LEGUMINOSAE                                       |
| LEGUMINOSAE            | GRAMINEAE                           | LEGUMINOSAE                        | LEGUMINOSAE                                    | GRAMINEAE   |
| GRAMINEAE              | RUBIACEAE                           | ACANTHACEAE                        | ACANTHACEAE                                    | ORCHIDACEAE                                       |
| RUBIACEAE              | ACANTHACEAE                         | ORCHIDACEAE                        | ORCHIDACEAE                                    | RUBIACEAE   |
| EUPHORBIACEAE          | EUPHORBIACEAE                       | CYPERACEAE                         | COMPOSITAE                                     | EUPHORBIACEAE                                     |
| ACANTHACEAE            | ORCHIDACEAE                         | EUPHORBIACEAE                      | EUPHORBIACEAE                                  | COMPOSITAE  |
| COMPOSITAE             | COMPOSITAE                          | RUBIACEAE                          | RUBIACEAE                                      | CYPERACEAE  |
| CYPERACEAE             | CYPERACEAE                          | COMPOSITAE                         | ASCLEPIADACEAE                                 | ACANTHACEAE                                       |
| LABIATAE               | LABIATAE                            | LABIATAE                           | GERANIACEAE                                    | LABIATAE  |
| URTICACEAE             | ASCLEPIADACEAE                      | ASCLEPIADACEAE                     | LABIATAE                                       | SCROPHULARIACEAE                                  |

Western Peninsula they are the fifth largest family and in the Western Ghats they find no place among the ten largest families.

The position of Lamiaceae in India, Madras Presidency and in the Western Paninsula is unaltered in this district also, while Geraniaceae take the eighth position in the Western Ghats. Urticaceae, Asclepiadaceae and Geraniaceae do not figure in the 10 largest families in this District.

The following familes are represented in this district by only one species. They are Mangoliaceae, Nelumbonaceae, Nymphaeaceae, Cabombaceae, Brassicaceae, Xanthophyllaceae, Ancistrocladaceae, Linaceae, Ochnaceae, Dichapetalaceae, Opiliaceae, Erythrophylaceae, Leeaceae, Sabiaceae, Chrysobalanaceae, Sonneratiaceae, Aizoaceae, Cornaceae, Alangiaceae, Hydrophyllaceae, Avicenniaceae, Phytolaccaceae, Chloranthaceae, Cassythaceae, Thymelaeaceae, Elaeagnaceae, Balanophoraceae, Daphniphyllaceae, Cycadaceae, Podocarpaceae, Gnetaceae, Burmanniaceae, Costaceae, Marantaceae, Hæmodoraceae, Smilacaceae, Flagellariaceae, Alismataceae and Aponogetonaceae.

#### GENERAL PATTERN OF VEGETATION

1. *Coastal region* This region consists of strand and estuarine vegetation. Strand vegetation is of 2 types, viz. strand sand and strand rock. Strand rock is not of common occurrence. a. *Strand sand*: The coastal line is bordered by coconut plantations. Sand-binders like *Gisekia pharnaceoides*, *Heliotropium marifolium*, *Indigofera spicata*, *Ipomoea pes-caprae*, *Justicia tranquebariensis*, *Pedalium murex*, *Polycarpaea corymbosa*, *Polycarpon prostratum*, *Rothia indica* *Zoysia matrella* are common. The common shrubs in the mixed bushy zone are *Capparis brevispina*, *Erythroxylum monogynum* *Gmelina asiatica*, *Hugonia mystax* etc. The inner hilly woodland region is characterised by the presence of *Coffea travancorensis*, *Hopea ponga*, *Morinda citrifolia*, *M. pubescens*, *Manilkara hexandra*, *Uvaria zeylanica* and *Wrightia arborea*. *Cassytha filiformis* is a common parasite in this region.

b. *Estuarine vegetation*: Pro-estuaries like Tidal mangroves, Pro-haline and Euhaline are found along the coast.

i) *Tidal mangroves*: This type is fouud in Anjengu, Kadinamkulam, Nadayara, Veli and Vellayani. Along the margins of the lakes is seen abundant growth of *Acanthus ilicifolius* and *Acrostichum*

*aureum* forming extensive belts. *Cissus vitiginea*, *Derris tritoliata*, *Flagellaria indica*, *Gloriosa superba*, and *Parsonsia alboflavescens* are the common climbers. The common trees are *Avicennia officinalis*, *Barringtonia racemosa*, *Brugiera gymnorhiza*, *Sonneratia caseolaris*, etc.

ii. *Prohaline*: Salt-tolerant fresh water plants like *Ceratopteris siliquosa*, *Corchorus aestuans*, *Crinum asiaticum*, *Hygrophila erecta*, *Salvinia molesta*, *Sphenoclea zeylanica* and *Striga asiatica* are found in this type.

iii. *Euhaline*: This type is characterised by highly salt-tolerant plants like *Acanthus ilicifolius*, *Acrostichum aureum* and *Pandanus fascicularis*.

2. *Midland region*: Most of the area in this region is under cultivation of crop plants like coconut, arecanut, tapioca, paddy etc. The common weeds in the cultivated lands are *Acalypha clicita*, *Acrocephalus hispidus*, *Ageratum conyzoides*, *Alloteropsis cimicina*, *Biophytum sensitivum*, *Borreria articularis*, *B. latifolia*, *B. ocymoides*, *Catharanthus pusillus*, *Centella asiatica*, *Cleome viscosa*, *Cyperus kyllingia*, *C. rotundus*, *Emilia sonchifolia*, *Dactyloctenium aegyptiacum*, *Peperomia pelluida*, *Pousolzia zeylanica*, *Synedrella nodiflora*, *Tridax procumbens*, etc.

The stagnant pools and canals in the midland harbour a rich aquatic vegetation. The common plants are *Blyxa octandra*, *Cyperus geminiflora*, *Eichhornia crassipes*, *Hydrilla verticillata*, *Hygrorhiza aristata*, *Lindernia crustacea*, *Nelumbo nucifera*, *Monochoria vaginalis*, *Nymphaea nouchali*, *Nymphoides indica*, *Paspalum distichum*, *Sacciolepis interrupta* etc.

3. *Mountainous region*: Seven major types of forests (Champion and Seth, 1964) are met with in this region. A clear-cut demarcation is not possible as they merge with each other.

a). *West coast tropical evergreen forests*: This type of forest occurs at higher slopes of ridges along eastern border especially in the upper sources of the rivers Kallar, Karamana and Neyyar under the high peaks of Chemungi, Ponmudi and Agastyarkudam. This is characterised by a variety of species in several tiers or storeys, the upper consisting of lofty trees with 40 m or more tall. The bases of many trees are often buttressed. Trees are sparingly branched with smooth boles and glossy, feathery leaves. Lianas

are characteristic. A large number of epiphytes are found on the tree trunks. These forests experience heavy rainfall and high humidity. Drought spell is short.

The dominant trees in the first storey are *Ailanthus triphysa*, *Antiaris toxicaria*, *Artocarpus hirsuts*, *Bombax ceiba*, *Callophyllum apetalum*, *Caryota urens*, *Cullenia exarillata*, *Diospyros bourdillonii*, *Elaeocarpus tuberculatus*, *Hopea parviflora*, *Lophopetalum wightianum*, *Mesua nagassarium*, *Palaquium ellipticum*, *poeciloneuron indicum*, *Toona ciliata*, *Vateria indica*, *Vitex altissima* etc.

The second storey consists of medium-sized trees like *Actinodaphne bourdillonii*, *Aporosa lindleyana*, *Aglaia eleagnoidea*, var. *roxburghiana*, *Carallia brachiata*, *Canarium strictum*, *Cinnamomum macrocarpum*, *C. verum*, *Euodia lunu-ankenda*, *Ficus arnottiana*, *Garcinia morella*, *Dimocarpus longan*, *Gordonia obtusa*, *Polyalthia coffeooides*, *Symplocos cochinchinensis* and *Xanthophyllum flavescent*.

The Third storey is formed of plants like *Arenga wightii*, *Atalantia wightii*, *Canthium angustifolium*, *Glycosmis cymosa*, *G. mauritiana*, *Ixora malabarica*, *Isonandra lanceolata*, *Leea indica*, *Pinanga dicksonii*, *Psychotria curviflora*, *P. congesta*, *P. nodiflora*, *Pavetta calophylla*, *Tarenna canarica*, *T. asiatica* etc.

The ground flora consists of *Acranthera grandiflora*, *Asplenium indicum*, *Angiopteris evecta*, *Begonia malabarica*, *Commelina ensifolia*, *Cyathea gigantea*, *Dictyospermum montanum*, *Elatostemma lineolatum*, *Malaxis rheedii*, *Mollineria trichocarpa*, *Neanotis monospema*, *Neurocalyx calycinus*, *Ophiorrhiza brunonis*, *O. eriantha*, *O. mungos*, *O. prostrata*, *Peliosanthes teta* ssp. *humilis*, *Phyllanthus gardnerianus*, *Schizoloma ensifolium*, *Sonerila rheedii* etc.

Along the margins of rivers are seen large formations of *Pandanus thwaitei*. Epiphytes like *Eria reticosa*, *Dendrobium heterocarpum*, *Oberonia brunoniana*, *O. verticillata*, *O. wightiana*, *Pholidota imbricate*, *Polystachya flavescent*, *Pyrrosia adnascens*, *Peperomia portulacoides* and parasites like *Dendrophthoe falcata*, *Helixanthera intermedia* and *Taxillus tomentosus* etc. are common.

The common climbers include *Adenia hondala*, *Argyreia hispida*, *Aristolochia indica*, *Calamus pseudotenuis*, *C. huegelianus*, *Erythropalum populifolium*, *Dioscorea oppositifolia*, *D. pentaphylla*, *Myxopyrum serratulum*, *Pothos armatus*, *P. scandens*, *Sarcostigma kleinii* and *Gnetum ula*.

b). *Southern hill top tropical evergreen forests*: This type is found in valleys surrounding high ranges especially in Ponmudi, Chemungi and Agastyarkudum and is confined to altitudes ranging from 1000 to 1200 m. The trees are shorter with fuller and rounded crowns. This is a transition stage from tropical to subtropical forests.

The upper storey consists of *Cullenia exarillata*, *Elaeocarpus serratus*, *E. tuberculatus*, *Ficus arnottiana*, *Glochidion ellipticum*, *Gluta travancorica*, *Holigarna arnottiana*, *Mesua nagassarium*, *Persea macrantha*, *Semecarpus anacardium*, *Syzygium zeylanicum*, *Toona ciliata* etc.

The medium-sized trees in the second storey are the younger form of the upper storey along with *Alstonia venenata*, *Debregesia ceylanica*, *Memecylon angustifolium* etc. The lower storey is formed by shrubs and herbs like *Asystasia dalzelliana*, *Diotacanthus grandis*, *Nilgirianthus heyneanus*, *N. foliosus*, *N. warrensis*, *Pavetta ob lanceolata*, *phaulopsis dorsiflora*, *Plectranthus wightii*, *Pogostemon paniculatus*, *P. pubescens*, *P. travancoricus*, *Psychotria flava*, *Rauvolfia densiflora*, *Rostellularia quinquangularis*, *Sarcandra chloranthoides*, *Tarenna alpestris* and *Wendlandia bicuspidata*. The common climbing shrubs are *Dioscorea wallichii*, *Eleagnus conferta*, *Jasminum conferta*, *Jasminum cordifolium*, *Millettia rubiginosa* and *Smilax zeylanica*.

c) *Southern subtropical hill forests (Subtropical montane forests)*:

This type is confined to altitudes ranging between 1200 and 1600 m at Ponmudi, Chemungi and Agstyarkudum. Though it is comparable to the tropical evergreen type, the vegetation is not very luxuriant. The low stature of trees of these types are mainly due to high velocity of wind and less favourable conditions of soil (Adriel, 1964). A major part of this type is already cleared for tea plantations and the rest is fast giving rise to secondary types due to biotic interference.

The characteristic trees in the first story are *Brysophyllum tetrandrum*, *Callicarpa tomentosa*, *chionanthus courtallensis* *Eurya*

*Euphorbia santapaui*, *Ficus arnottiana*, *Elaeocarpus tuberculatus*, *Eurya nitida*, *Ficus arnottiana*, *Glochidion arboreum*, *Gordonia obtusa*, *Heritiera papilio*, *Maesa indica*, *Neolitsea cassea* and *Persea macrantha*. On the rocky slopes are found large populations of *Bentinckia condapanna*.

The second storey is formed of *Canthium dicoccum*, *Memecylon angustifolium*, *Scleropyrum pentandrum*, *Syzygium arnottianum*, *S. gardneri* etc. The lower storey consists of *Nilgirianthus foliosus*, *N. heyneanus*, *Pogostemon purpurascens* etc. A large number of ferns are also found.

The major portion of the slopes is exposed and covered by grasses like *Arundinella ciliata*, *Chrysopogon zeylanicum*, *Cyrtococcum patens*, *Eragrostis tenuifolia*, *Ischaemum indicum*, *Oplismenus burmannii*, *Panicum notatum*, *Themeda cymbalaria* and *Tripogon bromoides*. Amidst the grasses are found *Blumea barbata*, *Brachycorythis splendida*, *Crotalaria scabra*, *Gynura pseudo-china*, *Peristylus goodyeroides*, *Pecteilis gigantea*, *Phoenix humilis* var. *pedunculata*, *Phyllocephalum scabridum*, *Rostellularia japonica* and *Spilanthes paniculata*.

d) *West coast semievergreen forests*: This type is common adjoining evergreen forests and along the sides of rivers and is confined to areas wherever alluvial deposits are rich. The forests in its best form is met with in places like Kallar, Peppara, Kaviar and Suryakanthi. A mixture of both the evergreen and deciduous trees is found. The characteristic trees in the first storey are *Ailanthus scholaris*, *Artocarpus heterophyllus*, *Buchanania lanceolata*, *Baccaurea courtallensis*, *Calophyllum apetalum*, *C. inophyllum*, *Catunaregam rugulosum*, *Carallia brachiata*, *Dimocarpus longan*, *Grewia tiliifolia*, *Holigarna arnottiana*, *Hopea parviflora*, *Hydnocarpus alpina*, *H. pentandra*, *Humboldtia vahliana*, *Ixora brachiata*, *I. nigricans*, *Knema attenuata*, *Lagerstroemia speciosa*, *Madhuca nerifolia*, *Mastixia arborea* subsp. *meziana*, *Nothopegia travancorica*, *Syzygium gardneri*, *Tamilnadia uliginosa*, *Terminalia paniculata* and *Vitex pinnata*.

The lower storey consists of *Agrostistachys meeboldii*, *Aporosa lindleyana*, *Arenga wightii*, *Clausena heptaphylla*, *Clerodendrum viscosum*, *Cinnamomum verum*, *Flemingia strobilifera*, *F. semialata*, *Homonoia riparia*, *Uvaria narum* etc. Large areas on the ground are covered by *Costus speciosus* and *Globba ophioglossa*. The common climbers are *Adenia hondala*, *Butea parviflora*, *Calamus*

*huegelianus*, *C. pseudotenuis*, *C. travancorica*, *Calycopteris floribunda*, *Strychnos minor* etc. Large formations of *Bambusa arundinacea* are common along the margins of rivers.

e) *Southern secondary moist deciduous forests* : This type occurs at lower elevations. The composition is mixed with scattered trees like *Bridelia retusa*, *B. scandens*, *Buchanania lanza*, *Careya arborea*, *Cycas circinalis*, *Dalbergia latifolia*, *Dillenia penta*, *gyna*, *Lannea coromandelica*, *Macaranga peltata*, *Mastixia arborea* subsp. *meziana*, *Olea dioica*, *Pterocarpus marsupium*, *Tectona grandis*, *Terminalia bellirica*, *T. chebula*, *T. paniculata* etc. *Phyllanthus emblica* is common with a dense growth of grasses like *Cyrtococcum oxyphyllum*, *Imperata cylindrica* var. *minor*, *Pennisetum polystachyon* and *Pseudanthistiria umbellata* where soil is shallow and poor.

f) *Wet bamboo brakes* : This type occurs only in places where there is a break in the canopy such as on sides of streams at higher slopes or gaps created by felling. As the reeds are very aggressive and capable of withstanding partial shade, they colonise very quickly into large populations. It has been observed that wherever forest fire occurs, the area would be soon covered by the reeds. Large portions of the slopes of Chemungi and Agastyarkudum are entirely covered with reeds. The inhabiting species are *Ochlandra ebracteata*, *O. scriptoria*, *O. wightii* and *O. travancorica*.

g) *Myristica swamps* : Partially cleared myristica swamp forests are located in the Kottur Reserve. This is a characteristic edaphic formation found in the bottom of valleys which is subjected to inundation throughout the year. The floor of the swamp is often covered by looped knee-roots of *Myristica* species. The common elements are *Myristica dactyloides*, *M. fatua* var. *magnifica*, *M. malabarica*, *Knema attenuata*, *Hydrocarpus alpina* and *Lophopetalum wightianum*. Large population of *Lagenandra toxicaria* is also noticed covering the ground. On the edges of the forests are found *Hopea parviflora* and *Humboldtia vahliana* with a dense undergrowth of *Nilgirianthus* spp.

In addition to the above seven types, a characteristic vegetation is found along the major rivers like Neyyar, Karamana and Vamanapuram which is classified (Champion and Seth, 1968) as *Southern tropical moist deciduous riverine forests*. The main elements found in this type are *Agrostistachys meeboldii*, *Ixora nigri-*

*cans*, *Lagerstroemia microcarpa*, *L. speciosa*, *Homonoia riparia*, *Lophopetalum wightianum*, *Hydnocarpus pentandra*, *Vateria indica* and *Vitex altissima*. Occurrence of this type is so limited for a special mention.

The ancient walls (east and west fort and old buildings) form a specialized habitat for certain plants. Varshney (1968) has pointed out the importance of wall flora. The following are some of the common plants found on the ancient walls: *Acalypha indica*, *Achyranthes aspera*, *Ageratum conyzoides*, *Amaranthus spinosus*, *A. viridis*, *Apluda mutica*, *Boerhavia diffusa*, *Cassia tora*, *Chloris barbata*, *Cyperus compressus*, *Eclipta prostrata*, *Eleusine indica*, *Euphorbia hirta*, *E. thymifolia*, *Evolvulus alsinoides*, *E. nummularius*, *Ficus exasperata*, *F. religiosa*, *Lantana camara* var. *aculeata*, *Ocimum basilicum*, *Oxalis corniculata*, *Paspalum distichum*, *Phyllanthus fraternus*, *P. reticulata*, *Physalis minima*, *Pilea microphylla*, *Portulaca oleracea*, *Ravina humilis*, *Solanum nigrum*, *Tridax procumbens*, *Vernonia cinerea*, *Vicoa indica*.

The occurrence of some typical Sri Lankan elements in the forests of this district is a striking peculiarity of the flora. They are *Andrographis zeylanica*, *Chrysoglossum maculatum*, *Eria muscicola*, *Exacum walkeri*, *Garcinia echinocarpa*, *Catunaregam gardneri*, *Phaius liridus*, *Rubus micropetalus* etc.

Agastyarkudum and its adjoining regions in the Tirunelveli District of Tamil Nadu form an isolated area and a considerable number of endemics are reported from this belt. The species endemic to Thiruvananthapuram and Tirunelveli are *Acranthera grandiflora*, *Bentinckia condapanna*, *Cinnamomum gracile*, *Didymocarpus ovalifolia*, *D. repens*, *Dimorphocalyx beddomei*, *Diotacanthus grandis*, *Hedyotis albo-nervia*, *H. travancorica*, *H. purpurascens*, *Impatiens auriculata*, *I. travancorica*, *Lasianthus cinereus*, *Popowia beddomeana*, *Thottea barberi*, *Vernonia bourdillonii* and *V. ramsamii*.

#### BIOTIC INTERFERENCE ON THE FLORA

Ever since civilization, man has been a serious biotic factor affecting the vegetation. Modern man heavily depended on the forests for his welfare and in this process, unjudiciously destroyed larger part of the forests. The increase in population and advance in

civilization have resulted in a greater demand of forest land for habitations, agriculture etc. and a considerable area of our dense forests has been cleared or much disturbed. In Thiruvananthapuram district, about 18440.47 hectares of virgin wet tropical evergreen forests were recorded (Adriel, 1964). But a large portion of these forests have been already cleared for plantations and habitation.

### 1. *Plantations*

The subtropical hill forests (Subtropical montane) at Ponmudi and Merchiston have been partially cleared for tea plantations. In Bonecord, tea plantations have been raised by clearing forests at lower elevations (between 600 and 1100 m). With the influx of population in these estates, the adjacent areas covered by dense forests are also in danger of destruction.

Moist deciduous forests at lower elevations have also been disturbed considerably and plantations of rubber, teak, cashew and jungle woods like Jack (*Artocarpus heterophyllus*) 'Angili', (*Artocarpus hirsutus*) and soft wood like *Pithecellobium monadelphum* established.

### 2. *Tribal settlements*

The tribals in this district are called 'Kanikkar'. There are about 75 tribal settlements in places like Pallode (35), Kottur (21) and Klamala (19).

The forest lands adjacent to these settlements are being subjected to shifting cultivation and have either given rise to deciduous forests with large populations of grasses and *Pteridium aquilinum* or have been invaded by reeds, eventually making them reed brakes (wet bamboo brakes).

### 3. *Construction of Dams*

Construction of dams for irrigation and water supply has also caused considerable damage to the vegetation. There are two major irrigation projects and two minor projects for water supply.

### Neyyar Dam

This dam was constructed on Neyyar river at valleys of Akastyarkudum by the Kerala Public Works Department for irrigating Neyyatinkara and Vilavankode taluks of Kerala and Tamil Nadu respectively. The reservoir has an area of 1433 hectares with several islands. Trees from 810 hectares were removed and *Eucalyptus* plantation started from 1962 onwards. Around 607.5 hectares on the upper part of the reservoir is still covered by dense forests.

### Neyyar Wildlife Sanctuary

The areas surrounding the Neyyar reservoir and adjacent areas were declared as Wildlife Sanctuary by the Government of Kerala in 1958 (*vide* Kerala Govt. Order D/O M.S. 871/58 dated 6-8-1958). The total area is about 129.5 sq. km. including Klamala and Kottur Reserve Forests. The reservoir has 13 islands viz. Marakkunnu, Aruvippuram, Vazhamoola, Uzhamalakkunnu, Kottur etc. The tribal settlements in the sanctuary are Puriamala, Thenmala, Kunnamuthamala, Kompaikani and Ayyavilakam. The common wildlife met with in this area are the spotted deer, sambar, elephant, lion-tailed monkey and the Nilgiri tahr. The eastern boundary of the sanctuary is covered with dense evergreen forests.

### Peppara Dam

This dam is constructed at Peppara in Karamana river by the Kerala Public Health Engineering Department to supply water to Thiruvananthapuram city as there is scarcity of water supply to the city. The dam was inaugurated on Oct. 1983. The catchment area of the dam was estimated as 86 sq. km. which enjoys an average rainfall of 482 cm. The full reservoir is estimated to be 110.5 m with a water-spread area of 582.5 hectares from river level. The submergible area is covered by semievergreen and moist deciduous forests. It is interesting to note that after the construction of this dam, a large number of wild animals and birds migrated to this region. Madhavan Pillai (The Hindu Dec 25, 1983) noted that herds of elephants and sambar have already moved towards the dam and the reservoir attracted several water birds including darters and cormorants.

### Aruvikkara Dam :

This is a small dam on Karamana river at Aruvikkara, a few kilometers from Nedumangad.

*Vamanapuram Irrigation Project (Valayanki Dam)*

Work on this project was initiated recently. The dam will be constructed on Vamanapuram river at Vallayanki below Kallar Valley to irrigate Nedumangad, Thiruvananthapuram and part of Chirayankil Taluks of this District. With the completion of this project, a large portion of dense evergreen and semievergreen forests in Kallar valley will be submerged.

**4. Grazing**

Another serious biotic factor affecting the vegetation is grazing by cattle. It has been observed that over-grazing on the grassy slopes of subtropical hill forests of Ponmudi has caused considerable damage to the vegetation cover. These areas are now being invaded by alien shrubs and herbs like *Crassocephalum crepidoides*, *Duranta repens*, *Lantana camara* var. *aculeata*, etc.

**5. Wildlife**

Wild animals cause comparatively negligible damage to the vegetation, the main threat being from the elephants which feed on selected forest plants. Other common animals met with are the spotted deer, sambar, lontailed monkey and the Nilgiri tahr.

**6. Impact of Industrialization**

The main industries in this district are centred at Veli which include the English Indian Clay, Travancore Titanium Products, Trancos Ltd. and T.K. Chemicals. The strand and estuarine vegetation of Veli is being threatened by the effluents released from these industries. The actual Veli hills from where Barber and others made extensive collections of plants is now completely cleared for the construction of Vikram Sarabhai Space Centre. Very little attention has been paid to the real pollution problem in industrial section of Veli and even common plants of these area are facing danger of destruction. Suresh Elamon (1982) states that the Veli swamp had been a heaven for bird watchers and botanists. The first 'death-knell' of this mini sanctuary was sounded when the area was acquired by the Vikram Sarabhai Space Centre. With the construction of the road bisecting the swamp, the vestiges of the mangrove thickets were also lost.

*Prospects of Conservation*

Based on the above observations in the field, the following suggestions are made to protect atleast the existing forests and to conserve the vanishing flora of this region.

**1. Establishment of a Biosphere Reserve in Agastyarkudum and its Environs**

The Man and Biosphere Programme sponsored by the United Nations has undertaken an important initiative to set up a net work of Biosphere Reserve with a view to providing an assured future for mankind (IUCN, 1979). In India 14 sites for biosphere reserves have been identified and 7 have been set up including the Nilgiris in the South. Agastyarkudum and its environs form another potential site which would best fulfil the objectives of a biophere reserve and a suggestion has already been made by Henry *et al.* (1984).

The criteria for the selection of a site for biosphere reserve is laid down in the MAB report of UNESCO (1974) and it is generally agreed that the main criterion for the choice of conservation of an area is the "value judgement of a viable unit" (Crisp, 1980). It implies that the area must be of a mininium size to ensure effective conservation. These criteria in relation to Agastyarkudum are discussed below:

***Ecosystem diversity***

Agastyarkudum and its vicinity form a natural unit with a maximum diversity of ecosystem due to various climatic and geographic features.

***Naturalness***

The area possesses natural forests which probably evolved in course of millions of years and very little disturbances was done to these forests. Several wild relatives of cultivars are also found here.

***Effectiveness as a viable unit***

Agastyarkudum is a unique isolated tract in the southernmost

part of the Western Ghats which can be easily managed as there are Wildlife sanctuaries surrounding the area.

#### *Presence of endangered species*

A number of endemic, rare and threatened species of plants are reported from this region (Henry *et al.* 1979; Mohanan *et al.* 1980a & 1980b).

Agastyarkudum and its immediate environs from the "core zone" with little human interference. The semievergreen forests and moist mixed deciduous forests below this will constitute the "buffer zone" for manipulative research and the wildlife sanctuaries and the reserve forests outside, with several tribal settlements will best serve as a "stable cultural zone" with scope for ethnobotanical studies. In view of the above facts it is hoped that speedy steps will be taken to establish the above biosphere.

2. There is a proposal by the Tourist Department (Kerala State Tourism Development Corporation) to construct a bridlepath from Kottur to Agastyarkudum. It is suggested that the proposal should be dropped.

#### *3. Checking the introduction of alien plants in Ponmudi*

In the recent past, there has been a rapid development in the beautification of Ponmudi Tourist Centre and a large number of alien plants are introduced in this area which will adversely affect the native flora in due course. It is suggested that indigenous plants be selected to replace the allies in the beautification programme. Further, several forest trails are being constructed for the tourists from Ponmudi downwards, through the dense forests which will in due course disturb the area. These forest trails may be closed.

### OBSERVATIONS

The present work relates to an intensive systematic study on the Flora of Thiruvananthapuram District for a period of over five years. This botanically rich area was relatively unexplored but for some pioneering work done in the past by the forest officials. However, no comprehensive account on the flora of the

whole District has been prepared so far. Through well-planned and intensive field work, a lot of firsthand information on the flora of this area has been gathered. A large portion of the slopes of Agasthyarkudum, Kallar and Chemungi remained unexplored due to the inaccessibility of the difficult terrain. In the present study every attempt was made to concentrate on such areas and gather information on endemic, rare and threatened plants. Further, the present work is the first of its kind to completely explore the submergible areas of Peppara and Vamanapuram River Projects. These studies have resulted in the discovery of 2 new species viz. *Cinnamomum chemungianum* (Lauraceae) and *Syzygium parameswaranii* (Myrtaceae) and 2 new varieties viz. *Eria muscicola* (Lindl.) Lindl. var. *ponmudiana* (Orchidaceae) and *Exacum courtallense* Arn. var. *bonecordiana* (Gentianaceae).

*Eragrostis cumingii* Steud. (Poaceae) and *Exacum walkeri* Griseb. (Gentianaceae) are recorded for the first time from India. Plants recorded for the first time from Kerala are, *Aphyllorchis montana* (Thw.) Reichb. f. (Orchidaceae), *Asplenium affine* Sw. forma *affine* (Aspleniaceae) and *Malaxis latifolia* Sm. (Orchidaceae).

The descriptions of a few plants like *Claoxylon anomatum* Hook f. (Euphorbiaceae), *Eulophia cullenii* (Wight) Blume (Orchidaceae) and *Vanilla wightiana* Lindl. ex Hook. f. (Orchidaceae) which were based on insufficient materials were amended after a thorough study of sufficient materials collected from the area.

*Malaxis latifolia* Sw. (Orchidaceae) and *Reissantia grahamii* (Wight) Ding Hou (Hippocrateaceae) are new additions to Flora of Presidency of Madras.

Several rare plants could be relocated during the present work. Plants which were collected after a lapse of 50 or more years include: *Actinodaphne campanulata* Hook. f. var. *obtusa* Gamble (Lauraceae), *Ampelocissus arnottiana* (Vitaceae), *Humboldtia unijuga* Bedd. (Caesalpiniaceae), *Memecylon wightianum* Triana (Melastomataceae), *Pogostemon travancoricum* uedd. (Lamiaceae) and *Popowia beddomeana* Hook. f. & Thoms. (Annonaceae). Many plants collected during the present study were either not represented or poorly represented in MH and CAL. *Eulophia cullenii* (Wight) Blume and *Vanilla wightiana* Lindl ex Hook. f. were not represented in MH and CAL. New representations to MH from India include: *Buchanania lanceolata* Wight, *Claoxylon*

*anomalum* Hook f., *Eragrostis cumingii* Steud., *Exacum walkeri* Griseb. and *Reissantia grahamii* (Wight) Ding Hou.

Several plants described from this district were represented in Herbaria by only their type specimens. Five such plants have been relocated from their type locality for the first time after their type collections. They are: *Actinodaphne campanulata* Hook. f. var. *obtusa* Gamble (Chemungi), *Humboldtia unijuga* Bedd. (below Agastyar Peak), *Morinda reticulata* Gamble (Merchiston), *Pogostemon travancoricum* Bedd. (Attraymallay) and *Vernonia bourdillonii* Gamble (Chemungi).

**Endemic Plants :** Plants endemic to this district are *Actinodaphne campanulata* Hook. f. var. *obtusa* Gamble, *Clematis bourdillonii* Dunn, *Cinnamomum travancoricum* Gamble, *Eria muscicola* (Lindl.) Lindl. var. *brevilingius* Joseph & Chandras. and *Ochlandra ebracteata* Raizada & Chatterjee.

The present work has also resulted in the lectotypification of *Clematis bourdillonii* Dunn.

**Rare and threatened plants :** Based on the present field observations on the relative frequency of distribution of the plants, rarity/restricted distribution of the following is confirmed. Some of these are already listed as threatened (Henry et al 1979). *Acanthephippium bicolor* Lindl. *Actinodaphne campanulata* Hook.f. var. *obtusa* Gamble, *Aphyllorchis montana* (Thw.) Reichb.f. *Chiloglottis pusilla* (Willd.) Schlech., *Drypetis malabarica* (Bedd.) Airy Shaw, *Dimorphocalyx beddomei* (Benth.) Airy Shaw, *Eria muscicola* (Lindl.) var. *brevilinguis* Joseph & Chandras., *Eulophia cullenii* (Wight) Blume, *Glochidion bourdillonii* Gamble, *G. tagifolium* Miq., *Malaxis latifolia* Sm., *Morinda reticulata* Gamble, *Memecylon angustifolium* Wight, *M. wightianum* Triana, *M. gracile* Bedd., *Paphiopedilum druryii* (Bedd.) Stein, *Pogostemon travancoricum* Bedd., *Premna glaberrima* Wight, *Vanilla wightiana* Lindl. ex Hook.f., *Vernonia bourdillonii* Gamble and *V. ramaswamii* Hutch.

The nomenclature of all the plants has been brought up-to-date by strict adherence to the International Code of Botanical Nomenclature (1988). The identity of every plant was checked by 'Type method' and the correct taxonomic status evaluated which have necessitated several new combinations (*Vide* Mohanan in J. Econ. Tax. Bot. 6: 480, 1985).

## SYSTEMATIC TREATMENT

### ARTIFICIAL KEY TO THE FAMILIES

1. Ovules not enclosed in carpels:
  2. Perianth present; woody climbers GNETACEAE
  2. Perianth absent; trees or shrubs:
    3. Leaves simple PODOCARPACEAE
    3. Leaves pinnate CYCADACEAE
1. Ovules enclosed in carpels:
  4. Leaves mostly reticulately nerved; flowers 4-5 merous; cotyledons 2:
    5. Calyx and corolla present:
      6. Petals free:
        7. Stamens mostly hypogynous:
          8. Sepals imbricate in bud:
            9. Sepals free:
              10. Stamens more than 12:
                11. Sepals 2-3:
                  12. Aquatic plants CABOMBACEAE
                  12. Terrestrial plants PORTULACACEAE
          11. Sepals 4 or more:
            13. Plants aquatic:
              14. Carpels connate NYMPHAEACEAE
              14. Carpels free NELUMBONACEAE
        13. Plants not aquatic:

15. Sepals not persistent:

16. Carpels free RANUNCULACEAE

16. Carpels connate:

17. Herbs CLEOMACEAE

17. Trees or shrubs :

18. Ovary supported by gynophore CAPPARACEAE

18. Ovary not as above:

19. Anthers horse-shoe shaped;  
capsules echinate BIXACEAE

19. Anthers not as above;  
capsules not echinate FLACOURTIACEAE

15. Sepals persistent:

20. Leaves alternate:

21. Stamens free from petals:

22. Styles free; disc absent DILLENIACEAE

22. Styles connate; disc present OCHNACEAE

21. Stamens adnate to the bases of petals THEACEAE

20. Leaves opposite or whorled CLUSIACEAE

10. Stamens 10 or less:

23. Flowers 3-merous:

24. Flowers unisexual MENISPERMACEAE

24. Flowers bisexual MAGNOLIACEAE

23. Flowers 4-5- merous

25. Petals 4 BRASSICACEAE

25. Petals 5:

26. Sepals persistent; ovary 1-loculed :

- |  |                  |
|--|------------------|
| 27. Placentation parietal :                          |                  |
| 28. Leaves stipulate                                 | VIOLACEAE        |
| 28. Leaves exstipulate                               | PITTOSPORACEAE   |
| 27. Placentation free-central                        | CARYOPHYLLACEAE  |
| 26. Sepals not persistent; ovary 2 or more loculed : |                  |
| 29. Filments free :                                  |                  |
| 30. Leaves stipulate                                 | BALSAMINACEAE    |
| 30. Leaves exstipulate                               | SAPINDACEAE      |
| 29. Filaments connate :                              |                  |
| 31. Flowers zygomorphic :                            |                  |
| 32. Trees  | XANTHOPHYLLACEAE |
| 32. Herbs or undershrubs                             | POLYGALACEAE     |
| 31. Flowers actinomorphic :                          |                  |
| 33. Fruit a capsule                                  | LINACEAE         |
| 33. Fruit a drupe or nut                             | ERYTHROXYLACEAE  |
| 9. Sepals more or less united at base :              |                  |
| 34. Two sepals enlarge in fruits                     | DIPTEROCARPACEAE |
| 34. Sepals not as above :                            |                  |
| 35. Leaves gland-dotted                              | RUTACEAE         |
| 35. Leaves not gland-dotted :                        |                  |
| 36. Carpels septate :                                |                  |
| 37. Stamens alternating with petals :                |                  |
| 38. Ovules pendulous :                               |                  |
| 39. Leaves compound (except <i>Samadera</i> ) :      |                  |
| 40. Fleshy herbs                                     | OXALIDACEAE      |
| 40. Trees or shrubs :                                |                  |

|   |                   |
|---|-------------------|
| 41. Filaments free  | SIMAROUBACEAE     |
| 41. Filaments connate into a tube                         | MELIACEAE         |
| 39. Leaves simple:  |                   |
| 42. Petals 2-lobed  | DICHAPETALACEAE   |
| 42. Petals entire   | ICACINACEAE       |
| 38. Ovules erect:   |                   |
| 43. Ovary 3-5-locuted:                                    |                   |
| 44. Stamens 4-5   | CELASTRACEAE      |
| 44. Stamens 3:  |                   |
| 45. Ovules axile  | HIPPOCRATEACEAE   |
| 45. Ovules not axile                                      | ERYTHROPALACEAE   |
| 43. Ovary mostly 1-loculed (except<br><i>Buchanania</i> ) | ANACARDIACEAE     |
| 37. Stamens opposite to petals                            |                   |
| 46. Petals valvate:                                       |                   |
| 47. Leaves exstipulate:                                   |                   |
| 48. Ovary 3-5-loculed:                                    |                   |
| 49. Petioles with 2 auricles                              | LEACEAE           |
| 49. Petioles without auricles                             | OLACACEAE         |
| 48. Ovary 1-loculed                                       | OPILIACEAE        |
| 47. Leaves stipulate                                      | VITACEAE          |
| 46. Petals imbricate                                      | SABIACEAE         |
| 36. Carpels not septate                                   | ANCISTROCLADACEAE |
| 8. Sepals valvate in bud:                                 |                   |
| 50. Flowers 3-merous                                      | ANNONACEAE        |
| 50. Flowers 4-6 merous:                                   |                   |

51. Filaments connate:
52. Anthers unilocular:
- 53. Stamens monadelphous MALVACEAE
  - 53. Stamens polyadelphous BOMBACACEAE
52. Anthers bilocular STERCULIACEAE
51. Filaments free:
54. Leaves compound BURSERACEAE
54. Leaves simple:
55. Stamens many:
- 56. Petals ciliate or faciniate ELAEOCARPACEAE
  - 56. Petals not as above TILIACEAE
55. Stamens 4-5 RHAMNACEAE
7. Stamens perigynous or epigynous:
57. Stems not flattened or articulated:
58. Carpels free:
59. Ovules basal or axile:
60. Carpel 1
- 61. Flowers actinomorphic MIMOSACEAE
  - 61. Flowers zygomorphic:
- 62. Upper petal outermost FABACEAE
  - 62. Upper petal innermost CAESALPINIACEAE
60. Carpels more than 1:
63. Flowers bisexual or polygamous:
64. Styles free:
65. Leaves stipulate:
66. Flowers actinomorphic ROSACEAE

|                                       |                  |
|---------------------------------------|------------------|
| 66. Flowers zygomorphic               | CHRYSOBALANACEAE |
| 65. Leaves exstipulate :              |                  |
| 67. Carpels free; fruit a follicle :  |                  |
| 68. Trees or climbing shrubs          | CONNARACEAE      |
| 68. Fleshy herbs                      | CRASSULACEAE     |
| 67. Carpels united; fruit a capsule : |                  |
| 69. Ovary superior                    | MOLLUGINACEAE    |
| 69. Ovary half inferior               | AIZOACEAE        |
| 64. Styles united :                   |                  |
| 70. Calyx lobes imbricate :           |                  |
| 71. Petals imbricate in bud :         |                  |
| 72. Leaves opposite                   | MYRTACEAE        |
| 72. Leaves alternate                  | BARRINGTONIACEAE |
| 71. Petals contorted in bud           | MELASTOMATACEAE  |
| 70. Calyx lobes valvate :             |                  |
| 73. Ovary free from calyx :           |                  |
| 74. Flowers in panicles               | LYTHRACEAE       |
| 74. Flowers solitary                  | SONNERATIACEAE   |
| 73. Ovary adnate to calyx-tube        | ONAGRACEAE       |
| 63. Flowers unisexual :               |                  |
| 75. Fruits 2-3-winged                 | BEGONIACEAE      |
| 75. Fruits not winged                 | CUCURBITACEAE    |
| 59. Ovules pendulous :                |                  |
| 76 Ovules 2 in each locule :          |                  |
| 77. Leaves opposite                   | RHIZOPHORACEAE   |
| 77. Leaves alternate                  | COMBRETACEAE     |

76. Ovule 1 in each locule :
78. Flowers in umbels :
- |   |            |
|---|------------|
| 79. Herbs                               | APIACEAE   |
| 79. Trees or shrubs; sometimes scandent | ARALIACEAE |
78. Flowers not in umbels :
- |                          |             |
|--------------------------|-------------|
| 80. Stigmas capitate     | ALANGIACEAE |
| 80. Stigmas not capitate | CORNACEAE   |
58. Carpels united :
- |                                   |                |
|-----------------------------------|----------------|
| 81. Leaves glandular-hairy        | DROSERACEAE    |
| 81. Leaves not as above :         |                |
| 82. Climbers with tendrils        | PASSIFLORACEAE |
| 82. Erect plants without tendrils | TURNERACEAE    |
57. Stems flattened and articulated
- CACTACEAE
- 6 Petals united :
83. Ovary inferior :
84. Stamens inserted on corolla :
85. Anthers free :
- |                               |                |
|-------------------------------|----------------|
| 86. Ovules 2-4 in each locule | SYMPLOCACEAE   |
| 86. Ovule 1 in each locule :  |                |
| 87. Leaves opposite           | RUBIACEAE      |
| 87. Leaves alternate          | SPHENOCLEACEAE |
85. Anthers connate
- ASTERACEAE
84. Stamens free from corolla
- LOBELIACEAE
83. Ovary superior :
88. Ovary 1-loculed :
89. Stamens opposite to corolla-lobes :

|  |                  |
|--|------------------|
| 90. Calyx glandular                        | PLUMBAGINACEAE   |
| 90. Calyx eglandular                       | MYRSINACEAE      |
| 89. Stamens alternating with corolla-lobes | LENTIBULARIACEAE |
| 88. Ovary 2-many loculed :                 |                  |
| 91. Stamens free from corolla              | EBENACEAE        |
| 91. Stamens inserted on corolla :          |                  |
| 92. Carpels 3 or more                      | SAPOTACEAE       |
| 92. Carpels 2 :                            |                  |
| 93. Flowers regular :                      |                  |
| 94. Leaves opposite :                      |                  |
| 95. Stamens 2 :                            |                  |
| 96. Fruit a drupe                          | OLEACEAE         |
| 96. Fruit a capsule                        | NYCTANTHACEAE    |
| 95. Stamens 4 or more :                    |                  |
| 97. Carpels free :                         |                  |
| 98. Corona present :                       |                  |
| 99. Filaments free at apex                 | PERIPLOCACEAE    |
| 99. Filaments connate at apex              | ASCLEPIADACEAE   |
| 98. Corona absent                          | APOCYNACEAE      |
| 97. Carpels united .                       |                  |
| 100. Ovary 2-loculed :                     |                  |
| 101. Corolla-lobes contorted               | POTALIACEAE      |
| 101. Corolla-lobes valvate                 | STRYCHNACEAE     |
| 100. Ovary 1-loculed                       | GENTIANACEAE     |
| 94. Leaves alternate :                     |                  |

|   |                  |
|---|------------------|
| 102. Floating herbs                             | MENYANTHACEAE    |
| 102. Plants not floating :                      |                  |
| 103. Ovules more than 4 in each locule:         |                  |
| 104. Styles 2-cleft                             | HYDROPHYLACEAE   |
| 104. Styles not as above                        | SOLANACEAE       |
| 103. Ovules 4 in each locule:                   |                  |
| 105. Corolla-lobes imbricate or contorted :     |                  |
| 106. Styles gynobasic                           | BORAGINACEAE     |
| 106. Styles terminal                            | EHRETIACEAE      |
| 105. Corolla lobes plicate                      | CONVOLVULACEAE   |
| 93. Flowers irregular :                         |                  |
| 107. Carpels 2-many ovuled :                    |                  |
| 108. Ovary 1-loculed :                          |                  |
| 109. Plants leafless, parasitic                 | OROBANCHACEAE    |
| 109. Plants leafy; not parasitic                | GESNERIACEAE     |
| 108. Ovary 2-loculed :                          |                  |
| 110. Fruits not opening elastically :           |                  |
| 111. Seeds not winged :                         |                  |
| 112. Ovules many                                | SCROPHULARIACEAE |
| 112. Ovules 2 :                                 |                  |
| 113. Flowers with glands                        | MARTYNIACEAE     |
| 113. Flowers without glands                     | PEDALIACEAE      |
| 111. Seeds winged                               | BIGNONIACEAE     |
| 110. Fruits opening elastically from the apex : |                  |
| 114. Seeds supported on retinacula              | ACANTHACEAE      |
| 114. Seeds not supported on retinacula          | THUNBERGIACEAE   |

107. Carpels 1-ovuled :

115. Fruits not lobed :

116. Inflorescence capitate AVICENNIACEAE

116. Inflorescence spicate VERBENACEAE

115. Fruits 4-lobed LAMIACEAE

5. Calyx absent; corolla rarely present :

117. Flowers bisexual :

118. Ovary inferior :

119. Ovary 4-6-loculed ARISTOLOCHIACEAE

119. Ovary 1-loculed :

120. Plants parasitic on trees; ovule 1 LORANTHACEAE

120. Plants root parasitic; ovules 2-4 SANTALACEAE

118. Ovary superior :

121. Plants herbaceous :

122. Parasitic herbs CASSYTHACEAE

122. Non-parasitic herbs :

123. Terrestrial plants :

124. Leaves exstipulate :

125. Perianth lobes valvate NYCTAGINACEAE

125. Perianth lobes imbricate :

126. Ovary 1-locular AMARANTHACEAE

126. Ovary 2-locular PHYTOLACCACEAE

124. Leaves stipulate POLYGONACEAE

123. Aquatic plants TRISTRICHACEAE

121. Plants arborescent; sometimes climbing :

|   |                   |
|---|-------------------|
| 127. Leaves silvery beneath                                   | ELAEAGNACEAE      |
| 127. Leaves not as above :                                    |                   |
| 128. Perianth lobes valvate                                   | PROTEACEAE        |
| 128. Perianth lobes imbricate :                               |                   |
| 129. Perianth in 2-series                                     | LAURACEAE         |
| 129. Perianth in 1-series                                     | THYMELAEACEAE     |
| 117. Flowers unisexual :                                      |                   |
| 130. Plants leafy :   |                   |
| 131. Leaves exstipulate                                       | MYRISTICACEAE     |
| 131. Leaves stipulate :                                       |                   |
| 132. Ovary 1-loculed :  |                   |
| 133. Perianth absent :  |                   |
| 134. Leaves alternate   | PIPERACEAE        |
| 134. Leaves opposite  | CHLORANTHACEAE    |
| 133. Perianth present :                                       |                   |
| 135. Filaments not inflexed in bud :                          | ULMACEAE          |
| 135. Filaments inflexed in bud :                              |                   |
| 136. Plants with milky sap                                    | MORACEAE          |
| 136. Plants without milky sap :                               |                   |
| 137. Fruit a capsule  | DAPHNIPHYLLOACEAE |
| 137. Fruit a drupe or achene :                                |                   |
| 138. Plants with stinging hairs                               | URTICACEAE        |
| 138. Plants without stinging hairs                            | STILAGINACEAE     |
| 132. Ovary 3-many loculed                                     | EUPHORBIACEAE     |
| 130. Plants leafless  | BALANOPHORACEAE   |
| 4. Leaves parallel nerved; flowers 3-merous;<br>cotyledons 1; |                   |

139. Perianth present:

140. Both perianth segments corolline:

141. Seeds minute, powdery:

142. Flowers unisexual HYDROCHARITACEAE

142. Flowers bisexual:

143. Leaves spinous AGAVACEAE

143. Leaves unarmed:

144. Flowers regular BURMANNIACEAE

144. Flowers irregular ORCHIDACEAE

141. Seeds conspicuous:

145. Ovary inferior:

146. Flowers zygomorphic:

147. Stems spirally twisted COSTACEAE

147. Stems not as above:

148. Outer perianth series free MARANTACEAE

148. Outer perianth series united ZINGIBERACEAE

146. Flowers actinomorphic:

149. Ovules 2-seriate AMARYLLIDACEAE

149. Ovules 1-seriate:

150. Leaves radical:

151. Flowers white; ovule 2 in each locule

HAEMODORACEAE

151. Flowers yellow; ovules many in each locule

HYPOXIDACEAE

150. Leaves caudate

DIOSCOREACEAE

145. Ovary superior:

152. Flowers not in heads :
153. Both perianth series corolline :
- |                                    |                |
|------------------------------------|----------------|
| 154. Aquatic herbs                 | PONTEDERIACEAE |
| 154. Terrestrial shrubs or herbs : |                |
| 155. Climbing shrubs               | SMILACACEAE    |
| 155. Erect herbs                   | LILIACEAE      |
153. Outer perianth series calycine :
- |                                      |                 |
|--------------------------------------|-----------------|
| 156 Leaves ending in spiral tendrils | FLAGELLARIACEAE |
| 156. Leaves not as above             | COMMELINACEAE   |
152. Flowers in dense heads XYRIDACEAE
140. Both perianth segments calycine :
- |                         |              |
|-------------------------|--------------|
| 157. Perianth 2-seriate | ARECACEAE    |
| 157. Perianth 1-seriate | ALISMATACEAE |
139. Perianth absent :
158. Inflorescence of spadices or spikes :
- |                           |             |
|---------------------------|-------------|
| 159. Plants terrestrial : |             |
| 160 Spadix branched       | PANDANACEAE |
| 160. Spadix not branched  | ARACEAE     |
159. Plants aquatic :
- |                                   |                 |
|-----------------------------------|-----------------|
| 161. Flowers in spadices          | TYPHACEAE       |
| 161. Flowers in racemes or spikes | APONOGETONACEAE |
158. Inflorescence of spikelets or heads :
- |  |               |
|--|---------------|
| 162. Flowers in heads                      | ERIOCAULACEAE |
| 162. Flowers in spikelets :                |               |
| 163. Stems solid; ligule not split         | CYPERACEAE    |
| 163. Stems hollow; ligule split in front : |               |
| 164. Shrubs or trees                       | BAMBUSACEAE   |
| 164. Herbs                                 | POACEAE       |

## RANUNCULACEAE Juss.

|   |                  |
|---|------------------|
| Climbing shrubs with tendrils; petals present   | <i>Naravelia</i> |
| Climbing shrubs without tendrils; petals absent | <i>Clematis</i>  |

*Clematis* L.

|   |                         |
|---|-------------------------|
| 1. Leaflets pubescent beneath           | <i>C. gouriana</i>      |
| 1. Leaflets glabrous beneath:           |                         |
| 2. Leaflets acute and apiculate at apex | <i>C. bourdillonii</i>  |
| 2. Leaflets acuminate at apex           | <i>C. naravelioides</i> |

***Clematis bourdillonii*** Dunn in Bull. Misc. Inform. 181. 1914 & in Gamble, Fl. Pres. Madras 1: 2. 1957 (repr. ed.).

Leaves pinnate or bipinnate; leaflets 4-6 x 0.7-3.5 cm, ovate or lanceolate, entire, reticulate. Flowers c. 2 cm in diam., in terminal or axillary panicles; sepals pubescent without, glabrous within; connectives of anthers produced up to 1 mm long.

Rare in evergreen forests of Merchiston. Fl.: Apr.-May.

**Note:** This rare species, which could not be collected, is not represented in MH.

Dunn l.c. mentioned 2 numbers (*Bourdillon* 554, 860) in the protologue but failed to designate one as type or holotype. Both the specimens (syntypes) were examined, and *Bourdillon* 860 University College Herbarium, Thiruvananthapuram is selected as lectotype.

This plant is closely allied to *C. naravelioides* O. Kuntze but can be distinguished by the pubescent sepals and long produced connectives of anthers.

***Clematis gouriana*** Roxb. ex DC. Syst. 1: 139. 1817; Wight, Icon. II. 993. & 934. 1845; FBI 1: 4; Rao 1; Dunn 2.

Leaves 2-pinnate; leaflets 3.5-9.5 x 1-3 cm, glabrous above, pubescent beneath, distantly dentate, ovate-lanceolate, acuminate at apex, obtuse at base. Flowers yellow in panicles.

Fairly common in evergreen forests of Kallar at lower levels.  
Fl.: Apr.-May.

**Clematis naravelloides** O. Kuntze in Verh. Bot. Ver. Brandenb. 26: 119. 1885. *C. hedysarifolia* auct. non DC. 1818; FBI 1: 4; Sant. in Bull. Bot. Surv. India 3: 13. 1961.

Leaves pinnate; leaflets 5-10 x 3-5 cm, glabrous or sparsely hairy, dentate, coriaceous, ovate, acuminate at apex, cuneate at base. Flowers yellowish in panicles.

Rao /, c. reported it from Merchiston.

**Naravelia** Adans. mut. DC. *nom. cons.*

**Naravelia zeylanica** (L.) DC. Syst. 1: 167. 1817; FBI 1: 7; Rao 2; Dunn 3. *Atragene zeylanica* L. Sp. Pl. 542. 1753.

Leaves trifoliolate; terminal leaflets sometimes transformed into tendrils; leaflets 5.5-13.5 x 3-7 cm, distantly toothed, puberulous above, pubescent beneath. Flowers pale yellow. Achenes feathery, tailed.

Frequent along roads in evergreen and semievergreen forests of Kallar. Roots used in the treatment of common cold. Fl.: Nov.-Feb. Fr.: Mar.-Sept. 'Kuruppakodi'

#### DILLENIACEAE Salisb.

- |   |                  |
|---|------------------|
| 1. Perennial herbs                        | <i>Acotrema</i>  |
| 1. Shrubs and trees:                      |                  |
| 2. Trees; young leaves pubescent          | <i>Dillenia</i>  |
| 2. Scandent shrubs; young leaves glabrous | <i>Tetracera</i> |

#### *Acotrema* Jack

**Acotrema arnottianum** Wight, Ill. 1: 9. t. 3. 1840; Majumdar Fasc. Fl. Ind. 2. 2. 1979; FBI 1: 32; Dunn 5.

Herbs with woody rhizomes; stems mostly short, rarely elongated. Leaves 8-26 x 4-12 cm, ovate-oblong, hirsute, denticulate and ciliate along margins, obtuse at apex, cordate at base. Flowers in bracteolate axillary racemes of variable length.

Abundant in road cuttings in moist deciduous forests of Kottur Reserve and evergreen forests of Chemungi. Fl. & Fr.: Apr.-Nov. '*Nilumpunua*'

**Note:** Two types of plants are met with: one with an elongated stem up to 13 cm long and the other without or with a very short stem.

#### Dillenia L.

**Dillenia pentagyna** Roxb. Pl. Cor. 1: 21, t. 20. 1795; FBI 1: 38; Bourd. 1; Dunn 6; Hoogland in Steenis, Fl. Malesiana Ser. 1. 4: 172. 1951 & in Blumea 7: 117. 1952; Majumdar, Fasc. Fl. Ind. 2: 7. 1979.

Spreading trees up to 15 m tall; bark grey; young branches scarred. Leaves 15-35 x 8-15 cm (young ones much larger), oblong-lanceolate, obtuse or subobtuse at apex, acute at base. Flowers yellow, fascicled at nodes of old branches.

Common in grasslands and open forests on the way to Agastyar-kudum. Wood valuable for match boxes and splints. Locally used as house posts and fire wood. Fl.: Jan.-Mar. Fr.: May-Jun. '*Kodapunna*', '*Valapunna*' '*Pattipunna*'

#### Tetracera L.

**Tetracera akara** (Burm.f.) Merr. Philip. J. Sci. 19: 366. 1921; Hoogland in Steenis, Fl. Malesiana Ser. 1. 4: 146. 1951; Majumdar, Fasc. Fl. Ind. 2: 10. 1979. *Calophyllum akara* Burm. f. Fl. Ind. 121. 1768. *Tetracera laevis* auct. non Vahl 1794; FBI 1: 31; Dunn 5. *T. rheedii* DC. Syst. 1: 402. 1817; Wight, Icon. t. 70. 1838.

Leaves 5-12 x 2.5-4 cm, oblong-lanceolate, entire, acuminate at apex, rounded at base. Flowers 4-merous in terminal panicles; sepals broad, ovate, glabrous without, silky within, persistent; petals white, oblong.

Occasional in open forests at low elevations. Stem used for making baskets. Fl. & Fr.: Sept.-Mar. '*Nenelvalli*' '*Akarapatsjoti*'.

*Note* : In the earlier Indian Floras, this plant was misidentified as *Tetracera laevis* Vahl which is conspecific with *T. indica* (Christm. & Panz.) Merr. Hoogland l. c. has shown that this peninsular Indian plant is only *T. akara* (Burm. f.) Merr. which can be easily distinguished by its greater smoothness, narrower, entire and acuminate leaves and the sepals silky pubescent within.

Kostermans 2607 collected from Ponmudi and deposited at CAL, as *T. indica* (Christm. & Panz.) Merr. is only *T. akara* (Burm. f.) Merr.

### MAGNOLIACEAE Juss.

#### *Michelia* L.

*Michelia champaca* L. Sp. Pl. 536. 1753; FBI 1: 42; Bourd. 2; Rao 3; Dunn 6.

Trees 10-15 m tall. Leaves 10-30 x 4-10 cm, sparsely pubescent, broadly oblong, acuminate at apex, cuneate at base. Flowers yellow, axillary, solitary.

Commonly cultivated in public and house gardens. Fl.: Jul.-Mar.

### ANNONACEAE Juss.

- |  |                      |
|--|----------------------|
| 1. Flowers on recurved peduncles         | <i>Artobotrys</i>    |
| 1. Flowers not as above :                |                      |
| 2. Sepals connate at base :              |                      |
| 3. Trees                                 | <i>Cyathocalyx</i>   |
| 3. Scandent shrubs                       | <i>Uvaria</i>        |
| 2. Sepals free :                         |                      |
| 4. Bracts scaly, distichous on peduncles | <i>Goniothalamus</i> |
| 4. Bracts not as above :                 |                      |
| 5. Outer petals sepaloid :               |                      |

- 6. Outer petals as long as inner *Popowia*
  - 6. Outer petals shorter than inner *Miliusa*
  - 5. Outer petals not sepaloid
  - 7. Styles grooved :
    - 8. Ripe carpels tomentose *Meiogyne*
    - 8. Ripe carpels glabrous *Desmos*
  - 7. Styles not grooved :
    - 9. Berries 1-seeded *Polyalthia*
    - 9. Berries many-seeded :
      - 10. Flowers extra-axillary *Cananga*
      - 10. Flowers terminal or leaf-opposed *Annona*
- Annona L.**
- Leaves acuminate at apex *A. reticulata*
  - Leaves acute or obtuse at apex *A. squamosa*

**Annona reticulata** L. Sp. Pl. 537. 1753; FBI 1: 78; Rao 8; Dunn 14.

Trees 3-5 m tall. Leaves 9-17 x 2-4 cm, glabrous, linear-oblong or oblong-lanceolate, narrowed at base. Flowers greenish, fragrant,

Cultivated in house gardens. Sometimes found wild. Fruits edible, antidiarrhetic. Fl. & Fr.: May-Aug. 'Athi'

**Annona squamosa** L. Sp. Pl. 537. 1753; FBI 1: 78; Rao 8; Dunn 14.

Trees 2-4 m tall. Leaves 4.5-10.5 x 1.5-3.5 cm, sparsely pubescent, elliptic or elliptic-oblong, acute at base. Flowers pale yellow, solitary or fascicled.

Cultivated in house gardens. Fruits edible. 'Athi'

**Artobotrys** R. Br.

- Petals yellow, sparsely silky *A. hexapetalus*
- Petals brown, tomentose *A. zeylanicus*

*Artobotrys hexapetalus* (L.f.) Bhandari in Baileya 12(4): 149, 1964. *Annona hexapetala* L.f. Suppl. Pl. 270, 1781. *Artobotrys odoratissimus* R. Br. in Bot. Reg. 423, 1820; FBI 1: 54; Rao 4; Dunn 10.

Straggling shrubs. Leaves 7-11 x 2-4 cm, glabrous, oblong-lanceolate, obtusely acuminate at apex, acute at base. Flowers solitary. Berries yellow.

Commonly grown in gardens and roadsides in and around, Trivandrum City Fl. & Fr.: Jan.-May. 'Manoranjini'

*Artobotrys zeylanicus* Hook. f. & Thoms. in Fl. Ind. 128, 1855 & FBI 1: 54; Bedd. Icon. t.48. 1868-1874; Rao 5; Dunn 10.

Woody, climbing shrubs. Leaves 8-17 x 4-6 cm, elliptic or elliptic-oblong, acuminate at apex, cuneate at base. Flowers fascicled.

Frequent in moist deciduous forests of Kottur. Fl. & Fr.: May-Sept.

*Cananga* Hook. f. & Thoms. *nom. cons.*

*Cananga odorata* (Lam.) Hook. f. & Thoms. Fl. Ind. 130, 1855 & FBI 1: 56; Rao 5. *Uvaria odorata* Lam. Encycl. 1: 595. 1785.

Trees 15-20 m tall. Leaves 15-25 x 7-8 cm, glabrous, broadly oblong, acuminate at apex, obtuse at base. Flowers greenish, in axillary fascicles.

Planted in gardens and along roadsides in and around Trivandrum City. Flowers used in the preparation of hair oil. Fl. & Fr.: Dec.-May. 'Kattuchempakam'

*Cyathocalyx* Champ. ex Hook. f. & Thoms.

*Cyathocalyx zeylanicus* Champ. ex Hook. f. & Thoms. Fl. Ind. 1: 127. 1855; FBI 1: 53; Bedd. Icon. t. 47. 1864-1874; Bourd. 4; Rao 4; Dunn 9.

Trees 12-15 m tall. Leaves 15-23 x 4-9 cm, coriaceous, oblong-lanceolate, acuminate at apex, obtuse at base. Flowers greenish. Fruits up to 4 x 6 cm, yellow.

Rare in evergreen forests of Merchiston. Bark used as fibre for packing. Fl. May-Jul. Fr.: Jan.-Feb.

**Desmos** Lour.

**Desmos lawii** (Hook. f. & Thoms.) Safford in Bull. Torrey Bot. Club 39: 506, 1912. *Unona lawii* Hook. f. & Thoms. Fl. Ind. 132, 1855; FBI 1: 59; Bedd. Icon. t. 73. 1868-1874; Rao 6; Dunn 10.

Erect shrubs 4-5 m tall. Leaves 5-10 × 1.5-2.5 cm, glabrous, lanceolate, acuminate at apex, rounded at base. Flowers yellow; petals up to 5.5 cm long, pubescent; pedicels up to 4 cm long. Ripe carpels green, globose.

Rare in evergreen forests of Koviltheri, Bonecord. Fl. & Fr.: Oct.-Jan.

**Goniothalamus** Hook. f. & Thoms.

**Goniothalamus rhynchantherus** Dunn in Bull. Misc. Inform. 182. 1914 & in Gamble, Fl. Pres. Madras 19. 1915; 1: 43, 1957 (repr. ed.).

Trees 10-14 m tall. Leaves 10-14 × 3-4.5 cm, glabrous, chartaceous, elliptic or elliptic-oblong, acuminate at apex, cuneate at base, margins recurved. Flowers greenish, solitary. Ripe carpels 1 × 4.5 cm, ellipsoid, green.

Rare in evergreen forests of Bonecord at low elevations. Fl. & Fr.: Oct.-Jan.

**Meiogyne** Miq.

**Meiogyne pannosa** (Dalz.) Sinclair in Sarawak Mus. J. 5: 604. 1951. *Unona pannosa* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 3: 207. 1851; King in Ann. Roy. Bot. Gard. Calcutta 4: 55, t. 72. 1893; FBI 1: 58; Bedd. Icon. t. 52. 1868-1874; Bourd. 4; Rao 6; Dunn 10. *Desmos pannosus* (Dalz.) Safford in Bull. Torrey Bot. Club. 39. 506. 1912; Das in Bull. Bot. Surv. India 5: 41. 1963.

Trees 6-9 m tall. Leaves 5-10 × 2-4.5 cm, glabrous above, sparsely pubescent beneath, lanceolate, shortly acuminate at apex, obtuse or cuneate at base. Flowers brownish, solitary, densely tomentose.

Fairly common in evergreen forests of Bonecord. Fl. & Fr.: Dec.-Jun.

*Miliusa* Lesch. ex A. DC.

|                   |                     |
|-------------------|---------------------|
| Carpels glabrous  | <i>M. wightiana</i> |
| Carpels tomentose | <i>M. eriocarpa</i> |

*Miliusa eriocarpa* Dunn in Gamble, Fl. Pres. Madras 21 1915 & in Bull. Misc. Inform. 58, 1916. *M. indica* var. *tomentosa* Hook. f. & Thoms. in Hook. f., Fl. Brit. India 1: 86, 1872.

Trees 3-4 m tall; branchlets strigose. Leaves up to 7.5 x 2.7 cm, ovate-oblong or oblong-lanceolate, obtuse, subacute or emarginate at apex, rounded or subcordate at base. Flowers greenish-pink, solitary, axillary. Carpels pubescent.

Occasional in partially exposed areas of forests at lower elevations. Fl. & Fr.: Jul.-Jan.

*Miliusa wightiana* Hook. f. & Thoms. in Fl. Ind. 149, 1855 & in Hook. f., Fl. Brit. India 1: 87, 1872; Gamble 15; Bedd. Icon t. 86, 1868-1874.

Trees 5-6 m tall; branches glabrate or puberulous. Leaves 3-9.5 x 1.1-2.7 cm, glabrous above, slightly pubescent on nerves beneath, oblong-lanceolate, obtusely acuminate at apex, rounded or obtuse at base. Flowers greenish pink, axillary, solitary. Fruits a ring of globose or oblong, glabrous carpels.

Rare in low level evergreen forests near Kaviar. Fl. & Fr.: May-Aug.

*Polyalthia* Blume

- 1. Leaves glabrous:

  - 2. Flowers mostly fascicled in tubercle of old wood *P. coffeoides*
  - 2. Flowers axillary, umbellate *P. longifolia*
  - 1. Leaves pubescent *P. suberosa*

*Polyalthia coffeoides* (Hook. f. & Thoms.) Benth. & Hook. f. ex Bedd. Icon t. 53, 1868-1874; FBI 1: 62, 1872; Bourd. 5; Rao 6; Dunn 11. *Guatteria coffeoides* Hook. f. & Thoms. Fl. Ind. 141, 1855.

Trees 12-15 m tall. Leaves 12-18 x 3.5-6.5 cm, coriaceous, oblong, acuminate at apex, rounded at base. Flowers yellow.

Rare in evergreen forests of Bonecord and Kottur. Bark fibrous and used as ropes. Fl.: Mar.-Sept. Fr.: Dec.-Jan. 'Villa'

**Polyalthia longifolia** (Sonner.) Thw. Enum. 398. 1864; FBI 1: 62; Bourd. 5; Rao 6; Dunn 11. *Uvaria longifolia* Sonner. Voy. Aux. Indes 2: 233. Pl. 131. 1782; Bedd. Icon. t. 38. 1868-1874.

Trees 10-15 m tall. Leaves 14-22 x 2-4 cm, glabrous, chartaceous, linear-lanceolate, acuminate at apex, obtuse at base. Flowers greenish yellow.

Commonly cultivated along roadsides in and around Trivandrum City. Fl. & Fr.: Mar.-Aug. "Chorunna"

**Polyalthia suberosa** (Roxb.) Thw. Ennm. 398. 1864; FBI 1: 66. 1872; Bourd. 7; Rao 7; Dunn 12. *Uvaria suberosa* Roxb. Pl. Cor. t. 34. 1795.

Trees 5-7-m tall. Leaves 4-11 x 1.5-3.5 cm, chartaceous, oblong, acute at apex, obtuse at base. Flowers greenish yellow. Ripe fruits orange-red.

Occasional in evergreen forests of Bonecord and Ponmudi. Wood used to make furniture Fl. & Fr.; Apr. Feb.

#### **Popowia** Endl.

**Popowia beddomeana** Hook. f. & Thoms, in Hook.f. Fl. Brit. India 1: 68. 1872; King in Ann. Roy. Bot. Gard. Calcutta 119, t. 160B. 1893; Das in Bull. Bot. Surv. India 5: 43. 1963; Bourd. 7; Dunn 12. *P. ramosissima* sensu Bedd. Icon. t. 75. 1868-1874 non Hook.f. & Thoms. 1855.

Trees 5-7 m tall. Leaves 5-8 x 1.5-2.5 cm, glabrous, oblong, acuminate at apex, cuneate at base. Flowers white, tomentose.

Rare in evergreen forests on the way to Agastyarkudam. Fl.: Apr.-Jun.

*Note:* This rare plant was collected from Tirunelveli district by Barber in 1901. After a lapse of over 80 years this plant has been relocated on the way to Agastyarkudam.

## MENISPERMACAE

## Key to the male specimens

1. Stamens connate atleast at the base or the inner ones connate:
2. Stamens united into a peltate synandrium; anthers in a horizontal ring:
  3. Flowers in umbelliform cymes or diskiform capitula  
*Stephania*
  3. Flowers in thyrsoid cymes or pseudo-racemes:
    4. Inflorescence a corymbose cyme  
*Cissampelos*
    4. Inflorescence pseudo-racemose  
*Cyclea*
2. Stamens with the filaments connate or the inner stamens connate  
*Anamirta*
1. Stamens all free:
  5. Inner 3 sepals valvate  
*Tiliacora*
  5. Inner 3 sepals imbricate:
    6. Main basal nerves of leaves with their laterals ending up to the margin  
*Diplocisia*
    6. Main basal nerves of leaves breaking up and anastomosing  
*Tinospora*

## Key to the female specimens

1. Staminodes absent:
2. Styles entire, subulate  
*Tiliacora*
2. Styles 3-6 lobed or divided:
  3. Petals free  
*Stephania*
  3. Petals connate:
    4. Inflorescence with accrescent bracts; drupes pubescent  
*Cissampelos*
    4. Inflorescence without accrescent bracts; drupes glabrous  
*Cyclea*
1. Staminodes present:

5. Seeds and seeds cavity straight:
- |   |                   |
|---|-------------------|
| 6. Stigmas forked   | <i>Tinospora</i>  |
| 6. Stigmas pointed  | <i>Anamirta</i>   |
| 5. Seeds and seed cavity elongate, curved, or horse-shoe shaped | <i>Diplocisia</i> |

**Anamirta Colebr.**

***Anamirta coccus*** Wight & Arn. Prodr. 446. 1134; FBI 1: 98; Rao 11; Dunn 19. *Menispermum coccus* L. Sp. Pl. 340. 1753.

Climbing shrubs. Leaves 30-42 x 15-20 cm, coriaceous ovate; acuminate at apex, cordate at base. Ripe fruits white.

Occasional in moist deciduous and semievergreen forests at lower elevations. Fruits poisonous, used in fishing and externally for skin infections. Fl. & Fr.: Mar.-Apr. '*Polla*'.

***Cissampelos* L.**

***Cissampelos pareira* L. var. *hirsuta*** (Buch.-Ham. ex DC.) Forman in Kew Bull. 22: 356. 1968. *C. hirsuta* Buch.-Ham. ex DC. Syst. 1: 535. 1817. *C. pareira* L. Sp. Pl. 1031. 1753; FBI 1: 103; Dunn 21. *C. convolvulacea* Willd. var. *hirsuta* (Buch.-Ham. ex DC.) Hassk. Pl. Jav. Rar. 171. 1848.

Twining herbs; stems sparsely pubescent. Leaves 4.5-8 x 3-5.5 cm, puberulous above, canescent beneath, peltate-cordate, acuminate with an apicula at the apex; petioles up to 3.5 cm long. Male flowers pale yellow in axillary cymes; female racemed. Drupes ovoid, scarlet.

Fairly common in the cultivated fields of the plains. Fl. Apr.-May. Fr.: Jun. '*Malathangi*'

Note: The earlier varietal epithet- *C. convolvulacea* Willd. var. *hirsuta* (Buch.-Ham. ex DC.) Hassk. dating from 1848 is correctly used by Forman while transferring it to *C. pareira* L.

***Cyclea* Arn. ex Wight**

***Cyclea peltata* (Lam.) Hook. f. & Thoms.** Fl. Ind. 201. 1855

quoad basionym; Diels in Pflanzenrich 46: 312, 1910; FBI 1: 104; Rao 13; Dunn 22. *Menispermum peltatum* Lam. Encycl. 4: 96, 1797. *Cyclea burmanii* (DC.) Hook. f. & Thoms. Fl. Ind. 201, 1855; FBI 1: 104. *Cocculus burmanii* DC. Syst. 1: 517, 1818 & Prodr. 1: 96, 1824.

Climbing shrubs; stems twining, clothed with reflexed hairs. Leaves 10-12 x 4.5-5.5 cm, ciliate, pilose, peltate, slightly retuse or truncate at base. Flowers greenish in axillary drooping panicles. Fruits ovoid.

Common throughout the District in plains. The leaves are locally used as 'thali' (Shampoo) for new born children. 'Padathali'

**Note:** This species was described as *Cyclea burmanii* (DC.) Hook. f. & Thoms. (wrongly accredited to Miers) in FBI. Diels I.c who first established the conspecificity of *Menispermum peltatum* Lam. (1797) with *Cocculus burmanii* DC. (1818), transferred *Menispermum peltatum* to the genus *Cyclea*, making the new combination *C. peltata* (Lam.) Diels. Diels combination is superfluous since Hook. f. & Thoms. I.c. earlier transferred *Menispermum peltatum* Lam. to the genus *Cyclea*; Hook. f. & Thoms., however, as is evident from their description, erroneously applied the new combination *C. peltata* (Lam.) Hook. f. & Thoms. to another species *C. arnotti* Miers, but the combination *C. peltata* (Lam.) Hook. f. & Thoms. must be retained for *Menispermum peltatum* Lam. to which the epithet *peltatum* was applied.

#### Diploclisia Miers

*Diploclisia glaucescens* (Blume) Diels in Engler, Pflanzenrich. 46: 225, 1910; Dunn 28. *Cocculus glaucescens* Blume, Bijdr. 25, 1825. *C. macrocarpus* Wight & Arn. Prodr. 13, 1834; Wight, Ill. t. 7, 1840; FBI 1: 101 1872; Rama Rao 12.

Glabrous lianes, ca 25 m long. Leaves 4-13 x 4-14 cm, subcoriaceous, suborbicular or broadly ovate, obtuse and mucronate at apex, rounded to cordate at base. Male flowers yellow in panicles up to 30 cm long on old leafless branches; female flowers ca 4 mm across in panicles. Drupes obovoid.

Occasional in evergreen and semievergreen forests. Leaves used in Ayurvedic preparations for venereal diseases. Fl. & Fr.: Apr.-Jun.

*Stephania* Lour.

|                              |                    |
|------------------------------|--------------------|
| Flowers in umbellate heads   | <i>S. japonica</i> |
| Flowers solitary or in cymes | <i>S. wightii</i>  |

*Stephania japonica* (Thunb.) Miers in Ann. Nat. Hist. ser. 3, 18: 14. 1866 p. p.; Forman in Kew Bull 1956: 49. 1956; Dunn 21, *Menispermum japonicum* Thunb. Fl. Japan 193. 1784. *Stephania hernandifolia* sensu Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 103. 1872. p. p. non Walp. 1842. *Clypea hernandifolia* Wight & Arn. Prodr. 1: 14. 1834; Wight, Icon. t. 938. 1845, excl. descr.

Twining shrubs. Leaves 17-12 x 4.5-6 cm, glabrous, peltate. Flowers greenish in axillary peduncles. Drupes green, compressed horse-shoe shaped, tubercled.

Frequent in the cultivated field of the midland zone.  
Fl. & Fr.: Mar.-Aug.

Note: Diels (Pfreich. 46: 277. 1910) considered *S. forsteri* (DC.) A. Gray, *S. hernandifolia* (Willd.) Walp. and *S. japonica* (Thunb.) Miers distinct which were merged by Forman f. c. Forman considered the differentiating characters not consistent enough to recognize them separate species. However, he treated three varieties of *S. japonica*, in which our plant fits with the typical one.

*Stephania wightii* (Arn.) Dunn in Gamble, Fl. Pres. Madras 1: 30. 1915 & 1: 21. 1957. (repr. ed.). *Clypea wightii* Arn. in Wight, III. 1: 22. 1840. *Stephania rotunda* sensu Hook. f. & Thoms. Fl. Ind. 197. 1855 & in FBI 1: 103. 1872 p.p., non Lour. 1790.

Climbing shrubs. Leaves 4-14 x 3-11 cm, glabrous, dentate or lobulate, peltate. Flowers greenish in axillary slender peduncles. Drupes green, tubercled, compressed.

Frequent in the moist deciduous forests. Fl. & Fr.: Apr.-Aug.

*Tiliacora* Colebr.

*Tiliacora acuminata* (Lam.) Hook f. & Thoms. Fl. Ind. 187. 1855; Dunn 20. *Menispermum acuminatum* Lam. Encycl. 4: 101. 1797. *Tiliacora racemosa* Colebr. in Trans. Linn. Soc. London 13: 67. 1822; FBI 1: 99; Rao 12.

Climbing shrubs. Leaves 12-17 x 4-7 cm, glabrous, lanceolate, acuminate at apex, rounded at base. Flowers yellowish-white in axillary peduncles. Drupes red.

Fairly common in the midlands along rivers and streams. Fl. & Fr.: Aug.-Dec.

**Tinospora Miers**

**Tinospora cordifolia** (Willd.) Miers in Ann. Nat. Hist. ser. 2, 7: 38. 1851; FBI 1: 97; Rao 11; Dunn 19. *Menispernum cordifolium* Willd Sp. Pl. 4: 826. 1806. *Cocculus cordifolius* (Willd.) DC. Syst. 1: 517. 1818 et Prodr. 1: 97. 1824; Wight, Icon. tt. 485 & 486. 1841.

Climbing shrubs. Leaves 4-13 x 4.5-9 cm, glabrous, cordate, acuminate at apex. Flowers greenish-yellow, fascicled on peduncles in the axils or from old wood. Drupes reddish, globose, sessile.

Fairly common in the plains and in deciduous forests. The plant is used in the treatment of asthma, rheumatism and piles. Fl. & Fr.: Jan.-Mar. 'Sithamarthoo'

**NELUMBONACEAE Dumort.**

**Nelumbo Adans.**

**Nelumbo nucifera** Gaertn. Fruct. 1: 73. 1788. *Nymphaea nelumbo* L. Sp. Pl. 51. 1753. *Nelumbium speciosum* Willd, Sp. Pl. 2: 1258. 1799; Wight, Ill. t. 9. 1840; FBI 1: 116; Rao 14; Dunn 24.

Aquatic, rhizomatous herbs. Leaves 13-25 cm across, floating, glabrous, peltate; petioles up to 3 m long. Flowers rose in peduncles up to 3 m long.

Common in fresh water ponds in the midlands. Fl. & Fr. May-Dec. 'Thamara'

**NYMPHACEAE Salisb.**

**Nymphaea L. nom. cons.**

**Nymphaea nouchali** Burm. f. Fl. Ind. 120. 1768. *N. stellata* Willd. Sp. Pl. ed. 4. 2: 1153. 1799; Wight, Icon. t. 178. 1839; FBI 1: 114; Rao 14; Dunn 24.

Aquatic, rhizomatous herbs. Leaves 9-15 cm diam., floating, glabrous, peltate or rounded, entire or slightly sinuate; petioles 1 m long. Flowers white in axillary peduncles.

Frequent in stagnant pools and canals in midlands. Fl.: Nov.-Jan. 'Vellampal'

### CABOMBACEAE A. Rich.

#### *Cabomba* Aubl.

*Cabomba aquatica* Aubl. Pl. Gui. 1: 321. t. 124. 1775; Alekutty & Imandar in Curr. Sci. 47(4): 137. 1978.

Delicate aquatic herbs with dissected, submerged leaves and white flowers.

Commonly grown in tanks and pools of gardens. Sometimes found wild. Fl. & Fr.: Nov.-Dec.

### BRASSICACEAE Burnett

#### *Brassica* L.

*Brassica juncea* (L.) Gern. & Coss in Czern. Conspl. Chark. 8. n. 6. 1859; FBI 1: 157; Dunn 28. *Sinapis juncea* L. Sp. Pl 668. 1753.

Erect, branched herbs up to 75 cm tall. Leaves 3-6 x 0.5-2 cm, hispid, oblong-lanceolate, serrate, acute at apex, cuneate at base. Flowers yellow in corymbs

Frequent in Ponmudi near habitation. Seeds used as condiment, yield oil: Fl. & Fr.: Nov.-Feb. 'Kaduku'.

### CAPPARACEAE Juss.

#### *Capparis* L.

1. Ovary tomentose:

2. Flowers 8-10 cm across

*C. rheedii*

2. Flowers less than 5 cm across:

3. Leaves 12-15 cm long

*C. fusifera*

3. Leaves less than 9 cm long *C. brevispina*
1. Ovary glabrous:
4. Flowers in supra-axillary umbels *C. zeylanica*
4. Flowers in axillary umbels *C. sepiaria*

*Capparis brevispina* DC. Prodr. 1: 246. 1824; Wight, Icon. t. 126. 1837; Dunn 32. *C. zeylanica* sensu Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 174. 1872 p.p. non L. 1762; Rao 19.

Erect, thorny shrubs C. 1.5 m tall. Leaves 5-9 x 1.5-4.5 cm, elliptic or ovate, acute at both ends. Flowers 3 cm across, white, axillary, solitary; ovary on a gynophore up to 2 cm long. Fruits orange-red, fleshy, many-seeded.

Frequent in the rocky areas of the coast of Kovalam. Fruits edible. Fl. & Fr.: Nov.-Feb.

*Capparis fusifera* Dunn in Bull. Misc. Inform. 377. 1914 & in Gamble, Fl. Pres. Madras 1: 32. 1957 (repr. ed.); Joseph & Chandras. in Bull. Bot. Surv. India 20: 156. 1978. *C. tomentella* Dunn in Gamble, Fl. Pres. Madras 46. 1915 & 1: 33. 1957 (repr. ed.). *C. parviflora* sensu Bedd. Icon. t. 276. 1868-1874, non Hooker. f. & Thoms. 872; Rao 20.

Shrubs 1.5-2 m tall. Leaves elliptic-oblong, acuminate at apex, narrowed at base. Flowers white in axillary and terminal umbels, Fruits 7.6 x 2 cm, spindle-shaped.

Occasional in evergreen forests at Bonecord. Fl. & Fr.: Mar.-Dec.

*Capparis rheedii* DC. Prodr. 1: 246. 1824; Nicolson in Bull. Bot. Surv. India 17: 161. 1975 (1978). *C. heyneana* Wall. ex Wight & Arn. Prodr. 25. 1834; FBI 1: 174; Rao 19; Dunn 32. *C. baducca* auct. non L. 1753.

Armed, climbing shrubs. Leaves 6-13 x 3-5 cm, glabrous, chartaceous, lanceolate, acuminate at apex, cuneate at base. Flowers blue, fascicled on axillary peduncles.

Occasional in moist deciduous forests of Braemore. Fl. & Fr.: Mar.

*Capparis sepiaria* L. Syst. Nat. ed. 10. 2: 1071. 1759; FBI 1: 177; Rao 20; Dunn 33. *C. incanescens* DC. Prodr. 1: 247. 1824; Hook. Icon. t. 123. 1837.

Armed, straggling shrubs. Leaves 2.5 x 1-1.5 cm, glabrous, elliptic, subacute at apex, acute at base. Flowers white in axillary umbels.

Occasional in drier areas of the district. Fl. & Fr.: Nov.-Apr.

*Capparis zeylanica* L. Sp. Pl. ed. 2. 270. 1762; Dunn 33. *C. horrida* L. f. Suppl. 264. 1781; Wight, Icon. t. 173. 1839; FBI 1: 178.

Armed, scrambling shrubs. Leaves 4-6.5 x 2-3 cm, glabrous, ovate, obtuse at apex, cuneate at base. Flowers 3 cm across, pale yellow in axillary fascicles.

Occasional in drier areas of the district. Fl. & Fr.: Mar.-May.

### CLEOMACEAE (Pax) Airy Shaw

#### *Cleome* (L.) DC.

1. Leaves 3-5-foliate:

2. Capsules with gynophore *C. burmannii*

2. Capsules without gynophore:

3. Herbs 10-15 cm tall *C. aspera*

3. Herbs 30-50 cm tall *C. viscosa*

1. Leaves always 5-foliate *C. gynandra*

*Cleome aspera* Koen. ex DC. Prodr. 1: 241. 1824; Wight, Icon. t. 287. 1840; FBI 1: 169; Rao 17; Dunn 29; Jacobs in Steenis, Fl. Malesiana ser. 1. 6: 105. 1960.

Erect or prostrate branched herbs, sparsely clothed by white prickles. Leaves trifoliolate, ciliate, ovate-lanceolate; terminal leaflets c. 2 x 0.5 cm, obtuse at apex, cuneate at base. Flowers yellow, solitary. Capsules tapering at both ends, glabrous.

Common in the sand strands along the coast. Fl.: Jun. Fr.: Jul.

**Cleome burmannii** Wight & Arn. Prodr. 22. 1834; FBI 1: 170; Dunn 29.

Diffuse, branched herbs. Leaves trifoliolate; terminal leaflets up to 3 x 15 cm, elliptic, acute at both ends, laterals smaller. Flowers violet, solitary, axillary. Capsules glabrous on a gynophore up to 0.7 cm long.

Common in wastelands of the midland zone. Fl. & Fr.: Nov.-Jan.

**Cleome gynandra** L. Sp. Pl. 671. 1753; Iltis in Brittonia 12: 284. 1960; Jacobs in Steenis, Fl. Malesiana ser. 1. 6: 101. 1960. *Gynandropsis pentaphylla* (L.) DC. Prodr. 1: 238. 1824; FBI 1: 171; Rao 17; Dunn 29. *Cleome pentaphylla* L. Sp. Pl. ed. 2. 983. 1762. *C. gynandra* (L.) Briquet in Annaire Conserv. Jard. Bot. Geneve 17: 382. 1914.

Erect, branched, glandular herbs with disagreeable fragrance. Leaves 5-foliate, terminal leaflets up to 4.5 x 2.5 cm, minutely denticulate, obovate, rounded at apex, cuneate at base. Flowers white in corymbs.

Frequent in wastelands of the plains. Plants edible. 'Karyela'

*Note:* *Cleome gynandra* has, in recent past, been treated as belonging to a separate genus *Gynandropsis*. Iltis I.c. has recently given convincing reasons for restoring this species to *Cleome*, and his treatment has been followed.

**Cleome viscosa** L. Sp. Pl. 672. 1753; Wight, Icon. t. 2. 1838; FBI 1: 170; Rao 170; Dunn 29; Jacobs in Steenis, Fl. Malesiana ser. 1. 6: 103. 1960.

Erect, branched, viscid, hairy herbs, 30-50 cm tall. Leaves up to 5 cm long, 3-5-foliate; leaflets 1-2.5 x 0.8-1 cm, oblong, acute or obtuse at apex, narrowed at base. Flowers yellow, solitary in reduced leaf axils. Capsules up to 7.5 cm long.

Frequent throughout the coastal and midland zones. Fl. & Fr.: Jun-Jul. 'Aryava' 'Naikadugu'.

## VOLACEAE Batsch

1. Trees or shrubs *Rinorea*

1. Herbs :

2. Lower petals spurred at base *Hybanthus*

2. Lower petals not spurred *Viola*

*Hybanthus* Jacq. nom. cons.

Flowers red; seeds finely striate *H. enneaspermus*

Flowers pink, seeds obscurely striate *H. travancoricus*

*Hybanthus enneaspermus* (L.) F. v. Muell., Fragm. Phyt. Anstr. 10: 81, 1876; Tennant in Kew Bull. 16: 431, 1963. *Viola enneasperma* L. Sp. Pl. 937, 1753. *Ionidium suffruticosum* (L.) Roem. & Schult. Syst. Veg. 5: 394, 1819; Ging. in DC. Prodr. 1: 311, 1824; Wight. Icon. t. 308, 1840 & III. t. 19, 1840; FBI 1: 185; Dunn 35. *Viola suffruticosa* L. Sp. Pl. 937, 1753.

Erect spreading herbs 15-20 cm tall. Leaves 1-2 x 0.2-0.6 cm, linear-oblong or obovate, obtuse at apex, cuneate at base. Flowers pink, axillary, solitary.

Frequent in plains throughout the district. Fl. & Fr.: Apr.-May. 'Orilathamara' 'Kalthamara'

Note : *Viola suffruticosa* L. (1753) and *V. enneasperma* L. (1753) were first united under one species by Dalzell & Gibson (Bombay Flora 12, 1861), and his choice of the epithet 'enneasperma' for the combined species has been retained.

*Hybanthus travancoricus* (Bedd.) Melch. in Engler & Prantl, Pflanzenfam. ed. 2. 21: 360, 1925. *Ionidium travancoricum* Bedd. Icon. t. 230, 1868-1874; Dunn 35.

Erect undershrubs 1-1.5 m tall. Leaves 3-9 x 0.5-1 cm, serrate, glabrous, linear-lanceolate, acuminate at apex, cuneate at base. Flowers pink, axillary, solitary.

Occasional at higher elevations of ghat. Fl. & Fr.: Jul.-Sept.

*Rinorea* Aubl.

*Rinorea zeylanica* (Thw.) O. Kuntze, Rev. Gen. Pl. 1: 42, 1891;

Jacobs in Blumea 15: 128, 1967. *Alsodeia zeylanica* Thw. Enum. 21, 1858; FBI 1: 187; Dunn 35.

Trees 7-9 m tall. Leaves 8-15 x 3-5 cm, serrate, glabrous, coriaceous, oblanceolate, acuminate at apex, cuneate at base. Flowers white in axillary peduncles.

Occasional along river banks at low elevations in semievergreen forests. Fl. & Fr.: Feb.-May.

#### **Viola L.**

*Viola pilosa* Blume, Cat. Gen. Buitenz. 57, 1823; Jacobs & Moore in Steenis, Fl. Malesiana ser. 1, 7: 207, 1971. *V. serpens* Wall. ex Ging in DC. Prodr. 1: 296, 1824; FBI 1: 184; Rao 21; Dunn 35. *V. wightiana* Wall. ex Wight, Icon. t. 934, 1845.

Stoloniferous herbs. Leaves 3-9 x 2-3 cm, dentate, glabrous, ovate, acute at apex, sinuate at base. Flowers pink, solitary on peduncles up to 12 cm long.

Occasional in evergreen forests. Fl. & Fr.: May-Jul.

#### **BIXACEAE Link**

##### **Bixa L.**

*Bixa orellana* L. Sp. Pl. 512, 1753; Bedd. Fl. Sylv. t. 79, 1871; FBI 1: 190; Dunn 37.

Trees 4-6 m tall; branchlets tomentose. Leaves 9.5-18.5 x 5-9.5 cm, glabrous above, pubescent beneath, ovate, acuminate at apex, cordate at base. Flowers reddish white in terminal panicles. Capsules red, bristly.

Cultivated in public and house gardens. Fl. & Fr.: Sep.-Nov. 'Kunkumam'.

#### **FLACOURTIACEAE DC.**

(Incl. SAMYDACEAE)

1. Petals present:

2. Stigmas sessile

*Hydnocarpus*

|                                       |                       |
|---------------------------------------|-----------------------|
| 2. Stigmas on persistent styles       | <i>Scolopia</i>       |
| 1. Petals absent:                     |                       |
| 3. Plants armed                       | <i>Flacourtie</i>     |
| 3. Plants unarmed                     | <i>Casearia</i>       |
|                                       | <i>Casearia</i> Jacq. |
| 1. Leaves acuminate at apex           | <i>C. ovata</i>       |
| 1. Leaves obtuse or subacute at apex: |                       |
| 2. Leaves entire                      | <i>C. coriacea</i>    |
| 2. Leaves crenate-serrate             | <i>C. graveolens</i>  |

**Casearia coriacea** Thw. Enum. 20. 1858; FBI 2: 592; Gamble 368.

Trees Leaves 8-10 x 3-5 cm, obovate, cuneate at base. Flowers white in axillary clusters. Capsules orange.

Rare in evergreen forests of Agastyarkudam. Fl. & Fr.: Jan.-Mar.

**Casearia graveolens** Dalz. in Hooker's J. Bot. Kew Gard. Misc. 4: 107. 1852; FBI 2: 592; Fisch. in Rec. Bot. Surv. India 9(1): 84. 1921; Gamble 367.

Trees 4-7 m tall. Leaves 12-15 x 5-8 cm, broadly elliptic, rounded at base. Flowers green with a disagreeable smell, in axillary clusters. Fruits deep yellow.

Occasional in drier areas. Fl. & Fr.: Nov.-Mar.

**Casearia ovata** (Lam.) Willd. Sp. Pl. 2: 629. 1799; Mukherjee in Bull. Bot. Surv. India 4: 184. 1972. *Anavinga ovata* Lam. Encycl. 1: 148. 1789. *Casearia esculenta* Roxb. Fl. Ind. 2: 422. 1832; FBI 2: 592; Rao 182; Gamble 368. *C. varians* Thw. Enum. 19: 1864, non Bedd. 1873.

Shrubs or small trees. Leaves 8.5-15.5 x 5-6 cm, glabrous, broadly elliptic, acute at base. Flowers white in axillary clusters. Capsules ellipsoid.

Frequent in evergreen forests of Kallar and Bonecord. Fruits used for dying. Fl. & Fr.: Apr.-Sept. 'Malampavetta'

*Flacourтия* Comm. ex L. Herit.

*Flacourтия indica* (Burm. f.) Merr. Interpr. Rumph. Herb. Amb. 377. 1917. *Gmelina Indica* Burm. f. Fl. Ind. 132. t. 39. f. 5. 1768. *Flacourтия sepiaria* Roxb. Pl. Cor. t. 68. 1795; FBI 1: 194. Rao 23; Dunn 38.

Woody, armed shrubs; branches sometimes scandent. Leaves 1-3.5 x 0.5-1.5 cm, coriaceous, serrate, obovate, obtuse at apex, cuneate at base. Flowers white in racemes usually on the thorns. Drupes 4-lobed, green.

Common throughout the drier regions. Fruits edible. Fl. & Fr.: Mar.-Sep. 'Mully'

*Hydnocarpus* Gaertn.

- |                                       |                      |
|---------------------------------------|----------------------|
| 1. Leaves entire, glabrous:           |                      |
| 2. Stigmas 2-lobed                    | <i>H. macrocarpa</i> |
| 2. Stigmas 5-lobed                    | <i>H. alpina</i>     |
| 1. Leaves serrate, sparsely pubescent | <i>H. pentandra</i>  |

*Hydnocarpus alpina* Wight, Icon. t. 942. 1845; FBI 1: 197; Bourd. 19; Rao 24; Dunn 37.

Trees 9-12 m tall. Leaves 7-20.5 x 3.5-5.5 cm, lanceolate, or oblong-lanceolate, obtusely acuminate at apex, acute at base. Flowers pale yellow in racemes. Fruits 5-10 cm across brown, tomentose,

Occasional in river banks of evergreen forests in Kottaram vachapara and adjoining areas. Fl.: Nov.-Dec. Fr.: Mar.-May. 'Pinervetty'

*Hydnocarpus macrocarpa* (Bedd.) Warb. in Engler & Prantl, Pflanzenf. 3: 6a, 21. 1823. *Asteriastigma macrocarpa* Bedd. For. Man. Bot. 236. 1837; Bourd. 17; Rao 23; Dunn 38. *Hydnocarpus macrocarpa* (Bedd.) Warb. subsp. *malabarica* Sleumer in Bot. Jahrb. 69: 28. 1938.

Trees 12-15 m tall. Leaves 17-22 x 6-8 cm, chartaceous, broadly oblong or oblanceolate, abruptly acuminate at apex, obtuse or acute at base. Flowers ca 2 cm across, white, with disagreeable fragrance, in fascicles from old wood. Fruits ca 10 cm across woody globose.

Rare in evergreen forests of Merchiston and Ponmudi. Fl. & Fr.: Dec.-Apr.

*Note*: Mukherjee (Bull. Bot. Surv. India 14 (1-4) : 183. 1972) has shown that the nomenclatural type of *H. macrocarpa* includes that of subsp. *malabarica* Sleumer also.

**Hydnocarpus pentandra** (Buch.-Ham.) Oken, Allg. Naturgesch. III. 2: 1381. 1841; Mukherjee in Bull. Bot. Surv. India 14: 183. 1972. *Chilmoria pentandra* Buch-Ham. in Trans. Linn. Soc. London 13: 501. 1822. *Hydnocarpus laurifolia* (Dennst.) Sleumer in Bot. Jahrb. 69: 33. 1938. *Munnicksia laurifolia* Dennst. Schluss. Hort. Ind. Mal. 27 1818, *nom. nud.* *Hydnocarpus wightiana* Blume, Rumph. 4: 22. 1848; FBI 1: 196; Bourd. 18; Rao 24; Dunn 37.

Trees 7-9 m tall. Leaves 8-21 x 2.2-6.5 cm, pubescent below, serrate, elliptic, acuminate at apex, acute at base. Flowers white in axillary racemes; peduncles and sepals brown, tomentose. Berries globose, tomentose.

Common along river banks at low elevations. Oil extracted from the seeds used in Ayurvedic preparations for rheumatism. Fl. & Fr.: Nov.-May. 'Maravatty'

*Note*: Sleumer's *I.c.* *H. laurifolia* is illegitimate as it is based on *M. laurifolia* Dennst. (1818) which is a nomen nudum (vide Taxon 17: 501. 1968).

#### **Scolopia Schreb *nom cons.***

**Scolopia crenata** (Wight & Arn.) Clos in Ann. Sci. Nat. Bot. ser. 4. 8: 250. 1857; Bedd. Fl. Sylv. t. 78. 1871; FBI 1: 191; Bourd. 16; Rao 22; Dunn 38; Sleumer in Blumea 20: 34. 1972. *Phoberos crenatus* Wight & Arn. Prodr. 29. 1134.

Armed trees 3-5 m tall. Leaves 4.5-10 x 2-6 cm, obscurely crenate or entire, ovate or elliptic, obtusely acuminate at apex' rounded or cuneate at base. Flowers white in axillary and terminal racemes. Fruits 2 x 2 cm, globose.

Occasional in drier open areas of ghats. Fruits edible. Fl. & Fr.: Mar.-Oct.

## PITTOSPORACEAE R. Br.

*Pittosporum* Banks ex Soland. *nom. cons.*

|                                    |                         |
|------------------------------------|-------------------------|
| Flowers in racemose inflorescence  | <i>P. neilgherrense</i> |
| Flowers in umbellate inflorescence | <i>P. tetraspermum</i>  |

*Pittosporum neilgherrense* Wight & Arn. Prodr. 154, 1834; Wight, Ill. 1: t. 70, 1840; FBI 1: 198, 'nilghirensis'; Bourd. 20; Rao 24; Dunn 40; Nayar, Fasc. Fl. Ind. 6: 11, 1980.

Trees 4-5 m tall. Leaves 2-8.5 x 1-2.5 cm, elliptic or oblanceolate, crowded at the ends of branches, subacute at apex, cuneate at base. Flowers pale yellow. Fruits 0.7 x 0.5 cm, globose, 2-valved.

Frequent in rocky slopes of Agastyarkudum. Fl. & Fr.: Feb.-Mar.

*Pittosporum tetraspermum* Wight & Arn. Prodr. 154, 1834; Wigt., Icon. t. 971, 1845; FBI 1: 198; Bourd. 20; Rao 24; Dunn 40; Nayar, Fasc. Fl. Ind. 6: 9, 1980.

Trees, 3-4 m tall. Leaves 2.5-8.5 x 1-2.3 cm, glabrous, elliptic or oblanceolate, obtusely acute at apex, cuneate at base. Flowers yellow. Fruits green, globose.

Fairly common in rocky slopes of Agastyarkudum. Fl. & Fr.: Feb.-Apr. 'Katchappata'

## POLYGALACEAE R. Br.

*Polygala* L.

- 1. Capsules glabrous :

  - 2. Capsules winged *P. sibirica*
  - 2. Capsules not winged *P. telephiooides*

- 1. Capsules hairy :

  - 3. Whole plant bulbous based hairy *P. bolbothrix*
  - 3. Whole plant not as above :

- 4. Undershubs *P. javana*
- 4. Herbs :

  - 5. Racemes less than 1.5 cm long *P. chinensis*
  - 5. Racemes more than 3 cm long *P. rosmarinifolia*

*Polygala bolbothrix* Dunn in Gamble Fl. Pres. Madras 58, 1915 & 1: 42. 1957 (repr. ed.); in Bull. Misc. Inform. 63, 1916; Mukherjee in Bull. Bot. Soc. Bengal 12: 37. 1958; Chandrab. & Nair in Proc. Indian Acad. Sci. 90(2): 120. 1981. *P. ramaswamiana* Mukherjee in J. Bombay Nat. Hist. Soc. 53: 55, 1955 & Bull. Bot. Soc. Bengal 12: 38. 1958.

Erect or decumbent herbs 30-40 cm long. Leaves 0.2-3 x 0.3-1.2 cm, elliptic-oblong, obovate or oblanceolate, ciliate, obtuse at apex, narrowed at base. Flowers pink in axillary or extra-axillary racemes.

Occasional in the exposed areas of the ghats in Podmudi, Fl. & Fr.: Jun.-Feb.

*Note* : The size and vestiture of leaves are highly variable.

*Polygala chinensis* L. Sp. Pl. 704. 1753; FBI 1: 204; Rao 25; Dunn 42; Mukherjee in Bull. Bot. Soc. Bengal 12: 38. 1958; Chandrab. & Nair in Proc. Indian Acad. Sci. 90(2): 118. 1981. *P. glomerata* Lour. Fl. Cochinch. 426. 1790; FBI 1: 206; Adema in Blumea 14: 210. 1966; Burtt in Notes Roy. Bot. Gard. Edinburgh 32: 404. 1973.

Erect, branched herbs 15-20 cm tall. Leaves 0.8-2.5 x 0.3-0.8 cm, glabrous or sparsely pubescent, obovate to elliptic, obtuse at apex, cuneate at base. Flowers yellow in axillary or extra-axillary racemes up to 1.5 cm long.

Fairly common among coconut plantations in the coastal and midland zones. Fl. & Fr.: Jun.-Sept.

*Note* : Burtt's *i.c.* suggestion to reject the earlier Linnean specific epithet '*chinensis*' is incorrect as per latest edition of the Code unless it is referred to the general committee for inclusion in the list of *nomina rejicienda*, although the cospecificity of *P. chinensis* L. and *P. glomerata* Lour. had been established by Burtt.

**Polygala javana** DC. Prodr. 1: 327. 1824; FBI 1: 201; Rao 25; Dunn 42; Mukherjee in Bull. Bot. Soc. Bengal 12: 44. 1958; Adema in Blumea 14: 261. 1966; Chandrab. & Nair in Proc. Indian Acad. Sci. 90(2): 112. 1981.

Erect, branched, strigose herbs 25-35 cm tall. Leaves 1.5-3 x 0.5-1 cm, villous, obovate, obtuse at apex, cuneate at base. Flowers pink in erect, axillary racemes.

Occasional among coconut plantations in the midlands. Fl. & Fr.: Aug.-Nov.

**Polygala rosmarinifolia** Wight & Arn. Prodr. 37. 1834; FBI 1: 204; Rao 25; Dunn 42; Mukherjee in Bull. Bot. Soc. Bengal 12: 38. 1958; Chandrab. & Nair in Proc. Indian Acad. Sci. 90(2): 122. 1981.

Erect or decumbent herbs. Leaves 0.4-5 x 0.2-0.5 cm, subsessile, elliptic-oblong, sparsely pubescent, acute, or obtuse at apex, narrowed at base. Flowers yellow in extra-axillary racemes up to 3 cm long.

Common in the exposed rocky slopes of the ghats. Fl. & Fr.: Jun.-Sept.

**Polygala sibirica** L. Sp. Pl. 702. 1753; FBI 1: 205; Rao 25; Dunn 42; Mukherjee in Bull. Bot. Soc. Bengal 12: 43. 1958; Chandrab. & Nair in Proc. Indian Acad. Sci. 90(2): 113. 1981. *P. sibirica* L. var. *heyneana* (Wall. ex Wight & Arn.) Benn. in Hook. f. Fl. Brit. India 1: 205. 1872. *P. heyneana* Wall. ex Wight & Arn. Prodr. 1: 38. 1834.

Erect or decumbent herbs. Leaves 0.2-2.5 x 0.1-0.5 cm, elliptic-oblong, obovate or oblanceolate, puberulous along the nerves, obtuse and emarginate at apex, narrowed at base. Flowers violet in axillary or extra-axillary racemes.

Rare in exposed grassy slopes of the Agastyarkudum. Fl. & Fr.: May-Sept.

**Polygala telephiooides** Willd. Sp. Pl. 3: 876. 1802; FBI 1: 205. 1872; Rao 25; Dunn 42; Chandrab. & Nair in Proc. Indian Acad. Sci. 90: 117. 1981. *P. brachystachya* DC. Prodr. 1: 326. 1824, non Blume 1825; Mukherjee in Bull. Bot. Soc. Bengal 12: 43. 1958. *P. chinensis* sensu Adema in Blumea 14: 269. 1966. non L. 1753.

Erect herbs 15-25 cm tall. Leaves 0.8-1.5 x 0.2-0.6 cm, glabrous, obovate or oblong, obtuse and mucronate at apex, narrowed at base. Flowers yellow with a violet centre, in leaf-opposed racemes.

Fairly common in open deciduous forests of Kottur Reserve. Fl. & Fr.: Sept.-Jan.

### XANTHOPHYLLACEAE (Chodat) Gagnep.

*Xanthophyllum Roxb.* nom. cons.

*Xanthophyllum flavescens* Roxb., Pl. Cor. 3 82. t. 284. 1820; FBI 1: 209. incl. var. *angustifolium* Wight; Dunn 42.

Trees 6-9 m tall. Leaves 6.5-15 x 1.5-5 cm, coriaceous, elliptic-lanceolate, acuminate at apex, acute or cuneate at base. Flowers pale yellow in axillary and terminal racemes. Fruits globose or ovoid.

Abundant along river banks at low elevations in Kallar and Kaviar. Fl. & Fr.: Nov.-May. 'Madakka'

Note: Alston's (Trimen, Handb. Fl. Ceylon 6 (Suppl.): 16. 1931) combination *Xanthophyllum geminiflorum* based on *Kaulfusia geminiflora* Dennst. (Schult. Hort. Ind. Mal. 30. 1818) is illegitimate as the latter name was not validly published.

### CARYOPHYLLACEAE Juss.

1. Diffuse herbs; leaves glabrous :
2. Leaves cordate, petioled *Drymaria*
2. Leaves lanceolate or oblong, sessile *Polycarpon*
1. Erect herbs ; leaves strigose *Polycarpaea*

*Drymaria* Willd. ex Roem. & Schult.

*Drymaria cordata* (L.) Willd. ex Roem. & Scult. Syst. Veg. 5: 406. 1814; FBI 1: 244. excl. syn. *Cerastium cordifolium* Roxb. Dunn 46; *Holosteum cordatum* L. Sp. Pl. 88. 1753. *Drymaria diandra* Blume. Bijdr. 62. 1825; Mizushima in J. Jap. Bot. 32: 79. f. 4. 1957. *D. cordata* subsp. *diandra* (Blume) Duke in Ann. Missouri Bot. Gard. 48: 253. 1961; Majumdar in Bull. Bot. Surv. India 10: 244. 1968(1969).

Diffuse, branched herbs. Leaves 0.5-1 x 0.4-1.4 cm, orbicular, glabrous; stipules bristle-like. Flowers white in axillary and terminal cymes. Capsules ovoid, trigonal.

Common in wastelands and tea plantations in Ponmudi and Bonecord. Fl. & Fr.: Nov.-Feb.

*Note:* Mizushima /c. reinstated *D. diandra*. But Duke /c. reduced this to subspecific status as there were intermediates with overlapping characters. Our specimens match well with subsp. *cordata*.

**Polycarpea** Lam. *nom. cons.*

**Polycarpea corymbosa** (L.) Lam. Tabl. Encycl. 2: 129. 1797; Wight, Icon. t. 712. 1843; FBI 1: 245; Rao 26; Dunn 46. *Achyranthes corymbosa* L. Sp. Pl. 205. 1753.

Erect herbs, 20-25 cm tall; stems strigose. Leaves 0.3-1.5 x 0.1 cm, fascicled at nodes, subulate; stipules scarious. Flowers white in branched cymes. Capsules 3-valved.

Common in the sand strands of the coastal zone. Fl. & Fr.: Aug.-Dec. 'Akkaramkollî'

**Polycarpon** Loefl. ex L.

**Polycarpon prostratum** (Forsk.) Aschers. & Schweinf. in Osterr. Bot. Zeit. 39: 128. 1889; Bole & Almeida in J. Bombay Nat. Hist. Soc. 77(2): 457. 1980. *Alsine prostrata* Forsk. Fl. Aeg.-Arab. 207. 1775. *Polycarpon loefflingiae* (Wall. ex Wight & Arn.) Benth. ex Edgew. & Hook. f. in Fl. Brit. India 1: 245. 1874; Dunn 46. *Hapalosa loefflingiae* Wall. ex Wight & Arn. Prodr. 358. 1834.

Diffuse, branched herbs with woody, deep, tap roots. Leaves 0.7-1.7 x 0.2-0.4 cm, opposite or 3-4 fascicled in axils, glabrous, sessile or subsessile, oblong or oblanceolate, acute at apex, cuneate at base; stipules scarious. Flowers white, crowded in cymes, older sessile and the younger pedicellate. Capsules 3-valved.

Common in wastelands in the northernmost part of the District. Fl. & Fr.: Mar-Jun.

## PORTULACACEAE Juss.

|  |                  |
|--|------------------|
| Prostrate herbs; flowers yellow        | <i>Portulaca</i> |
| Erect or decumbent herbs; flowers pink | <i>Talinum</i>   |

*Portulaca* L.

|                               |                      |
|-------------------------------|----------------------|
| Flowers solitary, sunken      | <i>P. quadrifida</i> |
| Flowers clustered, not sunken | <i>P. oleracea</i>   |

*Portulaca oleracea* L. Sp. Pl. 445. 1753; Greensink in Blumea 17: 292. 1962; FBI 1: 246; Rao 26; Dunn 47.

Diffuse, succulent herbs; branches 20 cm long, sometimes erect. Leaves 0.5-1.5 x 0.3-0.8 cm, puberulous, obovate, obtuse at apex, cuneate at base. Flowers yellow, terminal surrounded by a whorl of leaves. Capsules circumscissile.

Abundant in moist places throughout the plains. Leaves used as a vegetable. Fl. & Fr.: Aug. - Nov.

*Portulaca quadrifida* L. Syst. Nat. ed. 12. 328. 1766 & Mant. Pl. 73. 1767; FBI 1: 247; Rao 27; Dunn 47; sant. in Rec. Bot. Surv. India 16: 16. 1966 (repr. ed.).

Prostrate herbs; nodes densely hairy. Leaves 1-3 mm long, ovate, acute at apex, rounded at base. Flowers yellow, solitary, half sunken in the enlarged end of the pedicel surrounded by 4 involucral leaves. Capsule circumscissile.

Common in the sea coast of Kovalam. Fl. & Fr.: Jul.-Aug. 'Neelakeera'

*Talinum* Adans.

*Talinum portulacifolium* (Forsk.) Aschers. & Schweinf. in Bull. Herb. Boissier 4. App. 2: 172. 1896. *Orgyia portulacifolia* Forsk. Fl. Aeg.-Arab. 103. 1775. *Talinum cuneifolium* (Vahl) Willd. Sp. Pl. 2: 864. 1799; FBI 1: 247; Rao 27; Dunn 48. *Portulaca cuneifolia* Vahl, Symb. Bot. 1: 33. 1790.

Succulent herbs, erect or decumbent. Leaves 5-8 x 1-2 cm, membranous, fleshy, glabrous, emarginate at apex, cuneate at base. Flowers pink, in terminal racemes. Capsules globose.

Common in wastelands near railway tracks. Fl.: May-Jun.  
Fr.: Aug.-Dec.

CLUSTACEAE Lindl.

1. Leaves with transparent dots; fruits woody;  
sepals persistent *Mesua*
1. Leaves without transparent dots; fruits and sepals not as  
above :

  2. Fruit a berry with a pulpy aril; anthers horse-shoe shaped  
*Garcinia*
  2. Fruit not a berry; anthers not as above :

    3. Fruit a drupe with fleshy pericarp *Calophyllum*
    3. Fruit a capsule *Poeciloneuron*

*Calophyllum* L.

1. Petals present :
2. Racemes shorter than leaves *C. inophyllum*
2. Racemes longer than leaves *C. austroindicum*
1. Petals absent *C. apetalum*

*Calophyllum apetalum* Willd. Ges. Naturf. Freunde Berlin Mag. Gesammten Naturk. Neuesten Entdck. 5: 79. 1811 p.p.; Maheshwari in Bull. Bot. Surv. India 2: 143. 1960. *C. decipiens* Wight, Icon. t. 106. 1839 & III. 1: 128. 1840; Dunn 54. *C. wightianum* Wall. ex Planch. & Triana in Ann. Sci. Nat. Bot. ser. 4. 15: 256. 1861; Bedd. Fl. Sylv. t. 90. 1871; FBI 1: 274; Bourd. 27; Rao 32.

Trees ca. 15 m tall; young branches 4-angled. Leaves 4.5-8 x 2.5-4 cm. coriaceous, obovate, obtuse at apex, cuneate at base. Flowers white in axillary racemes. Fruits ellipsoid, reddish.

Occasional along the riverbanks of semievergreen and evergreen forests. Fl. & Fr.: Nov.-Mar. 'Cherupunna'

*Calophyllum austroindicum* Kosterm. ex Stevens in J. Arnold Arbor. 61: 250. 1980. *C. trapezifolium* auct., non Thw. 1858; Bourd. 28; Rao 32; Dunn 55; Maheshwari in Bull. Bot. Surv. India 2: 144. 1960 p.p.

Trees 7-9 m tall. Leaves 2-3 x 1.25-2.5 cm, obovate, rounded at apex, tapering towards base, coriaceous. Flowers white in axillary racemes. Fruits greenish, ovoid, pointed, smooth.

Very rare in evergreen forests of Chemunji. Observed in vegetative condition only. Fl. & Fr.: Nov.-Apr.

**Note:** This South Indian plant was misidentified as *C. trapezifolium* Thw. Which is confined only to Sri Lanka. Kosterm. & Stevens l.c. accommodated the south Indian plant in a new species. This can be distinguished from the Sri Lankan plant by its smaller leaves, shorter internodes and ovoid fruits.

***Calophyllum inophyllum*** L. Sp Pl. 513. 1753; Wight, Ill. 1: 77. 1840; FBI 1: 273; Bourd. 27; Rao 34; Dunn 55; Henderson & Smith in Gard. Bull. Straits Settlem. 15: 314. 1956.

Trees ca. 15 m tall. Leaves 10-12 x 5.5-8 cm, coriaceous, oblong or broadly obovate-elliptic, obtuse or emarginate at apex, acute at base. Flowers white in axillary racemes. Fruits brownish yellow.

Fairly common throughout the coast and midlands, occasional in ghats. Cultivated for wood and fruits and as an ornamental in garden. Wood used for making country boats and handles for agricultural tools. Seeds yield an oil. 'Punna' 'Pinna' Fl. & Fr.: Sept.-Mar.

#### **Garcinia L.**

- |   |                        |
|---|------------------------|
| 1. Fruits grooved                                     | <i>G. gummi-gutta</i>  |
| 1. Fruits not grooved:                                |                        |
| 2. Fruits echinate                                    | <i>G. echinocarpa</i>  |
| 2. Fruits not echinate:                               |                        |
| 3. Leaves ovate or ovate-elliptic                     | <i>G. morella</i>      |
| 3. Leaves oblong:                                     |                        |
| 4. Leaves obtuse at apex                              | <i>G. travancorica</i> |
| 4. Leaves acute or acuminate at apex:                 |                        |
| 5. Petioles ca. 0.5 cm long; blades ca.<br>12 cm long | <i>G. mangostana</i>   |

5. Petioles ca. 1.5 cm long; blades ca. 30 cm  
long *G. xanthochymus*

*Garcinia echinocarpa* Thw. in Hooker's J. Bot. Kew Gard. Misc. 6: 71. 1854; FBI 1: 264; Rao 29; Maheshwari in Bull. Bot. Surv. India 6: 126. 1964; Kosterm. in Dassanayake, Rev. Handb. Fl. Ceylon 1: 80. 19. 1980. *G. echinocarpa* Thw. var. *monticola* Maheshwari in Bull. Bot. Surv. India 6: 126. t.4. 1946.

Trees. Leaves 5-10 x 3-6 cm, obovate or oblanceolate, obtuse at apex, narrowed at base. Flowers reddish, sessile, congested on the axils of upper leaves. Fruits greenish to yellow, crowned by the conical styles.

Rare in evergreen forests of Ponmudi. Fl. & Fr.: Aug.-Nov.

Note: Kostermans (Ceylon J. Sci. Biol. Sci. 12: 63. 1976) however, states that the Indian tree represents an undescribed species.

*Garcinia gummi-gutta* (L.) Robs. in Brittonia 20: 103. 1968. *Cambogia gummi-gutta* L. Gen. Pl. ed. 5. 522. 1754. *Garcinia cambogia* (Gaertn.) Desr. in Lam Encycl. 3: 701. 1792; Bedd. Fl. Sylv. t.85, 1871; FBI 1: 261; Dunn 53. *Mangostana cambogia* Gaertn. Fruct. 2: 106. 1790. *Garcinia conicarpa* Wight. Icon. t. 121. 1839. *G. cambogia* (Gaertn.) Desr. var. *conicarpa* (Wight) Anderson in Hook.f. Fl. Brit. India 1: 262. 1874; Maheshwari in Bull. Bot. Surv. India 6: 129. 1965.

Trees 6-9 m tall. Leaves 9-18.5 x 4-7 cm, glabrous, chartaceous, oblong, obtuse or shortly acuminate at apex, cuneate at base. Male flowers fascicled at the nodes; female flowers solitary. Fruits ca. 4.5 x 4 cm, obovate, green.

Occasional in evergreen forests. Dried rind of fruits used in preparation of 'curries'. Fl. & Fr.: Dec.-Sept. 'Kodampuli', 'Perumpuli'

*Garcinia morella* (Gaertn.) Desr. in Lam. Encycl. 3: 701. t. 405. f 2. 1792; Bedd. Fl. Sylv. t.86. 1871; FBI 1: 264; Bourd. 23; Rao 29; Dunn 52; Maheshwari in Bull. Bot. Surv. India 6: 182. 1964; Kosterm. in Ceylon J. Sci. Biol. Sci. 12(1): 61. 1976 & in Dassanayake, Rev. Handb. Fl. Ceylon 1: 77. 1980. *Mangostana morella* Gaertn. Fruct. 2: 106. 1790. *Garcinia pictoria* Roxb.

Fl. Ind. 2: 627. 1832; Wight, Icon. t.102. 1839; Bedd. Fl. Sylv. t.87. 1871.

Trees ca. 15 m tall. Leaves 7-10.5x3-6cm, glabrous, chartaceous, ovate, acute or shortly acuminate at apex, cuneate at base. Male flowers reddish, 2-3 in the axils of fallen leaves; female flowers greenish, solitary. Fruits ca. 1 x 0.7 cm, reddish.

Frequent along riversides and in evergreen forests and semievergreen forests of Boneccord and Ponmudi. Fl. & Fr.: Jan.-Apr. 'Chigiri'

*Garcinia travancorica* Bedd. Fl. Sylv. t. 173. 1872; Maheshwari in Bull. Bot. Surv. India 6: 120. 1965; FBI 268; Bourd. 25; Rao 30; Dunn 54.

Trees 5-7 m tall. Leaves 6-8.5 x 2-2.3 cm, linear-oblong to sub-spathulate, coriaceous, glabrous, obtuse at apex, acute at base. Male flowers in terminal cymes; female solitary. Berries oblong to subglobose.

Occasional in evergreen forests of Agastyarkudum and Ponmudi. Fl. & Fr., Jun.-Sept.

*Garcinia xanthochymus* Hook.f. ex T. And. in Hook.f. Fl. Brit. India 1: 269. 1874; Bourd. 25; Rao 30; Sinclair in Bull. Bot. Soc. Bengal 9: 87. 1955; Santapau in Rec. Bot. Surv. India ed. 2. 16: 14. 1960; Maheshwari in Bull. Bot. Surv. India 6: 114. 1960; Kosterm. in Ceylon J. Sci. Biol. Sci. 12(1): 67. 1976 & in Dassanayake, Rev. Handb. Fl. Ceylon 1: 87. 1980. *Xanthochymus pictorius* Roxb. Pl. Cor. 2: 51. t. 196. 1805 (*Sphalum*, *X. tinctorius* DC. 1824) non *Garcinia pictoria* Roxb. 1824 Fl. Ind. 2: 633. 1832. *X. tinctorius* DC. Prodr. 1: 562. 1824 (*Sphalum-pictorius*). *Garcinia tinctoria* (DC.) W.F. Wight in U. S. D. A. Bur Pl. Industr. Bull. 137-50. 1909; Dunn 53.

Trees 15 m tall. Leaves 6-30 x 4-8 cm, coriaceous, oblong, acute at apex, rounded at base. Flowers white, fascicled on old wood. Berries yellow.

Rare in subtropical hill forests of Ponmudi. Fl.: Jan.-Mar. Fr.: Apr.-Jun. 'Anavaya'.

**Mesua L.**

\* **Mesua nagassarium** (Burm. f.) Kosterm. in Ceylon J. Sci. Biol. Sci. 12(1): 71, 1976. *Calophyllum nagassarium* Burm. f. Fl. Ind. 121, 1768. *Mesua ferrea* auct. non L. 1753; Choisy in DC. Prodr. 1: 562, 1824; Wight, Icon. t. 118, 1839; FBI 1: 277; Bourd. 29; Rao 32; Dunn 55.

Trees 20-25 m tall, buttressed. Leaves 5-15 x 3-5 cm, coriaceous, white powdery beneath, red when young, ovate-lanceolate, acuminate at apex, acute or obtuse at base. Flowers white, fragrant, solitary or 1-3 on short peduncles. Fruits ovoid with a conical point.

Common at low elevations of evergreen forests. Timber used for making railway sleepers. Fl. & Fr.: Mar.-Jul. 'Veluthapala' 'Naga'.

**Poeciloneuron Bedd.**

**Poeciloneuron indicum** Bedd. J. Linn. Soc. Bot. 8: 267, t. 17, 1865; FBI 1: 278; Bourd. 31; Rao 33; Dunn 56.

Trees 20-30 m tall. Leaves 9-15 x 2.5-5.5 cm, lanceolate, acuminate at apex, obtuse at base. Flowers white, fragrant in axillary and terminal panicles. Capsules globose, beaked.

Common in evergreen forests at low elevations. Timber used for house construction. Fl. & Fr.: Dec -Aug.

**THEACEAE D. Don**

- |                      |                     |
|----------------------|---------------------|
| 1. Flowers solitary: |                     |
| 2. Fruits 5-angled   | <i>Gordonia</i>     |
| 2. Fruits not angled | <i>Ternstroemia</i> |
| 1. Flowers in pairs  | <i>Eurya</i>        |

**Eurya Thunb.**

**Eurya nitida** Korth. in Temminck. Verh. Nat. Gesch. Bot. 3: 115, t. 17, 1870. *E. japonica* Thunb. var. *thunbergii* Thw. Enum. 41, 1858; FBI 1: 284. *E. japonica* sensu Bedd. Fl. Sylv. t. 92, 1871; non Thunb. 1784; Bourd. 33; Rao 34; Dunn 57.

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\* The correct name appears to be *M. ferrea* L. (Vide Taxon 35: 352-354, 1986)

Trees 4-6 m tall. Leaves 3.5-7.5 x 1.5-3 cm, coriaceous, crenate-serrate, elliptic or ovate lanceolate, acuminate at apex, narrowed at base. Flowers white in axillary pairs.

Common in subtropical hill forests in Ponmudi. Fl.: Apr.-Sept.  
Fr.: May-Oct.

### *Gordonia* Ellis *nom. cons.*

*Gordonia obtusa* Wall. ex Wight & Arn. Prodr. 87, 1834; Wight, Ill. 1; t.39, 1840; FBI 1: 291; Bourd. 35; Rao 34; Dunn 57.

Trees 7-9 m tall. Leaves 8-11.5 x 3-4 cm, chartaceous, serrate, elliptic, acuminate at apex, acute at base. Flowers white, axillary and terminal; sepals and petals pubescent without.

Frequent in evergreen forests in Ponmudi and Bonecord. Fl.: Nov.-Mar. Fr.: May-Jun. 'Katukarana'. Woods used for door frames.

**Ternstroemia** Mutis ex L f. nom. cons.

**Ternstroemia Japonica** (Thunb.) Thunb. in Trans. Linn. Soc. London 2: 335. 1794; FBI 1: 280; Bourd. 32; Rao 33; Dunn 56. *Cleyera japonica* Thunb. Fl. Jap. 224. 1784. *C. gymnanthera* Wight & Arn. Prodr. 87. 1834; Wight. Icon. t.47. 1838.

Tress 5-7 m tall. Leaves 5-7 x 1.7-3 cm. ovate or lanceolate, acute at apex, narrowed at base. Flowers pale yellow in the axils of fallen leaves. Fruits brown.

Occasional in subtropical hill forests of Chemungi. Fl. & Fr.: Oct.-Nov.

## DIPTEROCARPACEAE Blume

Petioles swollen at the junction of the blade *Vateria*  
Petioles not swollen *Honea*

Honza Bork, *sem. cons.*

1. Primary lateral nerves glandular at base:  
 2. Panicles tomentose *H. parviflora*  
 2. Panicles glabrous *H. racophloea*

1. Primary lateral nerves eglandular *H. ponga*

*Hopea parviflora* Bedd. Fl. Sylv. t. 7. 1869; FBI 1: 308; Dunn 59.

Trees 10-15 m tall. Leaves 3-7 x 1-3.5 cm, glabrous, ovate, rounded at base. Flowers brownish in axillary and terminal, tomentose panicles; petals crispid. Fruits 2-winged.

Common along the river banks in evergreen and semievergreen forests. Wood used for railway sleepers and building constructions. Fl. & Fr.: Mar.-May. *Thampagam*.

*Hopea ponga* (Dennst.) Mabberley in Taxon 28: 587. 1979. *Artocarpus ponga* Dennst. Schultss. Hort. Ind. Malab. 15, 18, 30. 1818 & Forts. Allg. Tuetsch. Gaertn.-Mag. 3: 33, 36, 79. 1818. *Hopea wightiana* Wall. ex Wight & Arn. Prodr. 85. 1834; Bedd. Fl. Sylv. t. 96. 1871; FBI 1: 309; Bourd. 38; Rao 35; Dunn 59; Mabberley in Taxon 26: 523-540. 1977.

Trees 4-6 m tall. Leaves 10-18 x 5-8 cm, coriaceous, oblong, truncate, obliquely rounded or slightly cordate at base. Flowers white in axillary and terminal panicles. Fruits up to 6 x 1.8 cm, one seeded, 2-winged.

Occasional in dry areas of the coastal zone. Fl.: Mar.-Apr. Fr.: May-Jun. '*Pongu*'

*Hopea racophloea* Dyer in Hook.f. Fl. Brit. India 1: 310. 1814; Bourd. 39; Rao 36; Dunn 59.

Trees 10-18 m tall. Leaves 5-10 x 2.4-5 cm, broadly lanceolate, tapering towards both ends. Flowers pinkish yellow, in axillary, racemose panicles. Fruits ovoid, 2-winged.

Occasional in evergreen forests. Fl. & Fr.: Apr.-Jun. Wood used for furniture. '*Naduvalippongu*'.

#### *Vateria* L.

*Vateria indica* L. Sp. Pl. 513. 1753; Roxb. Pl. Cor. 3: t.288. 1820; Wight, Ill. t.36. 1838; FBI 1: 313; Bourd. 1; Rao 36; Dunn 61.

Trees 10-15 m tall; young branches stellately canescent.

Leaves 18-28 x 5.5-11 cm, elliptic-oblong, obtuse, shortly acuminate or (very rarely) slightly emarginate at apex, rounded at base. Flowers white in drooping panicles.

Frequent in low elevations at Kallar and Kaviar. Wood used for making country boats; nuts yield an oil. Fl.: Mar.-Apr. Fr.: May. 'Payin'.

### ANCISTROCLADACEAE Walp.

*Ancistrocladus* Wall. *nom. cons.*

*Ancistrocladus hyneanus* Wall. ex Graham, Cat. Pl. Bombay 28. 1839; Wight, Icon. tt. 1987 & 1988. 1853; FBI 1: 299; Rao 35; Dunn 62.

Lianas. Leaves 7-14 x 1.5-4cm, oblong, obtuse or acute at apex, cuneate at base. Flowers pale yellow in branched panicles.

Occasional in coastal zone at Varkala. Fl. & Fr.: Feb.-Mar.

### MALVACEAE Juss.

- 1. Fruits enclosed in the persistent calyx *Sida*
- 1. Fruits not enclosed in persistent calyx :
  - 2. Fruits winged with persistent bracteoles *Kydia*
  - 2. Fruits not winged
    - 3. Branches covered with peltate scales *Thespesia*
    - 3. Branches glabrous, tomentose or stellate pubescent :
      - 4. Styles free *Pavonia*
      - 4. Styles united at various levels of their length :
        - 5. Flowers with cordate, fimbriate bracteoles *Gossypium\**
        - 5. Flowers not as above :
        - 6. Bracteoles tubular, bell-shaped *Julostylis*
        - 6. Bracteoles not as above :

|   |                    |
|---|--------------------|
| 7. Fruits glochidiate                             | <i>Urena</i>       |
| 7. Fruits not glochidiate:                        |                    |
| 8. Leaves usually unlobed                         | <i>Abutilon</i>    |
| 8. Leaves usually palmately lobed or cut:         |                    |
| 9. Calyx not adnate to the corolla;<br>persistent | <i>Hibiscus</i>    |
| 9. Calyx adnate to the corolla; not<br>persistent | <i>Abelmoschus</i> |

**Abelmoschus Medicus**

|                                |                     |
|--------------------------------|---------------------|
| Bracteoles 6, linear           | <i>A. moschatus</i> |
| Bracteoles 4, ovate-lanceolate | <i>A. manihot</i>   |

**Abelmoschus manihot** (L.) Medicus, Malv. 46. 1787. *Hibiscus manihot* L. Sp. Pl. 696. 1753; Dunn 69. *H. tetraphyllus* sensu Mast. in Hook. f. Fl. Brit. India 1: 341. 1874 p.p., non Roxb. ex Hornem. 1815; Rao 42.

Erect shrubs 1-1.5 m tall. Leaves 13-30 x 10-18 cm, palmately divided, dentate, stellately pubescent, acuminate at apex, cordate at base. Flowers yellow.

Occasional in moist deciduous forests. Fl. & Fr.: Aug.-Nov. **Abelmoschus moschatus** Medicus, Malv. 46. 1787. *Hibiscus abelmoscus* L. Sp. pl. 696. 1753; FBI 1: 342; Rao 42; Dunn 69.

Erect shrubs 1-1.5 m tall. Leaves hastate, palmately 5-lobed, stellately pubescent; lobes lanceolate, serrate. Flowers yellow.

Occasional in moist deciduous forests of Kottur. Fl. & Fr.: Jul.-Sept. 'Kattukasthuri'

**Abutilon Mill.**

**Abutilon indicum** (L.) Sweet, Hort. Brit. ed. 1: 54. 1826; Wight, Icon. t. 12. 1838; FBI 1: 326; Rao 39; Dunn. 66; Borssum in Blumea 14: 170. 1966. *Sida indica* L. in Torner, Cent. II. Pl. 26. 1756.

Erect shrubs 30-50 cm tall; stems velutinous with stellate hairs. Leaves 5-8 x 3-5 cm, crenate, stellate hairy above, sparsely

velutinous beneath, ovate, acuminate at apex, cordate at base. Flowers yellow, solitary, axillary. Schizocarps stellately hairy.

Common throughout the plains especially in wastelands. Fl.: Jun.-Aug. Fr.: Aug.-Oct.

*Hibiscus* L. nom. cons.

1. Plants <sup>un</sup>  
A armed:

2. Leaves lobed:

- |                                 |                      |
|---------------------------------|----------------------|
| 3. Trees; bracteoles connate    | <i>H. tiliaceus</i>  |
| 3. Undershrubs; bracteoles free | <i>H. vitifolius</i> |

2. Leaves not lobed:

- |                                 |                           |
|---------------------------------|---------------------------|
| 4. Petals dissected             | <i>H. schizopetalus</i> * |
| 4. Petals entire:               |                           |
| 5. Flowers up to 8 cm across    | <i>H. rosasinensis</i> *  |
| 5. Flowers up to 1.25 cm across | <i>H. hirtus</i>          |

1. Plants XXarmed:

- |                               |                         |
|-------------------------------|-------------------------|
| 6. Stipules leafy, ovate      | <i>H. surattensis</i>   |
| 6. Stipules not leafy, linear | <i>H. hispidissimus</i> |

***Hibiscus hispidissimus*** Griffith, Not. Pl. Asiat. 4: 521. 1854; Pradeep & Sivarajan in Taxon 40: 634-637. 1991. *H. furcatus* Roxb. ex DC., Prodr. 1. 448. 1824, non Willd. 1809; FBI 1: 335; Rama Rao 40; Dunn 97. *H. aculeatus* Roub., Fl. Ind. 3: 206. 1832; non Walter 1788; Paul & Nayar in Bull. Bot. Surv. India 22: 194-195. 1980.

Scrambling shrubs with prickles. Leaves 7-17 x 4.5-10 cm, palmilobed, prickly-along the nerves, dentate, stellate pubescent, acuminate at apex, cordate at base. Flowers yellow with a dark pink centre. Capsules 5-valved.

Frequent along rivers in semievergreen forests. Juice of leaves used for eye diseases and applied externally for swellings. Fl. & Fr.: Nov.-Mar. 'Uppanacham'

**Hibiscus hirtus** L. Sp. Pl. 694. 1754; Wight, Icon. t.41 1838; FBI 1: 335; Rao 41; Dunn 70; Borssum in Blumea 14: 75. 1960.

Erect undershrubs 1.5-2 m tall. Leaves 2-5.5 x 1-2.5 cm, appressed stellate pubescent with a gland at the midrib in the adaxial side, serrate to dentate, ovate or lanceolate, acuminate at apex, acute or rounded at base. Flowers red, solitary, axillary.

Occasional in the secondary moist deciduous forests. Fl. & Fr.: Dec.-Mar.

**Hibiscus surattensis** L. Sp. Pl. 696. 1753; Wight, Icon. t.197: 1839; FBI 1: 334; Rao 40; Dunn 70; Borssum in Blumea 14: 57. 1966.

Scrambling shrubs with recurved prickles; lower nodes sometimes rooting. Leaves 6-10 x 3-5 cm, deeply palmlobed, hirsute, prickly on the nerves beneath, dentate, cordate at base. Flowers yellow with dark purple centre, axillary, solitary. Capsules ovoid or globose, acute, hispid.

Frequent along roadsides in the coastal zone near Kovalam Fl & Fr.: Sept.-Dec.

**Hibiscus tiliaceus** L. Sp. Pl. 694. 1753; FBI 1: 343; Bourd. 43; Rao 42; Dunn 70; Borssum in Blumea 14: 29. 1966; Rakshit & Kundu in Bull. Bot. Surv. India 14: 154. 1970 (1972).

Trees; branchlets tomentose. Leaves rotund-cordate, acuminate at apex. Flowers pale yellow with a crimson centre. Capsules globose, tomentose.

Occasional along backwaters in coastal zone. Roots and bark medicinal. Fl. & Fr.: Dec.-Jun. 'Attuparuthi'

**Hibiscus vitifolius** L. Sp. Pl. 696. 1753; FBI 1 338; Rao 41; Dunn 70; Borssum in Blumea 14: 82. 1966.

Erect undershrubs up to 2 m tall. Leaves 3-10 x 2-5 cm, minutely stellate-hairy, dentate to serrate, orbicular or ovate, 3-5-lobed. Flowers yellow with a dark purple centre, axillary, solitary. Capsules globular.

Frequent along roadsides throughout the coastal zone. Fl. & Fr.: Mar.-Aug. 'Vellaioorai'.

\**H. rosasinensis* L. & *H. schizopetalus* (Mast.) Hook.f. are cultivated in Gardens.

*Julostylis* Thw.

*Julostylis polyandra* Ravi & Anilkumar in J. Bombay Nat. Hist. Soc. 87(2): 260-261. 1990.

Trees 8-15 m tall; branches rusty stellate-tomentose when young. Leaves 4-21 x 2-18 cm, reddish when young, sparsely stellate-tomentose, ovate to suborbicular, often palmately 5-angled or lobed in the upper half. Flowers yellow in panicles. Fruits dehiscent, densely hairy.

Rare in evergreen forests at Ponmudi, Fl. Dec.-Feb.; Fr.: Mar.-Apr.

*Kydia* Roxb.

*Kydia calycina* Roxb. Pl. Cor. t.215. 1811; Wight, Icon. tt. 879 & 880. 1844-45; FBI 1: 348; Dunn 67. *K. roxburghiana* Wight, Icon. t.881. 1844-45.

Trees 12-15 m tall. Leaves 7.5-13 cm long, entire or 3-7-lobed, palmnerved, abruptly acuminate at apex, rounded or slightly cordate at base. Flowers white in axillary and terminal panicles.

Occasional in moist deciduous forests. Fl. & Fr.: Nov.-Mar.

*Pavonia* Cav. nom. cons.

*Pavonia odorata* Willd. Sp. Pl. 3: 837. 1800; FBI 1: 331; Rao 40; Dunn 67.

Erect hirsute undershrubs up to 50 cm tall. Leaves 1.5-6.5 x 1-3.5 cm, orbicular to ovate, palmilobed or trilobed, dentate. Flowers white, axillary, solitary; epicalyx filiform, pilose. Mericarps glabrous.

Rare along roadsides and in wastelands in association with *Urena lobata* L. Fl. & Fr.: Jun.-Sept.

*Sida* L.

1. Erect shrubs or undershrubs:

|                                      |                       |
|--------------------------------------|-----------------------|
| 2. Stems and leaves velvety stellate | <i>S. cordifolia</i>  |
| 2. Stems and leaves not as above:    |                       |
| 3. Leaves glutinous                  | <i>S. glutinosa</i>   |
| 3. Leaves glabrescent:               |                       |
| 4. Peduncles 3-3.5 cm long           | <i>S. acuta</i>       |
| 4. Peduncles 0.5-1 cm long           | <i>S. rhombifolia</i> |
| 1. Prostrate or straggling shrubs    | <i>S. cordata</i>     |

*Sida acuta* Burm. f. Fl. Ind. 147. 1768 emend. K. Schum. in Fl. Bros. 12(3): 326. 1891; Wight, Icon. t. 95. 1838; Dunn 64; Borssum in Blumea 14: 186. 1966. *S. carpinifolia* sensu Mast. in Hook. f. Fl. Brit. India 1: 323. 1874 non L. f. 1781; Rao 37.

Low, branched shrubs; branches stellate tomentose. Leaves 5-7 x 1-1.2 cm, lanceolate, acute at apex, slightly obtuse or subacute at base. Flowers yellow.

Frequent along roadsides and railway track. Fl. & Fr.: Oct.-Dec.

*Sida cordata* (Burm.f.) Borssum in Blumea 14: 182. 1966. *Melochia cordata* Burm.f. Fl. Ind. 143. 1768. *S. veronicifolia* Lam. Encycl. 1: 5. 1783; Dunn 64. *S. humilis* Cav. var. *veronicifolia* (Lam.) Mast. in Hook. f. Fl. Brit. India 1: 322. 1875.

Slender, prostrate or ascending herbs. Leaves 1-7.5 x 0.7-4.5 cm, orbicular, crenate, strigose above, stellately hairy below, acuminate at apex, cordate at base. Flowers solitary, axillary, rarely in racemes.

Occasional in drier areas at Kovalam. Fl. & Fr.: Oct.-Dec.

*Sida cordifolia* L. Sp. Pl. 684. 1753; FBI 1: 324; Rao 38; Dunn 64; Borssum in Blumea 14: 199. 1966.

Erect, branched undershrubs, 50-60 cm tall. Leaves 1.5-4.5 x 0.5-2 cm, densely stellate tomentose, crenate, ovate, obtuse or acute at apex, rounded, cordate or truncate at base. Flowers yellow, mostly solitary, axillary, rarely in clusters of 2-3. Mericarps awned, trigonous, flattened.

Frequent throughout the coastal zone in sandy loam. Fl. &

Fr.: Mar.-May. 'Velluppan'

*Sida glutinosa* Commers. ex Cav. Diss. 1: 16. t. 2. f. 8. 1785; Dunn 64. *S. mysorensis* sensu Mast. in Hook.f. Fl. Brit. India 1: 322. 1874 p.p. non Wight & Arn. 1834; Rao 37.

Undershrubs 1-2 m tall; stems glutinous hairy. Leaves 3-6 x 1-2.5 cm, serrate, glutinous, ovate, acuminate at apex, cordate at base. Flowers yellow. Mericarps trigonous.

Occasional in wastelands of plains. Fl. & Fr.: Oct.-Sept.

*Sida rhombifolia* L. Sp. Pl. 684. 1753 emend. Mast. in Hook. f. Fl. Brit. India 1: 323. 1875; Rao 38; Dunn 65; Borssum in Blumea 14: 195. 1966. *S. rhomboidea* Roxb. ex Fleming in Asiat. Res. 6: 178. 1810; Dunn 65. *S. rhombifolia* var. *rhomboidea* (Roxb. ex Fleming) Mast. in Hook.f. Fl. Brit. India 1: 324. 1875.

Erect shrubs 0.5-1 m tall. Leaves 2.5-9 x 1-2 cm, stellate or glabrescent, rhomboid or lanceolate, obtuse or acuminate at apex, acute or cuneate at base. Flowers orange yellow, axillary, solitary.

A Common weed along roadsides and wastelands from sea level up to 1200 m. Fl. & Fr.: Nov.-Oct.-Mar. 'Kurunthott'

Note: Master's *f.c.* varieties are raised to the status of subspecies by Borssum *f.c.* as he holds that they are reproductively isolated populations.

*Thespesia* Soland. ex Correa *nom. cons.*

|                                    |                    |
|------------------------------------|--------------------|
| Leaves stellate-tomentose beneath  | <i>T. lampas</i>   |
| Leaves scaly along the veins below | <i>T. populnea</i> |

*Thespesia lampas* (Cav.) Dalz. ex Dalz. & Gibbs. Bombay Fl. 19. 1861; FBI 1: 345; Rao 43; Borssum in Blumea 14: 116. 1966; *Hibiscus lampas* Cav. Diss. 3: 154. t. 56. f. 2. 1787; Wight, Icon. t. 5. 1838; Dunn 71.

Erect shrubs 3-4 m tall. Leaves 8-15 x 4-12 cm, densely stellate tomentose; upper entire, ovate, acuminate at apex, truncate at base; lower 3-5-lobed, orbicular, acute or obtuse at apex, cordate at base. Flowers bright yellow solitary, axillary. Capsules oblong or ovoid, 5-angular.

Common in moist deciduous forests throughout the district. Yields a fibre. Fl.: Nov.-Jan., Fr.: Feb.-Apr. 'Katupuvarasu'.

**Thespesia populnea** (L.) Soland. ex Correa in Ann. Mus. Natl. Hist. Nat. 9: 290, t. 8, f. 1. 1807; Fosberg & Sachet in Smithsonian Contr. Bot. 7: 8. 1972; Wight, Icon. t. 8. 1838; FBI 1: 345 p.p.; Bourd. 43; Rao 43; Dunn 72. *Hibiscus populneus* L. Sp. Pl. 694. 1753.

Trees 7-10 m tall. Leaves 12-24 x 6-11 cm, orbicular, deltoid or ovate, acuminate at apex, cordate at base. Flowers yellow, axillary, solitary. Fruits globose.

Common in the coastal and midland zones. Wood valuable for furniture. Fl.: Aug.-Sept. 'Cheelanthi'.

#### **Urena L.**

**Urena lobata** L. Sp. Pl. 692. 1753; FBI 1: 329; Rao 393; Dunn 66; Borssum in Blumea 14: 138. 1966.

Erect shrubs 0.5-1 m tall; stems stellate hairy. Leaves 1.5-7 x 2-5.5 cm, tomentose, extremely variable in shape, mostly orbicular, entire or serrate, palmilobed acute or obtuse at apex, cordate at base. Flowers rose-red, axillary, mostly solitary, rarely clustered. Mericarps stellate hairy.

Common along roadsides and wastelands throughout the district from sea level up to 1000 m. Fl. & Fr.: Oct.-Nov.  
\***Gossypium arboreum** L. is found in cultivation.

#### **BOMBACACEAE Kunth**

Leaves simple *Cullenia*

Leaves compound *Bombax*

#### **Bombax L.**

**Bombax ceiba** L. Sp. Pl. 511. 1753 p.p.; Robyns in Taxon 10: 160. 1961. *B. malabaricum* DC. Prodr. 1: 479. 1824; Wight, Ill. 1: t. 29. 1840; FBI 1: 439; Bourd. 44; Rao 45; Dunn 71. *Salmania malabarica* (DC.) Schott & Endl. Melet. Bot. 35. 1832.

Prickly trees 30-45 cm tall. Leaves digitately 5-7-foliate, leaflets 9-18 x 2-2.5 cm, lanceolate, acuminate at apex, narrowed at

base. Flowers red, axillary, solitary or 1-3 together. Capsules ellipsoid.

Commonly grown for silk cotton. Fl. & Fr.: Dec.-May.

**Cullenia Wight**

*Cullenia exarillata* Robyns in Bull. Jard. Bot. Nat. Belg. 40: 249, 1970. *C. excelsa* Wight, Icon. tt. 1761 & 1762, 1851 p.p.; FBI 1: 350; Bourd. 46; Rao 46; Dunn 73.

Buttressed trees 30-35 m tall. Leaves 7-14 x 2.4-5 cm, broadly elliptic-lanceolate, glabrous above, orange-scaly beneath, acute to acuminate at apex, rounded at base. Flowers brownish white. Fruits globose, spinescent.

Frequent in evergreen forests. Fl.: Feb.-Apr. Fr.: Aug.-Nov.

**S T E R C U L I A C E A E Bartling**

1. Trees:
  2. Petals absent:
    3. Fruits indehiscent; leaves peltate scaly *Heritiera*
    3. Fruits dehiscent; leaves without peltate scales *Sterculia*
  2. Petals present:
    4. Fruits tubercled *Guazuma*
    4. Fruits not tubercled:
      5. Leaves cordate *Kleinhowia\**
      5. Leaves not cordate:
        6. Staminal column adnate to gynophore *Pterospermum*
        6. Staminal column not as above *Leptonychia*
    1. Shrubs, undershrubs and herbs:
      7. Fruits spirally twisted *Helicteres*
      7. Fruits not spirally twisted:
        8. Leaves glabrous; capsule 5-valved *Melochia*
        8. Leaves soft pubescent; capsules 2-valved *Waltheria*

**Guazuma Mill.**

**Guazuma ulmifolia** Lam. Encyl. 3: 52. 1789. *G. tomentosa* H.B.K. Nov. Gen. Sp. 5: 320. 1823; Wight, Ill. 1: t.31 1840; FBI 1: 375; Rao 51; Dunn 79.

Trees about 5 m tall. Leaves 6-17 x 2.5-5.5 cm, densely stellate-tomentose, dentate, lanceolate, acuminate at apex, obliquely cordate at base. Flowers yellow in axillary cymes. Fruits c. 2.5 x 2 cm tubercled.

Occasionally seen in avenues. Wood used for furniture. Fl. & Fr.: May-Jan. '*Utharasham*'.

**Helicteres L.**

**Helicteres isora** L. Sp. Pl. 963. 1753; Wight, Icon. t.180. 1839; FBI 1: 395; Rao 51; Dunn 77; Sant. in Rec. Bot. Surv. India 16: 22. 1957 (repr. ed.).

Erect shrubs 4-5 m tall. Leaves 6-11 x 3-7 cm, scabrous or stellately pubescent, incised, obovate, abruptly acuminate at apex obliquely rounded at base. Flowers red in axillary fascicles. Follicles pubescent.

Common in the undergrowth of semievergreen forests. Fl.: Sept.-Nov. Fr.: Dec.-Mar. '*Velambari*'

**Heritiera Dryand.**

**Heritiera papilio** Bedd. Fl. Sylv. t. 218. 1872; FBI 1: 363; Bourd. 52; Rao 48; Dunn 74.

Trees 10-15 m tall; young branches golden-tomentose. Leaves 7-12 x 3-5 cm, silvery pubescent beneath, lanceolate, acute at apex, rounded at base. Flowers pale yellow in axillary panicles. Fruits samaroid, winged.

Rare in subtropical forests of Ponmudi. Timber used for house construction. Fl.: Aug.-Sept. Fr.: Feb.-Mar.

**Leptonychia Turcz.**

**Leptonychia moscurroides** Bedd. Fl. Sylv. 1: t. 114. 1871; FBI 1: 379; Bourd. 55; Rao 51; Dunn 80. *Paragrewia poilanei* Gagnep. ex Rao in J. Bombay Nat. Hist. Soc. 51: 671, ff. 1-9. 1953.

Trees 7-9 m tall. Leaves 7-10 x 3-5 cm, glabrous, oblong, acuminate at apex, rounded at base. Flowers yellow in axillary cymes. Capsules obovoid, tubercled.

Frequent in evergreen forests of Boneccord. Fl. & Fr.: Feb.-Apr.

*Melochia* L.

|                              |                         |
|------------------------------|-------------------------|
| Flowers in terminal clusters | <i>M. corchorifolia</i> |
| Flowers in axillary clusters | <i>M. nodiflora</i>     |

*Melochia corchorifolia* L., Sp. Pl. 675, 1753; FBI 1: 374; Rao 50; Dunn 50.

Erect shrubs about 0.5 m tall. Leaves 1-5 x 0.5-2 cm, glabrous on both the surfaces, dentate, ovate-lanceolate, acute at apex, rounded or truncate at base; lower sometimes slightly 3-lobed. Flowers yellow in axillary clusters. Capsules loculicidal.

Common throughout the plains. Fl. & Fr.: Oct.-Feb.

*Melochia nodiflora* Sw., Prodr. Veg. Ind. Occ. 47, 1768; Backer & Bakh. Fl. Java 1: 405, 1963; Sreekumar & Nair in J. Bombay Nat. Hist. Soc. 72: 424, 1981.

Shrubs 2-2.5 m tall, stellately pubescent. Leaves 1-13 x 0.75-7 cm, serrate, ovate or ovate-lanceolate, acuminate at apex, cordate at base; petioles 2-3.5 cm long. Flowers purplish-white. Capsules subglobose, hispid.

Sreekumar & Nair J. c. reported this plant from Kariavattom, Thiruvananthapuram. This species was in the Botanical Garden, University College, Thiruvananthapuram. However, its natural occurrence in this district is doubtful. Fl. & Fr.: Nov.-Dec.

*Pterospermum* Schreb. *nom. cons.*

|                            |                         |
|----------------------------|-------------------------|
| Petals as long as sepals   | <i>P. diversifolium</i> |
| Petals shorter than sepals | <i>P. acerifolium</i>   |

*Pterospermum acerifolium* (L.) Willd., Sp. Pl. 3: 729, 1800; Wight, Icon. t.631, 1834; FBI 1: 368. *Pentapetes acerifolia* L. Sp. Pl. 698, 1753.

Trees 12-15 m tall; branches floccose-pubescent. Leaves 25-32x 13-25 cm, glabrescent above, pubescent beneath, serrate, roundish or oblong, entire or lobed. Flowers white, fragrant. Capsules 11 cm long, reddish, pubescent.

Occasional in moist deciduous and semievergreen forests.  
Fl. & Fr.: Mar.-May.

**Pterospermum diversifolium** Blume, Bijdr. 88. 1825; FBI 1: 367; Dunn 78. *P. glabrescens* Wight & Arn. Prodr. 1: 69. 1834; FBI 1: 369; Bourd. 54; Rao 50.

Tress 12-16 m tall. Leaves 15-22 x 7-11 cm, obovate-oblong, pubescent beneath, entire or sinuate, acuminate at apex, cordate at base. Flowers white, tomentose in axillary panicles. Capsules brown, ribbed.

Occasional in low level evergreen forests Fl. & Fr.: Aug.-Apr.

#### Sterculia L.

1. Leaves palmately or digitately lobed :
  - 2 Flowers foetid *S. foetida*
  2. Flowers not foetid :
    3. Calyx glabrous within *S. villosa*
    3. Calyx pubescent within *S. urens*
  1. Leaves entire :
    4. Leaves glabrous above *S. belanghas*
    4. Leaves stellate above *S. guttata*

**Sterculia belanghas** L. Sp. Pl. 1007. 1753; Wight, III, 1: t. 30, 1840; FBI 1: 358; Rao 47; Dunn 76.

Trees c. 15 m tall. Leaves 10-17 x 6-9 cm, glabrous above, stellate hairy beneath, elliptic, shortly acuminate at apex, rounded at base. Flowers yellow in terminal racemes.

Rare in deciduous forests of Neyyar. Seeds edible. Fl. & Fr.: Sept.-Jun. 'Narthandi'.

**Sterculia foetida** L. Sp. Pl. 1008. 1752; Wight, Icon. t. 181,

1839; FBI 1: 354; Dunn 75.

Trees 15-25 m tall. Leaves digitately lobed; leaflets 5-7, each 8-12 x 2.5-5 cm, glabrous, elliptic, caudate-acuminete at apex, cuneate at base. Flowers flesh-coloured in axillary panicles. Follicles boat shaped, glabrous.

Common in moist deciduous forests throughout the District. Fl. & Fr.: Mar.-Oct.

*Sterculia guttata* Roxb. ex DC. Prodr. 1: 482. 1824; Wight, Icon. t.487. 1841; FBI 1: 355; Bourd. 49; Rao 47; Robinson in Phillip J. Sci. 7: 414. 1912; Dunn 76.

Trees 10-15 m tall. Leaves 12-25 x 7-13 cm, glabrous above, rusty brown, stellate pubescent beneath, broadly oblong, shortly acuminate at apex, cordate at base. Flowers fascicled in pubescent, racemes. Fruits brown tomentose, hard, stony.

Frequent in semievergreen or moist deciduous forests at lower elevations. Fl. & Fr.: Sept.-Feb. Fr.: Mar.-May. 'Kithondi'

*Sterculia urens* Roxb. Pl. Cor. t.24. 1795; FBI 1: 355; Bourd. 49; Rao 46; Dunn 75.

Trees 7-9 m tall. Leaves 5-lobed; lobes 16-25 x 5-7 cm, pubescent, clustered towards the apex, acuminate at apex, narrowed at base. Flowers glandular-pubescent, in panicles. Follicles bristly.

Occasional in deciduous forests. Seeds edible. Wood used for match boxes. Fl.: Oct.-Feb. Fr.: Dec.-Aug. 'Thondi'.

*Sterculia villosa* Roxb. ex DC. Prodr. 1: 483. 1824; FBI 1: 335; Bourd. 49; Rao 47; Dunn 76.

Trees 6-7 m tall. Leaves palmately lobed; leaflets 5-7, oblong-lanceolate, acuminate at apex, narrowed at base. Flowers pinkish in terminal, branched racemes. Follicles red, villous.

Common in the grassy slopes in deciduous forests. Yields a good fibre for tying timber. 'Vakka.'. Fl.: Mar.-Apr. Fr.: Apr.-May.

*Waltheria* L.

*Waltheria indica* L. Sp. Pl. 673. 1753; FBI 1: 374; Rao 51; Dunn 79.

Erect shrubs; stems soft, grey, stellate pubescent. Leaves 3-5.5 x 1-2.5 cm, stellate hairy above, grey, pubescent beneath, serrate, ovate, obtuse at apex, rounded at base. Flowers pale yellow in axillary clusters.

Common throughout the District.

Note : *Waltheria indica* L. and *W. americana* L. were published simultaneously. Robert Brown (1818) who united the 2 species selected *W. indica* L. for the combined species and his choice is retained.

\* *Kleinhovia hospita* L. is often cultivated in Gardens.

## TILIACEAE Juss.

1. Fruit a drupe *Grewia*

1. Fruit a capsule:

2. Capsules echinate or bristly *Triumfetta*

2. Capsules not as above:

3. Trees *Berrya*\*

3. Undershrubs *Corchorus*

*Corchorus* L.

Capsules globose, 5-valved *C. capsularis*

Capsules elongate, 3-4-valved *C. aestuans*

*Corchorus aestuans* L. Syst. Nat. ed. 10. 1079. 1759. *C. acutangulus* Lam. Encycl. 2: 104. 1786; Wight, Icon. t.739. 1844; FBI 1: 398; Dunn 86.

Erect or decumbent branched herbs. Leaves 3-8.5 x 1-3.5 cm, sparsely strigose, crenate-serrate, ovate, acuminate at apex, rounded at base. Flowers yellow, axillary. Capsules 2 cm long.

Fairly common in wastelands and roadsides. Fl. & Fr : Feb.-Mar.

*Corchorus capsularis* L. Sp. Pl. 529. 1753; Wight, Icon. t.311. 1840; FBI 1: 397; Dunn 87; Chakravarthy in Bull. Bot. Soc.

Bengal 5: 76, 1951.

Erect herbs. Leaves 3-7 x 2.5-5 cm, serrate, ovate-lanceolate, acuminate at apex, rounded at base. Flowers yellow in leaf-opposed, short peduncled clusters.

Fairly common in the moist areas of the plains. Fl. & Fr.: Jul.-Oct.

**Grewia L.**

- |  |                       |
|--|-----------------------|
| 1. Inflorescence a terminal panicle                  | <i>G. nervosa</i>     |
| 1. Inflorescence an axillary or extra-axillary cyme: |                       |
| 2. Flowers in extra-axillary cymes                   | <i>G. umbellifera</i> |
| 2. Flowers in axillary cymes:                        |                       |
| 3. Peduncles shorter than petioles                   | <i>G. orientalis</i>  |
| 3. Peduncles equal or longer than petioles           | <i>G. tiliifolia</i>  |

*Grewia nervosa* (Lour.) Panigrahi in Taxon 34: 702-703, 1985.  
*Fallopia nervosa* Lour. Fl. Cochinch. 336. 1790. *Microcos paniculata* L. Sp. Pl. 1: 514. 1753. *Grewia microcos* L. Syst. Nat. ed 12, 2: 602. 1767. nom. illeg. superfl. FBI 1: 392; Dunn 83.

Erect shrubs 3-5 m tall. Leaves 10-15 x 3-4.5 cm, glabrous above, stellate hairy beneath, oblong, acuminate at apex, truncate or rounded at base. Flowers pale yellow.

Occasional in deciduous forests of Neyyar Fl. & Fr.: Oct.-Feb. 'Kotta'

*Grewia orientalis* L. Sp. Pl. ed. 2. 964. 1762; Dunn 84.  
*G. columnaris* J. E. Sm. in Rees, Cyclop. 17: 5. 1811; Wight, Icon. t. 44. 1838; FBI 1: 383; Rao 51.

Shrubs 2-4 m tall. Leaves 2-4 x 1.5-2.5cm, serrate, glabrescent, orbicular, cordate at base. Flowers white in axillary cymes. Drupes hairy.

Occasional in drier areas of the deciduous forests Fl. & Fr.: Sept.-Jan.

*Grewia tiliifolia* Vahl, Symb. 1: 35. 1790, 'tiliaeefolia'; Bedd. Fl. Sylv. t. 108. 1871; FBI 1: 386 p.p.; Bourd. 57; Rao 52;

Dunn 84.

Trees 3-5 m tall. Leaves 9-14 x 4-9.5 cm, hirsute, serrate, broadly ovate, acuminate at apex, slightly cordate at base. Flowers yellow, pubescent. Drupes black.

Occasional in moist deciduous forests. Fl. & Fr.: Feb.-Aug. 'Chadicha'.

*Grewia umbellifera* Bedd. For. Man. Bot. 37. 1871; FBI 1: 393; Rao 53; Dunn 84,

Trees 4-6 m tall; young branches tomentose. Leaves 5-9.5 x 2.5-4.5 cm, stellate pubescent, serrate, oblong or obovate, shortly acuminate at apex, rounded at base. Flowers yellow in umbels.

Fairly common in moist deciduous forests. Fl. & Fr.: Mar.-Aug. 'Bhasmavalli'.

#### *Triumfetta* L.

- |                                  |                      |
|----------------------------------|----------------------|
| 1. Capsule bristles ciliate      | <i>T. pilosa</i>     |
| 1. Capsule bristles glabrous :   |                      |
| 2. Flowers in leaf-opposed cymes | <i>T. annua</i>      |
| 2a Flowers in axillary cymes     | <i>T. rhomboidea</i> |

*Triumfetta annua* L. Mant. Pl. 1: 73. 1767; FBI 1: 396; Dunn 86.

Branched shrubs. Leaves 3.5-20 x 1.5-6 cm, stellate-pubescent, serrate, lanceolate, acuminate at apex, narrowly rounded at base. Flowers yellow. Capsules ca. 1.5 cm across, globose.

Occasional in moist deciduous forests of Kottur. Fl. & Fr.: Oct.-Dec.

*Triumfetta pilosa* Roth, Nov. Pl. Sp. 223. 1821; FBI 1: 394; Rao 54; Dunn 86.

Undershrubs 1-2 m tall with pilose stems. Leaves 7-14 x 3-6 cm, bulbous-based hairy, ovate-lanceolate, acute or acuminate at apex, subcordate at base. Sepals stellate-hairy. Disc pilose.

Occasional in moist deciduous forests. Fl. & Fr.: Oct.-Feb.

*Triumfetta rhomboidea* Jacq. Enum. Pl. Craib. 22: 1760; FBI 1: 395; Rao 54; Dunn 86; Raizada in Indian Forester 92: 325. 1966. *Bartramia indica* L. Sp. Pl. 389. 1753 non *Triumfetta indica* 1792. *Triumfetta bartamia* L. Syst. ed. 10. 2: 1044. 1752 *nom illegit.*

Erect shrubs 50-100 cm tall. Lower leaves 2.5-5.5 x 2-4 cm, 3-lobed, dentate, steilate pubescent; upper leaves 1-2 x 0.5-0.9 cm, ovate-acute. Flowers reddish-yellow in axillary cymes. Capsules globose, setose.

Fairly common throughout the plains in wastelands. Fl. & Fr.: Oct.-Dec.

*Note:* The oldest legitimate name of this plant is *Bartramia indica* L. But the combination *T. indica* cannot be made as it is pre-occupied for a Lamarkian plant. *T. bartramia* L. is a nomen *ambiguum* as it is a mixture of *Urena* L., *Triumfetta rhomboidea* Jacq. and *Commersonia bartramia* (L.) Merr.

\**Berrya cordifolia* (Willd.) Burret is a timber yielding tree, commonly cultivated.

#### ELAEOCARPACEAE DC.

##### *Elaeocarpus* L.

- 1. Leaves pilose along nerves beneath, obtuse at apex *E. tuberculatus*
- 1. Leaves glabrous beneath, not obtuse at apex:
  - 2. Leaves caudate-acuminate at apex *E. munronii*
  - 2. Leaves not as above:
    - 3. Leaves glandular cuneate at base *E. glandulosus*
    - 3. Leaves eglandular, rounded at base *E. serratus*

*Elaeocarpus glandulosus* Wall. ex Merr. in J. Arnold. Arbor. 32: 194. 1951. *E. oblongus* sensu Wight, Icon. t.46. 1838, (excl. syn. *E. perimkarva* DC. et *E. oblongus* sensu Smith. 1809), non Gaertn. 1788; FBI 1: 403; Bourd. 59; Rao 54; Dunn 88,

Trees 7-12 m tall. Leaves 4.5-10 x 2-3.5 cm, scabrid, serrate, acute at apex. Flowers white in axillary racemes. Drupes 2.5 x 1-2 cm, ellipsoid.

Occasional in moist deciduous forests of Bonecord. Fl. & Fr.: Mar.-Oct. 'Kattukara'.

*Elaeocarpus munronii* (Wight) Mast. in Hook. f. Fl. Brit. India 1: 407. 1874 'munroii'; Bourd. 60; Rao 54; Dunn 88. *Monocera munronii* Wight, Ill. 1 84. 1840 & Icon. t. 952. 1845.

Trees 7-9 m tall. Leaves 5-12 x 3-4 cm, crenate, elliptic-lanceolate, obtuse at base. Flowers white in axillary racemes. Drupes ca. 1.5 x 1 cm, ellipsoid.

Frequent in subtropical forests of Ponmudi and Agastyarkudum: Fl.: Sept.-Oct. Fr.: Mar.-Apr. 'Pungeri'

*Elaeocarpus serratus* L. Sp. Pl. 515. 1753; FBI 1: 401; Bourd. 58; Rao 54; Dunn 88; Merr. in J. Arnold. Arbor. 32: 194. 1951. *E. oblongus* Gaertn. Fruct. 1: 202. 1788. *E. cuneatus* Wight, Ill. t. 83. 1840; FBI 1: 402.

Trees 7-12 m tall. Leaves 5-9 x 2.5-3.5 cm, chartaceous, minutely serrate, ovate, obtusely acuminate at apex. Flowers white in axillary racemes.

Fairly common in subtropical forests of Ponmudi. Fl. & Fr.: Mar.-Sept. 'Karamavu'.

*Elaeocarpus tuberculatus* Roxb. Fl. Ind. 2: 594. 1832; Bedd. Fl. Sylv. t. 113. 1871; FBI 1: 404; Bourd. 59; Rao 55; Dunn 88.

Trees 10-12 m tall. Leaves 10-22 x 6-10 cm, crowded towards the ends of branches, obovate, acute at base. Flowers white in axillary racemes. Drupes ovoid.

Fairly common in evergreen and semievergreen forests. Fl.; Jan.; Feb. Fr.: Mar.-Apr. 'Ammakorum'.

#### LINACEAE Gray

##### *Hugonia* L.

*Hugonia mystax* L. Sp. Pl. 675. 1753; Wight, Ill. 1 t. 32. 1840; FBI 1: 413; Rao 56; Dunn 90.

Straggling shrubs. Leaves 3-8.5 x 1.5-3.5 cm, subsessile, elliptic or obovate, acute or obtuse at apex, cuneate at base. Flowers yellow; lowest pair of peduncles transferred into spiral

hooks. Drupes fleshy, globose.

Frequent in dry open areas of Veli and Varkala. Fl. & Fr.: Nov.-May. 'Modirakkanni'

### ERYTHROXYLACEAE Kunth

#### *Erythroxylum* P. Br.

Flowers solitary; leaves acuminate at apex *E. moonii*

Flowers fascicled; leaves obtuse at apex *E. monogynum*

*Erythroxylum monogynum* Roxb. Pl. Cor. t. 88, 1798; FBI 1: 414; Bourd. 61; Rao 56; Dunn 90. *E. indicum* (DC.) Bedd. Fl. sylv. t. 81, 1871. *Sethia indica* DC. Prodr. 1: 576. 1824.

Shrubs 2-3 m tall. Leaves 2-4 x 1-2 cm, obovate, attenuate at base. Flowers white in axillary fascicles. Drupes oblong.

Frequent in dry open areas of costal zone and up to 800 m in Ponmudi. Fl. & Fr.; Jul.-Dec.

*Erythroxylum moonii* Hochr. in Bull. Inst. Bot. Buitenzorg. 22: 54, 1905. *E. acuminatum* (Arn.) Walp. Rep 1: 407, 1842, non Ruiz & Pav. 1802; Dunn 91. *Sethia acuminata* Arn. in Nov. Actorum Acad. Caes. Leop. Cerot. Nat. Cur. 18(1): 324. 1836. *Erothroxylum lucidum* Moon ex Hook. f. Fl. Brit. India 1: 415. 1874, non H.B.K. 1821.

Erect shrubs 1-2 m tall. Leaves 6-16 x 1.5-4 cm, elliptic-lanceolate, cuneate at base. Flowers whitish, ca. 1.5 cm long, oblong.

Very rare in evergreen forests of Chemungi and Bonecord. Fl. & Fr.; Jul.-Nov.

### OXALIDACEAE R. Br.

Leaves trifoliolate *Oxalis*

Leaves pinnately many-foiolate *Biophytum*

#### *Biophytum* DC.

1. Peduncles less than 9.5 cm long:

|                                     |  |
|-------------------------------------|--|
| 2. Leaflets mucronate               | <i>B. nervifolium</i>                            |
| 2. Leaflets not mucronate           | <i>B. sensitivum</i>                             |
| 1. Peduncles more than 10 cm long : |  |
| 3. Seeds deeply furrowed            | <i>B. reinwardtii</i><br>var. <i>reinwardtii</i> |
| 3. Seeds tubercled                  | <i>B. reinwardtii</i><br>var. <i>geniculata</i>  |

**Biophytum nervifolium** Thw. Enum. 64, 1858. ***B. sensitivum* (L.) DC.** var. *nervifolium* (Thw.) Edgew. & Hook. f. Fl. Brit. India 1: 436. 1874.

Herbs; stems 15-20 cm tall. Leaves 6-13 cm long; leaflets 10-15 pairs, sessile, oblong, obtuse at base. Flowers yellow umbellated.

Occasional in moist deciduous forests of Kottur. Fl. & Fr.: Mar.-May.

**Biophytum reinwardtii** (Zucc.) Klotzsch in Peters. Reise Mossamb. Bot. 85. 1861, var. *reinwardtii*; FBI 1: 437; Gamble 95. ***Oxalis reinwardtii*** Zucc. in Abh. Math.-Phys. Cl. Koenigl. Bayer Akad. Wiss. 1: 274. 1829-1830.

Erect herbs 15-20 cm tall. Leaflets 8-13 pairs, sessile, oblong, obtuse and mucronate at apex, rounded or truncate at base. Flowers yellow, umbellated. Capsules subglobose, glandular, hairy.

Frequent throughout the plains. Fl. & Fr.: Jul.-Dec.

**Biophytum reinwardtii** (Zucc.) Klotzsch var. *geniculata* Edgew. & Hook. f. Fl. Brit. India 1: 438. 1874.

Stems 7-12 cm tall. Leaves 8-10 cm long; leaflets 7-12 pairs, sessile, oblong or obovate, obtuse at apex, truncate at base. Flowers yellow

Occasional in wastelands of the plains. Fl. & Fr.: May.-Jun.

**Biophytum sensitivum** (L.) DC. Prodr 1: 690. 1824; FBI 1: 436. p.p.; Rao 58; Gamble 95. ***Oxalis sensitiva* L.** Sp. Pl. 434. 1753 p.p.

Stems 5-10 cm tall. Leaves 4-9 cm long; leaflets 10-13 pairs,

sessile, oblong or obovate at apex, truncate or obtuse at base. Flowers yellow.

A common weed of the cultivated fields throughout the midlands. Roots with pepper are taken by ladies after child birth as a tonic. Fl. & Fr.: Jun.-Sept.

#### **Oxalis L.**

**Oxalis corniculata** L., Sp. Pl. 435, 1753; Wight, Icon. t.18, 1838; FBI 1: 436; Rao 58; Gamble 94; Calder in Rec. Bot. Surv. India 6(8): 331. 1919.

Diffuse, creeping herbs. Leaves up to 5 cm long, variable, trifoliolate; leaflets 0.5-1.4 x 0.4-0.6 cm. Flowers yellow in long peduncled umbels. Capsules up to 1.8 cm long, pubescent.

Fairly common in cultivated fields and wastelands. Fl. & Fr.: Nov.-Feb.

#### **BALSAMINACEAE A.Rich.**

##### **Impatiens L.**

1. Leaves radical:

  2. Spur 3-3.5 cm long *I. scapiflora*
  2. Spur less than 0.7 cm long *I. levingei*

1. Leaves cauline:
  3. Epiphytic herbs *I. auriculata*
  3. Terrestrial herbs or shrubs:
    4. Leaves rosulate at the apices of stems:
      5. Spur c. 2 cm long *I. umbellata*
      5. Spur less than 5 mm long *I. travancorica*
    4. Leaves not rosulate at the apices of stems:
      6. Shrubs; distal lobes of wings petals larger than basal:
      7. Leaves caudate-acuminate at apex *I. latifolia*

7. Leaves acute at apex:

8. Leaves glabrous *I. leschenaultii*

8. Leaves hairy *I. hensloviana*

6. Shrubs; distal lobes of wings petals  
not as above:

9. Leaves whorled *I. verticillata*

9. Leaves not whorled:

10. Leaves all alternate *I. uncinata*

10. Leaves all opposite:

11. Flowers ca. 3 cm across *I. chinensis*

11. Flowers less than 1.5 cm across:

12. Leaves glabrous, truncate at base *I. diversifolia*

12. Leaves hairy, not truncate at base:

13. Lip deeply saccate *I. rufescens*

13. Lip not as above *I. inconspicua*

*Impatiens auriculata* Wight in Madras J. Lit. Sci. ser. 1, 5: 8.  
1837; FBI 1: 460; Rao 60; Gamble 99.

Herbs. Leaves 6-18 x 2.5-6.5 cm, dentate, acute or acuminate at apex cuneate at base. Flower red, exillary.

Rare in the rocky slopes of Agastyarkudum. Fl. & Fr.: Aug.-Dec.

**Impatiens chinensis** L. Sp. Pl. 738, 1753; FBI 1: 444; Rao 59; Gamble 99. *I. fasciculata* Lam. Encycl. 1: 359. 1783; Wight, Icon. t. 748. 1844.

Herbs 30-35 cm tall. Leaves 4-9 x 0.5-1 cm, scabrous above, tomentose beneath, serrate, linear-lanceolate, acute or acuminate at apex, rounded at base. Flowers red, axillary, solitary or in pairs.

Common in moist areas of Ponmudi. Fl. & Fr.: Aug.-Nov.

*Impatiens diversifolia* Heyne ex Wight & Arn. Prodr. 139, 1834;  
FBI 1, 446; Rao 59; Gamble 99.

Erect, succulent herbs 25-35 cm tall. Leaves 2.5-3.5 x 0.5-1 cm, serrate, linear-oblong, acute at apex, truncate at base. Flowers red.

Frequent in streams and wet areas of Ponmudi and Bonecord. Fl. & Fr.: Aug.-Oct.

*Impatiens hensloviana* Arn. in Hook. Companion Bot. Mag. 1: 322. 1836; FBI 1: 458; Rao 60; Gamble 102. *I. albida* Wight in Madras J. Lit. Sci. ser. 1 5: 7. t. 1. 1837 & Icon. t. 7. 743. 1844.

Erect shrubs ca. 1 m tall. Leaves 3-7.5 x 1-2 cm, crowded, towards the top, pubescent, crenate, ovate, acute at apex, cuneate at base. Flowers yellow, solitary or axillary; pedicels up to 5.5 cm long. Spurs curved, pubescent.

Fairly common in the crevices of rocks near Agastyarkudum. Fl. & Fr.: Aug.-Oct.

*Impatiens inconspicua* Benth. ex Wight & Arn. Prodr. 139. 1834; Wight, Icon. t. 970. 1845; FBI 1: 447; Rao 60. *I. pusilla* Heyne ex Hook. f. & Thoms. in J. Linn. Soc. Bot. 4: 122. 1859; Gamble 100.

Erect, succulent herbs 20-33 cm tall. Leaves 1.5-6 x 0.3-0.6 cm, scabrous above, nearly glabrous beneath, obscurely dentate, linear-oblong, acuminate at apex, obtuse or cuneate at base. Flowers pale pink.

Fairly common in wetlands of Ponmudi. Fl. & Fr.: Aug.-Dec.

*Impatiens latifolia* L. Sp. Pl. 937. 1753; FBI 1: 450; Rao 60; Gamble 101.

Shrubs 50-75 cm tall. Leaves 8.5-18 x 2.5-5.5 cm, crenate nearly glabrous, elliptic-lanceolate, caudate-acuminate at apex, cuneate at base. Flowers pink in axillary fascicles.

Fairly common in wetlands of upper Ponmudi & Bonecord. Fl. & Fr.: Jul.-Nov.

*Impatiens leschenaultii* (DC.) Wall. ex Wight & Arn. Prodr. 136. 1834; FBI 1: 450; Rao 60; Gamble 101. *Balsamina leschenaultii* DC. Prodr. 1: 686. 1824.

Erect, branched shrubs 1-2 m tall. Leaves 3-5 x 1-1.5 cm, crenate, lanceolate, acuminate at apex, cuneate or obtuse at base. Flowers rose, solitary. Capsules ovoid.

Rare in rocky slopes of Agastyarkudum. Fl. & Fr.: Jul.-Nov.

**Impatiens levingei** Gamble ex Hook.f. in Rec. Bot. Surv. India 4: 45. 1906; Gamble 98.

Scapigerous herbs. Leaves 2.5-4 x 3-4.5 cm, pubescent, serrate, reniform or cordate; petioles up to 11 cm long. Flowers pale pink in peduncles up to 20 cm long.

Occasional in marshy areas at Bonecord. Fl. & Fr.: Aug.-Nov.

**Impatiens rufescens** Benth. ex Wight & Arn. Prodr. 138. 1834; Wight, Icon. t.969. 1845; Fisch. 1295. *I. tomentosa* Heyne ex Wight & Arn. var. *rufescens* (Benth. ex Wight & Arn.) Hook.f. Fl. Brit. India 1: 449. 1894.

Herbs 15-35 cm tall. Leaves 1.5-3 x 1-1.5 cm, appressed hairy above, woolly tomentose beneath, crenate, ovate-lanceolate, acute at apex, rounded at base. Flowers red, axillary, solitary.

Occasional in rocky slopes of Agastyarkudum. Fl. & Fr.: Jul.-Nov.

**Impatiens scapiflora** Heyne in Roxb. Fl. Ind. 2: 464. 1824; FBI 1: 443; Gamble 98. *I. rivalis* Wight, Icon. t.751. 1844; FBI 1: 444; Rao 59.

Scapigerous herbs. Leaves 5-14 x 5-11, cordate, reniform or suborbicular, entire or slightly dentate; petioles 10-20 cm long. Flowers rose;

Rare in the crevices of rocks at upper Ponmudi. Fl. & Fr.: Aug.-Dec.

**Impatiens travancorica** Bedd. Icon. t. 142. 1868-1874; FBI 1: 464; Rao 60; Gamble 103.

Erect herbs 15-20 cm tall. Leaves 3-4.5 x 1.5-2.5 cm, broadly elliptic or suborbicular, sparsely puberulous beneath, crenate, obtuse at apex, rounded or narrow at base. Flowers rose, in axillary, subumbellate peduncles.

Rare in the rocky slopes of Agastyarkudum. Fl. & Fr.: Aug.-Oct.

*Impatiens umbellata* Heyne ex Roxb. Fl. Ind. 2: 464. 1824; FBI 1: 461; Rao 60; Gamble 103; Wight, Icon. t. 745. 1844.

Herbs 10-20 cm tall. Leaves 3.5-7.5 x 1.5-2 cm, crenate, ovate, acute at apex, cuneate at base. Flowers pink, umbelled in axillary peduncles.

Fairly common along water courses in Bonecord. Fl. & Fr.: Aug.-Dec.

*Impatiens uncinata* Wight in Madras J. Lit. Sci. ser. 1, 5: 11. t. 6. 1837 & Icon. t. 747. 1844; FBI 1: 465; Rao 60; Gamble 103.

Erect, succulent herbs 15-20 cm tall. Leaves 3-6.5 x 2.2-3 cm, sparsely puberulous when young, dentate, ovate, acuminate at apex, rounded at base. Flowers pale red in terminal umbels or racemes.

Occasional along streams and marshes in Bonecord and Ponmudi. Fl. & Fr.: Apr.-Jul.

*Impatiens verticillata* Wight in Madras J. Lit. Sci. ser. 1, 5: 15. 1837; FBI 1: 452; Rao 60; Gamble 102.

Erect herbs 15-20 cm tall. Leaves 4-7.5 x 0.7-1.3 cm, serrate, linear-lanceolate, acuminate at apex, cuneate at base. Flowers rose-red, in axillary racemes.

Frequent along river banks of Kaviar. Fl. & Fr.: Apr.-Jul.

#### RUTACEAE Juss.

1. Plants dioecious; stamens 2-6:

- |                     |               |
|---------------------|---------------|
| 2. Leaves alternate | <i>Vepris</i> |
| 2. Leaves opposite  | <i>Euodia</i> |

1. Plants not dioecious; stamens more than 8:

- |                           |                  |
|---------------------------|------------------|
| 3. Climbing shrubs        | <i>Luvunga</i>   |
| 3. Erect shrubs or trees: |                  |
| 4. Leaves simple          | <i>Atalantia</i> |

4. Leaves compound:

5. Leaves trifoliolate *Aegle*

5. Leaves pinnate:

6. Fruit a capsule or drupe *Acronychia*

6. Fruit a berry:

7. Flowers sessile *Glycosmis*

7. Flowers pedicelled:

8. Stamens unequal *Murraya*

8. Stamens equal *Clausena*

**Acronychia J. R. & G. Forst. *nom. cons.***

**Acronychia pedunculata** (L.) Miq. Fl. Ind. Bot. Suppl. 532. 1861; Hartley in J. Arnold Arbor. 55: 549. 1974. *Jambolifera pedunculata* L. Sp. Pl. 349. 1753. *Acronychia laurifolia* Blume, Cat. Gen. Buitenz. 63. 1823 & Bijdr. 245. 1825; FBI 1: 498; Bourd. 64; Rao 62; Gamble 108.

Trees 7-9 m tall. Leaves 7-11 x 3-5.5 cm, ovate, acute or subacute at apex, cuneate at base. Flowers white, fragrant, in axillary and terminal corymbs. Drupes ca. 6.5 m diam., subglobose.

Occasional in moist deciduous forests of Kottur. Fl. & Fr.: May-Oct.

**Aegle Correa ex Koen. *nom. cons.***

**Aegle marmelos** (L.) Correa in Trans. Linn. Soc. London. 5: 223. 1800; Wight, Icon. t. 16. 1838; Bedd. Fl. Sylv. t. 161. 1871; FBI 1: 516; Bourd. 72; Rao 67; Gamble 115. *Crateva marmelos* L. Sp. Pl. 444. 1753.

Spinescent trees 7-9 m tall. Leaves trifoliolate, leaflets 3-8 x 2-5 cm, lanceolate or elliptic-lanceolate, acuminate at apex, acute at base. Flowers greenish white in axillary panicles. Fruits ca. 12 cm diam., with woody rind and seeds embedded in pulp.

Often cultivated in temples for its leaves used for puja. Fl. & Fr.: Mar.-May.

*Atalantia* Cortea nom. cons.

|                |                    |
|----------------|--------------------|
| Stamens united | <i>A. racemosa</i> |
| Stamens free   | <i>A. wightii</i>  |

*Atalantia racemosa* Wight & Arn. Prodr. 91, 1834; FBI 1: 512; Bourd. 68; Rao 65; Gamble 114. *Sclerostylis parviflora* Wight Icon. t. 71. 1838.

Trees 7-9 m tall. Leaves 2-7 x 1-2.5 cm, glabrous, ovate-oblong divided at apex, narrowed at base. Flowers white in axillary racemes. Berries greenish-yellow, globose.

Occasional in evergreen forests of Boneccord. Fl. & Fr.: Nov.-Jun. 'Kattunaragam'.

*Atalantia wightii* Tanaka in Bull. Soc. Bot. France 75: 714, 1925; Gamble 114. *A. ceylanica* sensu Hook.f. in Fl. Brit. India 1: 512. 1875 p.p. non (Arn.) Oliver 1861; Bourd. 69; Rao 65.

Erect, spinescent shrubs up to 2 m tall. Leaves 9-15 x 4-5.5 cm, glabrous, chartaceous, lanceolate, acuminate and mucronate at apex, obtuse to cuneate at base. Flowers white in axillary racemes. Fruits greenish, subglobose.

Occasional in semievergreen forests at low elevations. Fairly common in the plains in 'Kavus' (sacred groves). Fl. & Fr.: Mar.-May.

*Clausena* Burm. f.

*Clausena heptaphylla* (Roxb.) Wight & Arn. Prodr. 95 1834; FBI 1: 504; Gamble 110. *Amyris heptaphylla* Roxb. Fl. Ind. 2: 248. 1832

Erect shrubs 0.5-1 m tall. Leaves pinnate; leaflets 7, each 3-16 x 1.5-6 cm, crenate, chartaceous, elliptic-oblong or obovate, acuminate at apex, obliquely cuneate at base. Flowers greenish-white in axillary racemes. Fruits green, globose.

Frequent in the undergrowth of evergreen and semievergreen forests. Fl.: Nov.-Dec. Fr.: Mar.-Jun.

*Euodia* J.R. & G. Forst.

*Euodia lunu-ankenda* (Gaertn.) Merr. in Phillip. J. Bot. 7: 378. 1912; Gamble 105, 'Evodia' *Fagara lunu-ankenda* Gaertn. Fruct. 1: 334, t.68, f. 9, 1788. *Zanthoxylum triphyllum* Wight. Icon. t. 204. 1832. 'Zanthoxylon' *Euodia roxburghiana* Benth. Fl. Hong. 59. 1861; FBI 1: 487.

Trees 5-7 cm tall. Leaves trifoliolate; leaflets 6.17 x 3-8 cm, terminal longer, glabrous, broadly elliptic, acuminate at apex, obtuse and unequal at base. Flowers greenish, pubescent.

Occasional in low level evergreen forests. Wood used for match boxes. Fl. & Fr.: Mar.-Jul.

*Glycosmis* Correa

- |                                  |                       |
|----------------------------------|-----------------------|
| 1. Leaves caudate at apex        | <i>G. cymosa</i>      |
| 1. Leaves never caudate at apex: |                       |
| 2. Leaflets serrate              | <i>G. pentaphylla</i> |
| 2. Leaflets entire               | <i>G. mauritiana</i>  |

*Glycosmis cymosa* (Kurz) Narayanaswami in Rec. Bot. Surv. India 14(2): 26. 1941. *G. cyanocarpa* Spreng. var. *cymosa* Kurz in J. Bot. 14: 34. 1876.

Shrubs. Leaves 4-10 x 1.5-3.5 cm, coriaceous, elliptic or elliptic-oblong, caudate-acuminate at apex, acute at base. Flowers white in short panicles.

Frequent in evergreen forests of Chemungi. Fl. & Fr.: Jun.-Sept.

*Glycosmis mauritiana* (Lam.) Tanaka in Bot. Not. 159. 1928 & in Bull. Soc. Bot. France 75: 705. 1928; Brizicky in J. Arnold Arbor. 18: 90. 1962, excl. syn. *G. pentaphylla* DC. *Limonia mauritiana* Lam. Encycl. 3: 517. 1972. *L. pentaphylla* auct. non Retz. 1789; Roxb. Pl. Cor. t 54. 1798. *Glycosmis pentaphylla* sensu Narayanaswami in Rec. Bot. Surv. India 14: 12. 1941; excl. syn. *L. pentaphylla* Retz. *G. triphylla* Wight, Bot. Misc. 3: 298. t 39. 1833 & Icon. t 167. 1839.

Erect shrubs 2-4 m tall. Leaves 5.5-20 x 1.5-7 cm, chartaceous, elliptic, elliptic-oblong or oblanceolate, shortly acuminate at apex, cuneate at base. Flowers whitish in short panicles.

Fairly common in the undergrowth of evergreen forests of Chemungi. Fl. & Fr.: Mar.-Sept.

*Glycosmis pentaphylla* (Retz.) DC. Prodr. 1: 538. 1824, quoad basionym; Tanaka in J. Indian Bot. Soc. 16: 229. 1937; Mitra & Subramanyam in J. Arnold. Arbor. 50: 155. 1969. *Limonia pentaphylla* Retz. Obs. Bot. 5: 24. 1789. *L. arborea* Roxb. Pl. Cor. 1: 60, t.55. 1798. *Glycosmis arborea* (Roxb.) DC. Prodr. 1: 538. 1824; Narayanaswami in Rec. Bot. Surv. India 14: 20. 1941; Brizicky in J. Arnold. Arbor. 73: 90. 1962.

Erect shrubs 0.5-1 m tall; young branches brown tomentose. Leaves pinnate, 3-5-foliate; leaflets 7-16 x 1.5-5.5 cm, serrate, chartaceous, elliptic-oblong, obtusely acuminate at apex, cuneate at base. Flowers white in axillary panicles.

Common in the plains and at low elevations of ghats. Fl. & Fr.: Sept.-Feb. 'Panchi'

Note: Tanaka I.c. based on his study of authentic specimens of *Limonia pentaphylla* Retz. and *L. arborea* Roxb., assumed that they were conspecific. Narayanaswami I.c. did not agree with the above view and treated them separate. Brizicky (in J. Arnold. Arbor. 73: 71. 1962), however, upheld Tanaka's view and concluded that *G. pentaphylla* was based on *Limonia pentaphylla* sensu Roxb. and not on *L. pentaphylla* Retz. and hence he adopted the next available name *Glycosmis arborea* (Roxb.) DC. Mitra & Subramanyam I.c. on the contrary, opined that Brizicky's treatment was not in accordance with the 'Code' and they retained the combination *Glycosmis pentaphylla* (Retz.) DC.

**Luvunga** Buch.-Ham. ex Wight & Arn.

*Luvunga sarmentosa* (Blume) Kurz in J. Asiat. Soc. Bengal 39 (2): 69. 1870. Backer & Bakhu, f. Fl. Java 2: 105. 1965. *Tripaliasia sarmentosa* Blume Bijdr. 1: 132. 1825. *Luvunga eleutheranda* Dalz. in Hooker's J. Bot. Kew. Gard. Misc. 2: 258. 1850. FBI 1: 509; Rao 64; Gamble 112.

Stems with deflexed spines. Leaves trifoliolate; leaflets 7-13 cm long, coriaceous, elliptic or obovate, abruptly acuminate at apex, cuneate at base. Flowers white in axillary racemes.

Occasional in moist deciduous forests. Fl. & Fr.: Feb.-May.

*Murraya* Koen. ex L. *nom. cons.*

*Murraya paniculata* (L.) Jack. Malayan Misc. 1: no. 5, 31. 1820; Sant. Fl. Khandala ed. 3. 33. 1967. *Chalcas paniculata* L. Mant. Pl. 68. 1767. *Murraya exotica* L. Mant. Pl. 563. 1771. 'Muraea'. Wight, Icon. t. 96. 1838; FBI 1: 502; Bourd. 66; Rao 63; Gamble 111.

Trees 6-8 cm tall. Leaves 3.5-6.5 x 1.3-2.5 cm, glabrous, shining above, elliptic or ovate, acuminate and mucronate at apex, acute at base. Flowers pale yellow in panicles.

Common in evergreen forests at low elevation in Kallar. Fl.: Mar.-Sept. Fr.: Oct -Feb.

*Vepris* Commers. & A. Juss.

*Vepris bilocularis* (Wight & Arn.) Engler in Engler & Prantl, Pflanzenfam. 3(4): 178. 1896; Gamble 108. *Toddalia bilocularis* Wight & Arn. Prodr. 149. 1834; Bedd. Icon. t. 167. 1874; FBI 1: 497; Bourd. 64; Rao 62.

Trees 5-7 m tall. Leaves trifoliolate; leaflets 7-22 x 3-10 cm, sessile, ovate or lanceolate. Flowers greenish-yellow in axillary and terminal panicles.

Occasional in evergreen forests of Merchiston. Fl.: Jan.-Apr. Fr.: May-Jun.

## SIMAROUBACEAE DC.

1. Leaves pinnate:

2. Rachis of leaves winged *Quassia*\*

2. Rachis of leaves not winged *Ailanthus*

1. Leaves simple

*Samadera*

*Ailanthus* Desf.

*Ailanthus triphysa* (Dennst.) Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.): 41. 1931; Nooteboom in Steenis, Fl. Malesiana ser. 1. 6: 219. 1962; Basak. Fasc. Fl. India 4: 5. 1980. *Adenanthera triphysa* Dennst. Schules. Hort. Malab. 32. 1818. *Ailanthus malabarica* DC. Prodr. 2: 89. 1825 nom. illeg.; Wight, Icon. t. 1604. 1850; FBI 1: 518; Bourd. 73; Rao 68; Gamble 116.

Trees 10-30 m tall; bark grey. Leaves up to 56 cm long; leaflets 3-10 x 3-4 cm, pubescent beneath, obliquely ovate-lanceolate, acuminate at apex. Flowers yellow, in long, dense-flowered, axillary and terminal panicles 20-35 cm long.

Common in evergreen forests. Wood used for match boxes and splints. '*Mattipal*'. Fl.: Feb.-Mar.; Fr.: Apr.-May.

*Samadera* Gaertn. *nom. cons.*

*Samadera indica* Gaertn. Fruct. 2: 352. 1791; FBI 1: 519; Bourd. 73; Rao 68; Gamble 117; Hook. Icon. t.7 1 1837; Basak in Fasc. Fl. India 4: 15. 1060. *Quassia indica* (Gaertn.) Nooteboom in Steenis, Fl. Malesiana ser. 1, 6: 199. 1962 & Blumea 11: 517. 1962.

Trees 4-6 m tall. Leaves 15-27 x 4-7 cm, shining, glabrous with scattered glands beneath, elliptic-lanceolate, acuminate at apex, acute at base. Flowers reddish in axillary or terminal umbels. Drupes narrowly winged.

Occasional in coastal and midland zones. Oil extracted from the seeds and decoction of bark used as a remedy for rheumatism. '*Karinjotta*' Fl.: Feb.-Mar. Fr.: May-Jun.

*Note*: Nooteboom *f. c.* merged the seven genera of the section *Simaroubeae* into the genus *Quassia* L., following Pierre (1896). He finds no consistent character to distinguish the genus *Samadera* Gaertn. from others. But, the simple leaves in *Samadera* Gaertn. (except one species of *Simaba* all others are compound leaved) and the large size of the fruits are characters consistent enough to distinguish *Samadera* Gaertn. from all the other genera.

\**Quassia amara* L. is commonly cultivated in gardens.

O C H N A C E A E DC.

|                                  |                |
|----------------------------------|----------------|
| Flowers many in terminal racemes | <i>Gomphia</i> |
| Flowers 2-3 in cymes             | <i>Ochna</i>   |

*Gomphia* Schreb.

*Gomphia serrata* (Gaertn.) Kanis in Taxon 16: 422. 1968 & in Blumea 16: 53. 1968. *Meesia serrata* Gaertn. Fruct. 1: 344. t. 70, f. 6 1788. *Ourea serrata* (Gaertn.) Robs. in Taxon 11: 51. 1962. *Gomphia angustifolia* Vahl, Symb. Bot. 2: 49. 1791;

FBI 1: 525; Bourd. 75; Rao 69. *Ouratea angustifolia* (Vahl) Baill. ex Laness. Pl. Util. Col. Fr. 607, 1886; Gilg in Engler & Prantl, Pflanzenfam. 3(6): 142, 1895; Gamble 119.

Shrubs or trees 6-8 m tall. Leaves 6-20 x 2-5 cm, chartaceous, denticulate, ovate-lanceolate, acuminate at apex, attenuate at base. Flowers yellow in terminal racemes. Drupes reddish brown, reniform.

Rare in laterite soils in midlands and moist deciduous forests. Wood used for making plougher's sticks. Fl.: Jan.-Apr. Fr.: May-Jul. '*Chavetti*'

*Note*: *Gomphia* Schreb. and *Ouratea* Aubl. were treated synonymous. Farron (Bull. Soc. Bot. Suisse 73: 196-217, 1963) separated the two reserving *Ouratea* Aubl. for the American genus. Subsequently, Kanis I.c. resurrected the name *Gomphia* Schreb. for the old world species. *Gomphia* Schreb. differs from *Ouratea* Aubl. by the curved ovule, connate stipules and persistent sepals.

#### Ochna L.

*Ochna obtusata* DC. Ann. Mus. Natl. Hist. Nat. 17: 411, pl. 11, 1811; Prodr. 1: 375, 1824; Kanis in Blumea 16: 32, 1968; Robs. in Taxon 11: 50, 1962. *O. squarrosa* Rottb. Dansk. Vidensk. Selsk. Skrift, n.s. 2: 545, t.6, 1783 non L. 1753; Wight; III. 1: 172, t.69, 1840; FBI 1: 523; Bourd. 74; Rao 69; Gamble 118.

Erect shrubs 1.5-3 m tall. Leaves 4.5-8.5 x 2-3.5 cm, subsessile, crenulate with prickles, elliptic or lanceolate, acute at apex, acute at base. Flowers yellow in cymes. Fruits 2-5, red.

Occasional from sea level to 1000 m. Cultivated as ornamental in gardens. Fl.: Dec.-Feb. Fr.: Mar.-Jun.

*Note*: This very variable species was misidentified as *Ochna squarrosa* L. in earlier Indian Floras. Kanis I.c. has shown that *O. squarrosa* L. is an illegitimate synonym of *O. jabotapita* L. which is endemic to Ceylon.

#### BURSERACEAE Kunth

##### *Canarium* L.

**Canarium strictum** Roxb. Fl. Ind. 3: 138. 1832; Bedd. Fl. Sylv. t.128. 1871; FBI 1: 534. 1875; Bourd. 76; Rao 70; Gamble 123.

Trees 25-35 m tall; young branches rufous-tomentose. Leaves imparipinnate; leaflets 5-7, 16 x 5.2 cm, rufous-tomentose beneath, ovate-lanceolate or oblong-lanceolate, acuminate at apex, rounded and unequal at base. Flowers bright yellow in axillary and subterminal panicles.

Fairly common in evergreen forests Fl.: Jan.-Mar. Fr.: Nov.-Jan. '*Kunthirikkam*'

#### MELIACEAE Juss.

|  |                    |
|--|--------------------|
| 1. Herbs or undershrubs; petioles winged | <i>Naregamia</i>   |
| 1. Trees; petioles wingless:             |                    |
| 2. Ovary 5-loculed:                      |                    |
| 3. Fruits 5-ribbed                       | <i>Cipadessa</i>   |
| 3. Fruits smooth                         | <i>Toona</i>       |
| 2. Ovary 1-3-loculed:                    |                    |
| 4. Seeds winged                          | <i>Sweitenia*</i>  |
| 4. Seeds not winged:                     |                    |
| 5. Stigma subsessile:                    |                    |
| 6. Petals 5                              | <i>Aglaia</i>      |
| 6. Petals 3                              | <i>Aphanamixis</i> |
| 5. Stigma not as above:                  |                    |
| 7. Fruit a berry                         | <i>Walsura</i>     |
| 7. Fruit a capsule                       | <i>Trichilia</i>   |

#### *Aglaia* Lour. nom. cons.

|                                       |                           |
|---------------------------------------|---------------------------|
| 1. Leaves glabrous beneath            | <i>A. elaeagnoides</i>    |
|                                       | var. <i>courtallensis</i> |
| 1. Leaves tomentose or scaly beneath: |                           |
| 2. Leaflets 7-9                       | <i>A. minutiflora</i>     |

2. Leaflets 3-7 only

*A. elaeagnoidea*  
var. *boudillonii*

*Aglaia elaeagnoidea* (Juss.) Benth. var. *boudillonii* (Gamble) Nair in J. Bombay Nat. Hist. Soc. 78: 426. 1981. *A. boudillonii* Gamble in Bull. Misc. Inform. 346. 1915 & Fl. Pres. Madras 180. 1915 & 129. 1957 (repr. ed.); Choudhari in Bull. Bot. Soc. Bengal 21: 6. 1967. *A. roxburghiana* sensu Bedd. Fl. Sylv. t. 130B. 1871, non (Wight & Arn.) Miq. 1868.

Trees 10-12 m tall. Leaves 10-17 cm long, imparipinnate; leaflets 4-8 x 1-3 cm, glabrous above, oblanceolate, acute or acuminate at apex, cuneate at base. Flowers brown, shortly peduncled in axillary or terminal panicles. Fruits brownish.

Rare in evergreen forests of Chemungi and Agastyarkudum. Fl. & Fr.: Dec.-May.

*Aglaia elaeagnoidea* (Juss.) Benth. var. *courtallensis* (Gamble) Nair in J. Bombay Nat. Hist. Soc. 76: 476. 1981. *A. roxburghiana* (Wight & Arn.) Miq. var. *courtallensis* Gamble, Fl. Pres. Madras 180. 1915 & 128. 1957 (repr. ed.).

Trees 5-7 m tall. 5-7-foliate; leaflets 3.5-10.5 x 1.5-3.5 cm, elliptic or oblanceolate, acute at apex, cuneate at base. Flowers brown, sessile in axillary and terminal panicles.

Rare in low elevations of ghats. Fl. & Fr.: Dec.-May.

*Aglaia minutiflora* Bedd. Icon. t. 192. 1868 1874; Gamble 129; Boud. 85; Rao 174. *A. minutiflora* Bedd. var. *travancorica* Hiern in Hook.f. Fl. Brit. India 1: 557. 1875.

Trees 10-12 m tall. Leaves 20-30 cm long, dark green above, rusty beneath, lanceolate, obtuse at apex, narrowed at base. Flowers yellow in axillary, rusty, compound panicles. Fruits 2.5 cm long, rusty-tomentose.

Occasional in evergreen forests of Chemungi. Fl. & Fr.: Nov.-Mar.

#### *Aphanamixis* Blume

*Aphanamixis polystachya* (Wall.) Parker in Indian Forester 57: 486. 1931. *Aglaia polystachya* Wall. in Roxb. Fl. Ind. 2: 429. 1824. *Amoora rohituka* (Roxb.) Wight & Arn. in Wight, Cat. 24. 1833 &

Prodr. 119, 1834; Bedd. Fl. Sylv. t.132, 1871; FBI 1: 559; Bourd. 86; Rao 75; Gamble 130. *Andersonia rohituka* Roxb. Fl. Ind. 2: 213, 1832.

Trees 7-12 m tall. Leaves 2.5-6 cm long, pinnate; leaflets 7-10 x 2.5-3.5 cm, glabrous, lanceolate, acuminate at apex, oblique at base. Flowers pale yellow, sessile, in spikes. Capsules red.

Occasional in evergreen forests. Fl. & Fr.: Feb.-Jul.

#### *Azadirachta* A Juss.

*Azadirachta indica* A. Juss. Mem. Mus. Natl. Hist. Nat. 19: 221, t.13, f.5, 1830; Blatt. et Hallb. in J. Bombay Nat. Hist. Soc. 26: 233, 1918. *Melia azadirachta* L. Sp. Pl. 385, 1753; Wight, Icon. t.17, 1838; FBI 1: 544; Bourd. 79; Rao 72.

Trees 4-6 m tall. Leaves up to 2 cm long, pinnate; leaflets 3-6 x 1-2 cm, glabrous, serrate, ovate-lanceolate, acuminate at apex, obliquely cuneate at base. Flowers pale yellow in axillary racemes.

Occasional in the midlands. Fl. & Fr.: May-Aug.

#### *Cipadessa* Blume

*Cipadessa baccifera* (Roth) Miq. in Ann. Mus. Bot. Ludgduo. Batavam 4: 6, 1868; Gamble 126. *Melia baccifera* Roth, Nov. Pl. Sp. 215, 1821. *Cipadessa fruticosa* Blume, Bijdr. 162, 1825. FBI. 1: 545; Bourd. 81; Rao 73.

Shrubs 2-3 m tall. Leaves 9-25 cm long; leaflets 1.5-9 x 1-3 cm, serrate, pubescent, ovate, acute at apex, narrowed at base. Flowers white in axillary panicles.

Occasional at low elevations of ghats. Fl. & Fr.: Jan.-Mar.

#### *Naregamia* Wight & Arn. *nom. cons.*

*Naregamia alata* Wight & Arn. Prodr. 117, 1834; Wight, Icon. t. 90, 1838; FBI 1: 542; Rao 71; Gamble 125.

Undershrubs 40-50 cm tall. Leaves 4.5-7 cm long, trifolioate, glabrous; central leaflets 2.5-3.5 x 1.5-2 cm, obovate, entire or 2-3 lobed, obtuse at apex, cuneate at base; laterals smaller

Flowers white, axillary, solitary. Capsules 3-valved, globose.

Fairly common throughout the midlands along roadsides, Fl & Fr.; Sept.-Oct. 'Nilanaragam'.

Toona Roem.

*Toona ciliata* M. Roem. Svn. Hesper. 139. 1846; var. *ciliata*; *Cedrela toona* Roxb. ex Rottl. & Willd. in Ges. Naturf. Freunde. Berlin Neue Schriften 2: 198. 1803; Wight, Icon. t. 161. 1839; FBI 1: 568; Bourd. 91; Rao 77; Gamble 133.

Trees 15-20 m tall. Leaves 30-90 cm long; leaflets 20-30, 5-23 x 2.5-9 cm, lanceolate, acuminate at apex, oblique at base. Flowers white in drooping panicles. Capsules ovoid.

Common in deciduous forests. Fl. & Fr.: Nov.-Oct. 'Vembu'

Trichilia P. Br. *nom. cons.*

*Trichilia cannaroides* (Wight & Arn.) Bentvelzen. in Acta Bot. Neerl. 11: 13 1962. *Zanthoxylum cannaroides* Wight & Arn. Prodr. 148. 1834, 'Zanthoxylon' *Heynea trijuga* Roxb. ex Sims in Bot. Mag. 41: t. 1738. 1815, non *Trichilia trijuga* Vell. 1825. FBI 1 565; Bourd. 88; Rao 67; Gamble 131.

Trees 7-9 m tall. Leaves 10-24 cm long; leaflets 5-9, each 5-13 x 2.5-7 cm, ovate acuminate at apex, oblique at base. Flowers white in axillary panicles. Capsules red.

Occasional in evergreen forests at Chemungi. Fl. & Fr.: Aug.-Apr.

Walsura Roxb.

*Walsura trifolia* (A. Juss.) Harms in Engler & Prantl, Pflanzenfam. ed. 2. 19b: 119 & 171. 1940. *Heynea trifolia* A. Juss. Mem. Mus. Natl. Hist. Nat. 19: 238. 1830. *Walsura piscida* Roxb. Fl. Ind. 2: 837. 1832; Wight, Ill. 1. t. 55. 1840; FBI 1: 564; Bourd. 87; Rao 75; Gamble 131.

Tree 12-15 m tall. Leaves trifoliolate, 5-15 cm long; leaflets 2.5-7 x 1.5-3.5 cm, obovate, obtuse at apex, narrowed at base. Flowers greenish-yellow in panicles. Fruits ovoid, tomentose

Rare in Veli. Fl. & Fr.: Aug.-Oct. 'Per. illapacha'.

\**Swietenia mahagoni* (L.) Jacq. is often planted in Avenues.

### DICHAPELACEAE Baill.

*Dichapetalum* Thou.

*Dichapetalum gelonioides* (Roxb.) Engler in Engler & Prantl, Pflanzenfam. 3(4): 348. 1896; Gamble 134; Leenh. in Steenis, Fl. Malesiana ser. 1. 5: 310. 1957. *Moacurra gelonioides* Roxb. Fl. Ind. 2: 69. 1832. *Chailletia gelonioides* (Roxb.) Bedd. For. Man Bot. 59. t.9. f. 1 1871; FBI 1: 570; Bourd. 93; Rao 78.

Trees 4-6 m tall. Leaves 6-13 x 1.5-4 cm, lanceolate, acuminate at apex, rounded at base. Flowers white in axillary cymes. Drupes obovate, grey-tomentose.

Common in evergreen forests of Bonecord. Fl. & Fr.: Jan.

### OPILLACEAE Valeton

*Cansjera* Juss. nom. cons

*Cansjera rheedii* Gmel. Syst. 1: 280. 1791; Wight, Icon. t. 1861. 1852; FBI 1: 582; Rao 79.

Scendent shrubs; branchlets pubescent. Leaves 3.5-7.5 x 1-2.5 cm, ovate, acuminate at apex, unequal at base. Flowers white in pubescent spikes.

Occasional in dry areas. Fl. & Fr.: Jun.-Aug.

### ICACINACEAE Miers

- |                           |                     |
|---------------------------|---------------------|
| 1. Erect shrubs or trees: |                     |
| 2. Petals glabrous within | <i>Gomphandra</i>   |
| 2. Petals villous within  | <i>Nothopodytes</i> |
| 1. Climbing shrubs        | <i>Sarcostigma</i>  |

*Gomphandra* Wall. ex Lindl.

- |                          |                     |
|--------------------------|---------------------|
| Cymes axillary           | <i>G. tetrandra</i> |
| Cymes opposite to leaves | <i>G. coriacea</i>  |

*Gomphandra coriacea* Wight, Ill. 1: 103. 1840; Sleumer in Blumea

17: 206, 1969; Gamble 140, *G. polymorpha* Wight, Ill. 1: 103, 1840 p.p.; Wight, Icon. t.953, 1845; FBI 1: 586. *Stemonurus coriaceus* (Wight) Miers in Ann. Mag. Nat. Hist. 2(10): 37, 1852.

Trees 5-7 m tall. Leaves 5-10 x 4-5 cm, ovate-lanceolate, oblong, puberulous when young, acuminate, acute or obtuse at apex, acute at base. Flowers white; filaments of stamens often connate.

Fairly common at high elevations of Chemungi above 1000 m. Fl. & Fr.: Dec.-Mar.

*Gomphandra tetrandra* (Wall.) Sleumer in Notzbl. Bot. Gart. Berlin Dahlem 15: 238, 1940 & in Blumea 17: 204, 1969. *Lasianthera tetrandra* Wall. in Roxb. Fl. Ind. 2: 328, 1824. *Gomphandra axillaris* Wall. ex Voigt, Hort. Suburb. Calcutta 31, 1845; FBI 1: 586. *G. polymorpha* Wight, Ill. 1: 103, 1840 p.p.; Icon. t.954, 1845; Gamble 195. *Stemonurus tetrandrus* (Wall.) Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.): 48, 1931.

Trees 5-7 m tall; branches terete, slightly hairy. Leaves 7-12 x 2-4 cm. Flowers greenish-white.

Common in evergreen forests. Two types of plants are seen; one with narrow linear-lanceolate leaves and the other with broad, oblong-lanceolate leaves. No other difference was observed. Fl. & Fr.: Dec.-Jun.

*Note* : There is much confusion regarding the generic limits of *Gomphandra* Wall. ex Lindl. (1836) and *Stemonurus* Blume. (1825). Beccari (1877) was the first to segregate the genus *Stemonurus* Blume sensu lato into two-viz. *Stemonurus* Blume sensu stricto and *Gomphandra* Wall. ex Lindl and to lectotypify them. Beccari's lectotypification of the genera was correctly accepted by Sleumer (Taxon 17: 255-256, 1969).

#### *Nothapodytes* Blume

*Nothapodytes nimmoniana* (Graham) Mebbert in Manilal, Bot. Hist. Hort. Malab. 88, 1980. *Premna nimmoniana* Graham, Cat. Pl. Bombay 155, 1839. *Nothapodytes foetida* (Wight) Sleumer in Notzbl. Bot. Gart. Berlin Dahlem 15: 247, 1940 & in Blumea 17: 232, 1969. *Stemonurus foetidus* Wight, Icon. t.955, 1845. *Mappia foetida* (Wight) Miers. In Ann. Mag. Nat. Hist. 2(9): 395, 1852; FBI 1: 589; Gamble 141.

Trees 3-5 m tall. Leaves 10-20x4-7 cm, slightly pubescent, ovate-lanceolate, acuminate at apex, rounded or cuneate at base. Flowers greenish-white, in corymbose cymes up to 9.5 cm long.

Common in evergreen forests at high elevations. Fl. & Fr.: Sept.-Oct.

*Sarcostigma* Wight & Arn.

*Sarcostigma kleinii* Wight & Arn. in Edinburgh New. Philos. J. 14: 299. 1833; Wight, Icon. t. 1854. 1852; FBI 1: 594; Gamble 152; Sleumer in Blumea 17: 254. 1969.

Leaves 10-19 x 4-9 cm, coriaceous, acuminate at apex, rounded or acute at base. Flowers unisexual, in long, pendulous, peduncles up to 50 cm long. Drupes ovoid, orange-coloured, fleshy.

Common in river banks of evergreen and semievergreen forests. Mesocarp edible. 'Odal'

ERYTHROPALACEAE (Hassk.) van Tiegh.

*Erythropalum* Blume

*Erythropalum populifolium* (Arn.) Mast. in Hook. f. Fl. Brit. India 1: 578. 1875; Rao 79; Gamble 137. *Mackava populifolia* Arn. in Jard. Mag. Zool. & Bot. 2: 550. 1838.

Climbing shrubs with tendrils. Leaves 10-18.5 x 4-9.5 cm, 3-ribbed, subpetiolate, ovate, acuminate at apex, truncate at base. Flowers yellow, axillary in long pedunculate cymes. Drupes oblong, obovoid, puberulous.

Occaional in evergreen forests of Boneccord. Fl. & Fr.: Jan.-Mar.

CELASTRACEAE R. Br.

1. Stigma 2-5-lobed:

- |                   |                    |
|-------------------|--------------------|
| 2. Petals free    | <i>Euonymus</i>    |
| 2. Petals connate | <i>Micropeltis</i> |

1. Stigma not lobed:

- |             |                      |
|-------------|----------------------|
| 3. Petals 4 | <i>Glyptopetalum</i> |
|-------------|----------------------|

## 3. Petals 5:

4. Fruit a drupe *Pleurostylia*  
 4. Fruit a capsule *Lophopetalum*

*Euonymus* L.

- Petals fimbriate; leaves entire *E. indicus*  
 Petals entire; leaves crenate *E. dichotomous*

*Euonymus dichotomous* Heyne ex Roxb. Fl. Ind. 2: 40. 1824;  
 FBI 1: 609; Bourd. 99; Rao 81; Gamble 146.

Shrubs 3-4 m tall. Leaves 7-11 x 2-3.5 cm, oblong-lanceolate,  
 obtusely acuminate at apex, tapering at base. Flowers pinkish-  
 green in dichasial cymes.

Occasional in evergreen forests of Bonecord. Fl. & Fr.: Mar.-  
 Aug.

*Euonymus indicus* Heyne ex Roxb. Fl. Ind. 2: 409. 1824;  
 FBI 1: 608; Rao 81; Gamble 146.

Trees 6-8 m tall. Leaves 4.5-9 x 1.5-4 cm, ovate, obtusely  
 acuminate at apex, acute at base. Flowers red, 1-3 in axillary  
 cymes.

Common in dry areas of the coast of Varkala. Fl. & Fr.:  
 Dec.-May.

*Glyptopetalum* Thw.

- Leaves serrate, acute at apex *G. zeylanicum*  
 Leaves nearly entire, obtuse at apex *G. lawsonii*

*Glyptopetalum lawsonii* Gamble in Bull. Misc. Inform. 131. 1916 &  
 Fl. Pres. Madras 204. 1918; 1: 147. 1957 (repr. ed.).

Shrubs. Leaves 5.5-9 x 2.4-6 cm, elliptic or obovate, cuneate  
 at base. Flowers pale yellow in axillary and extra-axillary cymes.

Occasional in moist deciduous forests. Fl. & Fr.: Mar.

*Glyptopetalum zeylanicum* Thw. in Hooker's J. Bot. Kew Gard. Misc.  
 8: 267. t.7B. 1856; FBI 1: 612; Bourd. 100; Rao 82; Gamble 147.

Shrubs. Leaves 9-14 x 3-7 cm, serrate, ovate-lanceolate, cuneate at base. Flowers in axillary cymes. Capsules ca. 1 cm in diam.

Occasional in moist deciduous forests of Kottur. Fl. & Fr.: Feb.-May.

**Lophopetalum Wight & Arn.**

*Lophopetalum wightianum* Arn. in Ann. Nat. Hist. 3: 151. 1839; Wight, Icon. t.162. 1839; FBI 1: 615; Bourd. 101; Rao 82; Gamble 147.

Trees 20-25 m tall. Leaves 10-18.5 x 9.5-18 cm, glabrous, oblong, abruptly acuminate at apex, narrowed at base. Flowers in axillary and terminal discoid cymes; petals white; disc red. Capsules triangular.

Frequent in evergreen and semievergreen forests along streams and rivers. Fl. & Fr.: Dec.-May. 'Venkotta'

**Microtropis Wall. ex Meissn. nom. cons.**

|                          |                       |
|--------------------------|-----------------------|
| <b>Flowers sessile</b>   | <i>M. wallichiana</i> |
| <b>Flowers peduncled</b> | <i>M. microcarpa</i>  |

*Microtropis microcarpa* Wight, Icon. t.975. 1845; FBI 1: 614; Rao 82; Gamble 149.

Shrubs. Leaves 3-6 x 1.5-5 cm, elliptic, obtuse at apex, cuneate at base. Flowers in axillary or extra-axillary cymes; petals orbicular.

Rare in evergreen forests of Ponmudi and Merchiston. Fl. & Fr.: Feb.-May.

*Microtropis wallichiana* Wight & Thw. Enum. 71. 1858; FBI 1: 613; Bourd. 100; Rao 82; Gamble 148.

Erect shrubs or small trees, 3-4 m tall. Leaves 4.5-7 x 1.5-3 cm, glabrous, ovate, obtuse at apex, cuneate at base. Flowers white.

Rare in evergreen forests of Ponmudi and Chemungi. Fl. & Fr.: Feb.-Apr.

**Pleurostylia** Wight & Arn.

**Pleurostylia opposita** (Wall.) Alston in Trimen, Handb. Fl. Ceylno 6 (Suppl.): 48. 1931. *Celastrus opposita* Wall. in Roxb. Fl. Ind. 2: 398. 1824. *Pleurostylia wightii* Wight & Arn. Prodr. 157. 1834; Wight, Icon. t. 155. 1839; FBI 1: 617; Bourd. 102; Rao 83; Gamble 152.

Trees 7-9 m tall. Leaves 3-6 x 1-1.5 cm, narrowly elliptic or obovate-oblong, subcoriaceous, obtuse at apex, cuneate at base. Flowers greenish in axillary, few-flowered cymes.

Rare in dry areas of Veli. Fl. & Fr.: Jul.-Sept.

**HIPPOCRATEACEAE** Juss.

|                                  |                     |
|----------------------------------|---------------------|
| 1. Flowers in axillary fascicles | <i>Salacia</i>      |
| 1. Flowers in terminal panicles: |                     |
| 2. Petals valvate                | <i>Loesneriella</i> |
| 2. Petals imbricate              | <i>Reissantia</i>   |

**Loesneriella** A.C. Sm.

**Loesneriella arnottiana** (Wight) A.C. Sm. in J. Arnold. Arbor. 26: 174. 1945. *Hippocratea arnottiana* Wight, Ill. 1: Pl. 46, 47. 1839; FBI 1: 624; Rao 85; Gamble 153.

Climbing shrubs. Leaves 7.5-15 x 3.5-5 cm, oblong, acuminate at apex, acute at base. Flowers yellow in axillary, dichotomously branched cymes.

Occasional in evergreen forests in Bonecord. Fl. & Fr.: Dec.-Feb.

**Reissantia** Halle

**Reissantia grahamii** (Wight) Ding Hou in Blumea 12: 33. 1963. *Hippocratea grahamii* Wight, Ill. 134. 1839 & Icon. t. 380. 1840; FBI 1: 624; Rao 85; Nair & Bhargavan in J. Econ. Tax. Bot. 3: 300. 1982.

Lianas. Leaves 5-15 x 2.5-7 cm, subcoriaceous, elliptic or ovate-oblong, acuminate at apex, rounded at base. Flowers pale yellow in terminal panicles. Fruits obovate-oblong.

Rare in subtropical hill forests of Ponmudi. Fl. & Fr.: Jan.-May.

*Note*: Gamble did not record this plant in Fl. Pres. Madras. Lawson in Hook.f. I.c. gave the distribution as "Western Peninsula from Concan Southwards"

*Salacia* L.

|                  |                     |
|------------------|---------------------|
| Leaves crenulate | <i>S. chinensis</i> |
| Leaves entire    | <i>S. fruticosa</i> |

*Salacia chinensis* L. Mant. Pl. 293. 1771; Ding Hou in Steenis, Fl. Malesiana ser. 1. 6: 419. 1964, 'sinensis'. *S. prionoides* DC. Prodr. 1: 571. 1824; FBI 1: 626; Rao 85; Gamble 154.

Lianas. Leaves 4-15 x 2-8 cm, ovate-elliptic or elliptic-lanceolate, acute at apex, cuneate at base. Flowers greenish-yellow in axillary fascicles. Fruits orange-red, globose.

Occasional in moist deciduous forests of Kottur. Fl. & Fr.: Feb.-Mar. 'Cherukuranti'.

*Salacia fruticosa* Heyne ex Lawson in Hook.f. Fl. Brit. India 1: 628. 1875; Rao 85; Gamble 155.

Lianas. Leaves 3-7.5 x 1.5-2.3 cm, elliptic or ovate, caudate-acuminate at apex, cuneate at base. Flowers green in axillary cymes. Berries 1-3 loculed.

Occasional in moist deciduous forests. Fl. & Fr.: Dec.-Mar.

RHAMNACEAE Juss.

*Ziziphus* Mill.

|                       |                    |
|-----------------------|--------------------|
| Leaves acute at apex  | <i>Z. oenoplia</i> |
| Leaves obtuse at apex | <i>Z. rugosa</i>   |

*Ziziphus oenoplia* (L.) Mill. Gard. Dict. ed. 8: 3. 1768; FBI 1: 634; Rao 87; Gamble 158. *Rhamnus oenoplia* L. Sp. Pl. 194. 1753.

Straggling shrubs; young branches strigose. Leaves 3-7 x 1. 5-3.5 cm, canescent above, brown sericeous beneath, ovate-lanceolate. Flowers greenish-yellow in axillary, pubescent cymes. Fruits obovoid, black.

Fairly common throughout the drier parts of the District.  
Fl. & Fr.: Jan.-Feb. '*Mulli*'.

*Ziziphus rugosa* Lam. Encycl. 3: 319. 1789; Wight, Icon. t.339. 1890; FBI 1: 636; Bourd. 106; Rao 87; Gamble 158.

Armed trees; branches sometimes scandent. Leaves 8-12 x 4-5.5 cm, serrate, sparsely pubescent along the veins, ovate, obtuse at apex, cordate at base. Flowers pale yellow. Fruits white.

Occasional in deciduous forests of Braemore. Fl. & Fr.: Dec.-Apr. '*Thodai*'.

### VITACEAE Juss.

- |   |                     |
|---|---------------------|
| 1. Filaments of stamens thickened in the middle | <i>Puria</i>        |
| 1. Filaments of stamens not as above:           |                     |
| 2. Tendrils on the peduncle                     | <i>Ampelocissus</i> |
| 2. Tendrils leaf-opposed:                       |                     |
| 3. Berries 1-seeded                             | <i>Cissus</i>       |
| 3. Berries 2-seeded                             | <i>Cayratia</i>     |

#### *Ampelocissus* Planch. *nom. cons.*

*Ampelocissus arnottiana* Planch. in DC. Monogr. Phan. 5: 370. 1887; Gamble 165, *Vitis indica* auct. non L. 1753; Wight & Arn. Prodr. 131. 1834; FBI 1: 653; Rao 91.

Climbing shrubs; stems hollow, cylindric, woolly tomentose. Leaves 13-28 x 8-21 cm, cordate-ovate, dentate, brown tomentose; when young, upper surface turning glabrous later. Flowers sessile, brownish in dense racemes.

Rare endemic climber of South India, seen at low elevation. Fl. & Fr.: Mar.-May. '*ChemparaValli*'.

*Note* : This plant is represented in Indian Herbaria by only very old collections. After a lapse of over 65 years, this was relocated; appears to be fast disappearing.

*Cayratia* Juss. *nom. cons.*

|                           |                    |
|---------------------------|--------------------|
| 1. Leaves trifoliate      | <i>C. carmosa</i>  |
| 1. Leaves 5-9 foliolate : |                    |
| 2. Leaves pubescent       | <i>C. pedata</i>   |
| 2. Leaves glabrous        | <i>C. japonica</i> |

*Cayratia carmosa* (Lam.) Gagnep. in Lecomte, Notul. Syst. (Paris) 1: 347. 1911; Gamble 169. *Cissus carmosa* Lam. Encycl. 1: 31. 1783. *Vitis carmosa* Wall. ex Wight & Arn. Prodr. 127. 1834; Wight, Icon. t.171. 1839; FBI 1: 654.

Twining shrubs. Leaflets 2.5-6 x 2-2.2 cm, pubescent dentate, obovate, acute at apex, narrowed at base. Flowers greenish in corymbose cymes. Seeds trigonous.

Frequent in the plains and low elevations at ghats. Fl. & Fr.: Mar.-Aug.

*Cayratia japonica* (Thunb.) Gagnep. in Lecomte, Notul. Syst. (Paris) 1: 349. 1911; Gamble 169. *Vitis japonica* Thunb. Fl. Jap. 104. 1784. *V. tenuifolia* Wight & Arn. Prodr. 127. 1834 p.p. FBI 1: 660 p.p.

Twining shrubs. Leaflets 10-18 x 2.5-7 cm, glabrous, serrate, lanceolate, acuminate at apex, cuneate at base. Flowers greenish in dichotomous corymbs. Seeds rugose, black.

Fairly common in the plains. Fl. & Fr.: Mar.-Aug.

*Cayratia pedata* (Lam.) Juss. ex Gagnep. in Lecomte, Notul. Syst. (Paris) 1: 346. 1911; Gamble 169. *Cissus pedata* Lam. Encycl. 1: 31. 1783. *Vitis pedata* (Lam.) Wall. ex Wight, Cat. 26. 1833. & in Wight & Arn. Prodr. 426. 1834; FBI 1: 661; Rao 92.

Pubescent climbing shrubs; tendrils forked. Leaves 7-9-foliate; leaflets 7.6-17 x 2.5-6 cm, membranous, oblong-lanceolate, acuminate at apex, rounded or truncate at base. Flowers white, pubescent in subcorymbose cymes.

Frequent throughout the plains. Fl. & Fr.: Jun.-Aug.

*Cissus* L.

- |                                |                          |
|--------------------------------|--------------------------|
| 1. Stems winged, fleshy        | <i>C. quadrangularis</i> |
| 1. Stems not winged :          |                          |
| 2. Plants pubescent            | <i>C. vitiginea</i>      |
| 2. Plants glabrous :           |                          |
| 3. Pedicels deflexed in fruits | <i>C. repens</i>         |
| 3. Pedicels erect in fruits    | <i>C. glauca</i>         |

*Cissus glauca* Roxb. Fl. Ind. 1: 406. 1820; Gamble 168. *Vitis glauca* (Roxb.) Wight & Arn. in Wight, Cat. 26. 1833 & Prodr. 126. 1834; FBI 1: 647; Rao 90.

Climbing shrubs with forked tendrils. Leaves 2.5-10 x 2-7 cm, serrate, orbicular, acuminate at apex, deeply cordate at base. Flowers green in leaf-opposed cymes.

Frequent from sea level to 1000 m. Fl. & Fr.: Sept.-Nov.

*Cissus quadrangularis* L. Mant. Pl. 39. 1767; Gamble 167. *Vitis quadrangularis* (L.) Wall. ex Wight, Cat. 26. 1833 & in Wight & Arn. Prodr. 125. 1834; Wight, Icon. t. 51. 1838; FBI 1: 645; Rao 89.

A rambling shrub with succulent stems; often cultivated. Largely used in local medicine. '*Changalamparanta*'

*Cissus repens* Lam. Encycl. 1: 31. 1783; Gamble 167. *Vitis repens* (Lam.) Wight & Arn. in Wight, Cat. 58. 1833 & Prodr. 125. 1834; FBI 1: 646; Rao 89.

Scandent, glabrous shrubs with leaf opposed tendrills. Leaves 6-13 x 2.5-8 cm, serrate, ovate, acuminate at apex, cordate at base. Flowers greenish in compound cymes.

Occasional in plains. Fl. & Fr.: Mar.-Oct.

*Cissus vitiginea* L. Sp. Pl. 117. 1753; Gamble 167. *Vitis linnaei* Wall. ex Wight & Arn. Prodr. 126. 1834; FBI 1: 649; Rao 90.

Shrubs, trailing or climbing, grey pubescent. Leaves 3-6.5 x 2.5-5.5 cm, puberulous above, grey pubescent beneath, ovate-cordate, 5-angled or lobed, crenate. Flowers white in umbellate cymes opposite to leaves. Berries blue.

Frequent along the coast. Fl. & Fr.: Dec.-Jun.

**Puria N. C. Nair**

**Puria trilobata** (Lam.) N.C. Nair in Biol. Land. Pl. 127, 1972 (1974). *Cissus trilobata* Lam., Encycl. 1: 31, 1788; Gamble 167. *Vitis rheedii* Wight & Arn. in Wight, Cat. 27, 1833 & Prod. 127, 1834; FBI 1: 653; Rao 91.

Climbing shrubs. Leaves 11-18 cm long, palmately trifoliolate; terminal leaflets 8-19 x 3-5.5 cm, sessile, serrulate, elliptic, acuminate at apex, cuneate at base. Flowers white in subumbellate cymes.

Frequent throughout the district at low elevations. Fl. & Fr.: Nov.-Jan. 'Neelachunnampuvali'

**Note :** Based on morphological and embryological studies, N.C. Nair I.c. accommodated *Cissus trilobata* Lam. in a distinct genus **Puria** N.C. Nair. He distinguishes this monotypic genus from *Cissus* L. by the longer plicate and spiral micropylar canal, absence of extra micropylar protrusion of the embryosac, marginal disc and the filaments of stamens with a thickened middle portion.

### LEACEAE Dumort.

**Leea Royen ex L.**

**Leea indica** (Burm.f.) Merr. Philipp. J. Sci. Bot. 14: 245, 1919; Ridsdale in Blumea 22: 95, 1974. *Staphylea indica* Burm.f. Fl. Ind. 75, t.23, f.2, 1768. *Leea sambucina* (L.) Willd. Sp. Pl. 1: 1177, 1798; FBI 1: 666 p.p.; Bourd. 107; Rao 92; Gamble 172. *Aquilicia sambucina* L. Mant. Pl. 211, 1771.

Shrubs 4-6 m tall. Leaves bipinnate; leaflets 6-20 x 3-8 cm, serrate lanceolate, acuminate at apex, acute at base. Flowers pale yellow in panicles.

Frequent in evergreen forests. Fl. & Fr.: Jun. - Sept. 'Manipirandi'

### SAPINDACEAE Juss.

1. Climbing shrubs

*Cardiospermum*

## 1. Erect shrubs or trees:

2. Petals absent; leaves simple *Dodonaea*
2. Petals present; leaves compound :
3. Leaves digitately 3-foliolate *Allophylus*
3. Leaves pinnate :
4. Ovary pubescent, fruits echinate *Dimocarpus*
4. Ovary glabrous; fruits not echinate *Lepisanthes*

*Allophylus* L.

## 1. Inflorescence with short basal branches:

2. Peduncle longer than leaves *A. cobbe*
2. Peduncle equaling the leaves *A. serrulatus*
1. Inflorescence not branched *A. Serratus*

*Allophylus cobbe* (L.) Raensch. Nomencl. Bot. ed.3, 108. 1797; FBI 1: 673 p.p.; Leenh. in Blumea 15: 322. 1967; Bourd. 109; Rao 94. *Rhus cobbe* L. Sp. Pl. 267. 1753. *Schmidelia rheedii* Wight, Icon. t.964. 1845. *Allophylus rheedii* (Wight) Radlk. in Engler & Prantl, Pflanzenfam. 3(5): 331. 1895; Gamble 176.

Trees 4-6 m tall. Leaves trifoliolate; leaflets 5-16 x 2.5-7 cm, serrate, pubescent, ovate or obovate, acuminate at apex, narrowed at base. Flowers greenish. Fruits red, ovoid.

Frequent in evergreen forests of Kallar. Fruits edible. Fl. & Fr.: Apr.-Jul. 'Mukannan Peru'.

*Allophylus serratus* (Roxb.) Kurz in J. Asiatic Soc. Bengal 44: 185. 1876 quoad basionym; Gamble 175; Leenh. in Blumea 15: 351. 1967; *Ornitrophe serrata* Roxb. Pl. Cor. t.61. 1796. *Allophylus cobbe* sensu Hiern in Hook.f. Fl. Brit. India 1: 673. 1875 p.p.; non (L.) Raeusch. 1797.

Trees 3-4 m tall. Leaves trifoliolate; leaflets 5-10 x 3-6 cm, serrate or dentate, tomentose, ovate or obovate, acuminate at apex; narrowed at base. Flowers greenish.

Frequent in evergreen forests. Fl. & Fr.: Apr.-Jul.

**Note :** According to Art. 55 of the 'Code' the combination *Allophylus serratus* (Roxb.) Kurz must be retained for this species although Kurz f.c. meant another plant *A. villosa* (Roxb.) Blume.

***Allophylus serrulatus* Radlk.** in Rec. Bot. Surv. India 3: 341. 1907; Gamble 175; Leenh. in Blumea 15: 351. 1967.

Trees 4-6 m tall. Leaves trifoliolate; leaflets 7-15 x 4-9 cm, tomentose, serrulate, elliptic-lanceolate or oblanceolate, acuminate at apex, acute at base. Flowers white.

Frequent in evergreen forests of Bonecord. Fl. & Fr.: May.-Jun.

**Note :** Closer to *A. serratus* (Roxb.) Kurz in the inflorescence characters, and to *A. cabbe* (L.) Raeusch. in the leaf characters, but can be distinguished from both by the smaller flowers and fruits;

#### **Cardiospermum L.**

***Cardiospermum halicacabum* L.** Sp. Pl. 366. 1753; Wight, Icon. t.508. 1841; FBI 1: 670; Rao 93; Gamble 175.

Climbing shrubs with tendrils. Leaves 5-8 cm long, bipinnate; leaflets variously dissected, glabrous above, pubescent below. Flowers white in axillary cymes; lower branches of peduncle hooked. Fruits broadly winged, hirsute.

Frequent in wastelands of plains; used in local medicine. Fl. & Fr.: Jul.-Nov.

#### **Dimocarpus Lour.**

***Dimocarpus longan* Lour.** Fl. Cochinch. 233. 1790; Leenh. in Blumea 19: 122. 1971. *Euphoria longan* (Lour.) Steud. Nomencl. Bot. 1: 328. 1921. *E. longana* Lam. Encycl. 3: 574. 1792, nom. illeg. Bedd. Fl. Sylv. t. 156. 1871. *Nephelium longana* (Lam.) Camb. in Mem. Mus. Hist. Natl. Hist. 18: 30. 1829; FBI 1: 688; Bourd. 111; Rao 95; Gamble 180

Trees 9-12 m tall. Leaves 30-40 cm long, pinnate; leaflets 11-23 x 4-7.5 cm, glaucous beneath oblong-lanceolate, acute or shortly acuminate at apex, acute or rounded at base. Flowers pale yellow in axillary and terminal, brownish puberulous panicles. Fruits purple, globose, echinate.

Common at the low evergreen forests of Kallar. Aril of the seeds edible; wood used for furniture. Fl. & Fr.: Jan.-May. 'Pasakotta'

#### Dodonaea Mill.

*Dodonaea viscosa* (L.) Jacq. Enum. Syst. Pl. Craib. 16: 1760; FBI 1: 697; Bourd. 113; Rao 96; Gamble 181. *Ptelea viscosa* L. Sp. Pl. 118. 1753.

Erect shrubs 2-3 m tall. Leaves 4.5-9.5 x 1.2-1.5 cm, glabrous, viscid, shining, subsessile, elliptic-oblong, acute at apex, attenuate at base. Flowers greenish-yellow in cymes shorter than the leaves. Capsules glabrous, winged.

Frequent on the hills near coast of Varkala. Wood used for making handles for agricultural implements. Fl.: Jan.-Feb., Fr. Mar.-May. 'Varali'

#### Lepisanthes Blume

*Lepisanthes erecta* (Thw.) Leenh. in Blumea 17: 69. 1969. *Nephelium erectum* Thw. Enum. 57. 1858. *Sapindus erecta* (Thw.) Hiern in Hook. f. Fl. Brit. India 1: 683. 1875, 'erectus'; Rao 95. *Thraulococcus erectus* (Thw.) Radlk. in Sitzungsber. Math.-Phys. Cl. Koenigl. Bayer Akad. Wiss. Muenchen 8: 300. 1878; Gamble 179.

Shrubs 2-3 m tall. Leaves pinnate; leaflets 6-8, each 8.5-21 x 2.8-5 cm, chartaceous, linear-oblong, acuminate at apex, cuneate at base. Flowers white, pubescent in axillary racemes.

Common in evergreen forests. Fl. & Fr.: Sept.-Oct.

Note: Leenhout l.c. treats *Lepisanthes* Blume and *Thraulococcus* Radlk. congeneric. The fruit in *Thraulococcus* however is erect and ellipsoidal, as against subglobular in *Lepisanthes*.

#### SABIACEAE Blume

##### *Meliosma* Blume

*Meliosma simplicifolia* (Roxb.) Walp. Rep. 1: 423. 1842; FBI 2: 5. 1876; Bourd. 115; Rao 97; Gamble 182; Beusekom in Blumea 19: 476. 1971. *Millingtonia simplicifolia* Roxb. Pl. Cor. t.254. 1820.

Trees 10-12 m tall. Leaves 13-33 x 3-12 cm, puberulous, ob-lanceolate, shortly acuminate at apex, cuneate at base. Flowers white in branched panicles.

**A N A C A R D I A C E A E** Lindl.

1. Leaves pinnately compound:

  2. Leaflets 5-7 pairs *Spondias*
  2. Leaflets 3-4 pairs *Lannea*

1. Leaves simple:
  3. Fruit a reniform nut:
    4. Styles 3 *Semecarpus*
    4. Styles 1 *Anacardium*
  3. Fruits fleshy or dry drupes:
    5. Petioles with spur like appendages *Holigarna*
    5. Petioles without any appendages:
      6. Calyx persistent; only 1 or 2 stamens fertile *Mangifera*
      6. Calyx deciduous; all stamens / fertile :
        7. Petals with glandular scales or crests within *Buchanania*
        7. Petals without any appendages within:
          8. Calyx spathaceous, deciduous; leaves crowded at the ends of branches *Gluta*
          8. Calyx not spathaceous, persistent, leaves not crowded at the ends of branches *Nothopegia*

***Anacardium* L.**

***Anacardium occidentale*** L. Sp. Pl. 383. 1753; Bedd. Fl. Sylv. t. 163. 1871; FBI 2: 20; Bourd. 121; Rao 98; Gamble 185; Meijer in Dassanayake, Rev. Handb. Fl. Ceylon 4: 7. 1983.

Trees 10-12 m tall. Leaves 7-13 x 5-6.5 cm, glabrous, chartaceous, oblong, obtuse at both ends. Flowers yellowish-white

in terminal cymose panicles; sepals and petals pubescent.

A cash crop commonly cultivated for nuts. Fl. & Fr.: Dec.-Jun.

**Buchanania Spreng.**

- |  |                      |
|--|----------------------|
| 1. Leaves acuminate at apex                    | <i>E. lanceolata</i> |
| 1. Leaves obtuse, emarginate or acute at apex: |                      |
| 2. Leaves rusty villous beneath                | <i>B. barberi</i>    |
| 2. Leaves sparsely hairy beneath               | <i>B. lanza</i>      |

**Buchanania barberi** Gamble in Bull. Misc. Inform. 135. 1916 & Fl. Pres. Madras 259. 1918 & 1: 184. 1957 (repr. ed.).

Trees. Leaves 3-5.5 x 1.5-2 cm, elliptic-oblong, obtuse or acute at apex, narrowed at base. Flowers white in terminal and axillary panicles.

Rare in coastal zone. Fl.: Nov.-Dec.

*Note*: This plant is known so far only by its type collection made in 1901.

**Buchanania lanceolata** Wight, Icon. t. 237. 1839; FBI 2: 23; Bourd. 123; Rao 99; Gamble 184.

Trees 10-15 m tall. Leaves 9-19 x 3-6 cm, coriaceous, glabrous above, slightly pubescent beneath along the nerves, oblong, acuminate at apex, cuneate at base. Flowers white in pubescent panicles. Drupes red.

Frequent in river beds of ghats and in plains. Fruits edible. Fl. & Fr.: Oct.-Jun. '*Kulamavu*'.

**Buchanania lanza** Spreng. in J. Bot. (Schrader) 2: 234. 1800; Gamble 184. *B. latifolia* Roxb., Fl. Ind. 2: 385. 1832; Bedd. Fl. Sylv. t. 165. 1871; FBI 2: 23; Bourd. 122; Rao 99.

Trees 12-15 m tall. Leaves 13-25 x 5-7 cm, oblong, obtuse at both ends. Flowers greenish-white, sessile in dense panicles. Drupes black.

Frequent in moist deciduous forests. Fl. & Fr.: Jan.-May. '*Moongapezhu*'.

**Gluta L.**

**Gluta travancorica** Bedd. Fl. Sylv. t. 60. 1870; FBI 2: 22; Bourd. 118; Rao 98; Gamble 186.

Trees 30-35 m tall with acrid resinous juice. Leaves 8-14 x 2.5-4.5 cm, coriaceous, obovate-oblong or oblanceolate, obtuse at apex, cuneate at base. Flowers white in terminal panicles. Drupes up to 2.5 cm in diam., obovate.

Occasional in evergreen forest at low elevations in Kottaram-vachapara and Kaviar; yields timber. Fl. & Fr.: Jan.-May, 'Thadappaci'.

**Holigarna Buch.-Ham. ex Roxb. nom. cons.**

**Holigarna arnottiana** Hook. f. Fl. Brit. India 2: 36. 1876; Bourd. 124; Rao 101; Gamble 191. *H. longifolia* Wight & Arn. Prodr. 1: 169. 1834, non Roxb. 1820; Bedd. Fl. Sylv. t. 167. 1871.

Trees 10-15 m tall. Leaves 10.5-18.5 x 3-5.8 cm, coriaceous, glabrous above, sparsely brownish tomentose along the nerves beneath, obovate or oblanceolate, acute or shortly acuminate at apex, narrowed from the middle to a cuneate base; petiole spur usually deciduous. Flowers brown, tomentose in axillary and terminal racemes. Drupes oblong, glabrous.

Frequent along the river banks of semievergreen forest. Fl. & Fr.: Mar.-May, 'Charu'

**Lannea A. Rich. nom. cons.**

**Lannea coromandelica** (Houtt.) Merr. in J. Arnold. Arbor 19: 353. 1939; Meijer in Dassanayake, Rev. Handb. Fl. Ceylon 4: 21. 1983. *Dialium coromandelicum* Houtt. in Nat. Hist. Ser. 2. 2: 39. t. 5. f. 2. 1774. *Odina wodier* Roxb. Fl. Ind. 2: 293. 1832; Wight. Icon. t. 60. 1838; FBI 2: 29; Bourd. 126; Rao 100; Gamble 187.

Trees 8-12 m tall. Leaves 30-45 cm long, odd-pinnate; leaflets 3-4 pairs, 5.5-11 x 3-5 cm, glabrous, ovate-oblong, caudate-acuminate at apex, obliquely acute at base. Flowers yellowish, fascicled in unbranched, terminal peduncles up to 14 cm long. Drupes red

Commonly cultivated in the midlands. Occasional in moist deciduous forests. Wood used for match boxes and splints. Fl.: Feb.-Mar. Fr.: Mar.-Apr. 'Uthi'.

*Mangifera L.*

*Mangifera indica* L. Sp. Pl. 200. 1753; Bedd. Fl. Sylv. t.162. 1871; FBI 2: 13; Bourd. 117; Rao 97; Gamble 185; Meijer in Dassanayake, Rev. Handb. Fl. Ceylon 4: 6. 1983.

Large trees common in the semievergreen forests and moist deciduous forests; extensively cultivated. Fl. & Fr.: Jan.-Jun.

*Nothopegia Blume nom. cons.*

*Nothopegia travancorica* Bedd. ex Hook.f. Fl. Brit. India 2: 40. 1876; Rao 102; Gamble 179.

Trees 13-18 m tall. Leaves 9.5-17 x 2-4.5 cm, glaucous beneath, oblong, acuminate at apex, acute or obtuse at base. Flowers pale yellow in axillary racemes.

Occasional in evergreen forests of Kallar. 'Avukarum'. Fl. & Fr.: Sept.-Jul.

*Semecarpus L. f.*

|                  |                        |
|------------------|------------------------|
| Leaves pubescent | <i>S. anacardium</i>   |
| Leaves glabrous  | <i>S. travancorica</i> |

*Semecarpus anacardium* L. f. Suppl. pl. 182. 1781; Wight, Icon. t. 558. 1842; FBI 2: 30; Bourd. 120; Rao 100; Gamble 190.

Trees 8-12 m tall. Leaves 15-40 x 10-25 cm, obovate-oblong, rounded at apex, narrowed at base. Flowers greenish-yellow, subsessile in panicles. Drupes purplish-black, seated on an orange hypocarp.

Common in evergreen forests of Bonecord. Nuts medicinal, used for marking clothes. Fl. & Fr.: Feb.-Apr.

*Semecarpus travancorica* Bedd. Fl. Sylv. t. 232. 1872; FBI 2: 31; Bourd. 120; Rao 101; Gamble 190.

Trees 15-20 m tall. Leaves 25-50 x 12-15 cm, obovate-oblong, rounded at apex, narrowed at base. Flowers greenish-yellow in panicles. Drupes oblique.

Occasional in evergreen forests of Bonecord. Fl. & Fr.: Sept.-Jul.

*Spondias* L.

*Spondias indica* (Wight & Arn.) Airy Shaw & Forman in Kew Bull. 21: 16. 1967-1968. *Solenocarpus indicus* Wight & Arn. Prodr. 172. 1834; 'indica'; Bedd. Fl. Sylv. t. 233. 1774; FBI 2: 27; Bourd. 125; Rao 99; Gamble 187.

Trees 5-9 m tall. Leaves 13-18 cm long, pinnate, black when dry; leaflets 5-7 pairs, 3-6 x 1-2 cm, opposite, oblong, acuminate at apex, unequally rounded at base. Flowers pinkish-white in axillary panicles up to 20 cm long.

Rare in evergreen forests of Bonecord. Fl. & Fr.: Jan.-Apr.

## CONNARACEAE R.Br.

|   |                 |
|---|-----------------|
| Leaflets c. 10 cm long, oblong-lanceolate | <i>Connarus</i> |
| Leaflets less than 6 cm long, elliptic    | <i>Rourea</i>   |

*Connarus* L.

|                          |                        |
|--------------------------|------------------------|
| Follicles acute at apex  | <i>C. monocarpus</i>   |
| Follicles obtuse at apex | <i>C. sclerocarpus</i> |

*Connarus monocarpus* L. Sp. Pl. 675. 1753; FBI 2: 50; Rao 104; Fischer in Rec. Bot. Surv. India 9: 60. 1921; Gamble 194

Climbing shrubs. Leaves imparipinnate; leaflets 3-5, each 4-10.5 x 2-4.5 cm, coriaceous, slightly acuminate at apex, rounded at base. Flowers reddish-brown in terminal and axillary panicles. Ripe follicles up to 5 cm long, shortly stalked, oblique.

Occasional in the open forests and wastelands at Varkala. Fl. & Fr.: Apr.-Dec. 'Kuri'

*Connarus sclerocarpus* (Wight & Arn.) Schellenb. in Candollea 2: 98. 1925; Gamble 194. *Rourea sclerocarpa* Wight & Arn. Prodr. 262. 1834. *Connarus wightii* Hook. f. Fl. Brit. India 2: 51. 1876 p.p.; Rao 104.

Climbing shrubs. Leaflets 4, each 5.5-11 x 2-5 cm, abruptly acuminate at apex, rounded at base. Flowers white in pubescent panicles. Follicles red.

Rare in evergreen forests near streams. Fl. & Fr.: Mar.-Apr.  
*'Njaraneelakarikam'*.

**Rourea Aubl. nom. cons.**

*Rourea minor* (Gaertn.) Alston in Trimen, Handb. Fl. Ceylon 6 (Suppl.) : 67. 1931, 'minus'; Leenh. in Steenis, Fl. Malesiana ser. 1. 5: 514. 1958. *Aegiceras minus* Gaertn. Fruct. 1: 216. t. 46. 1788. *Rourea santaloidea* (Vahl) Wight & Arn. Prodr. 144. 1844; Rao 104, Gamble 193. *Connarus santaloidea* Vahl, Symb. 4: 87. 1794.

Scandent shrubs. Leaves trifoliate; leaflets 4-6 x 1.5-2 cm, coriaceous, cuspidate at apex, acute at base. Flowers in axillary panicles. Follicles up to 1.5 x 1 cm, sessile, ovate, acuminate,

Common in semievergreen forests along river banks. Fl. & Fr.: Dec.-Mar.

**FABACEAE Lindl.**

1. Stamens monadelphous :

2. Anthers dimorphous :

3. Styles incurved at base, hairy *Crotalaria*

3. Styles not incurved at base, glabrous :

4. Alternating stamens sterile *Teramnus*

4. All stamens fertile :

5. Flowers in interrupted spikes; seeds glochidiate *Zornia*

5. Flowers in dense heads; seeds not glochidiate *Stylosanthes*

2. Anthers uniform :

6. Stamens only 9; vexillary absent *Abrus*

6. All 10 stamens present :

7. Leaves 3-foliate :

8. Climbing shrubs:

- 9. Lower lip of calyx toothed *Canavalia*
- 9. Lower lip of calyx not as above *Pueraria*
- 8. Plants not climbing:
  - 10. Trees *Erythrina*
  - 10. Prostrate herbs *Rothia*
- 7. Leaves more than 3-foliate:
  - 11. Leaves paripinnate *Geissaspis*
  - 11. Leaves imparipinnate:
    - 12. Leaflets opposite:
      - 13. Pods in dehiscent:
        - 14. Trees; pods woody *Pongamia*
        - 14. Climbing shrubs; pods thin, papery *Derris*
      - 13. Pods dehiscent: *Milletia*
    - 12. Leaflets alternate:
      - 15. Petals crisped at margins *Pterocarpus*
      - 15. Petals not as above *Dalbergia*
  - 1. Stamens diadelphous:
    - 16. Calyx deeply 4-cleft *Alysicarpus*
    - 16. Calyx not as above:
      - 17. Calyx spurred *Centrosema*
      - 17. Calyx not spurred:
        - 18. Calyx distinctly 2-lipped:
          - 19. Stamens in 2 bundles of 5 each *Aeschynomene*
          - 19. Stamens 9 in one bundle and 1 free:
            - 20. Pods not jointed *Pseudarthria*
            - 20. Pods jointed *Uraria*
        - 18. Calyx not distinctly 2-lipped:

- |  |                       |
|--|-----------------------|
| 21. Upper calyx lobes not connate :                              |                       |
| 22. Bracts foliaceous, persistent                                | <i>Flemingia</i>      |
| 22. Bracts not foliaceous, caducous                              | <i>Indigofera</i>     |
| 21. Upper calyx lobes connate :                                  |                       |
| 23. Standard petals auricled at base :                           |                       |
| 24. Pods 1-2 seeded  | <i>Rhynchosia</i>     |
| 24. Pods 3-many seeded :   |                       |
| 25. Bracteoles absent  | <i>Atylosia</i>       |
| 25. Bracteoles present :   |                       |
| 26. Stigma oblique   | <i>Vigna</i>          |
| 26. Stigma terminal  | <i>Lablab</i>         |
| 23. Standard petals not auricled at base :                       |                       |
| 27. Pods 1-seed  | <i>Butea</i>          |
| 27. Pods many-seeded :   |                       |
| 28. Pods septate   | <i>Desmodium</i>      |
| 28. Pods continuous :  |                       |
| 29. Standard petals emarginate at apex                           | <i>Clitoria</i>       |
| 29. Standard petals obtuse at apex :                             |                       |
| 30. Sepals subequal  | <i>Tephrosia</i>      |
| 30. Sepals equal :   |                       |
| 31. Trees  | <i>Gliricidia</i>     |
| 31. Undershrubs  | <i>Pycnospora</i>     |
| <b>Abrus Adans.</b>  |                       |
| Leaflets glabrous above, mucronate at apex                       | <i>A. precatorius</i> |
| Leaflets pubescent above, not mucronata at apex                  | <i>A. pulchellus</i>  |
| <i>Abrus precatorius</i> L. Syst. ed. 12. 472. 1758; FBI 2: 175; |                       |

Rao 117; Gamble 247; Verdcourt in Kew Bull. 24: 240. 1970; D'Arcy in Ann. Missouri. Bot. Gard. 67(3): 535. 1980. *Glycine abrus* L. Sp. Pl. 753. 1753.

Climbing shrubs. Leaflets 8-14 pairs, each 1.5-2 x 0.4-0.8 cm, sparsely strigose beneath, oblong, rounded at base. Flowers pink, fascicled in thick axillary peduncles up to 3 cm long. Seeds white or scarlet with a black spot.

Occasional at low elevations of the moist deciduous forests. Paste of seeds used externally for skin infection. Seeds used as jeweller's weight. Fl. & Fr.: Mar.-Oct. 'Kunn'

*Abrus pulchellus* Wall. ex Thw. Enum. 91. 1859; FBI 2: 175; Gamble 247; Verdcourt in Kew Bull. 24: 245. 1970. *A. fruticosus* sensu Breteler in Blumea 10: 612. 1960 p.p., non Wight & Arn. 1834.

Climbing shrubs. Leaves ca. 15 cm long; leaflets 9-10 pairs, each 2-4.5 x 1-1.3 cm, sparsely pubescent on both surfaces, oblong, obtuse at apex, rounded at base. Flowers bluish, pubescent in slender pedunculate racemes.

Occasional in low evergreen forests at Kaltar. Fl. & Fr.: Oct.-Dec.

*Note*: According to Verdcourt *i. c.* *A. fruticosus* sensu Breteler contains more than one species as he has included the prostrate herbaceous forms and woody shrubby ones and plants with smooth and tuberculate pods in the same species. Hence, Verdcourt segregated *A. pulchellus* Wall. ex Thw. complex and treated the same under several subspecies. Our specimens fit with subsp. *pulchellus*.

#### *Aeschynomene* L.

*Aeschynomene indica* L. Sp. Pl. 713. 1953; FBI 2: 151; Rao 113; Gamble 234; Rudd. in Reinwardtia 5: 30. 1959,

Erect shrubs 30-35 cm tall. Leaves 2.5 cm long, imparipinnate with small, sensitiv leaflets. Flowers yellow in axillary racemes. Pods 3-3.5 cm long, 5-7 septate, glabrous.

Frequent near backwaters along the coast. Fl. & Fr.: Jun-Sept.

*Alysicarpus* Neck. ex Desv. *nom. cons.*

Leaves glabrous above ; pods nearly glabrous *A. vaginalis*

Leaves hirsute above pods; clothed with hooked hairs  
*A. monilifer*

***Alysicarpus monilifer* (L.) DC.** Prodr. 2: 353. 1825; FBI 2: 157; Rao 115; Gamble 238. *Hedysarum moniliferum* L. Mant. 1: 102. 1767.

Prostrate, branched herbs with woody rootstocks. Leaves 1-1.5 x 0.5-1 cm. obovate, obtuse or slightly retuse at apex, rounded at base; stipules lanceolate. Flowers red in axillary racemes. Pods up to 2 cm long, moniliform.

Fairly common along the coast. Fl. & Fr. : Oct.-Dec.

***Alysicarps vaginalis* (L.) DC.** Prodr. 2: 353. 1825.

Leaflets obovate-oblong *Var. vaginalis*

Leaflets round *Var. nummularifolius*

***Alysicarpus vaginalis* (L.) DC.** Prodr. 2: 353. 1825, var. *vaginalis*; FBI 2: 158; Rao 115; Gamble 239; Steenis in Reinwardtia 6: 87. 1961. *Hedysarum vaginalis* L. Sp. Pl. 746. 1753; Dillon in Ann. Missouri Bot. Gard. 67(3): 548. 1980.

Creeping herbs. Leaves 1.5-3 x 0.5-1.5 cm, sparsely pubescent beneath, obovate-oblong, obtuse at both ends; stipules up to 1.5 cm long. Flowers pink.

Frequent in the coastal and midland zones. Fl. & Fr. : Nov.-Jan.

***Alysicarpus vaginalis* (L.) DC. var. *nummularifolius* (Willd.) Miq.** Fl. Ind. Bat. 1: 232. 1855; FBI 2: 158; Gamble 238. *Hedysarum nummularifolium* sensu Willd. Sp. Pl. 3: 1173. 1803, non L. 1753. *Alysicarpus nummularifolium* DC. Prodr. 2: 353. 1825.

Creeping herbs. Leaves 1-2.5 cm in diam. Flowers pink in dense racemes.

Abundant in the coastal zone at Vellayani. Fl. & Fr. : Sept.-Jan.

*Atylosia* Wight & Arn.

Note : Some recent authors treat *Atylosia* Wight & Arn. con-generic with *Cajanus* DC.

**Pods ca. 3.2 cm long, apex hooked** *A. albicans*

**Pods less than 2.5 cm long, apex straight** *A. scarabaeoides*

***Atylosia albicans* (Wight. & Arn.) Benth. in Miq. Pl. Jungh. 243. 1852; FBI 2: 215; Rao 127; Gamble 260. *Cantharospermum albicans* Wight & Arn. Prodr. 256. 1843 p.p.**

**Twining shrubs; stems greyish pubescent. Leaves trifoliolate; leaflets 2.5-4 x 1.5-3 cm, pubescent. Flowers yellow in axillary racemes. Pods ca. 3.2 x 1 cm, 5-seeded, pubescent.**

**Fairly common in deciduous forests and plains. Fl. & Fr.: Dec.-Feb.**

***Atylosia scarabaeoides* (L.) Benth. in Miq. Pl. Jungh. 242. 1852; FBI 2: 215; Rao 127; Gamble 261. *Dolichos scarabaeoides* L. Sp. Pl. 726. 1753.**

**Climbing shrubs. Leaves trifoliolate; leaflets 1-2 x 0.4-1.4 cm, terminal larger, pubescent, obovate, obtuse at apex, narrowed at base. Flowers red, pubescent. Pods 2 x 0.5 cm, pubescent, 3-5-seeded.**

**Frequent in drier areas of the plains and deciduous forests at Aruvikara. Fl. & Fr.: Oct.-Dec.**

***Butea Roxb.* ex Willd. *nom. cons.***

***Butea pasviflora* Roxb. Fl. Ind. 3: 248. 1832; Wight, Icon. t. 210. 1834. *Spatholobus roxburghii* Benth. in Miq. Pl. Jungh. 238. 1851-1852; FBI 193; Bourd. 131; Rao 120; Gamble 253.**

**Lianas. Leaves trifoliolate, pubescent; terminal leaflets 8-20 x 4-11.5 cm, broadly ovate or obovate, abruptly acuminate at apex, acute or obtuse at base; laterals smaller. Flowers brownish purple in axillary panicles.**

**Abundant in secondary deciduous forests. Bark yields gum. Leaves used locally for packing vegetables. Fl.: Aug.-Mar. Fr.: Apr.-May. 'Chamatha'.**

***Canavalia* Adans. *nom. cons.***

***Canavalia gladiata* (Jacq.) DC. Prodr. 2: 404. 1825; Wight, Icon. t. 753. 1844; Chatterjee in J. Bot. Soc. 28: 86. 1947; D. Arcy**

in Ann. Missouri Bot. Gard. 67(2): 566. 1980. *Dolichos gladiatus* Jacq. Coll. Bot. 2: 276. 1788. *Canavalia ensiformis* sensu Baker in Hook.f. Fl. Brit. India 2: 195. 1876, non (L.) DC. 1825; Rao 122; Gamble 253.

Leaves trifoliolate; leaflets 6-9 x 2.5-6 cm, sparsely pubescent beneath, ovate, acute at apex, rounded at base. Flowers pink in axillary racemes. Pods 13 x 2 cm, glabrous.

Common in deciduous forests along road cuttings. Fl. & Fr.: Nov.-Feb.

***Centrosema* (DC.) Benth. *nom. cons.***

*Centrosema pubescens* Benth. Ann. Wiener. Mus. Naturgesch. 2: 119. 1838; Ram. & Razi, Fl. Bangalore 290. 1973; D' Arcy in Ann. Missouri Bot. Gard. 67 (3): 574. 1980.

Leaves trifoliolate; leaflets 3.5-7 x 2-4.5 cm, pubescent beneath, ovate, acuminate at apex, rounded at base. Flowers white with a violet tinge in axillary pedicels; petals densely villous. Pods up to 7 cm long, 7 mm wide, compressed, slightly pubescent.

Frequent in moist deciduous forests of Kottur and Kallar. Fl. & Fr.: Aug.-Jan.

*Note* : Closely similar to *Centrosema virginiana* (L.) Kuntze but differs by the narrower pods.

***Clitoria* L.**

*Clitoria ternatea* L. Sp. Pl. 753. 1753; FBI 2: 208; Rao 125; Gamble 258.

Twining shrubs; stems strigose. Leaves pinnate; leaflets 7, each 2-3.5 x 1.5-2.5 cm, strigose, elliptic or ovate, acute at both ends. Flowers blue, solitary, axillary. Pods linear-oblong, flat.

Cultivated in gardens; often runs wild. Fl. & Fr.: Oct.-Nov. 'Sankupushpam'

***Crotalaria* L.**

1. Leaves simple :

2. Pods glabrous :

- 3. Pods distinctly stalked :
  - 4. Leaves strigose above *C. scabra*
  - 4. Leaves glabrous above *C. retusa*
- 3. Pods sessile or subsessile :
  - 5. Flowers in dense heads *C. dubia*
  - 5. Flowers not in heads :
    - 6. Inflorescence 1-4-flowered :
      - 7. Pods ca. 2 cm long *C. prostrata*
      - 7. Pods less than 0.5 cm long *C. nana*
    - 6. Inflorescence more than 4-flowered :
      - 8. Flowers ca. 2.3 cm long :
        - 9. Pods ca. 3.5 cm long *C. mysorensis*
        - 9. Pods ca. 1.5 cm long *C. calycina*
      - 8. Flowers less than 1 cm long :
        - 10. Pods 8-10 seeded *C. Jinitolia*
        - 10. Pods 3-5 seeded *C. albida*
    - 2. Pods pubescent :
      - 11. Pods sessile *C. juncea*
      - 11. Pods stalked :
        - 12. Pods ca. 4.5 cm long *C. obtecta* var. *glabrescens*
        - 12. Pods ca. 3 cm long *C. verrucosa*
    - 1. Leaves compound :
      - 13. Leaves 7-foliate *C. grahamiana*
      - 13. Leaves 3-5-foliate :
        - 14. Pods sessile *C. incana*
        - 14. Pods stalked :

15. Pods *ca.* 4.5 cm long *C. pallida*  
 15. Pods less than 1 cm long *C. micans*

***Crotalaria albida*** Heyne ex Roth, Nov. Pl. Sp. 333. 1821; FBI 2: 71; Rao 105; Gamble 208; Niyomdham in Thai. For. Bull. (Bot.) 11: 120. 1978.

Diffuse undershrubs. Leaves 1-2 x 0.4-0.5 cm, sessile, scabrous above, pubescent beneath, obovate or oblanceolate, obtuse at apex, cuneate at base. Flowers yellow.

Common in secondary deciduous forests amidst grasses. Fl. & Fr.: Aug.-Dec.

***Crotalaria calycina*** Schrank, Pl. Rar. Hort. Monac. t.12. 1817; FBI 2: 72; Rao 105; Gamble 209; de Munk in Reinwardtia 6: 202. 1962; Niyomdham in Thai. For. Bull. (Bot.) 11: 126. 1978.

Erect undershrubs, 50-80 cm tall; stems appressed, golden-yellow pubescent. Leaves 5-8 x 0.6-1 cm, glabrous above, pubescent beneath, acute at both ends. Flowers yellow in terminal racemes.

Fairly common in exposed areas in southern hill top evergreen forests. Fl. & Fr.: Aug.-Sept.

*Note* : A highly variable species. The shape of the leaves varies from linear-oblong to elliptic-oblong. Vestiture on the upper surface of the leaves is also variable.

***Crotalaria dubia*** Grah. ex Benth. in Hooker's London J. Bot. 2: 568. 1834; FBI 2: 73; Rao 105; Gamble 209.

Erect shrubs, 20-25 cm tall; stems rusty pubescent. Leaves 2-4 x 1-2 cm, subsessile, pubescent, obovate, subacute or obtuse at apex, cuneate at base. Flowers yellow.

Occasional in exposed areas near Braemore and Ponmudi. Fl. & Fr.: Feb.-Mar.

***Crotalaria grahamiana*** Wight & Arn. Prodr. 194. 1834; FBI 2: 85; Rao 107; Gamble 213,

Erect shrubs, 40-50 cm tall; stems pubescent. Leaves 7-foliate, palmate; leaflets 2-6 x 0.5-6 cm, villous beneath, obovate, emarginate at apex, cuneate at base. Flowers yellow in terminal racemes. Pods up to 5.5 cm long, ovoid.

Rare along the boundary of tea estates in Bonecord. Fl. & Fr. : Jan.-Mar.

*Crotalaria incana* L. Sp. Pl. 716. 1753; FBI 2: 83; de Munk in Reinwardtia 6: 205. 1962; Ravi in J. Bombay Nat. Hist. Soc. 67: 132. 1970; Windler & McLaughlin in Ann. Missouri Bot. Gard. 67(3): 609. 1980.

Erect, bushy annuals, ca 1.5 m tall. Leaves 3-foliate; leaflets 2.5-5 x 1.7-4.4 cm, pilose beneath, elliptic-obovate or suborbicular. Flowers yellow in lax racemes. Pods sessile, dorsi-ventrally compressed.

Occasional in the plains. Fl. & Fr.; Jun.-Aug.

*Crotalaria juncea* L. Sp. Pl. 714. 1753; FBI 2: 79; Rao 106; Gamble 210; de Munk in Reinwardtia 6: 206. 1962.

Erect shrubs 1-1.5 m tall; stems appressed pubescent. Leaves 7-13 x 1.5-2.2 cm, pilose, oblong-lanceolate, obtuse at apex, narrowed at base. Flowers bright yellow in racemes up to 25 cm long. Pods ca. 3.5-5 cm long, tomentose.

Frequent in upper Ponmudi. Fl. & Fr.; Jun.-Aug.

*Crotalaria linifolia* L.f. Suppl. 322. 1781; FBI 2: 72; Rao 105; Gamble 208; de Munk in Reinwardtia 6: 207. 1962.

Erect or diffuse herbs. Leaves 1-1.5 x 0.2-0.4 cm, pubescent, linear-lanceolate, obtuse at apex, cuneate at base. Flowers yellow; in terminal racemes.

Frequent in grasslands on the way to Agastyarkudum. Fl. & Fr. : Nov.-Feb.

*Note* : Niyomdham (Thai. For. Bull. (Bot.) 11: 144. 1979) states that the original description of *C. linifolia* L.f. is possibly based partially on *C. montana* Heyne ex Roth as the type specimen of *C. linifolia* L.f. is in flowers only.

*Crotalaria micans* Link, Enum. Pl. Hort. Reg. Bot. Berol. 2: 228. 1822; Windler & Mc Laughlin in Ann. Missouri Bot. Gard. 67(3): 606. 1980. *C. anagyroides* H. B. K. Nov. Gen. Sp. Pl. 6: 404. 1824; Niyomdham in Thai. For. Bull. (Bot.) 11: 123. 1978.

Erect shrubs, ca. 2 m tall. Leaves trifoliolate, sparsely pubescent beneath; leaflets 5-7 x 1.7-2.7 cm, ovate-elliptic, acute at both ends. Flowers yellow in terminal racemes. Pods pilose with curved beak.

A common weed near streams in tea estates at Bonecord. Fl. & Fr.: Apr.-May.

*Note:* This species is closely allied to *C. incana* L. but the larger straight flowers (deflexed in *C. incana* L.), campanulate calyx and reniform standard with emarginate apex are characteristic of *C. micans* Link. Both the species are not included in any earlier Indian Floras.

*Crotalaria mysorensis* Roth, Nov. Pl. Sp. 338. 1821; FBI 2: 70; Rao 105; Gamble 208.

Erect, densely brown silky herbs, 30-50 cm tall. Leaves 3.5-5.0 x 5-1.3 cm, glabrous above, densely silky pubescent beneath, elliptic or linear-oblong, acute at both ends. Flowers in terminal lax racemes. Pods obovoid, sparsely hairy.

Rare in the exposed rocky regions of forests confined to altitudes above 1000 m. Fl. & Fr.: Nov.-Jan.

*Crotalaria nana* Burm.f. Fl. Ind. 156, t.48, f.2. 1768; FBI 2: 71; Rao 105; Gamble 208; de Munk in Reinwardtia 6: 210. 1962 p.p., excl. syn. *C. umbellata* Wight & Arn. 1834.

Prostrate herbs with erect sericeous branches. Leaves 0.5-2 x 0.3-0.6 cm, oblong; obtuse at apex, cuneate at base. Flowers pale yellow in terminal umbels. Pods oblong.

Occasional in the midlands and along the coast. Fl. & Fr.: Aug.-Oct.

*Crotalaria obtecta* Graham ex Wight & Arn. var. *glabrescens* (Benth.) Baker in Hook.f. Fl. Brit. India 2: 79. 1876; Gamble 210; *C. glabrescens* Benth. in Hooker's London J. Bot. 3: 563. 1844.

Erect shrubs, 30-50 cm tall; stems sparsely golden yellow, strigose. Leaves 3.5-7 x 1.5-3 cm, golden brown strigose beneath, elliptic or ovate, acute or rarely obtuse at apex, narrowed at base. Flowers yellow in terminal racemes. Pods 4-5 cm long, brown tomentose.

Occasional on exposed hill tops of Ponmudi and adjoining areas. Confined to altitudes above 1500 m. Fl. & Fr.: Dec.-Mar.

*Crotalaria pallida* Dryand. in Ait. Hort. Kew. ed.1, 3: 20. 1789; Polhill in Kew Bull. 22: 262. 1968. *C. striata* DC. Prodr. 2: 131. 1825; FBI 2: 84; Rao 107; Gamble 212; Sebastine in Bull. Bot. Surv. India 2: 3. 1960. *C. striata* DC. var. *acutifolia* Trimen, Handb. Fl. Ceylon 2: 19. 1894; Gamble 213. *C. mucronata* Desv. in J. Bot. 3: 76. 1814. Raizada in Indian Forester 92: 307. 1965.

Erect shrubs up to 1.4 m tall; stems grey canescent. Leaflets 3-9 x 1.5-3.5 cm, strigose beneath, elliptic to obovate, obtuse, acute or slightly retuse at apex, cuneate at base. Flowers yellow in terminal racemes up to 30 cm long.

Frequent in grassy slopes of Ponmudi. Fl. & Fr.: Aug.-Oct. Bark yields fibre. 'Kilukampettchedi'.

*Note*: In earlier Indian Floras, the plants with elliptic, acute leaves were referred to *C. striata* DC. var. *acutifolia* Trimen, and those with obovate, obtuse leaves were put under *C. striata* DC. var. *striata*. But the variations in leaf shape is not consistent and several intermediate forms were also observed. C.D. Adan's (Polhill l.c) observation on the ecological preference of the above 2 types agrees with ours.

*Crotalaria prostrata* Rottl. ex Willd. Enum. Pl. Hort. Berol. 2: 747. 1809; FBI 2: 67. 1876; Rao 105; Gamble 206; de Munk in Reinwardtia 6: 211. 1962.

Prostrate herbs. Leaves 1.5-3 x 0.5-1.5 cm, pubescent, oblong, obtuse at both ends. Flowers yellow in short axillary peduncles.

Frequent in moist deciduous forests of Bonecord and Kottur. Fl. & Fr.: Oct.-Mar.

**Crotalaria retusa** L. Sp. Pl. 715, 1753; FBI 2: 75; Rao 106; Gamble 207; de Munk in Reinwardtia 6: 212. 1962; Windler & McLaughlin in Ann. Missouri Bot. Gard. 67 (3): 609. 1980.

Erect shrubs, ca. 0.75-1 m tall. Leaves 3-11.5 x 1.2-3.5 cm, glabrous above, puberulous beneath, obovate, obtuse or retuse at apex, narrowed at base. Flowers yellow in terminal racemes.

Frequent throughout the coastal and midland zones. '*Kilukilukki*'. Fl. & Fr.: Nov.-Dec.

**Crotalaria scabra** Gamble in Bull. Misc. Inform. 28. 1917 & in Fl. Pres. Madras 294. 1818 (1: 208. 1957 repr. ed.).

Erect shrubs; stems rarely scandent, pubescent. Leaves 1.5-3 x 0.1-1.5 cm, sessile, strigose, elliptic, acute at apex, narrowly rounded at base, margins recurved. Flowers in terminal racemes. Pods up to 3 cm long.

Rare on the crevices of rocks in hill tops confined to altitude above 1800 m at Agastyarkudum. Fl. & Fr.: Jan.-Mar.

*Note*: A rare plant relocated after lapse of 50 years. Endemic to Southern Western Ghats.

**Crotalaria verrucosa** L. Sp. Pl. 715. 1753; Wight, Icon. t. 200, 1839; FBI 2: 77; Rao 106; Gamble 210; de Munk in Reinwardtia 6: 217. 1962; Windler & McLaughlin in Ann. Missouri Bot. Gard. 67(3). 613. 1980.

Erect, branched undershrubs, 35-40 cm tall. Leaves 3-7 x 2-4.5 cm, sparsely strigose beneath, ovate, deltoid or orbicular, obtuse at apex, cuneate at base. Flowers in terminal racemes; standard petals yellow, keels blue. Pods up to 3 cm long, brown tomentose when young, puberulous on maturity.

Frequent in wastelands throughout the plains. Fl.: Jan.-Feb. Fr.: Mar.-Apr.

*Note*: The crescent shaped stipules are characteristic; leaves highly variable in shape.

#### Dalbergia L.f.

Stamens 10 in two bundles

*D. lanceolaria*

Stamens 9 in one bundle

*D. latifolia*

**Dalbergia lanceolaria** L.f. Suppl. 316, 1781; FBI 2: 235; Bourd. 134; Rao 130; Gamble 270. *D. frondosa* Roxb. Fl. Ind. 3: 226. 1832; Wight. Icon. t.266. 1840.

Trees 10-15 m tall. Leaflets 10-17, each 2.4-3.5 x 1-2.5 cm glabrous, ovat-oblong, obtuse at apex, narrowed at base. Flowers purplish-white in axillary panicles. Pods 6 x 1.25 cm, tapering at both ends.

Occasional in moist deciduous forests at Bonecord and Kottur.  
Fl. & Fr.: Mar.-Oct.

**Dalbergia latifolia** Roxb. Pl. Cor. 2: 7. 1.113. 1799; FBI 2: 231; Bourd. 132; Rao 124; Gamble 270.

Trees 15-20 m tall. Leaflets 3-7, each 2.4-7 x 1-2.5 cm, glaucous beneath, orbicular, obtuse or emarginate at apex, narrowed at base. Flowers white in axillary panicles. Pods up to 5.8 x 1.5 cm, oblong.

Frequent in moist deciduous forests at Bonecord and Kottur. Timber much valued for furniture. Fl. & Fr.: Jan.-Nov. 'Eetti'.

**Derris** Lour. *nom. cons.*

|                                    |  |
|------------------------------------|--|
| Flowers white, pods broadly winged | <i>D. thyrsiflora</i> var.<br><i>eualata</i> |
|------------------------------------|--|

|                                   |                      |
|-----------------------------------|----------------------|
| Flowers rose red; pods not winged | <i>D. trifoliata</i> |
|-----------------------------------|----------------------|

**Derris thyrsiflora** Benth var *eualata* (Bedd.) Thoth. Bull. Bot. Surv. India 195. 1962. *D. eualata* Bedd. Icon. t. 185. 1874; FBI 2: 244 Rao 133; Gamble 274.

Large, woody climbing shrubs. Leaves imparipinnate; leaflets 7-9, each 6-15 x 2.5-7 cm, coriaceous, ovate-lanceolate, obtusely acuminate at apex, rounded at base. Flowers white in axillary panicles up to 20 cm long. Pods 7-15 x 3-3.5 cm, broadly winged

Common in deciduous forests. Fl. & Fr.: Jan.-Aug.

Note: Polhill re-established (*Kew Bull.* 25: 270. 1971) the genus *Aganope* Miq. which was reduced by Bentham f.c. to a section of *Derris* Lour. Polhill states that the wing petals are not 'always adherent' to the keel and the hilum is remarkably different from *Derris*. However we follow Bentham in treating it only as a

section of *Derris* Lour.

*Derris trifoliata* Lour. Fl. Cochinch. 433, 1790; Thoth. in Bull. Bot. Surv. India 3, 181, 1961. *D. uliginosa* (Roxb.) Benth. in Miq. Pl. Jungh. 1: 252, 1852; FBI 2: 241; Rao 132; Gamble 273. *Galedupa uliginosa* Roxb. Fl. Ind. 3: 243, 1832.

Climbing shrubs. Leaves 5-7-foliate; leaflets 3-7 x 2.5-4.5 cm, coriaceous, glabrous, ovate, shortly acuminate at apex, slightly cordate or rounded at base. Flowers rose in long axillary racemes.

Frequent in tidal mangroves throughout the coastal zone.  
Fl.: Jul.-Sept. Fr.: Oct.

**Desmodium Desv. nom. cons. (*sensu lato*)**

Note: Based on comparative morphology of vegetative and floral parts, pollen grains, seeds and seedlings, Ohasi (Ginkgoana 1: 1-318, 1973) suggested 7 genera in *Desmodium* complex.

1. Decumbent, trailing or creeping herbs:

  2. Leaves glabrous above; pods glabrous:
    3. Pedicels less than 1 cm long; pods 3-5-jointed *D. triflorum*
    3. Pedicels more than 1.5 cm long; pods 6-8-jointed *D. heterophyllum*
  2. Leaves strigose above; pods villous or sericeous *D. biarticulatum*
  1. Erect shrubs:
    4. Flowers enclosed in bifarious floral leaves *D. pulchellum*
    4. Flowers not as above:
      5. Leaves simple:
        6. Petioles winged *D. triquetrum*
        6. Petioles not winged:
          7. Stems angular *D. gangeticum*
          7. Stems terete *D. velutinum*
      5. Leaves trifoliate:

- 8. Terminal leaflet acuminate at apex; flowers in axillary umbels *D. triangulare*
- 8. Terminal leaflet never acuminate; flowers not in umbels:

  - 9. Terminal leaflet mucronate at apex; flowers fascicled *D. laxiflorum*
  - 9. Terminal leaflet not as above:

    - 10. Flowers blue; terminal leaflet ca. 2.5 x 1 cm, laterals not gyrating *D. heterocarpon*
    - 10. Flowers pink; terminal leaflet ca. 8 x 3 cm, laterals gyrating *D. motorium*

**Desmodium biarticulatum** (L.) F. v. Muell. Fragm. Phyt. Austr. 2: 121. 1861; FBI 2: 163; Rao 115; Gamble 243. *Hedysarum biarticulatum* L. Sp. Pl. 747. 1753. *Dicerma biarticulatum* (L.) DC. Prodr. 2: 339. 1825; Wight, Icon. t. 419. 1841; Ohasi in Ginkgoana 1: 252. 1973.

Decumbent herbs. Leaves trifoliolate, up to 0.3-0.9 x 0.2-0.4 cm, strigose, obovate, obtuse at apex, cuneate at base. Flowers pink in racemes. Pods 0.5-1.5 cm long, 1-2 septate, densely sericeous.

Frequent in sand strands of the coastal zone. Leaves used to cure rheumatism. Fl. & Fr.: Feb.-Apr.' *Sivanarvayampu'*

**Desmodium gangeticum** (L.) DC. Prodr. 2: 327. 1825; Wight, Icon. t. 271. 1840; FBI 2: 168; Rao 116; Gamble 244. *Hedysarum gangeticum* L. Sp. Pl. 746. 1753.

Erect shrubs 1-2 m tall; branches pubescent. Leaves 4-7 x 2.3-4 cm, sparsely pubescent above, densely villous beneath. Flowers white, tinged lilac. Pods 4-7 seeded, slightly curved, sparsely clothed with curved hairs.

Frequent in deciduous forests at low elevations. Fl. & Fr. Aug.-Dec.

**Desmodium heterocarpon** (L.) DC. Prodr. 2: 377. 1825. *Hedysarum heterocarpon* L. Sp. Pl. 747. 1753. *Desmodium polycarpum* (Poir.) DC. var. *trichocaulon* (DC.) Baker in Hook.f. Fl. Brit. India

2: 172. 1876 *D. trichocaulon* DC. in Ann. Sci. Nat. 4: 101. 1825.  
*D. patens* Wight, Icon. t. 107. 1840.

Erect shrubs, ca. 1 m tall. Leaves trifoliolate, pubescent beneath, terminal leaflets 3.8 x 1-2.5 cm, elliptic, acute at both ends; laterals 1.5-6 x 1-2 cm, elliptic-oblong, acute or slightly obtuse at apex, rounded at base. Flowers blue in racemes at the end of branches. Pods up to 3.5 cm long, incurved, sparsely ciliate along the lower surface.

Abundant in the secondary moist deciduous forests of Kottur Reserve in grassy slopes. Fl. & Fr.: Jan.-Mar. '*Nilathovara*'.

*Note*: Ohasi (Ginkgoana 1: 212. 1973) recognized 2 subspecies and 4 varieties in this highly polymorphic species. Our specimens fit with *D. heterocarpon* subsp. *heterocarpon* var. *heterocarpon*.

**Desmodium heterophyllum** (Willd.) DC. Prodr. 2: 334. 1825; FBI 2: 173; Gamble 245; Meeuwen in Reinwardtia 6: 251. 1962. *Hedysarum heterophyllum* Willd. Sp. Pl. 3: 1201. 1802. *Desmodium triflorum* (L.) DC. var. *majus* Wight & Arn. Prodr. 229. 1834; Wight, Icon. t. 291. 1840; Ohasi in Ginkgoana 1: 239. 1973.

Wiry, branched, trailing herbs rooting at nodes; stems 30-60 cm long, pilose. Leaves trifoliolate; central leaflets 1-2.5 x 0.5-1 cm, elliptic-ovate or obovate, obtuse at apex, rounded at base. Flowers pink, 1-3 together in axillary and 2-6 in terminal racemes.

Frequent in wet situations throughout the plains. Fl. & Fr.: Aug.-Sept.

*Note*: The specimens from this District varies from the other specimens of the same species deposited in MH in the nature of vestiture. The specimens have long spreading hairs as against short appressed hairs in the present collections and leaves densely hairy beneath as against sparsely hairy.

**Desmodium laxiflorum** DC. in Ann. Sci. Nat. Bot. 4: 100. 1825 & Prodr. 2: 335. 1825; FBI 2: 164; Gamble 243; de Munk in Reinwardtia 6: 252. 1962; Ohasi in Ginkgoana 1: 101. 1973. *Desmodium recurvatum* (Roxb.) Graham ex Wight & Arn. Prodr. 226. 1834; Wight, Icon. t. 374.

1840, *Hedysarum recurvatum* Roxb. Fl. Ind. 3: 358. 1832, *Desmodium diffusum* DC. in Ann. Sci. Nat. Bot. 4: 100. 1825 & Prodr. 2: 335. 1825, non p. 336. auct. (Willd.) quae est *D. dichotomum* DC.

Erect shrubs 0.5-1.5 m tall. Leaves trifoliolate, pubescent below; terminal leaflets 5-9 x 3.5-5 cm, ovate, obtuse at base, laterals smaller. Flowers blue, pubescent.

Occasional in moist deciduous forests of Kottur. Fl. & Fr.: Sept.-Feb.

**Desmodium motorium** (Houtt.) Mett. in J. Arnold Arbor 19: 345. 1938; Meeuwen in Reinwardtia 6: 24. 1962. *Hedysarum motorium* Houtt. Nat. Hist. 2: 246. 1779. *Desmodium gyrans* (L.f.) DC. Prodr. 2: 326. 1825; Wight, Icon. t.294. 1840; FBI 2: 174; Rao 117; Gamble 245. *Hedysarum gyrans* L.f. Suppl. Pl. 332. 1781. *Codariocalyx motorius* (Houtt.) Ohasi in J. Jap. Bot. 40: 367. 1965 & in Ginkgoana 1: 46. 1973.

Erect shrubs up to 1.5 m tall. Leaves trifoliolate; terminal leaflets 4-8 x 1.5-3 cm, sparsely pubescent above, densely pubescent beneath, oblong, acute at apex rounded at base. Flowers orange coloured in axillary racemes. Pods up to 4 cm long, 6-9 seeded, finely pubescent.

Fairly common in the undergrowth of evergreen and semievergreen forests of Kallar. Fl. & Fr.: Oct.-Jan.

**Desmodium pulchellum** (L.) Benth. Fl. Hong. 83. 1861; FBI 2: 162; Rao 115; Gamble 243. *Hedysarum pulchellum* L. Sp. Pl. 747. 1753. *Dicerma pulchellum* (L.) DC. in Ann. Sci. Nat. Bot. 4: 236. 1825; Wight, Icon. t.418. 1839; Rao 115. *Phyllodium pulchellum* (L.) Desv. in J. Bot. Desvaux ser. 2, 1: 124. t.5. 1.24. 1813; Ohasi in Ginkgoana 1: 276. 1973.

Erect shrubs 0.5-1.5 m tall. Leaves trifoliolate; terminal leaflets 5-6 x 2-3 cm, puberulous on both the surfaces, ovate-lanceolate, obtuse at apex, rounded at base; laterals smaller. Flowers yellow in axillary and terminal racemes.

Common in semievergreen forests of Bonecord. Fl. & Fr.: Nov.-Jan.

**Desmodium triangulare** (Retz.) Miers in J. Arnold Arbor. 23: 170, 1942. *Hedysarum triangulare* Retz. Obs. Bot. 3: 40. 1783. *Desmodium cephalotes* (Roxb.) Wight & Arn. var. *congestum* (Wight & Arn.) Prain in J. Asiatic Soc. Bengal 66: 389. 1898; Wight, Icon. t.209. 1839; Gamble 242. *D. congestum* Wall. ex Wight & Arn. Prodr. 224. 1834. *Dendrolobium triangulare* (Retz.) Schindler in Feddes Report 20: 274. 1924; Ohasi in Ginkgoana 1: 77. 1973.

Erect shrubs 0.5-1.5 m tall; stems triquetrous. Leaves trifoliolate; terminal leaflets 7-10 x 3-4.5 cm, sericeous beneath, elliptic, acuminate at apex, acute at base; laterals shorter. Flowers yellowish in dense axillary umbels; peduncles and calyx silky pubescent. Pods nearly glabrous, 3-6 septate.

Common in moist deciduous forests of the mountainous zone. Fl. & Fr.: Aug.-Oct.

**Desmodium triflorum** (L.) DC. Prodr. 2: 334. 1825; FBI 2: 173. Rao 116; Gamble 245; Meeuwen in Reinwardtia 6: 261. 1962; Ohasi in Ginkgoana 1: 246. 1973. *Hedysarum triflorum* L. Sp. Pl. 747. 1753. *Desmodium triflorum* (L.) DC. var. *minus* Wight & Arn. Prodr. 229. 1834; Wight, Icon. t.292. 1840.

Wiry, trailing herbs. Leaflets 0.5-2.5 x 0.5-1 cm, obovate, truncate or emarginate at apex, cuneate at base. Flowers pink in axillary racemes. Pods straight, 3-5 jointed.

Frequent throughout the plains in moist areas. Fl. & Fr.: Jul.-Dec. 'Cherupalladi'

**Desmodium triquetrum** (L.) DC. Prodr. 2: 326. 1825; Meeuwen in Reinwardtia 6: 292. 1962; FBI 2: 163; Rao 115; Gamble 244. *Hedysarum triquetrum* L. Sp. Pl. 746. 1753. *Tadehagi triquetrum* (L.) Ohasi in Ginkgoana 1: 296. 1973.

Erect shrubs 30-50 cm tall. Leaves 7-15 x 1.5-3 cm, appressed pubescent along the midrib beneath, oblong, acuminate at apex, cordate at base. Flowers pink in terminal branched racemes. Pods ca. 2-2.5 cm long, apiculate, densely strigose.

Abundant in deciduous forests of low elevations. Fl. & Fr.: Nov.-Jan. 'Adakkapanai'

**Desmodium velutinum** (Willd.) DC. Prodr. 2: 328. 1825; Raizada in Indian Forester 92: 308. 1966; Ohasi in Ginkgoana 1: 192. 1973. *Hedysarum velutinum* Willd. Sp. Pl. 3: 1174. 1803. *Desmodium latifolium* (Roxb. ex Ker.) DC. Prodr. 2: 328. 1825; FBI 2: 168; Gamble 244. *Hedysarum latifolium* Roxb. ex Ker. in Bot. Reg. 5: t.355. 1819.

Erect shrubs 1-1.5 m tall. Leaves 4-15 x 2.5-10 cm, pubescent, ovate or deltoid, obtuse or subacute at apex, narrowed at base. Flowers purple. Joints of podes hairy.

Occasional in open dry areas at low elevations. Fl. & Fr.: Nov.-Dec. 'Orita'

#### **Erythrina L.**

**Erythrina variegata** L. in Stickm. Herb Amboin. 10. 1754 & Amoen Acad. 4: 122. 1759. *E. variegata* L. var. *orientalis* (L.) Merr. Interpret. Herb. Amboin. 276. 1917. *E. corollodendron* L. var. *orientalis* L. Sp. Pl. 706. 1753. *E. indica* Lam. Encycl. 2: 391. 1786; Wight, Icon. t.58. 1838; FBI 2: 188, Rao 119; Gamble 249.

Trees 10-13 m tall; stems prickly. Leaves 3-foliate; leaflets 5-12 x 3-10 cm, broadly deltoid, acute at apex, obtuse at base. Flowers red in terminal racemes.

Commonly grown in plantations for shade. Fl. & Fr. Jan.-May. 'Murukku'

*Note*: Bullock in Kew Bull. 20: 294. 1966 discussed the identity and nomenclature of the different varieties and forms involved in this species. Our plants, however, fit with the typical.

#### **Flemingia Roxb. ex Ait.f. *nom. cons.***

- |                           |                        |
|---------------------------|------------------------|
| 1. Leaves unifoliate      | <i>F. strobilifera</i> |
| 1. Leaves trifoliate :    |                        |
| 2. Calyx lobes glandular  | <i>F. macrophylla</i>  |
| 2. Calyx lobes eglandular | <i>F. semialata</i>    |

**Flemingia macrophylla** (Willd.) Prain ex Merr. in Philipp. J. Sci. 5: 130. 1910. *Crotalaria macrophylla* Willd. Sp. Pl. 3: 982.

1802. *Flemingia congesta* Roxb. ex Ait. Hort. Kew. ed.2. 4: 340. 1812; FBI 2: 228; Rao 129; Gamble 267. *Moghania macrophylla* (Willd.) O. Kuntze. Rev. Gen. Pl. 1: 199. 1891; Nootboom in Reinwardtia 5: 434. 1960.

Erect shrubs ca. 1.5 m tall. Leaves strigose beneath with many glands; terminal leaflet 15-25 x 6-13, elliptic, 3-ribbed, acuminate at apex, acute at base; laterals smaller, ovate, acuminate at apex, obliquely rounded at base. Flowers pink in axillary branched subsessile pubescent racemes.

Occasional in moist deciduous forests of Bonecord. Fl. & Fr.: Mar.

***Flemingia semialata* Roxb.** Fl. Ind. 3: 340. 1832 Wight, Icon. t.326, 1840; Gamble 267. *F. congesta* Roxb. ex Ait. var. *semialata* (Roxb.) Baker in Hook.f. Fl. Brit. India 2: 229. 1876; Rao 129.

Erect shrubs 1-2 m tall; young branches grey pubescent. Leaflets 8-17 x 3.5-5 cm, pubescent, elliptic or elliptic-oblong, acuminate at apex, obliquely rounded at base. Flowers red in axillary racemes. Calyx woolly tomentose.

Common in grassy slopes of secondary moist deciduous forests of Kallar and Kottur. Fl. Nov.-Dec. *Korkattachedi'*

***Flemingia strobilifera* (L.) R.Br. ex Ait.** Hort. Kew. ed. 2. 3: 350. 1812; wight, Icon. t.267. 1840; FBI 2: 227; Rao 129; Gamble 266. *Hedysarum strobiliferum* L. Sp. Pl. 764. 1753. *Moghania strobilifera* (L.) St. Hill. ex Jacks. in Ind. Kew. 2: 22. 1894; Nootboom in Reinwardtia 5: 433. 1960.

Erect shrubs 30-50 cm tall. Leaves 6-15.5 x 2-5 cm, sparsely pubescent, lanceolate, acuminate at apex rounded at base. Flowers white in axillary and terminal racemes.

*Note* : The generic name *Flemingia* Roxb. ex Ait.f. (1812) is now conserved against *Moghania* Jaume St. Hill (1813) in the interest of nomenclatural stability.

#### Geissaspis Wight & Arn.

***Geissaspis cristata* Wight & Arn.** Prodr. 218. 1834; Bedd. Icon. t. 293. 1873; FBI 2: 141; Rao 112; Gamble 229.

Prostrate herbs. Leaves 3-4 foliolate; leaflets 0.4-0.6 x 0.2-0.4 cm, glabrous, obovate, obtuse at apex, cuneate at base. Flowers pink in axillary racemes; bracts ciliate.

Frequent at moist areas of the coastal and midland zones.  
Fl. & Fr.: Aug.-Jan.

#### *Gliricidia* H.B.K.

*Gliricidia sepium* (Jacq.) Walp. Report. Bot. Syst. 1: 679. 1842; White in Ann. Missouri Bot. Gard. 67(3): 703. 1980. *Robinia sepium* Jacq. Enum. Pl. Craib. 28. 1760. non Sw. 1788. *Gliricidia maculata* (H.B.K.) Walp. Report. Bot. Syst. 1: 679. 1842; FBI 2: 208; Gamble 258. *Robinia maculata* H.B.K. Nov. Gen. Sp. Pl. 6: 393. 1824.

Trees 3-4 m tall. Leaflets 15, each 2.5-7 x 1.3-3 cm, ovate, obtusely acuminate at apex, obliquely rounded at base. Flowers pale yellow in racemes mostly from the old wood or rarely axillary. Legumes ca. 15 x 2 cm, brown.

Commonly cultivated for green manure and as a shade tree in estates. Fl. & Fr.: Feb.-Apr.

Note: Although Kunth (1826), while describing the genus *Gliricidia* included *Robinia sepium* Jacq., he did not make any combination in accordance with 'Code' Stuedel's (Nom. Bot. ed. 2. 1: 688. 1840) combination of the species is not validly published since he used the name as a synonym of *Lanchothecarpus sepium* and *L. maculatus* (vide white I. c.) Walper I. c. first validly published the combination.

#### *Indigofera* L.

- |                       |                          |
|-----------------------|--------------------------|
| 1. Pods echinate      | <i>I. nummularifolia</i> |
| 1. Pods not echinate: |                          |
| 2. Trees              | <i>I. zollingeriana</i>  |
| 2. Shrubs:            |                          |
| 3. Leaflets alternate | <i>I. spicata</i>        |
| 3. Leaflets opposite: |                          |
| 4. Pods glabrous      | <i>I. glabra</i>         |
| 4. Pods hairy:        |                          |

- 5. Pods curved, ca. 3 cm long *I. tinctoria*
- 5. Pods straight, less than 2.5 cm long :
  - 6. Pods tetragonous *I. hirsuta*
  - 6. Pods terete :
    - 7. Pods less than 1.5 cm long *I. longiracemosa*
    - 7. Pods ca 2.5 cm long *I. wightii*

**Indigofera glabra** L. Sp Pl. 751. 1753; Gamble 219. *I. pentaphylla* Mur. Syst. Veg. ed. 13. 564. 1774; Wight, Icon. t. 385. 1840; FBI 2: 95; Rao 109.

Prostrate herbs. Leaves 2-2.5 cm long; leaflets 0.5-1 x 0.3-0.8 cm, pubescent, obovate, obtuse at apex, acute at base. Flowers brick-red, 2-5 in axillary racemes. Pods 1.3-2.1 cm long.

Occasional along the coast. Fl. & Fr.: Jul.-Dec.

**Indigofera hirsuta** L. Sp. Pl. 751. 1753; FBI 2: 96; Rao 109; Gamble 221. *I. astragalina* DC. Prodr. 2: 228. 1825.

Undershrubs 0.5-1 m tall; stems densely hirsute. Leaves 5-9 cm long, leaflets 7-9, pubescent; terminal leaflet 1-3.5 x 0.5-2 cm, obovate obtuse, at apex, acute at base; laterals smaller. Flowers pink in axillary hirsute racemes. Pods ca. 1.5 cm long, pubescent.

Fairly common in all the drier parts of the district. Fl. & Fr.: Jul.-Dec.

*Note:* *Indigofera hirsuta* L. which is treated as a separate species in Indian Floras is scarcely distinguishable from *I. austragalina* DC and intermediates are also observed. Ali (in Bot. Not. 3: 559. 1953) suggested merger of these two species which was, however, contradicted by Verdcourt (Kew Bull. 14: 290-295. 1960). Ali's treatment is followed.

**Indigofera longiracemosa** Boiv. ex Baill. in Bull. Mens. Soc. Linn. Paris 1: 299. 1883; Gamble 220.

Erect shrubs up to 1 m tall. Leaflets 9-11, each 1-2.2 x 0.4-1.2 cm, elliptic, puberulous, obtuse and mucronate at apex, obtuse at base. Flowers reddish, pubescent in axillary racemes. Pods ca. 1.5 cm long.

Occasional at low elevations in Kallar. Fl. & Fr.: Jul.-Nov.

**Indigofera nummularifolia** (L.) Livera ex Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.): 72. 1931. *Hedysarum nummularifolium* L. Sp. Pl. 746. 1753. *Indigofera echinata* Willd. Sp. Pl. 3: 1222. 1800; Wight, Icon. t.316. 1840; FBI 2: 92; Rao 103; Gamble 218.

Prostrate herbs. Leaves 0.5-1.8 x 0.4-1 cm, sparsely ciliate along the margin when young, obovate or suborbicular, obtuse and mucronate at apex, cuneate at base. Flowers red in axillary racemes up to 2 cm long.

Frequent along the drier areas of the coast in Varkala. Fl. & Fr.: Nov.-Jan.

*Note* : This species is remarkably distinct from all other species of *Indigofera* by its one seeded, echinate fruits.

**Indigofera spicata** Forsk. Fl. Aegypt.-Arab. 138. 1775. *I. endecaphylla* Jacq. Icon. Rar. 3(3): t.570. 1789, 'hendecaphylla'; FBI 2: 98; Gamble 220.

Decumbent herbs. Leaves 2-3.5 cm long; leaflets 5-9, terminal 1.5-1.8 x 0.3-0.6 cm, pilose beneath, obovate, obtuse at apex, cuneate at base, laterals smaller. Flowers pink in axillary racemes up to 5.5 cm long. Pods narrow, linear, sparsely pubescent.

Fairly common in sand strands of Veli. Fl. & Fr.: Apr.-Jun.

**Indigofera tinctoria** L. Sp. Pl. 751. 1753; Wight, Icon. t.365. 1840; FBI 2: 99 p.p.; Rao 109; Gamble 220.

Undershrubs 30-50 cm tall. Leaves 3-6 cm long; leaflets 5-7, each 0.5-1 x 0.3-0.6 cm, appressed hairy beneath, obovate, obtuse at apex, acute at base. Flowers pink in axillary racemes up to 3.5 cm long. Pods ca. 3 cm long, curved, sparsely hairy.

Occasional in the midlands; sometimes cultivated. Leaves locally used to prepare hair oil. Fl. & Fr.: Aug.-Dec. 'Ameri'

**Indigofera wightii** Graham ex Wight & Arn. Prodr. 202. 1834; FBI 2: 99; Rao 109; Gamble 221

Shrubs 1-1.5 cm tall. Leaves 3-5 cm long; leaflets 9-19, each 0.5-1 x 0.3-0.4 cm, grey pubescent, obovate-oblong, obtuse at apex, narrowed at base. Flowers pink in axillary, pubescent racemes up to 3.5 cm long. Pods ca. 2.5 cm long, pubescent,

Occasional in upper ghats. Fl. & Fr.: Aug.-Dec.

*Indigofera zollingeriana* Miq. Fl. Ind. Bat. 1, 1: 310. 1855; de Kort & Thejsse in Blumea 30: 142. 1984. *I. teysmannii* Miq. Fl. Ind. Bat. 1, 1, 1083. 1855. *I. benthamiana* Hance, Ann. Sc. Nat. Bot. IV, 18: 219. 1862.

Trees 5-6 m tall. Leaflets 2.5-7.5 x 1.2-2.2 cm, appressed pubescent, elliptic-ovate, acute at both ends. Flowers red in axillary racemes up to 20 cm long. Pods up to 3.5 cm long, curved, sericeous,

Commonly cultivated in tea estates for shade and in plains for green manure. Fl. & Fr.: Jul.-Nov.

#### Lablab Adans.

*Lablab purpureus* (L.) Sweet, Hort. Brit. ed. 1, 481. 1827; Verdcourt in Kew Bull. 24: 410. 1970. *Dolichos purpureus* L. Sp. Pl. ed. 2: 1021. 1763. *D. lablab* L. Sp. Pl. 725. 1753; FBI 2: 209. 1876; Rao 125; Gamble 259.

Climbing herbs. Leaflets 3.5-7 x 1.5-5 cm, membranous, sparsely hairy, ovate, acuminate at apex, narrowed at base. Flowers white with pink spots on the standard petals, in racemes up to 25 cm long.

Commonly cultivated; often runs wild in the midlands. Fl. & Fr.: Aug.-Dec. 'Mochakotta'

#### Millettia Wight & Arn.

*Millettia rubiginosa* Wight & Arn. Prodr. 263. 1834; Wight, Icon. t. 207. 1839; FBI 2: 104; Rao 110; Gamble 227.

Woody, climbing shrubs. Leaves 5-foliate; leaflets 11-23 x 5.5-9.5 cm, densely brown pubescent beneath, ovate, obovate or elliptic-oblong, shortly acuminate at apex, acute or cuneate at base. Flowers red, fascicled in terminal panicles. Pods up to 10 x 2.5 cm, oblong, brown pubescent.

Common in exposed areas, straggling above the shrubs at Ponmudi and Merchiston. Fl. & Fr.: Feb.-May.

**Pongamia** Vent. *nom. cons.*

**Pongamia pinnata** (L.) Pierre, Fl. For. Cochinch. t. 385 1899; Thoth. in Bull. Bot. Surv. India 3: 418. 1962. *Cystisus pinnatus* L. Sp. Pl. 741. 1753. *Pongamia glabra* Vent. Jard. Malm. t.28. 1803; Wight, Icon. t.59. 1838; FBI 2. 240; Bourd. 136; Rao 132; Gamble 272. *Derris indica* (Lam.) Bennet in J. Bombay Nat. Hist. Soc. 68: 303. 1971. *Galedupa indica* Lam. Encycl. 2: 594. 1788.

Trees 6-8 m tall. Leaves up to 22 cm long. Leaflets 5-7, each 5.5-10.5 x 2.5-5.5 cm, elliptic or elliptic-oblong, shortly acuminate at apex, acute at base. Flowers white.

Frequent along roadsides in the midland zone. Fl. & Fr.: Jul. 'Pungu'

Note: According to Bennet *l.c.* the characters distinguishing *Derris* Lour. and *Pongamia* Vent. are overlapping and no longer hold good for keeping the two genera separate. Hence he reduced the genus *Pongamia* Vent. to a section of *Derris* Lour.

**Pseudarthria** Wight & Arn.

**Pseudarthria viscosa** (L.) Wight & Arn. Prodr. 209. 1834; Wight, Icon. t.286. 1840; FBI 2: 154; Rao 114; Gamble 236. *Hedysarum viscidum* L. Sp. Pl. 747. 1753.

Perennial herbs. Leaves 3-foliate; leaflets 2.5-10 cm long, bristly above, grey pubescent beneath, rounded or rhomboid, obtuse or acute at apex, narrowed at base. Flowers distantly fascicled in axillary and terminal racemes.

Fairly common in exposed areas of Ponmudi. Fl. & Fr.: Sept.-Feb.

**Pterocarpus** Jacq.

**Pterocarpus marsupium** Roxb. Pl. Cor. 2: 9. t. 116. 1799; Bedd. Fl. Sylv. t. 21. 1861; FBI 2: 239; Bourd. 135; Rao 131; Gamble 271.

Trees 15-18 m tall. Leaves 5-7-foliate; leaflets 7.5-12 x 3-

6.5 cm, oblong, obtuse at apex, narrowed at base. Flowers bright orange, sweet scented in racemes up to 18 cm long. Pods 2.5-5 cm across.

Fairly common in deciduous forests of Kottur, Bonecord and Kallar. Yields a gum used in medicine. Wood valuable for house construction and furniture. Fl.: Jul.-Oct. Fr.: Dec.-Mar. 'Venga'

**Pueraria DC.**

**Pueraria phaseoloides** (Roxb.) Benth. in J. Linn. Soc. Bot. 9: 125. 1865; FBI 2: 199. *Dolichos phaseoloides* Roxb. Fl. Ind. 316. 1832.

Climbing shrubs; stems hispid. Leaflets 5.5-9.5 x 3.5-8 cm, pubescent, rhomboid, acute at both ends. Flowers white with pink keels. Pods glabrous.

Grown in rubber estates as a cover crop. Often runs wild in deciduous forests. Fl. & Fr.: Nov.-Mar.

**Pycnospora R. Br. ex Wight & Arn.**

**Pycnospora lutescens** (Poir.) Schindl. in J. Bot. (Horken) 64: 145. 1926; Meeuwen in Reinwardtia 5: 437. 1960. *Hedysarum lutescens* Poir. in Lam. Encycl. 6: 417. 1805. *Pycnospora hedysaroides* R. Br. ex Baker in Hook.f. Fl. Brit. India 2: 153. 1876; Rao 116; Gamble 235.

Trailing herbs; stems villous. Leaflets 1-2.5 x 0.7-1.7 cm, villous, ovate or obovate, oblong - obtuse at apex, narrowly rounded at base. Flowers purple in axillary racemes.

A common weed in cultivated fields. Fl.: Oct.-Nov. Fr.: Dec.-Feb.

**Rhynchosia Lour. nom. cons.**

**Rhynchosia cana** DC. Prodr. 2: 386. 1825; FBI 2: 222; Rao 128; Gamble 264.

Undershrubs with pubescent branchlets. Leaflets 2.5-5 cm, pilose, obovate-oblong, obtuse or subacute at apex, narrowed at base. Flowers yellow in pairs in axillary peduncles.

Fairly common in deciduous forests of Kottur. Fl. & Fr.: Dec.-Feb.

**Rothia Pers. nom. cons.**

*Rothia indica* (L.) Druce in Bot. Exch. Club. Soc. Brit. Isles 3: 423. 1914. *Trigonella indica* L. Sp. Pl. 778. 1753. *Rothia trifoliata* (Roth) Pers. Syn. Pl. 2: 302. 1807; Wight, Icon. t.199. 1839; FBI 2: 63; Rao 105; Gamble 199.

Prostrate herbs with woody rootstocks; branches strigose. Leaflets 0.5-1 x 0.2-0.4 cm, densely strigose beneath, obovate, obtuse at apex, cuneate at base. Flowers yellow, solitary or in axillary and leaf opposed racemes. Pods ca. 5 cm long, pubescent.

Abundant in the sand strands of the coastal zone. Leaves used as vegetable. Fl. & Fr.: Jan.-Apr.

**Stylosanthes Sw.**

*Stylosanthes fruticosa* (Retz.) Alson in Trimen, Handb. Fl. Ceylon 6(Suppl.): 77. 1931; Nooteboom in Reinwardtia 5: 449. 1960. *Arachis fruticosa* Retz. Obs. Bot. 5: 26. 1789. *Stylosanthes mucronata* Willd. Sp. Pl. 3: 1166. 1800, nom. illeg.; Bedd. Icon. t. 294. 1868-1867; FBI 2: 148; Rao 113; Gamble 230.

Erect undershrubs 10-15 cm tall; branches pubescent. Leaves trifoliolate, scabrous above, strigose beneath; leaflets 1-2.5 x 0.3-0.8 cm, elliptic or oblong-lanceolate, mucronate at apex, narrowed at base. Flowers pale yellow in terminal heads.

Fairly common in the grassy slopes of Ponmudi and Bone-ocord. Fl. & Fr.: Feb.-Apr.

**Tephrosia Pers. nom. cons.**

1. Leaves emarginate at apex; young pods glabrous *T. maxima*
1. Leaves not emarginate at apex; young pods hairy;

  2. Leaves mucronate at apex; peduncles ca. 35 cm long *T. villosa*
  2. Leaves not mucronate; peduncles less than 8 cm long:

- 3. Flowers red; pods ca. 4 cm long *T. tinctoria*
- 3. Flowers white or bluish-purple; pods less than 4 cm long:
  - 4. Inflorescence 1-3-flowered *T. pumila*
  - 4. Inflorescence more than 3-flowered *T. purpurea*

*Tephrosia maxima* (L.) Pers. Syn. 2: 329. 1807; Gamble 225. *Gallga maxima* L Syst. 1172. 1759. *Tephrosia purpurea* (L.) Pers. var. *maxima* (L.) Baker in Hook f. Fl. Brit. India 2: 113. 1876.

Procumbent herbs; stems sparsely pubescent. Leaflets 1-1.5 x 0.2-0.5 cm, sparsely sericeous beneath, obovate, emarginate at apex, cuneate at base. Flowers pink, in pubescent racemes. Pods up to 6.5 cm long compressed, many seeded.

Common in the sand strands of Veli. Fl. & Fr. Jun.-Sept.

*Tephrosia pumila* (Lam.) Pers. Syn. 2: 339. 1807; FBI 2: 123 p.p.; *Galega pumila* Lam. Encycl. 2: 599. 1788. *Tephrosia purpurea* (L.) Pers. var. *pumila* (Lam.) Baker in Hook.f. Fl. Brit. India 2: 113. 1876. *T. procumbens* Buch.-Ham. ex Drumm. in Gamble, Fl. Pres. Madras 318, 1918 & 1: 226. 1957 (repr. ed.).

Erect herbs 15-20 cm tall. Leaflets 7-11, each 0.4-1.8 x 0.3-1 cm, pubescent beneath, obovate, retuse at apex, cuneate at base. Flowers pink. Pods 2-4 cm long, incurved, slightly pubescent.

Common along the coastal zone. Fl. & Fr.: Sept.-Jan.

*Tephrosia purpurea* (L.) Pers. Syn. 2: 329. 1807; FBI 2: 112 p.p.; Rao 111; Gamble 226. *Cracca purpurea* L. Sp. Pl. 752. 1753.

Decumbent herbs. Leaves 5-9 cm long; leaflets 13-15, each 1.1-2.3 x 0.3-0.7 cm, glabrous, obtuse or retuse with a mucro at apex. Flowers pink.

Common along the coastal zone. Fl. & Fr.: Sept.-Jan.  
'Kozhingil'.

*Tephrosia tinctoria* (L.) Pers. Syn. 2: 329. 1807; Wight, Icon. t.388. 1840; FBI 2: 111; Rao 110; Gamble 225. *Galega tinctoria* L. Syst. 1172. 1759.

Erect shrubs, sometimes straggling; stems brown pubescent.

Leaves usually 7-foliate, glabrescent above, silvery pubescent beneath; terminal leaflets 3-4.5 x 0.7-1.2 cm, elliptic-oblong, obtuse at apex, cuneate at base; laterals smaller. Flowers red in axillary racemes up to 8 cm long. Pods up to 4 cm long, septa obscure, sparsely strigose.

Rare in coastal areas at Nadayara and Verkala; Occasionally found up to 300 m. at Pallode. Fl. & Fr.: Nov.-Feb.

*Tephrosia villosa* (L.) Pers. Syn. 2: 329. 1807; FBI 2: 113; Rao 111; Gillet in Kew Bull. 13: 121. 1958-1959. *Cracca villosa* L. Sp. Pl. 752. 1753. *Tephrosia hirta* (Buch.-Ham.) Gamble. Fl. Pres. Madras 138. 1918 & 1: 225. 1957 (repr. ed.). *Galega hirta* Buch.-Ham. in Trans. Linn. Soc. London 13: 546. 1822.

Erect shrubs up to 1 m tall; stems villous. Leaflets 1.5-3 x 0.3-0.7 cm, sericeous beneath, oblong or oblanceolate, rounded and mucronate at apex, cuneate at base. Flowers fascicled in terminal or axillary racemes up to 30-35 cm long. Pods 4-5.5 cm long, densely villous.

Occasional in wastelands, railway tracks and roadsides. Fl. & Fr.: Jun.-Sept.

#### Teramnus P. Br.

*Teramnus labialis* (L.f.) Spreng. Syst. Veg. 3: 235. 1125; D'Arcy in Ann. Missouri Bot. Gard. 67(3): 780. 1980; FBI 2: 184; Rao 118; Gamble 249. *Glycine labialis* L.f. Suppl. Pl. 325. 1781; Wight, Icon. t.168. 1840.

Slender, twining herbs. Leaves trifoliate; leaflobes 3-6.5 x 2-4 cm, strigose, elliptic-ovate, mucronate at apex, rounded at base. Flowers ca. 0.5 cm long, white in slender branched racemes up to 19 cm long. Pods 3-4.5 cm long, sparsely sericeous.

A common climber in the coastal zone. Fl. & Fr.: Sep.-Dec. '*Kattu alandu*'.

*Note*: The shape and vestiture of the leaves are highly variable.

#### Uraria Desv.

*Uraria rufescens* (DC.) Shindl. in Feddes Report 23: 14. 1925.

*Desmodium rufescens* DC. in Ann. Sci. Nat. Bot. 4: 101. 1825.  
*Uraria hamosa* Wall. ex Wight & Arn. Prodr. 222. 1834; Wight. Icon. t.284. 1840; FBI 2: 156; Rao 114; Gamble 237.

Erect shrubs. Leaves trifoliolate, pubescent beneath; terminal leaflets 7-9.5 x 3.5-4.5 cm, oblong or obovate, obtuse at apex, rounded at base; laterals smaller. Flowers blue in axillary pubescent branched racemes up to 30 cm long.

Fairly common in moist deciduous forests. Fl.: Nov.

#### Vigna Savi

|                                 |                       |
|---------------------------------|-----------------------|
| 1. Racemes 12-16 cm long        | <i>V. wightii</i>     |
| 1. Racemes less than 7 cm long: |                       |
| 2. Leaflets entire              | <i>V. dalzelliana</i> |
| 2. Leaflets lobed               | <i>V. trilobata</i>   |

*Vigna dalzelliana* (Kuntze) Verdcourt in Kew Bull. 24: 558. 1970.  
*Phaseolus dalzellianus* Kuntze, Rev. Gen. Pl. 1: 202. 1891.  
*P. pauciflorus* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 3: 209. 1851; FBI 2: 202. *P. dalzellii* T.Cooke, Fl. Bombay 1: 376. 1902; Gamble 256.

Twining shrubs; stems wiry, sparsely pubescent. Leaflets 4.5-7x 2.3-4 cm, pubescent, ovate, acuminate at apex, obtuse at base. Flowers yellow in slender peduncled racemes.

Fairly common in moist deciduous forests of Kallar. Fl. & Fr.: Sept.-Feb.

*Vigna trilobata* (L.) Verdcourt in Taxon 17: 172. 1968 & Kew Bull. 24: 560. 1970. *Dolichos trilobatus* L. Mant. Pl. 1: 101. 1767; FBI 2: 262. *Phaseolus trilobatus* (L.) Schreb. in Nov. Actorum Acad. Caes. Leop.-Carol. Nat. Cur. 4: 132. 1770; Wight, Icon. t.94. 1838; Rao 128; Gamble 256.

Prostrate herbs. Leaves trifoliolate; leaflets 1.5-2.5 x 1-1.5 cm, lobed, orbicular in outline, obtuse at apex, cuneate at base. Flowers yellow in axillary racemes.

Rare in sand strands of the coast in Kovalam. Fl.: Nov.

*Vigna wightii* Benth. ex Bedd. in Trans. Linn. Soc. London 25: 215. 1865; Bedd. Icon. t.296. 1868-1874; FBI 2: 206; Rao 124; Gamble 257.

Climbing shrubs; stems pilose. Leaflets 5.5-9.5 x 3.5-9 cm, pubescent, elliptic, acute at apex, narrowly rounded at base. Flowers pale red in axillary racemes. Pods ca. 10 x 3.5 cm, oblong, awned at apex.

Rare in moist deciduous forests from Kallar to Ponmudi. Fl. & Fr.: Mar.

*Zornia* Gmel.

*Zornia diphylla* (L.) Pers. Syn. 2: 318. 1807; FBI 2: 147 p.p.; Rao 112; Gamble 229; Nooteboom in Reinwardtia 5: 453. 1960; *Hedysarum diphyllum* L. Sp. Pl. 747. 1753.

Prostrate herbs. Leaves 2-foliolate; leaflets 0.5-2 x 0.3-0.5 cm, ovate or lanceolate, acute at apex, rounded at base. Flowers yellow, solitary, sessile in terminal and axillary peduncles. Lomentum 2-Jointed, glochidiatae.

Common throughout the plains and up to 500 m. Fl. & Fr.: Nov.-Jan. 'Murikkotti'.

CAESALPINIACEAE R.Br.

1. Leaves bipinnate:

2. Petals fimbriate at margins; filaments villous                   *Delonix*\*

2. Petals entire; filaments glabrous:

3. Pods not winged   *Caesalpinia*\*

3. Pods winged   *Peltophorum*\*

1. Leaves pinnate:

4. Petals absent:

5. Sepals 4   *Saraca*

5. Sepals 5   *Dialium*

4. Petals present:

|  |                   |
|--|-------------------|
| 6. Leaflets 2, connate at base                           | <i>Bauhinia</i>   |
| 6. Leaflets never connate:                               |                   |
| 7. Perfect stamens 5, alternating with the<br>staminodes | <i>Humboldtia</i> |
| 7. Stamens not as above:                                 |                   |
| 8. Petals 3  | <i>Tamarindus</i> |
| 8. Petals 5:   |                   |
| 9. Ovary 2-ovuled; pods 1-seeded                         | <i>Cynometra</i>  |
| 9. Ovary many-ovuled; pods many-seeded                   | <i>Cassia</i>     |

*Bauhinia* L.

|                                   |                      |
|-----------------------------------|----------------------|
| 1. Climbing shrubs                | <i>B. phoenicea</i>  |
| 1. Trees or shrubs; not climbing: |                      |
| 2. Calyx pubescent                | <i>B. malabarica</i> |
| 2. Calyx glabrous                 | <i>B. acuminata</i>  |

*Bauhinia acuminata* L. Sp. Pl. 375, 1753; FBI 2: 276; Rao 144; de Wit in Reinwardtia 3: 394, 1956; Gamble 289.

Erect shrubs, 3-4 m tall. Leaves 7-15 x 4-9 cm, sparsely pubescent beneath along the nerves, acuminate at apex, cordate at base. Flowers white in axillary racemes.

Cultivated in gardens. Fl.: Apr.-May. Fr.: Jul.-Aug. 'Veluthamandaram'

*Bauhinia malabarica* Roxb. Fl. Ind. 2: 321, 1832; Bedd. Fl. Sylv. 92, 1871; FBI 2: 277; Bourd. 150; Rao 145; Gamble 228.

Trees, 10-15 m tall. Leaves 5-11 x 7-15 cm, glaucous beneath, ovate, lobed at apex, rounded at base. Flowers pale yellow in axillary racemes. Pods ca. 30 cm long.

Occasional in evergreen forests at low elevations. Fl.: Sept.-Oct. Fr.: Mar.-Apr.

*Bauhinia phoenicea* Heyne ex Wight & Arn. Prod. 296, 1834;

FBI 2: 283; Board 150; Rao 145; Gamble 289. *B. benthamii* Bedd. Icon. t. 107. 1868-1874.

Leaves 7-10 x 5-11 cm, ferruginous pubescent, oblong, lobed at apex, cordate at base. Flowers brick-red in corymbose racemes. Pods ca. 15 cm long, flat, sparsely pubescent.

Frequent in dense evergreen forests in Kallar. Fl.: Nov.-Jan.  
Fr.: Mar.-Apr.

**Cassia L.**

1. Diffuse undershrubs :

2. Leaflets 40-60; petioles with sessile glands                   *C. mimosoides*

2. Leaflets not more than 20; petioles without  
glands   *C. kleinii*

1. Erect shrubs :

3. Inflorescence pendulous   *C. fistula*

3. Inflorescence erect :

4. Stems, branches and leaves densely pubescent           *C. hirsuta*

4. Stems, branches and leaves glabrous or nearly so :

5. Rachis glandular at the junction of the leaflets       *C. tora*

5. Rachis eglandular at the junction of the leaflets:

6. Leaflets ca. 8 x 2.5 cm   *C. occidentalis*

6. Leaflets ca. 15 x 8 cm   *C. alata*

*Cassia alata* L. Sp. Pl. 378. 1753; Wight. Icon. t. 253. 1843;  
FBI 2: 264; Rao 139; Gamble 286; de Wit in Webbia 11: 231.  
1955.

Erect shrubs, 1-3 m tall. Leaflets 13-15 x 5-8 cm, nearly  
glabrous, terminal obovate, laterals oblong, obtuse and mucronate  
at apex, oblique at base. Flowers bright yellow in long terminal  
racemes.

Frequent in wastelands throughout the plains. Cultivated in  
gardens. Extract of leaves used for skin diseases. Fl.: Nov.-Dec.  
Fr.: Jan.-Apr. 'Puzhukkadikonna'.

*Cassia fistula* L. Sp. Pl. 377. 1753; FBI 2: 261; Bourd. 140; Rao 137; Gamble 283; de Wit in Webbia 11: 207. 1955. *C. rhombifolia* Roxb. Fl. Ind. 3: 334. 1832; Wight, Icon. t.269. 1840.

Leaflets 4-8 pairs, silvery pubescent below, ovate or ovate-oblong, acute at apex, cuneate at base. Flowers yellow in long pendulous racemes.

Occasional in moist deciduous forests of Kottur and Bonecord. Commonly cultivated in the gardens and along roadsides for its ornamental flowers. Fl. & Fr.: Apr.-Jun. 'Konna'

*Cassia hirsuta* L. Sp. Pl. 378. 1753; FBI 2: 263; Gamble 284; de Wit in Webbia 11: 250. 1955.

Erect shrubs, 0.5-1 m tall; stems and branches pubescent. Leaflets 8, pubescent, upper larger, 2.5-7.5 x 1.5-3 cm, ovate, acuminate at apex, rounded at base. Flowers yellow in axillary racemes. Pods up to 15 cm long, slender with a dense hitsute line.

Abundant throughout the lower elevations of the ghats in and around Kallar. Fl.: Aug.-Dec.

*Cassia kleinii* Wight & Arn. Prodr. 293. 1834; FBI 2: 266; Rao 140; Gamble 285.

Prostrate herbs. Leaves 1-4 cm long; leaflets 10-20, each 0.5-0.9 x 0.2-0.3 cm, glabrous, oblong, midrib towards the upper half of the lamina. Flowers yellow, solitary, supra-axillary. Pods up to 3.5 cm long, sparsely strigose.

Occasional in moist areas in the moist deciduous forests of Kottur Reserve. Fl. & Fr.: Oct.-Jan.

*Cassia mimosoides* L. Sp. Pl. 379. 1753; FBI 2: 266; Rao 140; Gamble 288; de Wit in Webbia 11: 283. 1955.

Diffuse undershrubs. Leaves 9-11 cm long, sparsely hairy; leaflets 40-60, very small, oblong, midrib towards the lower half of the lamina. Flowers yellow, axillary, solitary.

Rare in moist deciduous forests of Kottur Reserve. Fl. & Fr.: Oct.-Dec.

*Note* : This species closely resembles *C. lechenaultiana* DC. but can be easily distinguished by the smaller leaflets, shorter petioles and broad glands.

**Cassia occidentalis** L. Sp. Pl. 377. 1753; FBI 2: 262; Rao 138; Gamble 284; de Wit in Webbia 11. 256. 1955.

Erect shrubs up to 1 m tall. Leaflets 5-6 pairs, each 2.8 x 1.5-2.5 cm, lower smaller, ovate or elliptic-lanceolate, acuminate at apex, oblique at base. Flowers yellow in axillary and terminal racemes. Pods 11-13 x 0.5-0.9 cm, compressed, glabrous, margins thickened.

Abundant in wastelands throughout the plains. Fl. & Fr.: Jun.-Sept. *Ponnionthakara'*

**Cassia tora** L. Sp. Pl. 376. 1753; FBI 2: 263 p.p.; Rao 138; Gamble 284; de Wit in Webbia 11: 276. 1955,

Erect undershrubs up to 0.5 m tall. Leaves pinnate with 3 pairs of leaflets and a subulate gland each in between the pairs; obtuse and mucronate at apex, cuneate at base. Flowers yellow in axillary pairs. Pods ca. 15 cm long, sparingly strigose, curved.

Abundant in wastelands throughout the plains. Seeds yield a blue dye. Leaves locally used as remedy for skin diseases. Fl. & Fr.: Oct.-Dec.

*Note* : Closely allied to *Cassia obtusifolia* L. with which this species was treated conspecific by several earlier authors (Bentham. Trans. Linn. Soc. London 27: 536. 1871; Fawcett & Rendle, Fl. Jamalca 4: 105. 1920). Baker *f.c.* was the first to separate these two species. *C. tora* is distinguished by the presence of one or two foliar glands. Brenan (Kew Bull. 13: 248-251, 1959) gave a lengthy discussion on the taxonomy, typification and distribution of *C. tora* L. and *C. obtusifolia* L.

**Cynometra L.**

Leaflets 1 pair

*C. travancorica*

Leaflets 3 pairs

*C. bourdillonii*

**Cynometra bourdillonii** Gamble, Bull. Misc. Inform. 446. 1908; Fl. Pres. Madras 413. 1919 & 1: 293. 1957 (repr. ed.); Rao 141.

Trees 9-12 m tall. Leaflets 3 pairs, each 2.5-3.5 x 1-1.5 cm, obovate, emarginate at apex, cuneate at base. Flowers in axillary racemes or corymbs.

Rare in evergreen forest of Ponmudi

*Cynometra travancorica* Bedd. Fl. Sylv. t.316, 1872; FBI 2: 267; Bourd. 144; Rao 141; Gamble 293.

Trees. Leaflets 6-10 x 2.5-3 cm, lanceolate, unequal sided, acuminate at apex, narrowed at base. Flowers rosy-white in axillary racemes.

Rare in evergreen forests. Fl. & Fr.: Sept.-Oct.

#### Dialium L.

*Dialium travancoricum* Bourd. in Indian Forester 30: 243, 1904 & For. Trees Travancore 114, 1908; Gamble 826.

Trees 20-30 m tall. Rachis 10-15 cm long; leaflets 7-11, each 5-7.5 x 2-3 cm, glabrous, ovate, caudate-acuminate at apex, rounded at base. Flowers brown in large fulvous-pubescent panicles. Pods dark velvety brown (Description from Bourdillon, 1908).

Note: Bourdillon /c. and Gamble /c. reported this tree near Ponmudi but no collections of them could be traced in MH, UCT and CAL.

#### *Humboldtia* Vahl nom. cons.

- |                                  |                     |
|----------------------------------|---------------------|
| 1. Leaves unifoliolate           | <i>H. unijuga</i>   |
| 1. Leaves 3-many foliolate:      |                     |
| 2. Rachis winged                 | <i>H. decurrens</i> |
| 2. Rachis not winged:            |                     |
| 3. Leaflets 17-31 cm long        | <i>H. vahliana</i>  |
| 3. Leaflets less than 15 cm long | <i>H. trijuga</i>   |

*Humboldtia decurrens* Bedd. ex Oliver in Hooker's Icon. Pl. t. 2368, 1895; Bourd. 148; Rao 144; Gamble 291.

Trees 12-15 m tall. Rachis broadly winged. Leaflets 5-6 pairs,

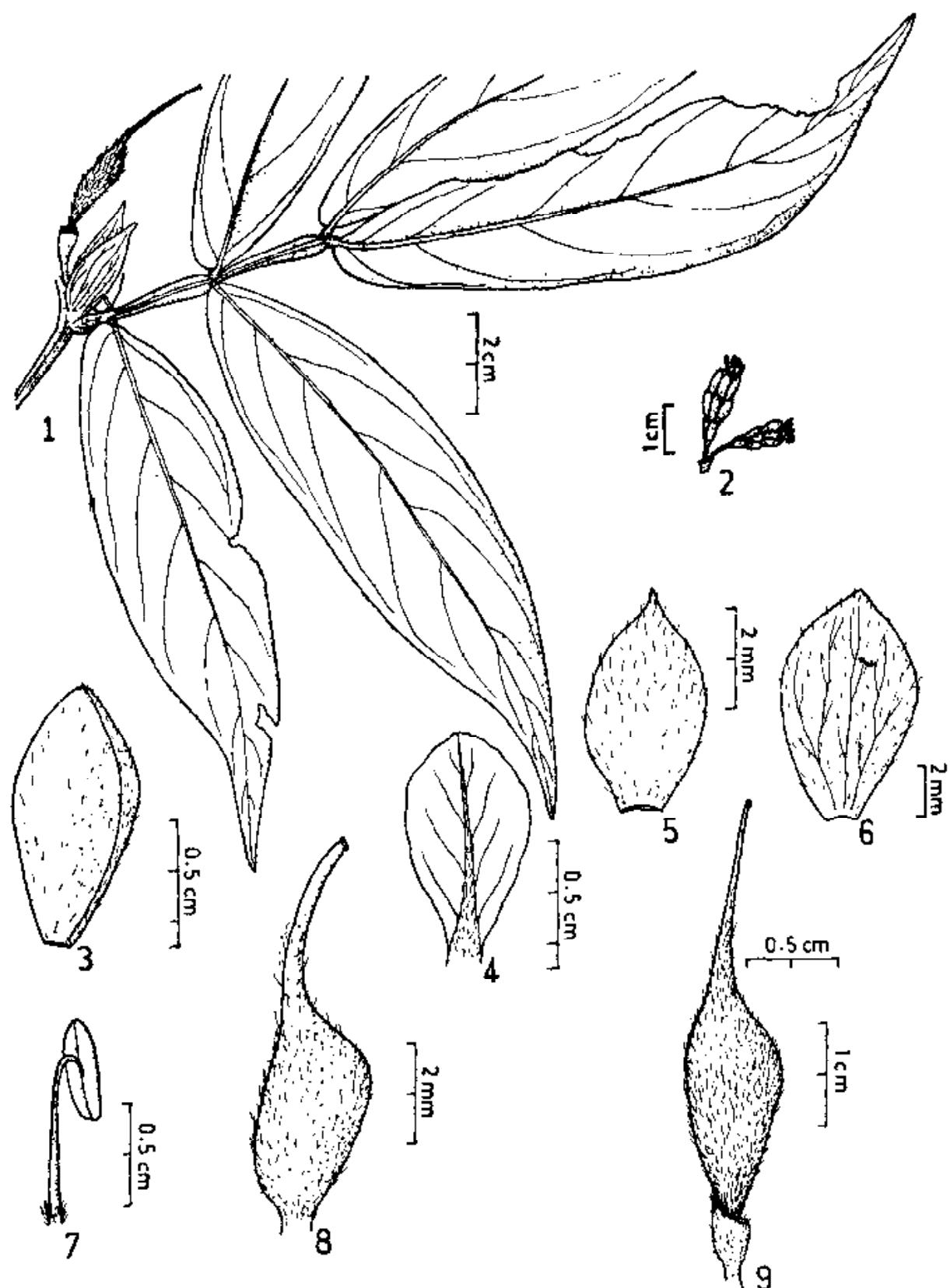


Fig. 1-9. *Humboldtia trijuga* (Joseph & Chandras.) Mohanan

1. Twig;
2. Flowers;
3. Sepal;
4. Petal;
5. Bract;
6. Bracteole;
7. Stamen;
8. Pistil;
9. Young pod.

each 12.5-25 x 5-10 cm, elliptic-oblong, acuminate at apex, narrowed at base; stipules 6.5 cm long, auricled at base. Flowers pink in axillary racemes or from old wood.

Frequent in semievergreen forests along streams and rivers.  
Fl. & Fr.: Jan.-Jun. 'Kunthani'.

*Humboldtia trijuga* (Joseph & Chandras.) Mohanan stat. nov.  
*H. unijuga* Bedd. var. *trijuga* Joseph & Chandras. in J. Bombay  
Nat. Hist. Soc. 81: 729. 1984.

Trees 7-12 m tall. Leaves pinnate; rachis slightly winged; leaflets 6, each 10-15 x 3-4 cm, elliptic-oblong, acuminate at apex, narrowed at base; stipules 1.5-2.5 x 0.9-1 cm, ovate, acute at apex, rounded at base. Flowers red in axillary racemes; bracts 4.5 x 2 mm, ovate-oblong, apiculate at apex, densely pilose; bracteoles ca. 9 x 5 mm, tomentose, obovate, acute at apex. Sepals ca. 1 x 0.5 cm, obovate, obtuse, tomentose. Petals ca. 1 x 0.5 cm, hairy along midrib, oblanceolate. Stamens ca. 1 cm long; filaments hairy at base. Ovary ca. 3 x 2 mm, densely golden tomentose, oblong; styles ca. 4 mm long; stigmas simple. Young pods ca. 4 x 0.5 cm, long beaked,

Fairly common in evergreen forests of Bonecord at Koviltheri.  
Fl. & Fr.: Dec.-Mar.

*Note*: Allied to *Humboldtia unijuga* Bedd. but differs in: leaflets 3 pairs. Also allied to *H. bourdillonii* Prain but differs in: leaflets 3 pairs, shorter and narrower, and basal auricles of stipules absent.

*Humboldtia unijuga* Bedd. Fl. Sylv. 183. 1872; Icon. t.108. 1868-  
1874; FBI 2: 274; Bourd. 147; Rao 143; Gamble 291; Mohanan  
& Henry in Bull. Bot. Surv. India 22: 236. 1980(1982).

Trees 8-12 m tall. Leaflets 1 pair, 12-17 x 3-5 cm, lanceolate,  
acuminate at apex, obtuse at base. Flowers ca. 2.5 cm long,  
crimson in racemes from the old wood.

Very rare on the way to Agastyarkudum from Bonecord.  
Fl. & Fr.: Dec.-Mar.

*Note*: Collected after a lapse of 100 years from the type locality.  
No earlier collection is available in MH. Included in the list of threatened plants (Henry et al. in J. Bombay Nat. Hist. Soc. 75: 684-697. 1978(1979).

*Humboldtia vahliana* Wight, Icon. t.1607 & 1608. 1850; FBI 2: 274; Bourd. 148; Rao 143; Gamble 291.

Trees 7-10 m tall. Leaflets 3-4 pairs, each 17-31 x 5-6 cm, oblong-lanceolate, acuminate at apex, rounded at base; stipules 1.5-2.5 x 0.8-1 cm, ovate, acute, appendages reniform. Flowers white in axillary racemes; peduncles and calyx densely tomentose.

Occasional in semievergreen forests of Kottur along rivers and streams. Fl. & Fr.: Dec.-Jul. 'Karappongu' 'Korathi'

#### *Saraca* L.

*Saraca asoca* (Roxb.) de Wilde in Blumea 15: 393. 1968; Zuijder in Blumea 15: 422. 1968. *Jonesia asoca* Roxb. Asiat. Res. 4: 365. 1799; Wight, Icon. t.206. 1839. *Saraca indica* sensu Baker in Hook.f. Fl. Brit. India 2: 271. 1878, non L. 1769; Bourd. 145; Rao 142; Gamble 289.

Erect shrubs 3-4 m tall. Leaves pinnate; leaflets 4-5, each 11-19.5 x 3.5-5 cm, chartaceous, oblong, obtuse at apex, narrowed at base. Flowers orange in axillary panicles.

Mostly cultivated in gardens; sometimes seen in evergreen forests towards the northern parts of Ponmudi. Fl. & Fr.: Apr.-May. 'Asokam'.

*Note*: de Wilde l.c. studied both the types of *Jonesia asoca* Roxb. and *Saraca indica* L. which were treated so far as conspecific. He has segregated the two proposing a new combination for the former under *Saraca* L. *S. asoca* differs from *S. indica* in the erect, persistent bracteoles.

#### *Tamarindus* L.

*Tamarindus indica* L. Sp. Pl. 34. 1753; Bedd. Fl. Sylv. t.184. 1872; FBI 2: 273; Bourd. 146; Rao 142; Gamble 290.

Trees 8-15 m tall. Leaves 5.5-10.5 cm long; leaflets 7-13, each 1.2-2 x 0.4-0.8 cm, oblong, retuse at apex, narrowed at base. Flowers yellow in axillary racemes

Commonly cultivated. Fruits edible. Fl. & Fr.: Apr.-May 'Puli'

\**Delonix regia* (Boj. ex Hook.) Rafin., *Peltophorum pterocarpum* (DC.) Backer ex Heyne and *Caesalpinia pulcherrima* (L.) Sw. etc. are commonly cultivated.

### MIMOSACEAE R.Br.

1. Flowers in heads:

2. Petals 4 *Mimosa*

2. Petals 5 or 6:

3. Petals free *Leucaena*

3. Petals connate:

4. Stamens connate:

5. Pods curved *Pithecellobium*

5. Pods straight *Albizia*

4. Stamens free:

6. Bracts absent *Xylia*

6. Bracts present *Acacia*

1. Flowers in spiciform racemes:

7. Climbing shrubs *Entada*

7. Trees *Adenanthere*

### Acacia Mill.

1. Climbing shrubs *A. caesia*

1. Trees or erect shrubs:

2. Leaves transformed into phyllodes *A. melanoxylon*

2. Leaves not as above *A. horrida*

*Acacia caesia* (L.) Willd. Sp. Pl. 4: 1090. 1806; Nielsen in Adansonia 19: 348. 1980. *Mimosa caesia* L. Sp. Pl. 522, 1753; *Acacia columnaris* Craib in Bull. Misc. Inform. 410. 1915; Gamble 297.

Spiny, climbing shrubs. Leaves bipinnate; leaflets 0.4-1 x 0.2-0.4 cm, oblong, apiculate at apex, truncate at base. Flowers pale yellow. Pods up to 11 x 1.5 cm, glabrous.

Fairly common along streams and rivers at low elevations. Fl. & Fr.: Sep.-Feb.

*Acacia horrida* (L.) Willd. Sp. Pl. 4: 1082. 1806; Hillcoat & Brenan in Kew Bull. 13: 40. 1958-1959. *Mimosa horrida* L. Sp. Pl. 521. 1753. *Acacia latronum* L.f. Suppl. 438. 1751; FBI 2: 296; Bourd. 155; Rao 153; Gamble 302. *Mimosa latronum* (L.f.) Willd. Sp. Pl. 4: 1077. 1806.

Thorny herbs or small trees. Rachis ca. 5.5 cm long with 3-5 pairs of pinnae; leaflets 20-40. Flowers fragrant, yellowish-white in lax spikes up to 5.5 cm long. Pods 3-5.5 x 1.5-2.5 cm, dark brown.

Occasional in dry deciduous forests. Fl. & Fr.: Jun.-Feb.

*Note*; According to Hillcoat and Brenan *i.e.* *A. latronum* is conspecific with *A. horrida*.

*Acacia melanoxylon* R.Br. in Ait.f. Hort. Kew. ed. 2. 5: 462. 1813; FBI 2: 292; Gamble 304.

Trees 10-12 m tall. Phyllodes 7-14 x 2-4 cm, obliquely oblong-ovate, obtuse or acute at apex, narrowed at base. Flowers white in globose heads. Pods spirally twisted.

Commonly planted in gardens. Fl. & Fr.: Nov.-Apr.

#### *Adenanthera* L.

*Adenanthera pavonina* L. Sp. Pl. 384. 1753; Bedd. Fl. Sylv. t.46. 1870; FBI 2: 287; Bourd. 151; Rao 147; Gamble 296.

Trees 15-18 cm tall. Rachis 20-30 cm long; pinnae 3-4 pairs, leaflets alternate, ovate-oblong, rounded at both ends. Flowers greenish-yellow, fragrant in axillary racemes. Pods 15-22 cm long, twisted.

Cultivated in gardens and roadsides. Seeds used as Jeweller's weights. Fl.: Jun.-Aug. '*Manchadi*'

*Albizia* Durazz.

1. Calyx glabrous :

2. Leaflets obliquely ovate; pods ca. 2.5 cm  
broad *A. procera*2. Leaflets oblong; pods ca. 3.5 cm broad *A. odoratissima*

1. Calyx pubescent :

3. Leaflets acute at apex, truncate at base *A. chinensis*3. Leaflets obtuse or retuse at apex,  
rounded at base *A. lebbeck**Albizia chinensis* (Osbeck.) Merr. in Amer. J. Bot. 3: 575. 1916.*Mimosa chinensis* Osbeck, Degbok. Ostind. Resa 233. 1757.*Albizia stipulata* (Roxb.) Boivin, Encycl. 19, Seick 2: 33. 1838;

Bedd. Fl. Sylv. t.55, 1870; FBI 2: 300; Bourd. 160; Rao 154.

*Mimosa stipulata* Roxb. Fl. Ind. 2: 549. 1832. *Albizia marginata*(Lam.) Merr. Philipp. J. Sci. 5: 23. 1910; Gamble 307. *Mimosa**marginata* Lam. Encycl. 1: 12. 1783.

Trees 15-24 m tall; young branches golden pubescent. Rachis 15-40 cm long; leaflets 50-80, lanceolate. Flowers greenish in axillary Panicles.

Occasional in deciduous forests at low elevations. Wood used for match boxes and for packing. Fl.: Jan.-May. Fr.: Nov.-Dec.

*Albizia lebbeck* (L.) Benth. in London J. Bot. 3: 87. 1844; Bedd. Fl. Sylv. t. 53. 1870; FBI 2: 298; Bourd. 158; Rao 152; Gamble 306. *Mimosa lebbeck* L. Sp. Pl. 516. 1753.

Trees 15-18 m tall. Rachis 20-25 cm long; pinnae 2-3 pairs; leaflets 10-18, each 3-5.5 x 1.5-2.5 cm, oblong, obtuse or retuse at apex, obtuse at base. Flowers greenish-white in corymbose racemes. Pods 17-30 cm long.

Occasional in deciduous forests. Wood used for furniture. Fl.: Mar.-Apr. Fr.: Sept.-Oct. 'Vaga'.

*Albizia odoratissima* (L.f.) Benth. in London J. Bot. 3: 88. 1844; Bedd. Fl. Sylv. t.54. 1870; FBI 2: 299; Bourd. 159; Rao 153; Gamble 306. *Mimosa odoratissima* L.f. Suppl. Pl. 437. 1781.

Trees 10-15 m tall; young branches pubescent. Rachis 10-18 cm long; pinnae 3-8 pairs; leaflets 20-40, each 1.5-2.5 x 0.5-0.75 cm, oblong, apiculate at apex, obtuse at base. Flowers white, sessile in terminal panicles.

Occasional in deciduous forests. Yields low quality timber used for temporary house constructions. Fl. & Fr.: Mar.-Sep.

*Albizia procera* (Roxb.) Benth. in London J. Bot. 3: 89. 1844; FBI 2: 299; Bourd. 157; Rao 153; Gamble 306. *Mimosa procera* Roxb. Pl. Cor. t.121. 1798.

Trees 15-25 m tall; young branches pubescent. Rachis ca. 30 cm long; pinnae 3-5 pairs; leaflets 10-20, each 2.4-5.5 x 1.5-2.5 cm, obliquely oblong. Flowers yellowish-white in terminal and axillary panicles.

Occasional in deciduous forests. Wood used for furniture, Fl. & Fr.: Aug.-Feb. 'Karumthakara'.

*Entada* Adans. *nom. cons.*

*Entada monostachya* DC. Prodr. 2: 425. 1825. *Mimosa entada* L. Sp. Pl. 518. 1753. *Entada pursaetha* DC. Prodr. 2: 425. 1825. *E. scandens* auct. non Benth. 1841; FBI 2: 286; Bourd. 151; Rao 147; Gamble 296.

Large climbing shrubs. Leaves bipinnate; leaflets 3-6 x 1.5-3 cm, curved upwards, oblong, slightly emarginate at apex, obliquely rounded at base. Flowers yellowish-white in axillary racemes up to 28 cm long.

Rare in evergreen and semievergreen forests of Pepara along streams and rivers. Seeds used to cure asthma and other chest infections. Fl. & Fr.: Feb.-May. 'Parantakka' 'Malamanchadi' 'Kakkavalli'

Note: Jain & Sastry (1980) include this in the list of threatened species.

*Leucaena* Benth.

*Leucaena latisiliqua* (L.) Gillis in Taxon 23: 190. 1974. *Mimosa latisiliqua* L. Sp. Pl. 519. 1753. *Leucaena glauca* auct. non Benth. in Hooker's J. Bot. 4: 416. 1842; FBI 2: 290; Rao

150; Gamble 297, *Mimosa glauca* L. Sp. Pl. 520. 1753. *Leucaena leucocephala* (Lam.) de Wit in Taxon 10: 53. 1961. *Mimosa leucocephala* Lam. Encycl. 1: 12. 1763.

Trees 4-7 m tall. Leaves bipinnate; leaflets 0.5-0.9 x 0.1-0.2 cm, oblong, mucronate at apex, rounded at base. Flowers white in peduncled globose heads fascicled in the axils.

Often planted as hedges around plantations and as shade trees in coffee estates. Sometimes found wild in the plains. Fl. & Fr.: Jun.-Dec.

*Mimosa* L.

|                    |                                      |
|--------------------|--------------------------------------|
| Plants prickly     | <i>M. pudica</i>                     |
| Plants not prickly | <i>M. invisa</i> var. <i>inermis</i> |

*Mimosa invisa* Mart. ex Colla var. *inermis* Adelb. in Reinwardtia 2(2): 359. 1953.

Diffuse shrubs with 3-6 pairs of pinnae; leaflets 15-20, linear-oblong, apiculate at apex, acute at base. Flowers pink in pedunculate globose heads arranged in terminal racemes.

Common near plantations; also grown as a cover crop in Plantations. Fl.: Nov.-Apr.

*Note:* This variety was first described from Agricultural research station, Buitenzorg, Java. The present collection of this plant from Boneccord near tea estates is interesting as it is a new report for this part of the country. Adelb. I.c. states that this variety breeds true.

*Mimosa pudica* L. Sp. Pl. 518. 1753; FBI 2: 291; Rao 148; Gamble 298.

Diffuse shrubs; pinnae 3-4, sessile; leaflets 24-40, glabrous. Flowers rose-red in peduncled globose heads. Pods ca. 1.2 cm long, 3-4-seeded, prickly along the sutures.

Abundant in wastelands in plains and in lower ghats. Fl. & Fr.: Almost throughout the year.

**Pithecellobium Mart. nom. cons.**

**Pithecellobium monadelphum** (Roxb.) Kosterm. in Reinwardtia 3: 11. 1954. *Mimosa monadelpha* Roxb. Fl. Ind. 2: 544. 1832. *Pithecellobium bigeminum* auct. non (L.) Mart. ex Benth. 1844; FBI 2: 303; Bourd. 162; Rao 155; Gamble 308.

Trees 7-12 m tall. Leaves up to 30 cm long, pinnate; leaflets 7, each 7-13.5 x 2.5-5.5 cm, glabrous, ovate-oblong, acuminate at apex, obliquely cuneate at base. Flowers white in terminal panicles.

Frequent in moist deciduous forests of Kottur. Fl. & Fr. Jan.-Jul. *Kattukonna'*.

*Note*: This species is recently treated under *Abarema* Pittier. The genus *Abarema* differs from typical *Pithecellobium* by being unarmed and having exarillate seeds. The legumes of both are identical in that the valves contort following dehiscence. Mohlenbrock (in Reinwardtia 6: 432. 1963) states 'In view of this it does not seem wise to maintain *Abarema* as a separate genus'. Bourd. 152; Rao 146.

**Xylia Benth.**

**Xylia xylocarpa** Roxb. Theob. in Masan, Burma ed. Theob. 2: 541 1883; Taub. in Bot. Centralbl. 47: 395. 1891; Benn. & Bahadur in Indian Forester 104: 621. 1978; Gamble 295. *Mimosa xylocarpa* Roxb. Cor. Pl. 1: t.100. 1795. *Xylia dolabriformis* Benth. in Hooker's J. Bot. Kew Gard. Misc. 4: 417. 1842; FBI 2: 286; Bourd. 152; Rao 146.

Trees 15-18 m tall. Leaves with 1 pair of pinnae; leaflets 4-12, each 7-20 x 2.5-5.5 cm, sessile, oblong, acuminate at apex, narrowly obtuse at base. Flowers pale yellow in globose heads. Pods 10-15 cm long.

Occasional in semievergreen and deciduous forests near rivers and streams towards northern parts of the District. Wood used for rafters and agricultural implements. Fl.; Mar.-Apr. Fr.; Nov.-Dec. *'Kadamaram'*.

**ROSACE Juss.**

- |                         |               |
|-------------------------|---------------|
| 1. Carpel 1             | <i>Prunus</i> |
| 1. Carpels more than 1: |               |

2. Ovule 1 in each carpel *Rosa*  
 2. Ovules 2 in each carpel *Rubus*

**Prunus L.**

**Prunus ceylanica** (Wight) Miq. Fl. Ind. Bat. 1: 366. 1855; Kalkman in Blumea 13: 52. 1965. *Polydonta ceylanica* Wight, Ill. 1: 203. 1840. '*polyodontia*'; Wight, Icon. t. 256. 1840. *Pygeum wightianum* Blume ex C. Muell., in Walp. Ann. 4: 642. 1857; FBI 2: 319; Bourd. 165; Rao 156; Gamble 311.

Trees 15-18 m tall. Leaves 7-13 x 3-6 cm, oblong-ovate, obtuse at apex, cuneate at base, glandular at midrib. Flowers white, fragrant in racemes. Fruits dull green.

Occasional at Kottur. Fl. & Fr.: Jul.-Aug. 'Naikambagam'

**Rosa L.**

**Rosa leschenaultiana** Rad. & Thory. ex Wight & Arn. Prodr. 301. 1834; Wight, Icon. t. 38. 1838; FBI 2: 368; Rao 156; Gamble 315.

Straggling shrubs. Leaflets 2-3 pairs, each 3-7.5 x 2.5-3.5 cm, serrate, elliptic-ovate, acuminate at apex, cuneate at base; rachis glandular. Flowers pink. Fruits globose.

Occasional in marshy areas of Kaviar. Used as a stock plant in budding. Fl. & Fr.: Almost throughout the year.

**Rubus L.**

- Leaves simple *R. micropetalus*  
 Leaves pinnate *R. niveus*

**Rubus micropetalus** Gardn. in Calcutta J. Nat. Hist. 8: 6. 1847; Gamble 312. *R. moluccanus* sensu Hook.f. Fl. Brit. India 2: 330. 1878 p.p., non L. 1753; Rao 156.

Prickly, climbing shrubs. Leaves 6-13 x 4.5-7 cm, sparsely pubescent above, densely tomentose beneath, palmately 5-lobed, serrate, cordate, lobes acute at apex. Flowers pink.

Frequent in evergreen forests of Chemungi. Fruits edible. Fl. & Fr.: Mar.-Apr.

*Rubus niveus* Thunb. Diss. Bot. Med. Rub. 9, t. 1, f. 3. 1813;  
 Gamble 313; Zandee & Kalkman in Blumea 27: 107. 1981  
*R. lasiocarpus* Sm. in Rees, Cycl. 30, no. 6. 1815; Wight, Icon.  
 t. 232. 1839; FBI 2: 339; Rao 156.

Prickly, climbing shrubs. Leaflets 5, each 1.5-3.5 x 1.2-3.5 cm,  
 elliptic, crenate, pubescent beneath, acute at apex, rounded at  
 base. Flowers pale red.

Frequent in evergreen forests at Chemungi and Ponmudi.  
 Fl. & Fr.: Jan.-Apr.

#### C H R Y S O B A L A N A C E A E R.Br.

##### Atuna Rafin.

*Atuna travancorica* (Bedd.) Kosterm. in Reinwardtia 7: 423. 1969.  
*Parinari travancoricum* Bedd. Icon. t. 189. 1868-1874; FBI 2: 311;  
 Bourd. 164; Rao 156; Gamble 311.

Trees 12-15 m tall; young branches pubescent. Leaves 7-12 x  
 2.5-3 cm, silky along midrib beneath, lanceolate, acuminate at apex,  
 cuneate at base. Flowers pink in terminal racemes. Fruits brown.

Rare in evergreen forests of Ponmudi. Fl. & Fr.: Nov.-Jun.

*Note:* The generic names *Atunus* Lam. (1783) and *Atuna* Rafin. (1838) are based on the same Rumphian type. Unfortunately, the earlier Lamarkian name *Atunus* is not validly published; it is treated as "one term specific name (uninomial)" not a generic name based on "Atun" of Herb. Amboin 1: 171, t. 66, 1741. Hence the later *Atuna* Rafin. (1838) is not an orthographic variant of *Atunus* Lam., but the first validly published generic name dating from 1838 (vide Panigrahi & Purohit in Taxon 32: 122. 1983).

#### C R A S S U L A C E A E DC.

##### Kalanchoe Adans.

*Kalanchoe pinnata* (Lam.) Pers. Syn. 1: 446. 1805. *Cotyledon pinnatum* Lam. Encycl. 2: 141. 1786. *Bryophyllum calycinum* Salsib. Parad. Lond. t. 3. 1805; FBI 2: 413. *B. pinnatum* (Lam.) Oken, Allg. Naturgesch. 3: 1960. 1841; Gamble 319.

Fleshy undershrubs. Leaves 10-15 x 5-7 cm, crenate, elliptic-

oblong, obtuse at both ends. Flowers white in lax pendulous panicles.

Fairly common in moist rocky regions of evergreen and semi-evergreen forests of Kollar. Fl. & Fr.: Dec.-Feb.

### DROSERACEAE Salisb.

#### *Drosera* L.

|                |                     |
|----------------|---------------------|
| Leaves radical | <i>D. burmannii</i> |
| Leaves caudine | <i>D. indica</i>    |

*Drosera burmannii* Vahl, Symb. 3: 50, 1794; Wight, Icon. t.944, 1845; FBI 2: 424; Rao 158; Gamble 320; van Steenis in Bull. Jard. Bot. Buitenzorg ser.3, 13: 106, 1933; Sabastine in Bull. Bot. Surv. India 2: 3, 1960.

Leaves 5-10 x 3-10 mm, reddish-green, flat on soil, obovate-spathulate, Peduncles 1-3, up to 14 cm long, 2-25-flowered; petals white or pale pink. Capsules ca. 1.5 mm long; seeds scorbiculate.

Frequent in marshy areas in moist deciduous forests. Fl. & Fr.: Oct.-Dec.

*Drosera indica* L. Sp. Pl. 282, 1753; Wight, Ill. 1: t.20, 1840; FBI 2: 424; Rao 158; Gamble 320; van Steenis in Bull. Jard. Bot. Buitenzorg ser.3, 13: 108, 1933.

Straggling leafy herbs 7-10 cm long. Leaves linear, alternate. Flowers white or pinkish.

Frequent in marshy areas near Varkala. Fl. & Fr.: Aug.-Sept.

### RHIZOPHORACEAE R.Br.

1. Bracteoles present:
2. Petals 4 *Rhizophora*
2. Petals 8 *Carellia*
1. Bracteoles absent *Bruguiera*

*Bruguiera* Lam.

**Bruguiera gymnorhiza** (L.) Savigny in Lam, Encycl. 4: 696. 1797, 'gymnorhiza'; Bourd. 169; Rao 160; FBI 2: 437. *Rhizophora gymnorhiza* L. Sp. Pl. 447. 1753, 'gymnorhiza'. *Bruguiera rheedii* Blume, Pl. Jav. 1: 92. 1827; Wight, Icon. t.239A. 1839. *B. conjugata* Enum. Merr. in Philip. J. Sci. 9: 118. 1914, non *Rhizophora conjugata* L. 1753; Gamble 324.

Trees 3-6 m tall. Leaves 8-17 x 5-7 cm, coriaceous, elliptic-ovate, acute at both ends; stipules up to 5 cm long, red. Flowers red, solitary, axillary. Fruits 2-2.5 cm long.

Very rare in backwaters of Veli. Fl. & Fr.: Jun.-Oct. 'Kandal'.

*Note*: This tree was once abundant in the backwaters of Veli but now it has considerably depleted and only a few plants could be traced.

*Carallia Roxb. nom. cons.*

**Carallia brachiata** (Lour.) Merr. Philipp. J. Sci. 15: 249. 1919; Ding Hou in Steenis, Fl. Malesiana ser. 1.5,485. 1985, *Diatoma brachiata* Lour. Fl. Cochinch. 296. 1790. *Carallia integerrima* DC. Prodr. 3: 33. 1828; FBI 2: 439; Gamble 325. *C. lucida* Roxb. ex Kurz, For. Fl. Brit. Burma 1: 451. 1877; Bourd. 170; Rao 160.

Trees 20-30 m tall. Leaves 9-12 x 6-9 cm, coriaceous, obovate, rounded at apex, narrowed at base. Flowers white in trichotomous cymes.

Fairly common in plains and at low elevations of ghats. Fl. & Fr.: Dec.-Apr. 'Vallabham'

*Rhizophora* L.

**Rhizophora mucronata** Poir. in Lam. Tabl. Encycl. (Text) 2: 617. 1794; Wight, Icon. t.238. 1839; FBI 2: 435; Bourd. 167; Rao 159; Gamble 233.

Trees 4-6 m tall. Leaves 5-13 x 2.5-10 cm, ovate, acute at both ends. Flowers white, 2 pairs together. Fruits conical, germinating in the tree.

Very rare in backwaters at Veli. Fl. & Fr.: Apr.-Oct.

## COMBRETACEAE R.Br.

1. Petals absent:

2. Climbing shrubs *Calycopteris*

2. Erect shrubs or trees :

3. Inflorescence a raceme or spike *Terminalia*

3. Inflorescence a capitate head *Anogeissus*

1. Petals present:

4. Calyx not or shortly produced above ovary *Combretum*

4. Calyx produced beyond 1.5 cm above ovary *Quisqualis*

*Anogeissus* (DC.) Guill. & Perr.

*Anogeissus latifolia* (Roxb. ex DC.) Wall. ex Guill. & Perr. Fl. Seneg. 1: 250. 1832; Bedd. Fl. Sylv. t.15. 1869; Wight, Icon. t.994. 1845; FBI 2: 450; Bourd. 179; Rao 164; Gamble 330; Scott in Kew Bull. 33: 560. 1979. *Conocarpus latifolia* Roxb. ex DC. Prodr. 3: 16. 1828.

Trees 15-18 m tall. Leaves 3-7.5 x 2.5-5 cm, pubescent when young, broadly oblong, obtuse at apex, rounded or cordate at base. Flowers pale green, sessile. Fruits with rounded wings.

Occasional in moist deciduous forests. Yields timber. Fl. & Fr.: Jan.-Jun.

*Calycopteris* Lam.

*Calycopteris floribunda* Lam. Tabl. Encycl. 2(2): 485. t.357. 1797; FBI 2: 449; Rao 164; Gamble 331. *Getonia floribunda* Roxb. Pl. Cor. t.87. 1798.

Straggling shrubs. Leaves 4-10 x 1.5-3 cm, sparsely pubescent above, densely pubescent beneath, lanceolate, acuminate at apex, obtuse at base. Flowers white in axillary and terminal tomentose racemes.

Frequent in deciduous forests. Fl. & Fr.: Jan.-May.

*Combretum* Loefling nom. cons.

*Combretum albidum* D. Don in Trans. Linn. Soc. 15: 429. 1827.

*C. ovalifolium* Roxb. Fl. Ind. 2: 226. 1832; FBI 2: 458; Rao 164; Gamble 332.

Straggling shrubs. Leaves 6-10 x 2-6 cm, elliptic lanceolate, obtusely acuminate at apex, cuneate at base. Flowers white, sessile, in spicate panicles. Fruits 2 cm diam., globose with papery wings.

Common in moist deciduous forests. Fl. & Fr.: Feb.-Apr.

**Quisqualis L.**

|                             |                      |
|-----------------------------|----------------------|
| Flowers ca. 9 cm long       | <i>Q. indica</i>     |
| Flowers less than 2 cm long | <i>Q. malabarica</i> |

*Quisqualis indica* L. Sp. Pl. ed.2. 1: 556. 1762; FBI 2: 459; Rao 165; Gamble 332; Exell in Steenis, Fl. Malesiana ser.1. 4: 547. 1954.

Thorny, straggling shrubs. Leaves 5-9.5 x 2.5-5 cm, pubescent, ovate-oblong, acuminate at apex, obtuse at base. Flowers red in axillary and terminal racemes.

Commonly cultivated in gardens. Fl. & Fr.: Mar.-May.

*Quisqualis malabarica* Bedd. Icon. t.155. 1868-1874; FBI 2: 460; Rao 165; Gamble 332.

Climbing shrubs. Leaves 4-6.5 x 2-3.5 cm, oblong, acuminate at apex, rounded at base. Flowers pale red in terminal racemes.

Very rare in evergreen forests of Ponmudi. Fl.: Feb.-Mar.

**Terminalia L. nom. cons.**

1. Leaves entire:

2. Leaves acuminate at apex; fruits round  
spotted   *T. travancorensis*

2. Leaves not acuminate at apex; fruits not spotted:

3. Fruits tomentose; leaves cuneate at base                                   *T. bellirica*

3. Fruits glabrous; leaves rounded or  
cordate at base:

|                                     |                      |
|-------------------------------------|----------------------|
| 4. Leaves apiculate                 | <i>T. chebula</i>    |
| 4. Leaves not apiculate             | <i>T. catappa</i>    |
| 1 Leaves crenulate or serrate:      |                      |
| 5. Leaves glabrous                  | <i>T. crenulata</i>  |
| 5. Leaves puberulous or glabrescent | <i>T. paniculata</i> |

**Terminalia bellirica** (Gaertn.) Roxb. Pl. Cor. t.198. 1805. '*bellerica*'; Wight, Icon. t.91. 1838; FBI 2: 445; Bourd. 173; Rao 161; Gamble 328; Exell in Steenis, Fl. Malesiana ser.1. 4: 569. 1954; **Myrobalanus bellirica** Gaertn. Fruct. 2: 90. t.97. ff.a-d. 1791, '*bellerina*'.

Trees 10-12 m tall. Leaves 9-21.5 x 5-9 cm, elliptic or obovate, obtuse at apex; petioles up to 5 cm long. Flowers sessile, greenish-white on slender axillary short pedunculate spikes.

Occasional in moist deciduous forests at Braemore. Fl.: Mar.-Apr. Fr.: Jun. '*Thanni*'

**Terminalia catappa** L. Syst. Nat. ed.12. 2: 674. 1767; Wight, Icon. t.172. 1839; FBI 2: 444; Bourd. 173; Rao 161; Gamble 328; Exell in Steenis, Fl. Malesiana ser.1. 4: 566. 1954.

Trees 10-15 m tall. Leaves 15-30 x 7-15 cm, crowded at the ends of branches, obovate, obtuse at apex, cordate at base. Flowers white in axillary spikes.

Planted in gardens. Kernels of nuts edible. Fl. & Fr.: Oct.-May. '*Thalli-thenga*'.

**Terminalia chebula** Retz. Obs. Bot. 5: 31. 1789; FBI 2: 446 pp; Bourd. 174; Rao 162; Gamble 328.

Trees 10-15 m tall. Leaves 7-15 x 2.5-7 cm, pubescent, ovate-oblong, obtuse at apex, rounded at base. Flowers greenish-white, fragrant in terminal spikes. Fruits greenish-yellow, ovoid.

Occasional in deciduous forests. Fl. & Fr.: May Nov. '*Kedukka*'

**Terminalia crenulata** Roth, Nov. Pl. Sp. 380. 1821; Gamble 329.

*T. tomentos* Bedd. var. *crenulata* (Roth) Clarke in Hook.f. Fl. Brit. India 2: 448. 1876; Bourd. 176; Rao 162.

Trees 15-20 m tall. Leaves 10-22 x 6-10 cm, coriaceous, tomentose beneath with 2 glands near the midrib at base. Flowers pale yellow in terminal panicles. Fruits ovoid with 5 brown wings.

Frequent in deciduous forests. Timber valuable for furniture. Fl. : Apr.-May. Fr. : Nov.-Jan.

*Terminalia paniculata* Roth, Nov. Pl. Sp. 383. 1821; Bedd. Fl. Sylv. t.20. 1869; FBI 2: 448; Bourd. 177; Rao 163; Gamble 329.

Trees 12-16 m tall. Leaves 4-14 x 1.5-4.5 cm, lanceolate, acuminate at apex, obtuse at base. Flowers greenish in axillary and terminal racemes. Fruits brownish-red.

Frequent in deciduous forests. Wood used for house constructions. Fl. & Fr. : Jul.-Feb. 'Maruthi'

*Terminalia travancorensis* Wight & Arn. Prodr. 314. 1834; Bourd. 175; Rao 163; Gamble 329. *T. angustifolia* sensu Roxb. Fl. Ind. 2: 437. 1832, non Jacq. 1776; FBI 2: 449.

Trees 20-25 m tall. Leaves 5-10 x 2.5-3 cm, ovate-lanceolate, acuminate at apex, rounded at base. Flowers white in axillary spikes.

Occasional in deciduous forests. Fl. & Fr. : May.-Jan. 'Kattukadukka'.

#### M Y R T A C E A E Juss.

1. Leaves pellucid dotted; calyx with limb open in bud : *Eugenia*
2. Bracteoles persistent *Eugenia*
2. Bracteoles absent, if present, caducous *Syzygium*
1. Leaves not pellucid dotted; calyx limb closed in bud *Psidium*

#### *Eugenia* L.

- |                                   |                      |
|-----------------------------------|----------------------|
| Leaves obovate, acuminate at apex | <i>E. disciflora</i> |
|-----------------------------------|----------------------|

Leaves elliptic or ovate, acute at apex *E. rothii*

*Eugenia discifera* Gamble in Bull. Misc. Inform. 239, 1918 & Fl. Pres. Madras 1: 342, 1957 (repr. ed.); Nair & Srinivasan in Bull. Bot. Surv. India 22(1-4): 232, 1980.

Trees 7-10 m tall. Leaves 3.6 x 2-3.5 cm, coriaceous, orbicular-obovate, abruptly acuminate at apex, attenuate at base. Flowers white in axillary pairs. Fruits globose, crowned by the calyx lobes.

Very rare in Chemungi. Fl. & Fr.: Mar.-Aug.

*Eugenia rothii* Panigrahi in J. Econ. Tax. Bot. 5(4): 994, 1984. *Myrtus latifolia* Heyne in Roth, Nov. Sp. 232, 1821 non *Eugenia latifolia* Abul. 1775. *Eugenia bracteata* (Willd.) Roxb. ex DC. Prodr. 3: 214, 1828, non Rich. 1792; FBI 2: 202; Gamble 342; Ashton in Dassanayake, Rev. Handb. Fl. Ceylon 2: 416, 1981. *Myrtus bracteata* Willd. Sp. Pl. 2: 967, 1799. *Eugenia willde-nowii* Wight, Icon. t.545, 1842. *Syzygium bracteatum* (Willd.) Raizada in Indian Forester 74: 336, 1948, non Korth. 1847.

Trees 5-7 m tall; young branches ferruginous-tomentose. Leaves 5-7 x 1.5-2.5 cm, acuminate at apex, tapering at base. Flowers white, solitary. Fruits 1-2.5 cm diam., orange.

Rare in evergreen forests at Chemungi. Fl. & Fr.: Mar.-Jun.

#### *Psidium* L.

*Psidium guajava* L. Sp. Pl. 470, 1753; FBI 2: 468, 'Guyava'; Rao 165; Gamble 334.

Tress 4-6 m tall; bark smooth. Leaves 5.5-9 x 2-4 cm, pubescent beneath, elliptic or elliptic-oblong, acute at both ends. Flowers white. Berries yellow.

Found almost naturalized in Ponmudi; commonly cultivated in plains for fruits. Fl. & Fr.: Dec.-Jun. 'Pera'.

#### *Syzygium* Gaertn. nom. cons.

*Note*: The segregation of *Syzygium* Gaertn. from *Eugenia* L. *sensu lato* has been a matter of dispute among taxonomists. Based on the structure of seeds, Merril & Perry (J. Arnold Arbor. 29: 99-100, 1938) splitted the *Eugenia* complex and maintained the name

*Syzgium* for the majority of Asiatic species, Henderson (Gard. Bull. Straits Settlem. 12(1): 1-293, 1964) was not agreeable to this segregation and states: "the degree of adherence of seed coat and cotyledons varies and does not stand". However, recent investigations on reproductive anatomy (Rudolf Schmid in J. Arnold Arbor. 59: 423-436, 1972) brought out satisfactory differences for the segregation.

*Syzygium* Gaertn. (1788) was conserved against *Caryophyllus* L. (1754) in the interest of nomenclatural stability.

1. Flowers 2-3.2 cm across; calyx with a staminal disc:

  2. Leaves rounded or cordate at base:
    3. Leaves cordate at base:
      4. Flowers white; leaves not more than 6.5 cm broad *S. munronii*
      4. Flowers pinkish; leaves 7-9 cm broad *S. mundagam*
    3. Leaves rounded at base *S. courtallensis*
  2. Leaves narrowed at base:
    5. Leaves elliptic or ovate or obovate:
      6. Fruits hemispheric:
        7. Calyx tube obconic *S. hemisphericum*
        7. Calyx tube campanulate *S. bourdillonii*
      6. Fruits ovoid *S. laetum*
    5. Leaves linear or linear-lanceolate:
      8. Leaves 3-5 cm broad *S. jambos*
      8. Leaves less than 2 cm broad *S. occidentalis*
    1. Flowers less than 1.5 cm across; calyx without a staminal disc:
      9. Leaves acuminate at apex:

10. Calyx greyish, gland-dotted *S. zeylanicum*
10. Calyx not as above:
11. Corolla calyprate:
12. Inflorescence axillary *S. cumini*
12. Inflorescence terminal *S. gardneri*
11. Corolla not calyprate *S. arnottianum*
9. Leaves obtuse or subacute at apex:
13. Inflorescence terminal:
14. Branchlets terete *S. caryophyllum*
14. Branchlets tetragonal *S. parameswaranii*
13. Inflorescence axillary or extra-axillary:
15. Leaves 5-7 cm broad *S. travancoricum*
15. Leaves less than 3 cm broad *S. heyneanum*

*Syzygium arnottianum* Walp. Rep. 2. 180. 1843; Gamble 478.  
*Eugenia arnottiana* (Walp.) Wight, Icon. t.999. 1845; FBI 2: 483;  
 Bourd. 188; Rao 167.

Trees 7-12 m tall. Leaves 6-12 x 2.5-4.5 cm, coriaceous, elliptic or elliptic-oblong, cuneate at base. Flowers white in dense umbellules of cymes. Fruits dark purple.

Fairly common in evergreen forests. Fl. & Fr.: Dec.-Jun. 'Ayuri'.

*Syzygium bourdillonii* (Gamble) Radhakr. & N.C. Nair in J. Econ. Tax. Bot. 4: 287. 1983. *Jambosa bourdillonii* Gamble in Bull. Misc. Inform. 239. 1918 & Fl. Pres. Madras 335. 1957 (repr. ed.).

Trees. Leaves 7.5-11 x 2.5-4 cm, elliptic or obovate, caudate-acuminate at apex, narrowed at base. Flowers white in terminal corymbose cymes.

Rare in evergreen forests of Merchiston. Fl. & Fr.: Feb.-Apr

**Syzygium caryophyllatum** (L.) Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.): 116. 1931. *Myrtus caryophyllata* L. Sp. Pl. 472. 1753. *Syzygium caryophylleaum* auct. non Gaertn. 1788; Gamble 339. *Eugenia caryophyllea* (Gaertn.) Wight, Icon. t.540. 1842 & III. 2: 15. 1850, quoad descr. excl. typus; FBI 2: 490; Bourd. 189; Rao 168.

Trees 4-6 m tall. Leaves 6-10 x 3-5 cm, chartaceous, obovate, cuneate at base. Flowers white. Fruits ca. 0.5 cm across, purple, globose.

Fairly common along streams in evergreen and semievergreen forests. Fl. & Fr.: Feb.-Jul.

**Syzygium courallensis** (Gamble) Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.): 115. 1931. *Jambosa courallensis* Gamble in Bull. Misc. Inform. 239. 1918 & Fl. Pres. Madras 335. 1957 (repr. ed.).

Trees 7-12 m tall. Leaves 7-11 x 3-5.5 cm, elliptic, obtusely acute at apex, rounded at base; intramarginal nerves double, inconspicuous. Flowers white in terminal panicled cymes.

Very rare near Pallode. Fl. & Fr.: Jan.-Mar.

**Syzygium cumini** (L.) Skeels, U.S.D.A. Bur. Pl. Industr. Bull. 248: 2. 1912; Ashton in Dassanayake, Rev. Handb. Fl. Ceylon 2: 443. 1981. *Myrtus cumini* L. Sp. Pl. 471. 1753. *Eugenia jambolana* Lam. Encycl. 3: 198. 1789; Wight, Icon. t.535. 1842; FBI 2: 499; Bourd. 184; Rao 169. *Syzygium jambolanum* (Lam.) DC. Prod. 3: 259. 1828; Gamble 340.

Trees 15-20 m tall. Leaves 8-12 x 3-6 cm, chartaceous, ovate-lanceolate, obtusely acuminate at apex, cuneate at base. Flowers pinkish-yellow in panicled cymes. Fruits oblong, purple.

Fairly common in semievergreen forests. Fruits edible, used against diabetes and bladder stones. Fl.: Dec.-May. Fr.: Jun.-Aug. 'Naga'.

**Syzygium gardneri** Thw. Enum. 117. 1859; Gamble 339; Ashton in Dassanayake, Rev. Handb. Fl. Ceylon 2: 447. 1981. *Eugenia gardneri* (Thw.) Bedd. For. Man. 108. 1874; FBI 2: 489; Bourd. 189; Rao 168.

Trees 14-16 m tall. Leaves 5-12 x 2.5-4.5 cm, coriaceous, elliptic or obovate, acute at base. Flowers white in panicles. Fruits globose, purple.

Occasional in evergreen forests of Merchiston and Ponmudi. Timber used for house construction. Fl. & Fr.: Apr.-Jun.

**Syzygium hemisphericum** (Wight) Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.); 115, 1931. *Eugenia hemispherica* Wight, Icon. t.525, 1842. *Jambosa hemispherica* (Wight) Walp. Rep. 2: 191, 1843; FBI 2: 477; Bourd. 183; Rao 166; Gamble 335.

Trees 10-12 m tall. Leaves 10-15.5 x 4.5-8 cm, coriaceous, ovate-lanceolate, acuminate at apex, narrowed at base. Flowers white to rose, in compound cymes. Fruits purple.

Very rare in evergreen forests of Merchiston. Fl. & Fr.: Feb.-Jun. 'Venyara'

**Syzygium heyneanum** (Duthie) Wall. ex Gamble, Fl. Pres. Madras 482, 1919 & 341 1957 (repr. ed.). *Eugenia heyneana* Duthie in Hook.f. Fl. Brit. India 2: 500, 1879; Rao 170. *E. salicifolia* Wight, Icon. t.539, 1844, non DC, 1828.

Trees 3-6 m tall. Leaves 7-10 x 2-2.5 cm, oblong-lanceolate, cuneate at base. Flowers white, in panicled cymes. Fruits black.

Occasional in river beds of semievergreen forests. Fl. & Fr.: May.

**Syzygium jambos** (L.) Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.); 115, 1931. *Eugenia jambos* L. Sp. Pl. 470, 1753; Bourd. 191; Rao 166. *Jambosa vulgaris* DC. Prodr. 3: 286, 1828; Wight, Icon. t.435, 1841; Gamble 336.

Trees 7-9 m tall. Leaves 13-19 x 2.5-4 cm, subcoriaceous, ovate-lanceolate, acuminate at apex, rounded at base. Flowers greenish-white in trichotomously branched cymes. Fruits globose, pink.

Occasional in moist deciduous forests. Often planted in Gardens. Fl. & Fr.: Oct.-Jan. 'Seemajambu'.

**Syzygium laetum** (Buch.-Ham.) Gandhi in Saldanha & Nicolson, Fl. Hassan Dist. 292, 1976. *Eugenia laeta* Buch.-Ham. In Mem. Wern. Nat. Hist. Soc. 5: 338, 1826; Bourd. 182; Rao 167. *Jambosa*

*pauciflora* (Wight) Wight, Ill. 2: 15. 1850; *Eugenia pauciflora* Wight, Icon. t.526. 1842. *Jambosa laeta* (Buch. Ham.) Blume, Mus. Bot. Lugduno-Batavum 1: 104. 1849; Gamble 335. *Eugenia laeta* var. *pauciflora* (Wight) Duthie in Hook.f. Fl. Brit. India 2: 479. 1878.

Trees 4-6 m tall. Leaves 7.5-12 x 2.5-3.5 cm, coriaceous, elliptic-lanceolate, acuminate at apex, cuneate at base. Flowers white. Fruits ovoid.

Occasional in evergreen forests of Bonecord, Fl.: Oct.-Jan. Fr.: Jan.-May.

**Syzygium inundagam** (Bourd.) Chitra in Nair & Henry, Fl. Tamil Nadu ser.1, 1: 157. 1983. *Eugenia mundagam* Bourd., For. Trees, Travancore 182. 1908. *Jambosa mundagam* (Bourd.) Gamble, Fl. Pres. Madras 173. 1919 & 1: 335. 1957 (repr. ed.).

Trees 5-7 m tall. Leaves 11-28 x 6.9 cm, subsessile, coriaceous, oblong, rounded at base. Flowers 2.5 cm in diam., fragrant, pinkish in terminal corymbose cymes. Fruit ovoid, pinkish.

Occasional in evergreen forests of Kallar. Fl. & Fr.: Apr.-Aug. '*Mundagam*'

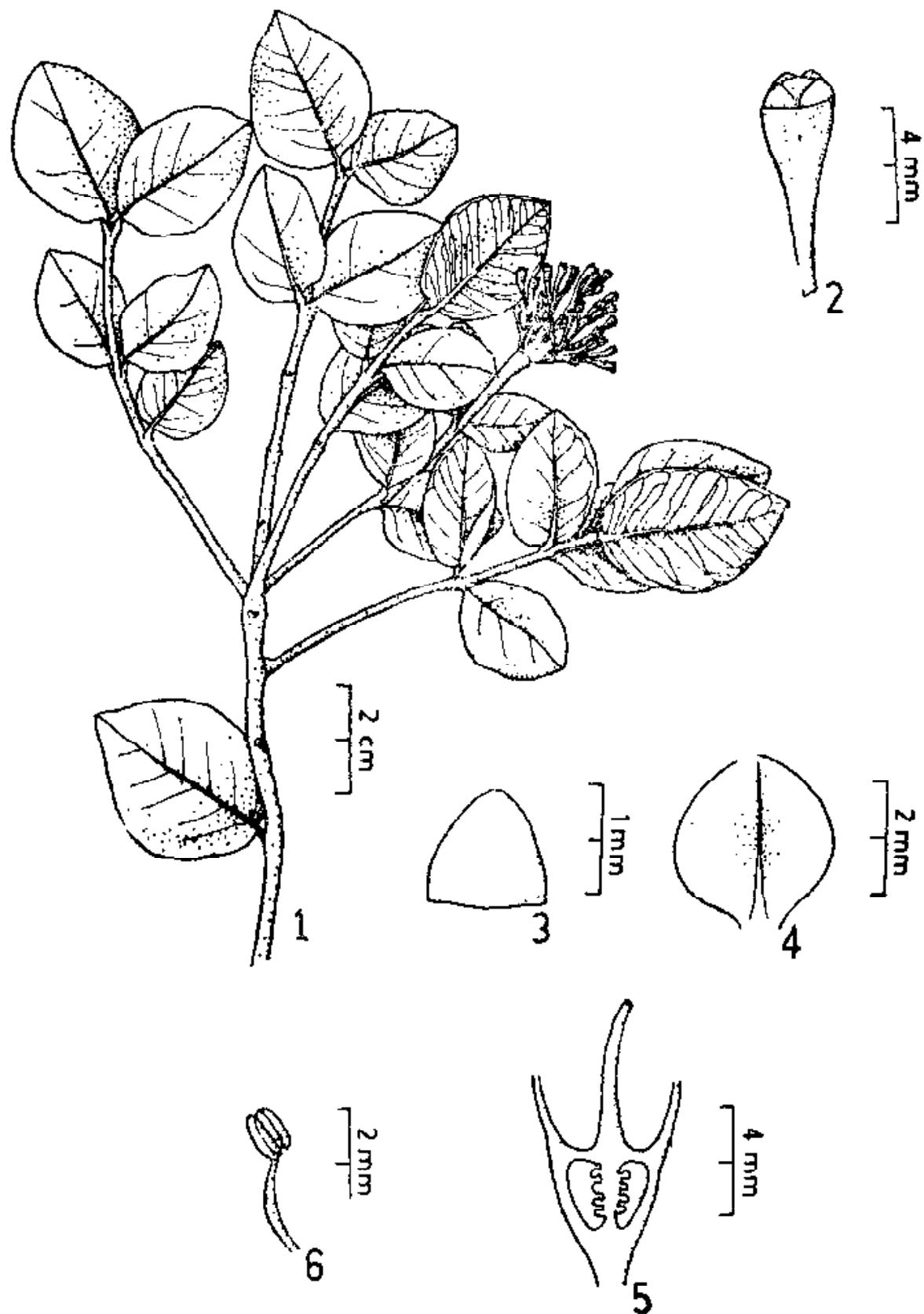
**Syzygium munronii** (Wight) Chandrab. in Biol. Mem. 2: 58. 1977; Balak. in Bull. Bot. Surv. India 22(1-4): 174. 1980. *Eugenia munronii* Wight, Ic. t. 546. 1842. FBI 2: 412; Bourd. 181; Rao 166. *Jambosa munronii* (Wight) Walp. Rep. 2: 191. 1843; Gamble 335.

Trees 8-10 m tall. Leaves 12-18 x 2.3-6.3 cm, coriaceous, linear-oblong, acuminate at apex, rounded or slightly cordate at base. Flowers ca. 6 cm long, white. Fruits greenish-pink.

Occasional in evergreen forests of Kallar. Fl. & Fr.: Jan-Mar.

*Note:* The combination made by Balakrishnan I.c. is superfluous.

**Syzygium occidentale** (Bourd.) Gandhi in Saldanha & Nicolson, Fl. Hassan Dist. 282. 1976. *Eugenia occidentalis* Bourd. in Indian Forester 30: 195. t.3. 1904 & For Trees Travancore 183. 1908; Rao 171. *Jambosa occidentalis* (Bourd.) Gamble, Fl. Pres. Madras 474. 1919 & 336. 1957 (repr. ed.).



Figs 1-6 *Syzygium parameswaranii* Mohanan & Henry

1. Twig; 2. Flower; 3. Sepal; 4. Petal; 5. L.S. of ovary; 6. Stamen.

Trees 3-6 m tall. Leaves 10-18 x 3-4 cm, linear-lanceolate, tapering to both ends. Flowers ca. 5 cm in diam., white. Fruits greenish-pink, ovoid.

Very rare in evergreen forests near Pallode, Fl. & Fr.: Jan.-May. 'Karinjara' 'Attasamba'.

**Syzygium travancoricum** Gamble in Bull. Misc. Inform. 240. 1918 & Fl. Pres. Madras 339. 1957 (repr. ed.).

Trees 9-12 cm tall. Leaves 7-10 x 5-6 cm, chartaceous, ovate, narrowed at base, nerves distant. Flowers white in cymes.

Very rare in evergreen forests of Merchiston; could not be collected in flower and fruit although a tree was located (See plate).

**Syzygium parameswaranii** Mohanan & Henry in J. Bombay Nat. Hist. Soc. 84(2): 408-409. 1987.

Trees 4-6 m tall; ultimate branchlets tetragonal. Leaves 2.5-5 x 2-3.5 cm, coriaceous, ovate, obtuse or subacute at apex, rounded at base; secondary lateral veins close, conspicuous. Flowers ca. 8 x 2.5 mm, funnel-shaped in subsessile condensed panicles; sepals 4, each ca. 1 x 1 mm, ovate, obtuse; petals 4, each ca. 3 x 2.5 mm, suborbicular, obtuse, gland-dotted; stamens 3 mm long; ovary 2-loculed with many ovules in each locule; styles 3 mm long; stigmas simple.

Rare in Agastyarkudum. Fl.: Jan.-Apr.

*Note:* The new species is allied to *S. calophyllifolium* Walp. but differs by the larger, pedicelled flowers; larger ovate, conspicuous calyx lobes imbricate in buds; and larger leaves with conspicuous veins close above.

**Syzygium zeylanicum** (L.) DC Prodr. 3: 260. 1828; Wight, Icon. t. 73. 1838; Gamble 338; Ashton in Dassanayake, Rev. Handb. Fl. Ceylon 2: 431. 1981. *Myrtus zeylanica* L. Sp. Pl. 472. 1753. *Eugenia zeylanica* (L.) Wight, III. 2: 15. 1850; FBI 2: 485; Bourd. 185; Rao 167.

Trees 7-12 m tall. Leaves 3.5-7.5 x 1.3-3.5 cm, ovate-lanceolate, rounded at base. Flowers white in panicled cymes. Fruits white, globose.

Occasional in river beds in plains. Fruits edible. Fl.: Sep.-Nov. Fr.: Mar.-Jun, 'Poochappazham'.

### BARRINGTONIACEAE Rudolphi

- |   |                     |
|---|---------------------|
| All stamens perfect; fruits angular     | <i>Barringtonia</i> |
| All stamens not perfect; fruits globose | <i>Careya</i>       |

#### *Barringtonia* J.R. & G. Forst. *nom. cons.*

*Barringtonia racemosa* (L.) Spreng. Syst. Veg. 3: 127. 1826; Wight, Icon. t.152. 1839; FBI 2: 507; Bourd. 192; Rao 173; Gamble 344; Payens in Blumea 15: 192. 1967. *Eugenia racemosa* L. Sp. Pl. 471. 1753.

Trees 7-9 m tall. Leaves 20-30 x 7-11 cm, elliptic-lanceolate, acuminate at apex, cuneate at base. Flowers red in pendulous racemes up to 60 cm long.

Fairly common in tidal mangroves of Veli. Fl. & Fr.: Aug.-Mar. 'Samutracham'

#### *Careya* Roxb. *nom. cons.*

*Careya arborea* Roxb. Pl. Cor. 3: 14. t.218. 1829 & Fl. Ind. 2: 636. 1832; Wight, Ill. tt.99. & 100. 1840; FBI 2: 511; Bourd. 193; Rao 173; Gamble 345.

Trees 9-12 m tall. Leaves 15-30 x 5-10 cm, broadly obovate, rounded at apex, tapering to base. Flowers greenish-white, sessile in terminal spikes. Fruits globose.

Fairly common in deciduous forests. Fl. & Fr.: Feb.-Jul. 'Pezhu'.

### MELASTOMATACEAE Juss.

1. Stamens 3 or rarely 6 *Melastoma*
1. Stamens 8 or 10:
  2. Connective of anthers spurred or horned:
    3. Flowers 5-merous, white *Clidemia*
    3. Flowers 4-merous, blue *Memecylon*

2. Connective of anthers without appendages :
4. Petals 3; capsule enclosed in persistent calyx, opening by 3-valves *Sonerila*
4. Petals 4-5; capsules not enclosed in calyx, opening by apical pores *Osbackia*

**Clidemia D.Don**

*Clidemia hirta* (L.) D.Don in Mem. Wern. Nat. Hist. 4: 306. 1823; Nayar in Kew Bull. 20: 161. 1966; Steenis in Bull. Jard. Bot. Buitenzorg ser. 3. 12: 166. 1932. *Melastoma hirta* L. Sp. Pl. 390. 1753.

Undershrubs, erect or straggling; stems hirsute. Leaves 10-15 x 6-8 cm, sparsely hirsute, ciliate or crenate along margins, broadly ovate, abruptly acuminate at apex, rounded or subcordate at base. Flowers white in axillary cymose fascicles.

Frequent along water courses. Fl. & Fr.: Jun.-Aug.

**Melastoma L.**

*Melastoma malabathricum* L. Sp. Pl. 390. 1753. '*malabathrica*'; Wight, Ill. 1: t.95. 1840; FBI 2: 523; Rao 175; Gamble 350.

Erect, branched shrubs 1-1.5 m tall; stems scurfy. Leaves 4-15 x 1.5-4.9 cm, 3-5-ribbed, scabrous on both the surfaces, ovate or elliptic, acute at both ends. Flowers pink in terminal panicles. Capsules irregularly dehiscing.

Abundant in moist deciduous forests. Fruits edible. Fl. & Fr.: Apr.-Jun. '*Kalempatti*'.

**Memecylon L.**

1. Leaves cordate at base:
2. Leaves sessile, obtusely acute at apex *M. malabaricum*
2. Leaves shortly petioled; acuminate at apex *M. wightianum*
1. Leaves never cordate at base:
3. Cymes 1-3-flowered *M. gracile*

3. Cymes many-flowered:

4. Leaves narrow linear ca. 1.5 cm broad *M. angustifolium*

4. Leaves not as above; more than 1.5 cm broad:

5. Leaves 9-17.5 cm long *M. heyneanum*

5. Leaves less than 6 cm long:

6. Peduncles ca. 3.2 cm long *M. terminalis*

6. Peduncles less than 2.5 cm long:

7. Leaves caudate-acuminate at apex *M. grande*

7. Leaves acute, subacute or emarginate at apex:

8. Petioles ca. 1 mm long *M. molestum*

8. Petioles 7 mm long *M. edule*

**Memecylon angustifolium** Wight. III. 1: 215, 1840 & Icon. t.276, 1840; FBI 2: 562; Bourd. 195; Rao 177; Gamble 355; Bremer, in Opera Bot. 50: 14, 1979.

Shrubs 4-5 m tall. Leaves 3-7.5 x 0.5-1.5 cm, linear-oblong, tapering at both ends. Flowers bright blue in axillary slender umbels

Rare along Karamana river banks in Pepara Dam site. Fl. & Fr.: Jul.-Nov.

**Note**, This species is not so far represented in MH. It closely resembles *M. rivulare* Bremer. The leaves in *M. angustifolium* is not as caudate-attenuate as in *M. rivulare*, but otherwise similar to the latter in habit and habitat.

**Memecylon wightianum** Triana in Trans. Linn. Soc. London 28: 158, 1871; Ansari & Nair in J. Econ. Tax. Bot. 11(1): 205, 1987. *M. deccanense* Clarke in Hook.f. Fl. Brit. India 2: 560, 1879; Gamble 336; Mohanan et al. in Bull. Bot. Surv. India 22: 106, 1980.

Woody shrubs 2-3.5 m tall. Leaves 8-16 x 2-4 cm, subsessile or shortly petioled, opaque, acute at apex, rounded or cordate at base. Flowers blue, fascicled in axillary or lateral tubercles,

Very rare in moist deciduous forests at Kottur. Fl. & Fr.: Apr.-Nov.

*Note* : Collected after a lapse of eight decades. Closely allied to *M. heyneanum* Benth. ex Wight & Arn. but differs by the papillose calyx.

*Memecylon edule* Roxb. Pl. Cor. t.82, 1798; FBI 2: 565 p.p.; Bourd. 195; Rao 177; Gamble 356.

Shrubs 2-3 m tall. Leaves 3-8 x 2.5-3 cm, ovate-lanceolate, tapering to both ends. Flowers bright blue on axillary cymes. Fruits globose.

Fairly common along rivers and streams. Fl. & Fr.: Mar.-Jul.

*Memecylon gracile* Bedd. Icon. t.164, 1868-1874; FBI 2: 555; Bourd. 195; Rao 176; Gamble 356; Mohanan et al. in Bull. Bot. Surv. India 22: 107, 1980.

Shrubs 2-3 m tall; branches angular. Leaves 3-4.5 x 1.4-2 cm, ovate-lanceolate, acuminate at apex, rounded at base. Flowers pale blue, solitary or in 3-flowered cymes.

Rare in the undergrowth of evergreen forests of Suryakanthi; Bonecord. Wood used for making walking sticks. Fl. & Fr.: Mar.-Jun. 'Elimaram'

*Note* : Excepting a single report from Visakhapatnam, this species is confined to southern parts of western Ghats. The plant is gradually disappearing from this area also.

*Memecylon grande* Retz. Obs. Bot. 4: 26, 1786; FBI 2: 557; Gamble 356; Bremer in Opera Bot. 50: 23, 1979.

Erect shrubs 1-2 m tall. Leaves 6-8 x 3-4.5 cm, glabrous, coriaceous, elliptic, caudate-acuminate at apex, acute at base; nerves obscure. Flowers in thyrsoid umbels up to 15 mm long. Fruits green, globose.

Rare on the way to Agastyarkudum. Fl. & Fr.: Apr.-Nov.

*Memecylon heyneanum* Benth. ex Wight & Arn. Prodri. 319, 1834; FBI 2: 560; Rao 177; Gamble 355. *M. jambosoides* Wight. Icon. t.277, 1840.

Shrubs 2-3 m tall. Leaves lanceolate, acuminate at apex, cuneate at base. Flowers blue in shortly peduncled axillary cymes. Fruits globose.

Occasional along river banks in Kottur and Kallar. Fl. & Fr.: Apr.-Oct.

**Memecylon malabaricum** (Clarke) Cogn. in DC. Monog. Phan. 7: 1148, 1891; Bourd. 196; Rao 176; Gamble 356. *M. amplexicaule* Roxb. var. *malabarica* Clarke in Hook.f. Fl. Brit. India 2: 559, 1879 p.p. incl. typus.

Trees 4-6 m tall. Leaves 6-13 x 1.5-3.5 cm, coriaceous, elliptic-oblong, acuminate at apex, rounded at base. Flowers pale blue in umbels on short peduncles.

Occasional in evergreen forests. Fl. & Fr.: Jun.-Aug. 'Kashara'

**Memecylon molestum** (Clarke) Cogn. in DC. Monog. Phan. 7: 1169, 1891; Gamble 356. *M. edule* Roxb. var. *molesta* Clarke in Hook f. Fl. Brit. India 2: 564. 1879.

Trees 3-4 m tall. Leaves 3-6 x 1-2.3 cm, ovate-elliptic, subacute at apex, cuneate at base, nerves obscure. Flowers blue on shortly peduncled axillary clusters.

Rare in deciduous forests of Aruvikkara and Kottur Fl. & Fr.: Sept.-Nov.

**Memecylon terminale** Dalz. in Hooker's J. Bot. Kew Gard. Misc. 3: 121, 1851; FBI 2: 558; Rao 176; Gamble 357. *M. amabile* Bedd. Icon. t.163. 1868-1874; FBI 2: 555.

Shrubs 5-6 m tall. Leaves 2.5-6 x 1-2.5 cm, lanceolate, acute or acuminate at apex, narrowed at base. Flowers pale pink on axillary and terminal peduncled umbels.

Occasional along river banks in Pepara. Fl. & Fr.: Oct.-Nov.

#### Osbeckia L.

- |                                       |                      |
|---------------------------------------|----------------------|
| 1. Flowers tetramerous                | <i>O. gracilis</i>   |
| 1. Flowers pentamerous:               |                      |
| 2. Calyx lobes with pectinate scales; | <i>O. wynadensis</i> |
| 2. Calyx lobes without scales:        |                      |
| 3. Calyx lobes obtuse                 | <i>O. aspera</i>     |

3. Calyx lobes acute *O. virgata*

*Osbeckia aspera* (L.) Blume, Bijdr. Natur. Wetensch. 6: 220. 1831.

- 1. Leaves acuminate at apex var. *travancorica*
- 1. Leaves acute at apex:
- 2. Leaves 3-ribbed, petiolate var. *aspera*
- 2. Leaves 5-ribbed, sessile var. *wightiana*

*Osbeckia aspera* (L.) Blume var. *aspera*; FBI 2: 519; Rao 174; Gamble 347; Hansen in Ginkgoana 4: 62. ff. 1(12), 2(12) & 23 (2). ff. 1(B) & 13(A). 1977. *Melastoma asperum* L. Sp. Pl. 389. 1753.

Erect shrubs 50-75 cm tall. Leaves 1-4.5 x 0.5-2.5 cm, appressed bristly, ovate, cuneate or rounded at base. Flowers pink, solitary or in racemes.

Frequent in deciduous forests. Fl. & Fr.: Apr.-Aug.

*Osbeckia aspera* (L.) Blume var. *travancorica* (Bedd. ex Gamble) Hansen in Ginkgoana 4: 84, t. 13(B). 1977. *O. travancorica* Bedd. ex Gamble in Bull. Misc. Inform. 404. 1919 & Fl. Pres. Madras 349. 1957 (repr. ed.).

Young branches patent hairy, older prickly and bristly. Leaves patent hairy. Sepals asymmetrically emarginate.

Rare in exposed slopes of Agastyarkudum. Fl. & Fr.: Oct.-Mar.

*Osbeckia aspera* (L.) Blume var. *wightiana* (Benth. ex Wight & Arn.) Trimen, Handb. Fl. Ceylon 2: 196. 1894. *O. wightiana* Benth. ex Wight & Arn. Prodr. 323. 1834; Wight, Ic. t 998. 1845; FBI 2: 519; Rao 175; Gamble 248.

Erect shrubs up to 1 m tall. Leaves 0.7-1.5 x 0.5-1.1 cm, sessile, silky bristly, broadly elliptic, rounded at base. Flowers pale pink on racemes.

Frequent in moist deciduous forests of Ponmudi. Fl. & Fr.: Mar.-Aug.

*Osbeckia gracilis* Bedd. in Madras J. Lit. Sci. ser 3, 1: 45. 1864 &

Trans. Linn. Soc. London 25: 216. 1865; FBI 2: 518; Rao 174; Gamble 349; Hansen in Ginkgoana 4: 77. f.23(1), tt. 3A & 12(c) 1977.

Erect shrubs 2-3 m tall. Leaves 1.2-6 x 0.7-2.5 cm, strigose above, hispid beneath, 3-ribbed, ovate-lanceolate, acute at apex, rounded at base. Flowers pink on terminal racemes.

Frequent in moist deciduous forests. Fl. & Fr.: Mar.-Aug.

*Osbeckia virgata* D.Don ex Wight & Arn. Prodr. 323. 1834; Hansen in Ginkgoana 4: 107. ff.1(8), 2(7) & 35(5). 1977. *O. octandra* auct. non (L.) DC. 1828; FBI 2: 521; Rao 175; Gamble 348.

Shrubs up to 1 m tall; young branches quadrangular, covered with short bristles. Leaves 3-6 x 1.5-2.5 cm, covered with appressed bristles. Flowers pink on terminal racemes.

Frequent in plains and ghats up to 1000 m. Fl. & Fr.: Jun.-Dec.

Note: This species is allied to *O. octandra* L. but can be distinguished by the larger floral parts, sparse vestiture and intersepalar emergences from the hypanthium. According to Hansen *i.e.*, *O. octandra* does not occur in India.

*Osbeckia wynadensis* Clarke in Hook.f. Fl. Brit. India 2: 521. 1879; Rao 175; Gamble 348; Hansen in Ginkgoana 4: 62. ff. 1(5) & 18(3), t.10A. 1977.

Shrubs; young branches appressed hairy. Leaves 6.5-18 x 3.2-6 cm, 5-ribbed, hairy, ovate, acute at apex, rounded or cordate at base. Flowers purple on terminal panicles.

Very rare in Pallode semievergreen forests. Fl. & Fr.: Dec.-Mar.

#### *Sonerila* Roxb. *nom. cons.*

1. Plants stemless or with short (2 cm long) stems                    *S. rheedii*
1. Plants with woody stems (above 2 cm long):
  2. Leaves densely hairy:
  3. Capsules shorter than the pedicels                                    *S. pedunculosa*

- 3. Capsules longer than the pedicels *S. travancorica*
- 2. Leaves glabrous or with a few scattered hairs only:
  - 4. Stems winged *S. sadasivani*
  - 4. Stems not winged:
    - 5. Leaves with one pair of nerves *S. tinneveltiensis*
    - 5. Leaves with more than one pair of nerves *S. brunonis*

*Sonerila brunonis* Wight & Arn. Prodr. 321. 1834; Wight, Icon. t. 1059. 1846; FBI 2: 531; Rao 175; Gamble 352.

Herbs 15-20 cm tall; stems fleshy, pink. Leaves 3.5-6 x 1-1.6 cm, membranous, sparsely appressed-pubescent, serrulate, ovate, acute at both ends. Flowers purple in umbellate racemes.

Frequent in the undergrowth of evergreen forests. Fl. & Fr.: Oct.-Dec.

*Sonerila pedunculosa* Thw. Enum. 109. 1859; FBI 2: 531 p.p., quoad. typum excl. syn.; Nayar in J. Indian Bot. Soc. 48: 321. 1969; Yoganarasimhan & Subramanyam in Curr. Sci. 45(14): 527. 1976

Undershubs; stems rooting at nodes. Leaves 2.5-7 x 2-3 cm, sparsely pilose, ovate or oblong, serrulate, acute at apex, cuneate at base. Flowers red.

Rare in Boneccord. Fl. & Fr.: Nov.-Mar.

*Note:* This species is confused with *S. rheedii* Wight & Arn. but can be easily distinguished by the prostrate habit and thick capsule valves.

*Sonerila rheedii* Wight & Arn. Prodr. 321. 1834; Gamble 353. *S. wallichii* sensu Clarke in Hook.f. Fl. Brit. India 2: 538. 1879 p.p. non Benn. 1844; Rao 176.

Erect succulent herbs ca. 6 cm tall. Leaves 1.5-8 x 1-4.5 cm, pink, densely hirsute, ovate-lanceolate, acute at apex, rounded or slightly cordate at base. Flowers rose red in umbellate inflorescence.

Occasional on wet rocks along streams near Kallar. Fl. & Fr.: Oct.-Nov.

*Sonerila sadasivanii* Nayar in Proc. Indian Acad. Sci. B. 69: 256. f.1(A-E). 1969.

Herbs 3-5 m tall; stems quadrangular, winged, glabrous. Leaves 4.5-9 x 2-3.5 cm, serrulate, ovate or ovate-elliptic, acute at apex, cuneate or subrotund at base. Flowers red in terminal umbels.

Rare in Chemungi. Fl. & Fr.: Jan.-Mar.

*Sonerila tinneveliensis* Fischer in Bull. Misc. Inform. 165. 1934 & in Gamble, Fl. Pres. Madras 3: 1297. 1957 (repr. ed.).

Erect shrubs up to 30 cm tall. Leaves 2-6 x 0.6-1.5 cm, membranous, glabrous, serrate, ovate-lanceolate, acuminate at apex; cuneate at base. Flowers reddish. Fruits pink, enclosed in the calyx cup.

Frequent in evergreen forests of Benecord. Fl. & Fr.: Dec.-Mar.

*Sonerila travancorica* Bedd. Icon. t.156. 1868-1874; FBI 2: 534; Rao 175; Gamble 352.

Shrubs; branches villous. Leaves 6-7 x 2-3 cm, gland-dotted, elliptic, acute at apex, rounded at base. Flowers reddish in racemes. Capsules glabrous, trigonous.

Rare in Attramalay. Fl. & Fr.: Dec.-Mar.

#### L Y T H R A C E A E Jaume St. Hil.

1. Herbs:

2. Fruits dehiscent *Rotala*

2. Fruits indehiscent *Ammannia*

1. Trees :

3. Flowers zygomorphic *Woodfordia\**

3. Flowers actinomorphic *Lagerstroemia*

*Ammannia* L.

*Ammannia baccifera* L. Sp. Pl. 120. 1753; FBI 2: 569; Rao 178; Gamble 360.

Leaves 1.5-3 x 0.5-1.2 cm, lanceolate or obovate, obtuse at apex, cuneate at base. Flowers red, solitary or in cymes.

Occasional in marshy areas of the plains. Fl. & Fr.: Nov.-May.

*Note*: Leeuwen (Blumea 19(1): 53-56. 1971) differentiates *Ammannia* L. from *Rotala* L. by the similar layers of parenchyma cells in seed coat as against transversely lignified inner layer in *Rotala* L.

*Lagerstroemia* L.

- |                              |                      |
|------------------------------|----------------------|
| 1. Leaves subsessile         | <i>L. parviflora</i> |
| 1. Leaves petiolate :        |                      |
| 2. Calyx tube ribbed outside | <i>L. speciosa</i>   |
| 2. Calyx tube smooth outside | <i>L. microcarpa</i> |

*Lagerstroemia microcarpa* Wight, Icon. t.109. 1839; Bedd. Fl. Sylv. t.30. 1869; Furtado & Srisuku in Gard. Bull. Straits Settlem. 24: 192. 1969, *L. lanceolata* Wall. ex Clarke in Hook.f. Fl. Brit. India 2: 576. 1879; Bourd. 107; Rao 181; Gamble 362.

Trees 15-25 m tall. Leaves 5.5-10 x 2.5-6 cm, glaucous beneath, ovate-lanceolate, tapering at both sides. Flowers white, fragrant in terminal and axillary panicles. Capsules ovoid.

Occasional in deciduous forests. Wood very valuable for furniture and boat building. Fl. & Fr.: Apr.-Nov. 'Venthekku'.

*Note*: This tree, once abundant in all deciduous forests of this District is now found only in protected areas of Neyyar Wild Life Sanctuary.

*Lagerstroemia parviflora* Roxb. Pl. Cor. t.66, 1795; Wight, Icon. t.69. 1840; Bedd. Fl. Sylv. t.31. 1869; FBI 2: 575; Rao 181; Gamble 362; Furtado & Srisuku in Gard. Bull. Straits Settlem. 24: 195. 1969.

Trees 15-20 m tall. Leaves 3-6 x 2.5-3 cm, elliptic-oblong, acute at apex, rounded at base. Flowers in panicles; calyx pink, petals white. Capsules oblong.

Occasional along river banks in moist deciduous forests. Timber valuable for furniture. Fl. & Fr.: Feb.-May. '*Malamaruthu*'.

*Lagerstroemia speciosa* (L.) Pers. Syn. Pl. 2. 72. 1806; Koehne in Pflanzenreich 17: 261. 1903. *Munchhousia speciosa* L. Murennch, Husv. 1: 357. 1770. *Lagerstroemia reginae* Roxb. Pl. Cor. t.65. 1795; Wight, Icon. t.413. 1843; Furtado & Srisuku in Gard. Bull Straits Settlem. 24 261. 1969. *L. flos-reginae* Retz. Obs. Bot. 5: 25. 1788 p.p.; FBI 2: 577; Bourd. 198; Rao 181; Gamble 362.

Trees 9-12 m tall. Leaves 15-20 x 4.5-7 cm, chartaceous, elliptic-oblong, acuminate at apex, acute at base. Flowers pink in terminal branched racemes.

Trees 9-12 m tall. Leaves 15-20 x 4.5-7 cm, chartaceous, elliptic-oblong, acuminate at apex, acute at base. Flowers pink in terminal branched racemes.

Frequent along river banks in semievergreen forests. Timber used for furniture. Fl. & Fr.: Mar.-Apr. '*Poomaruthu*'.

#### Ratala L.

*Rotala rotundifolia* (Buch.-Ham. ex D.Don) Koehne in Engler, Bot. Jahrb. Syst. 1: 175. 1880; Gamble 359; Cook in Boissiera 29: 49. 1979. *Ammannia rotundifolia* Buch.-Ham. ex D.Don, Prodr. Fl. Nepal. 220. 1825; FBI 2. 566 p.p.; Rao 178.

Aquatic herbs. Leaves suborbicular. Flowers purple, in terminal spicate inflorescence.

Common in wet lands of plains. Fl. & Fr.: Jan.-Apr.

\**Woodfordia fruticosa* Kurz is often cultivated.

#### SONNERATIACEAE Engl. & Gilg.

*Sonneratia* L.f., nom. cons.

*Sonneratia caseolaris* (L.) Engl in Engler & Prantl, Nachtr. 261. 1897. *Rhizophora caseolaris* L. in Stickman, Herb. Amb. 13. 1754

*p.p. Sonneratia acida* L.f. Suppl. 252. 1781; Wight, Icon. t.340. 1843; FBI 2: 579; Bourd. 200; Rao 180; Gamble 364.

Trees 4-6 m tall. Leaves 5-8.5 x 2.5-5 cm, coriaceous, obovate, obtuse at apex, attenuate at base. Flowers pink, solitary or in 2-3. Berries subglobose.

Rare along backwaters of Veli. Fl. & Fr.: Mar.-Apr. "Blatti"

#### ONAGRACEAE Juss.

|                   |                      |
|-------------------|----------------------|
| Seeds dimorphic   | <i>Fissendocarpa</i> |
| Seeds monomorphic | <i>Ludwigia</i>      |

#### *Fissendocarpa* (Haines) Bennet

*Fissendocarpa linifolia* (Vahl) Bennet in J. Bombay Nat. Hist. Soc. 67(1): 126. 1970. *Jussiaea linifolia* Vahl, Ecolog. Arn. 2: 32. 1798. *J. hyssopifolia* G.Don, Gen. Syst. 2: 693. 1832. *Ludwigia hyssopifolia* (G.Don) Exell in Garcia de Orta 5: 471. 1957; Raven in Reinwardtia 6: 385. 1963; Sreem. in Bull. Bot. Surv. India 8: 79. 1966.

Branched herbs with winged stems. Leaves elliptic-lanceolate acute at apex. Flowers yellow, solitary, sessile. Capsules linear.

Common in marshy areas. Fl. & Fr.: Mar.-July.

Note : Section *Fissendocarpa* Haines of the genus *Ludwigia* L. has since been raised to the status of a genus by Bennet *op. cit.*, based on dimorphic seed character. Many botanists, however, still include *Fissendocarpa* (Haines) Bennet. in *Ludwigia* L. *sensu lato*.

#### *Ludwigia* L.

Note : The genera *Ludwigia* L. and *Jussiaea* L. were treated distinct on account of the variation in the number of stamens. Baillon (Hist. Pl. 6: 463. 1877) was the first to combine these two. Raven *op. cit.* and Hara *op. cit.* correctly accepted Baillon's treatment.

- |                          |                      |
|--------------------------|----------------------|
| 1. Floating herbs        | <i>L. adscendens</i> |
| 1. Plants not floating : |                      |

- |                         |  |
|-------------------------|--|
| 2. Fruits ca. 5 cm long | <i>L. octovalvis</i><br>subsp. <i>sessiliflora</i> |
| 2. Fruits ca. 1 cm long | <i>L. perennis</i>                                 |

**Ludwigia adscendens** (L.) Hara in J. Jap. Bot. 28: 290. 1953; Raven in Reinwardtia 6: 387. 1963. *Jussiaea adscendens* L. Mant. Pl. 69. 1767. *J. repens* L. Sp. Pl. 388. 1753, non *Ludwigia repens* Forst. 1771; FBI 2: 587; Rao 181; Gamble 365.

Floating herbs. Leaves 2-5 x 0.5-2 cm, glabrous, obovate, obtuse at apex, cuneate at base. Flowers yellow, solitary.

Frequent in fresh water ponds in the plains. Fl. & Fr.: Jun.-Sept.

**Ludwigia octovalvis** (Jacq.) Raven subsp. *sessiliflora* (Mich.) Raven in Kew Bull. 15: 476. 1962; Reinwardtia 6: 362. 1963. *Jussiaea octonerva* (Jacq.) Raven formt *sessiliflora* Mich in Mast. Fl. Bras. 13(2): 171. 1875. *J. suffruticosa* L. Sp. Pl. 388. 1753; FBI 2: 587; Rao 181; Gamble 516.

Shrubs 1-1.5 m tall; stems hispid. Leaves 2.5-6 x 0.3-1.5 cm, finely pubescent, linear-lanceolate or elliptic-lanceolate, gradually acuminate at apex, cuneate at base. Flowers yellow, axillary, solitary.

Frequent in marshy areas of the plains and ghats up to 1000 m. Fl. & Fr.: Jan.-Feb. *Kattuthumba'*

Note: Sreemathavan (Bull. Bot. Surv. India 8: 79. 1966) observed intermediate forms among the three subspecies treated by Raven i.c. in *L. octovalvis* and hence he suggested the treatment of Indian materials under subsp. *octovalvis*. However, our specimens fit well with subsp. *sessiliflora*.

**Ludwigia perennis** L. Sp. Pl. 119. 1753 excl. *follis oppositis*; Raven in Reinwardtia 6: 367. 1963. *L. parviflora* Roxb. Fl. Ind. 1: 440. 1820; Wight, Ill. 2: t.101. 1850; FBI 2: 588; Rao 181; Gamble 365.

Herbs 30-40 cm tall. Leaves 1.5-6.5 x 0.5-1 cm, linear-lanceolate, acute at apex, narrowed at base. Flowers yellow, solitary. Capsules ca. 1 cm long, oblong.

Frequent in paddy fields in the midland zone. Fl. & Fr. Oct.-Feb.

### TURNERACEAE DC.

#### Turnera L.

|  |                        |
|--|------------------------|
| Bracteoles serrate, with 2 marginal glands | <i>T. angustifolia</i> |
| Bracteoles entire, without glands          | <i>T. subulata</i>     |

*Turnera angustifolia* Mill. Gard. Dict. ed.8. no.2. 1768; Curtis, Bot. Mag. t.251. 1794; Nayar & Giri in Biovigyanam 8: 145. 1982. *T. ulmifolia* L. var. *angustifolia* (Mill.) Willd. ex Urb. Monogr. Tur. 141. 1883; Gamble 369.

Perennial herbs up to 1 m tall. Leaves 3-8 x 0.5-2 cm, crowded at the top of the branches, serrate, linear-lanceolate, acute at apex, densely clothed with white hairs. Flowers axillary, solitary, bright yellow.

This ornamental plant is found growing wild in close association with *Sida acuta* Burm.f. and *S. codifolia* L. all along the coast. Fl. & Fr.: Almost throughout the year. 'Chadayan'.

Note: Hooker (1899) did not treat this family, while Gamble (1929) treated *T. angustifolia* recognising two varieties. *T. subulata* Sm. can be easily distinguished in the field by the violet throat of the pale yellow corolla which is wanting in *T. angustifolia*. Nayar & Giri, l.c. point out that the Indian plant, *T. angustifolia* is distinct from *T. ulmifolia* L. which is an "elm leaved species".

*Turnera subulata* J.E. Sm. in Rees, Cycl. 36: 2. 1819; Baker in Steenis, Fl. Malesiana ser.I. 4: 236. 1951. *T. ulmifolia* var. *elegans* (Otto) Urb. Monogr. Tur. 139. 1883; Gamble 369.

Perennial herbs up to 60 cm tall; stems densely pubescent. Leaves 2-6 x 1-3 cm, deeply serrate, densely pubescent, gland-dotted, obovate-elliptic, acute or obtuse at apex, cuneate with a pair of glands at the base. Flowers pale yellow with violet spot at the base of the petals.

Common in roadsides and wastelands towards the northern parts of the district. Fl. & Fr.; Almost throughout the year.

## PASSIFLORACEAE Juss.

|                                    |                   |
|------------------------------------|-------------------|
| Flowers unisexual; fruit a capsule | <i>Adenia</i>     |
| Flowers bisexual; fruit a berry    | <i>Passiflora</i> |

*Adenia* Forsk.

*Adenia hondala* (Gaertn.) de Wilde in Blumea 15: 263. 1967.  
*Granadilla hondala* Gaertn. Fruct. 2: 480. 1791. *Adenia palmata* (Lam.) Engler, Bot. Jahrb. Syst. 14: 375. 1892; Wight, Icon. t.201. 1839; Rao 184; Gamble 371. *Modeca palmata* Lam. Encycl. 4: 209. 1797.

Climbing shrubs with tendrils. Leaves 16-25 x 8-11 cm, shining above, ovate, acuminate at apex, slightly cordate at base. Flowers white in axillary cymes. Capsules 3-valved, red.

Occasional in moist deciduous forests of Kottur Reserve. Fl. & Fr.: Mar.-Aug. 'Palmothakku'.

Note: de Wilde *l.c.* noted that the earliest epithet *Bryonia palmata* L. (Sp. Pl. 1012. 1753) could not be transferred to *Adenia* Forsk. on account of the heterotypic synonym *Adenia palmata* (Lam.) Engler.

*Passiflora* L.

|  |                   |
|--|-------------------|
| Bracteoles pectinate   | <i>P. foetida</i> |
| Bracteoles entire  | <i>P. edulis</i>  |
| <i>Passiflora edulis</i> Sims in Curtis, Bot. Mag. t.1989. 1818; Gamble 370. |                   |

Climbing shrubs. Leaves 4-17 x 5.5-16 cm, very variable, simple, bi or trilobate, serrate, cordate at base, lobes ovate-acuminate, Flowers white.

Commonly cultivated in house gardens; often found wild. Fruits edible. Fl. & Fr.: Jan.-May.

*Passiflora foetida* L. Sp. Pl. 959. 1753; Rao 183; Gamble 370.

Climbing shrubs with tendrils; stems hirsute. Leaves 7-11 x 6-7.5 cm, trilobate, cordate, sericeous, lobes acuminate at apex. Flowers white, axillary, solitary.

Common along the backwaters and railway track in coastal zone. Fruits edible. 'Poochapazham'

CUCURBITACEAE Juss.

|                          |                 |
|--------------------------|-----------------|
| 1. Petals free           | <i>Luffa</i>    |
| 1. Petals connate :      |                 |
| 2. Filaments connate     | <i>Coccinia</i> |
| 2. Filaments free :      |                 |
| 3. Seeds rugose on faces | <i>Mukia</i>    |
| 3. Seeds smooth on faces | <i>Solene</i>   |

*Coccinia* Wight & Arn.

*Coccinia grandis* (L.) Voigt, Hort. Suburb. Calc. 59, 1845; Chakravarthy, Fasc. Fl. India 2: 24, 1982. *Bryonia grandis* L. Mant. Pl. 126, 1767. *Coccinia indica* Wight & Arn. Prodr. 347, 1834; Wight, Ill. 2: t. 105, 1850; Gamble 379. *Cephaelandra indica* (Wight & Arn.) Naud, in Ann. Sci. Nat. Ser. 5, 5: 16, 1866; FBI 2: 621; Rao 189.

Scandent dioecious herbs with simple tendrils. Leaves 4-8 x 2.5-6 cm, densely glandular on both the surfaces, deltoid, palmilobed, palmiangled, or irregularly sinuate, obtuse at apex with an apicula, cordate-sinuate at base. Flowers white, axillary, solitary. Berries oblong, scarlet.

Fairly common in the midland zone. Fl. & Fr.: May-Jun. 'Kova'.

*Note:* Cogniaux's (DC. Monog. Phan. 3: 531, 1881) separation of varieties is based on lobation of leaves; but the lobation is observed as an overlapping character in this species.

*Luffa* Mill.

*Luffa cylindrica* (L.) M. Roem. Syn. Monog. 2: 63, 1846; Chakravarthy, Monogr. Ind. Cucurb. 75, 1959 & Fasc. Fl. India 2: 70, 1982; Jeffrey in Kew Bull. 15: 355, 1962. *Momordica cylindrica* L. Sp. Pl. 1009, 1753. *Luffa aegyptiaca* Mill. Gard. Dict. ed.8, 500 1768; FBI 2: 614; Rao 186; Gamble 376.

Climbing shrubs. Leaves 12-18 x 8-16 cm, scabrid on both surfaces, denticulate, palmately lobed; lobes triangular, acute at apex, sinuate at base. Flowers yellow. Fruits fibrous within.

Common in the plains. Dried fruits used as bath-brush. Fl. & Fr.: Dec.-Jan. 'Peechanga'

#### Mukia Arn.

*Mukia maderaspatana* (L.) M.Roem. Syn. Monogr. 247. 1846. *Cucumis maderaspatensis* L. Sp. Pl. 1012. 1753. *Bryonia scabrella* L.f Suppl. 424. 1781; Wight. Icon. t.501. 1841. *Mukia scabrella* (L f.) Arn. in J. Bot. (Hooker) 3: 276. 1841; FBI 2: 623; Rao 190. *Melothria maderaspatensis* (L.) Cogn. in A & C. DC. Monogr. Phan. 3: 623. 1881; Gamble 381; Chakravarthy, Monogr. Ind. Cucurb. 141. 1959 & Fasc. Fl. India 2: 83. 1982.

Scendent or prostrate shrubs with tendrils. Leaves 5-16 x 4-7.5 cm, finely scabrid on both the surfaces, membranous, palmiangled, acute at apex, deeply cordate-sinuate at base. Flowers yellow. Ripe berries red.

Fairly common in cultivated lands and waste places. Fl. & Fr.: Sept.-May.

*Note:* Jeffrey's (Kew Bull. 15(3): 343. 1961) segregation of *Mukia* Arn. from *Melothria* L. is based mainly on the turgid seeds and clustered flowers. Chakravarthy *l.c.* however, points out that these characters are fluctuating and not taxonomically consistent. Jeffrey's treatment is followed.

#### Solena Lour.

*Solena amplexicaulis* (Lam.) Gandhi in Saldanha & Nicolson, Fl. Hassan Dist. 179. 1976. *Bryonia amplexicaulis* Lam. Encycl. 1: 496. 1785. *Solena heterophylla* Lour. Fl. Cochinch. 514. 1790. *Zehneria heterophylla* Thw. Enum. 125. 1859; FBI 2: 625 p.p. *Melothria heterophylla* (Lour.) Cogn. in DC. Monogr. Phan. 3: 618. 1881; Gamble 380; Chakravarthy, Fasc. Fl. India 2: 79. 1982.

Succulent herbs. Leaves 6.5-21.5 x 4-7 cm, glandular, ovate, suborbicular, oblong or narrowly lanceolate, denticulate, acute or acuminate at apex, cordate at base. Flowers pale yellow, male subumbellate, female solitary. Fruits oblong.

Common at low elevations in Kottur Reserve. Fl. & Fr.: Apr.-Jun.

*Note*: Jeffrey /, c. re-established the genus *Solena* Lour. based on its characteristic triplicate anther thecae. But Chakravarthy /, c. prefers to treat this plant in *Melothria* L. sensu lato as he feels the character is not taxonomically stable. Jeffrey's treatment is followed.

### BEGONIACEAE C.A. Agardh.

#### *Begonia* L.

|                           |                         |
|---------------------------|-------------------------|
| Scapigerous herbs         | <i>B. albo-coccinia</i> |
| Shrubs with jointed stems | <i>B. malabarica</i>    |

*Begonia albo-coccinia* Hook. in Bot. Mag. t.4172. 1845; FBI 2: 654; Rao 192; Gamble 385. *B. grahamiana* Wight. Icon. t.1811. 1848.

Scapigerous herbs. Leaves 6-11 x 7-12 cm, peltate, reniform, ciliate. Flowers rose. Wings of fruits 5 x 5 mm.

Fairly common in evergreen forests along streams and rivers. Fl. & Fr.: Nov.-May.

*Begonia malabarica* Lam. Encycl. 1: 393. 1785; FBI 2: 655; Rao 192; Gamble 38. *Diploclinium Lindleyanum* Wight. Icon. t.1817. 1852.

Erect, branched, succulent herbs, 20-40 cm tall. Leaves 9-18 x 3.5-8.5 cm, membranous, scabrous beneath, entire or serrate, unequally ovate, acuminate at apex, obliquely cordate at base. Flowers rose in axillary cymes.

Common in moist areas along streams and rivers in evergreen forests. Fl. & Fr.: Nov.-May. 'Kayalapullian'.

### CACTACEAE Juss.

#### *Opuntia* Mill.

*Opuntia striata* Haw. var. *dillenii*(Ker-Gawl) L. Benson, Car. Succ. J. (Los Angles) 41: 126. 1969. *O. dillenii* (Ker-Gawl.) Haw. Suppl. Pl. Succ 79, 1819; FBI 2: 657; Rao 192; Gamble 387. *Cactus dillenii* Ker-Gawl. in Edwards, Bot. Reg. 3: t. 255. 1818.

Shrubs with succulent stems. Leaves reduced to spines; largest spine straight. Flowers yellow. Berries purple, pear-shaped, tubercled.

Common along the coast. Used in hedges. Fl. & Fr.: Jan.-Mar. '*Nagathali*'.

### AIZOACEAE Rudolphi

#### *Trianthema* L.

*Trianthema portulacastrum* L. Sp. Pl. 223. 1753; Backer in Steenis Fl. Malesiana ser. 1, 4: 274. 1951; Gamble 389. *T. monogyna* L. Mant. 1: 69. 1767; Wight, Icon. t. 228. 1840; FBI 2: 660. *T. obcordata* Roxb. Fl. Ind. 2: 445. 1832; Wight, Icon. t. 288. 1840.

Prostrate or ascending herbs; stems succulent, flattened at nodes, papillose. Leaves 2-3 x 1.5-2 cm, ovate, oblong or obovate, rounded or mucronate at apex, cuneate at base. Flowers pale pink, solitary, sessile borne on the petiolate pouch.

Common along roadsides and wastelands at low elevations. Locally used as a vegetable. Fl. & Fr.: Aug.-Sep. '*Pasalikeera*'.

Note: In vegetative condition, the plant closely resembles *Portulaca oleracea* L. but it can be easily distinguished by its nodose, pink flowers.

### MOLLUGINACEAE Wight

|                        |                |
|------------------------|----------------|
| 1. Fruits indehiscent  | <i>Gisekia</i> |
| 1. Fruits dehiscent:   |                |
| 2. Seeds strophiolate  | <i>Glinus</i>  |
| 2. Seeds estrophiolate | <i>Mollugo</i> |

#### *Gisekia* L.

*Gisekia pharnaceoides* L. Mant. Pl. 562. 1771; Wight, Icon. t. 1167. 1848; FBI 2: 664; Rao 194; Gamble 391.

Prostrate, branched herbs. Stems 15-45 cm long. Leaves 1-2 x 0.5-0.5 cm, unequal, oblong or elliptic, obtuse at apex, narrowed at base. Flowers 5-merous in umbellate axillary cymes.

Common along sea coast in close association with *Mollugo* spp  
*Euphorbia rosea* etc. Fl. & Fr.: Mar.-Sep. 'Manalkeera'.

*Glinus* L.

*Glinus oppositifolius* (L.) A.DC. in Bull. Herb. Boissier 2(1): 552, 1901; Backer in Steenis, Fl. Malesiana ser.1, 4: 270, 1951. *Mollugo oppositifolia* L. Sp. Pl. 89, 1753; Gamble 390, *M. sperrula* L. Syst. ed.10, 881, 1759; FBI 2: 663; Rao 194.

Prostrate or ascending, glabrous, branched herbs. Stems 8-50 cm long. Leaves 1-2.5 x 0.3-0.4 cm, elliptic-lanceolate or ovate oblong, acute or obtuse at apex, narrowed at base. Flowers in axillary fascicles.

Common along the sea coast. Fl. & Fr.: Jul.-Dec.

Note: The genera *Glinus* L. (1753) and *Mollugo* L. (1753) are differentiated by the seed structure, strophiolate in *Glinus* and estrophiolate in *Mollugo*. Bentham and Hooker (Gen. Pl. 1: 857, 1867) however merged the two genera under *Mollugo*. Backer I.c. reinstated the genus *Glinus*.

*Mollugo* L.

- |   |                       |
|---|-----------------------|
| 1. Cauline leaves whorled, mostly 3-5, lowermost rosulate : |                       |
| 2. Plants slender, glabrous                                 | <i>M. pentaphylla</i> |
| 2. Plants stout, puberulous                                 | <i>M. disticha</i>    |
| 1. Cauline leaves absent                                    | <i>M. nudicaulis</i>  |

*Mollugo disticha* (L.) Ser. in DC. Prodr. 1: 392, 1824; FBI 2: 663; Rao 194; Gamble 391; Wight, Icon. t.3, 1840. *Pharnaceum distichum* L. Mant. Pl. 221, 1767.

Erect, stout puberulous herbs up to 40 cm tall. Leaves up to 2 cm long, linear-lanceolate, acute at base. Flowers in axillary, branched cymes ultimately ending in racemes.

Common along the seacoast of Veli. Fl. & Fr.: Mar.-Jun.

Note: The figure in Wight, Icon. t.3, 1840 perhaps represents a very hairy plant, but our collections are only microscopically puberulous.

*Mollugo nudicaulis* Lam. Dict. 4: 234. 1797; FBI 2: 664; Rao 194; Gamble 390.

Erect, branched herbs 10-25 cm tall. Leaves 1.5-5.5 x 0.4-1.5 cm, radical, oblong, or spatulate, tapering towards the base. Flowers white in slender trichotomously branched peduncles.

Common along the sea coast of Veli and Kovalam. Fl. & Fr.: May-Sept.

*Mollugo pentaphylla* L. Sp. Pl. 89. 1753; Backer in Steenis, Fl. Malesiana Ser. 1. 4: 268. 1951; Gamble 390. *M. stricta* L. Sp. Pl. ed.2, 131. 1762; FBI 2: 663; Rao 194.

Erect, branched herbs 10-35 cm tall. Cauline leaves 1-3.5 x 0.5-1.5 cm. lanceolate or linear-lanceolate, acute at base; lower ones smaller, oblong, ovate or spatulate. Flowers white in terminal or leaf-opposed cymes ending in racemes.

Common in sea coast, occasional up to 200 m. Fl. & Fr.: Apr.-Dec. 'Parpadakappullu'.

*Note*: The plant can be easily identified in the field by the brownish-red colour of old branches.

#### APIACEAE Lindl.

1. Leaves simple, entire; umbels simple:
2. Petioles not sheathing; stipules present; petals valvate; mericarps 3-ridged; carpophore absent      *Hydrocotyle*
2. Petioles sheathing; stipule absent; petals imbricate; mericarps 7-9 ridged; carpophore present      *Centella*
1. Leaves compound; umbels compound:
  3. Ovary glabrous; petals not radiant      *Poecilanthemum*
  3. Ovary hairy; petals often radiant      *Heracleum*

#### *Centella* L.

*Centella asiatica* (L.) Urban in Mart. Fl. Bras. 11: 287. 1899; Rao 194; Gamble 392. *Hydrocotyle asiatica* L. Sp. Pl. 234. 1753; Wight, Icon. t.565. 1842; FBI 2: 669.

Trailing herbs. Leaves 2-4.5 cm across, reniform, crenate or lobulate, sparsely pubescent beneath; petioles 2.5-8 cm long, sparsely pubescent. Flowers reddish-brown, few in sessile umbels.

Fairly common in cultivated and wastelands. Fl. & Fr.: Jun.-Sept. 'Kodanga'.

#### *Heracleum* L.

*Heracleum sprengelianum* Wight & Arn. Prodr. 327. 1834; FBI 2: 716; Rao 197; Gamble 399. *Pastinaca sprengeliana* (Wight & Arn.) Wight, Icon. t. 1002. 1845.

Plants subshrubby 2-4 m tall; branchlets glabrous. Leaves 7-12.5 cm long, 2-3 pinnate; leaflets ovate-lanceolate, pubescent; terminals 3-lobed. Flowers yellow in umbels ca. 4.5 cm across. Fruits ovoid, winged; mericarps glabrous.

Fairly common amidst grasses at higher altitudes of Agastyarkudum. Fl. & Fr.: Sept.-Nov.

#### *Hydrocotyle* L.

Leaves 4-6 cm diam.; peduncles of umbels clustered *H. javanica*

Leaves less than 2.5 cm diam.; peduncles of  
umbels solitary *H. sibthorpioides*

*Hydrocotyle javanica* Thunb. Dissert. Hydroc. no.17, t.2. 1798; FBI 2: 667; Rao 194; Gamble 392; Buwalda in Steenis. Fl. Malesiana ser.1, 4: 115. 1949. *H. polycarpa* Wight & Arn. Prodr. 366. 1834; Wight, Icon. t.1003. 1845.

Prostrate herbs, rooting at nodes. Leaves 6 cm across, 6-9-gonal, hastate, palmately nerved, crenate, strigose; petioles up to 13.5 cm, long villous. Flowers greenish in umbels. Fruits subquadrata, smooth.

Frequent in the ground layer of the southern hill top evergreen forests at Ponmudi. Fl. & Fr.: Jun.-Aug.

*Hydrocotyle sibthorpioides* Lam. Encycl. 3: 153. 1789; Buwalda in Steenis. Fl. Malesiana ser. 1, 4: 115. 1949. *Hydrocotyle rotundifolia* Roxb. ex DC. Prodr. 4, 64. 1830; Wight, Icon. t.564. 1847; Rao 195; Gamble 392.

Creeping herbs. Leaves 2-2.5 cm across, peltate or reniform, incised, sparsely pubescent; petioles up to 5 cm, long. Flowers greenish-white in umbels.

Often cultivated in gardens. Sometimes found wild in marshy places. Fl. & Fr. : Feb.-Mar.

**Peucedanum S.**

**Peucedanum josephianum Wadhwa & Chowdhery** in Indian J. For. 13(1): 78. 1990.

Erect herbs ca 50 cm tall. Leaves biennial; leaflets 3-lobed, ultimate segments ovate, irregularly lobed, glabrous. Flowers yellow in compound umbels. Fruits oblong ca. 3 x 2.5 mm; mericarps 5-ridged.

Rare along western slopes of Agastyarkudam. Fl & Fr : Oct. Nov.

**ARALIACEAE Juss.**

|                 |                   |
|-----------------|-------------------|
| Leaves digitate | <i>Schefflera</i> |
| Leaves pinnate  | <i>Polyscias</i>  |

**Polyscias J.R. & G. Forst.**

**Polyscias acuminata** (Wight) Seem. in J. Bot. London 3: 181. 1865; FBI 2: 727; Bourd. 206; Rao 198; Gamble 401. *Hedera acuminata* Wight Icon. t.1062. 1846.

Trees 6-8 m tall. Leaflets 8-11, 7-10 x 3-4 cm. ovate-oblong acuminate at apex, rounded at base. Flowers in paniculate umbels. Berries 5-angled.

Rare; along Sambravarni river banks in Agastyarkudum. Fl. & Fr.: May-Jun.

**Schefflera J.R. & G. Forst.**

1. Inflorescence pubescent; styles connate into a cylindric column, persistent in fruit *S. rostrata*
1. Inflorescence glabrous; styles very short or absent:

  2. Styles absent:

- 3. Leaflets 7-9, nerves not prominent *S. wallichiana*
- 3. Leaflets less than 7; nerves very prominent *S. stellata*
- 2. Styles present, very short; *S. bourdillonii*

*Schefflera bourdillonii* Gamble in Bull. Misc. inform. 228. 1919 & Fl. Pres. Madras 403. 1957. (repr. ed.).

Trees or shrubs, often epiphytic. Leaves digitately compound, 5-foliolate, glabrous; leaflets 4-16 x 1.5-2 cm, obovate, obtuse or emarginate at apex, narrowed at base. Flowers in racemose stellately villous umbels.

Rare in Chemungi. Fl.: Apr.

*Note*: This endemic species was not relocated after its type collection. (T.F. Bourdillon 576 UCT).

*Schefflera rostrata* (Wight) Harms in Engler & Prantl, Pflanzenfam. 3(8): 38. 1894; Gamble 402. *Hedera rostrata* Wight, Icon. t. 1013 & 1014. 1845. *Heptapleurum rostratum* (Wight) Bedd. For. Man. Bot. 122. 1874; FBI 2: 729; Bourd. 205; Rao 198.

Leaflets 5-9, each 7.5-15 x 2.5-5.5 cm, ovate-lanceolate, serrate or entire, acute at apex, narrowed at base. Flowers pale green in panicles of umbels. Fruits ribbed.

Occasional in evergreen forests. Fl. & Fr.: Mar.-Jun.

*Schefflera stellata* (Gaertn.) Harms in Engler & Prantl, Pflanzenfam. 3(8): 39. 1894; Gamble 402. *Heptapleurum stellatum* Gaertn. Fruct. 2: 472. t. 178. 1791; FBI 2: 730; Rao 199. *Hedera obovata* Wight, Icon. t. 1011 & 1012. 1845.

Straggling shrubs or epiphytic trees, 6-10 m tall. Leaves digitately 5 (-8) foliolate; leaflets 5-10 x 3-9 cm, ovate or obovate, obtuse or slightly retuse at apex, subacute at base, glabrous. Flowers greenish in panicles. Drupes 5-6 angular.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Apr.-Jul.

*Schefflera wallichiana* (Wight & Arn.) Harms in Engler & Prantl, Pflanzenfam. 3(8): 38. 1894; Gamble 403. *Paratropia wallichiana*

Wight & Arn. Prodr. 377, 1834, *Heptapleurum wallichianum* (Wight, & Arn.) Clarke in Hook.f. Fl. Brit. India 2: 730, 1879; Bourd. 206; Rao 198.

Leaves 7-9-foliate; leaflets 14-23 x 4.5-6.5 cm, oblong, acute or shortly acuminate at apex, rounded at base. Flowers reddish-white in large paniculate umbels.

Occasional in evergreen forests of Ponmudi and Bonecord. Fl. & Fr.: Feb.-Jun. 'Modakom'.

#### CORNACEAE Dumort

##### *Mastixia* Blume

*Mastixia arborea* (Wight) Bedd. subsp. *meziana* (Wang) Matthew in Blumea 23: 89, 1976. *M. meziana* Wang. in Feddes Repert. 4: 336, 1907. *M. pentandra* sensu Clarke in Hook.f. Fl. Brit. India 2: 746, 1879 non Blume 1826 Bourd. 208; Rao 200; Gamble 405.

Trees 10-12 m tall. Leaves 10-15 x 3.5-9 cm, ovate, obtusely acuminate at apex, rounded at base. Flowers pale yellow, silky pubescent, in terminal racemes.

Rare in evergreen forests of Pattampara. Fl. & Fr.: Mar.-Jun.

#### ALANGIACEAE DC.

##### *Alangium* Lam. *nom. cons.*

*Alangium salvifolium* (L.f.) Wang. in Engler, Pflanzenr. 41: 9, 1910; Gamble 404. *Grewia salvifolia* L.f. Suppl. Pl. 409, 1781. *Alangium lamarckii* Thw. Enum. Pl. Zeyl. 133, 1859; FB12: 741; Bourd. 207; Rao 199. *A. decapetalum* Lam. Encycl. 1: 174, 1783; Wight, Icon. t.194, 1839.

Straggling shrubs. Leaves 5-7 x 1.5-2.5 cm, oblong-lanceolate, obtuse at apex, rounded at base, pubescent beneath. Flowers white, fragrant in axillary fascicles. Fruits red, globose.

Fairly common in evergreen forests of Ponmudi. Fl. & Fr.: Mar.-Jun. 'Arinji'

## RUBIACEAE Juss.

1. Stigma 3-9-lobed *Lasianthus*
1. Stigma entire or bitlobed :
2. Ovary 1-loculed :
3. Herbs: *Acranthera*
3. Trees or shrubs :
4. Plants armed with paired spines *Ceriscoides*
4. Plants unarmed *Octotropis*
2. Ovary usually 2-loculed, rarely 3-4-loculed :
5. Styles pubescent *Tarenna*
5. Styles glabrous :
6. Ovule 1 in each locule :
7. Corolla lobes inflexed at tip *Knoxia*
7. Corolla lobes not as above:
8. Plants always herbaceous *Borreria*
8. Plants shrubby or arborescent :
9. Stipules glandular hairy within *Psychotria*
9. Stipules not as above :
10. Ovules pendulous *Canthium*
10. Ovules not as above :
11. Bracteoles glandular hairy within *Coffea*
11. Bracteoles glabrous within :
12. Stipules with stiff-bristles along the margins, deciduous *Saprosma*
12. Stipules without bristles, persistent :
13. Flowers ebracteate *Morinda*
13. Flowers bracteate :
14. Stigma entire; stipules sheathing *Pavetta*

14. Stigma bifid; stipules not sheathing *Ixora*
6. Ovules many in each locule :
15. Ovules sunken in placentas attached to septum :
16. Flowers dimorphic *Tamilnadia*
16. Flowers not dimorphic :
17. Straggling shrubs *Oxyceros* & *Thespesia*
17. Trees *Aidia*
15. Ovules not as above :
18. Stigma entire :
19. Bracts persistent; flowers in panicles *Hymenodictyon*
19. Bracts not persistent; flowers in cymes *Argostemma*
18. Stigma bifid :
20. Inflorescence pendulous; fruits dehiscing regularly *Neurocalyx*
20. Inflorescence not pendulous; fruits not as above :
21. One of the sepals usually enlarged, petaloid *Mussaenda*
21. Sepals all equal, not petaloid :
22. Flowers unisexual *Byrsophyllum*
22. Flowers bisexual :
23. Flowers secund on the branches of cymes *Ophiorrhiza*
23. Flowers not as above :
24. Stipules entire or bifid *Wendlandia*
24. Stipules pectinate :
25. Calyx with deep sinus *Neanotis*
25. Calyx without sinus *Hedyotis*

*Acranthera* Arn. ex Meissn. *nom. cons.*

*Acranthera grandiflora* Bedd. Icon. t.25. 1868-1874; FBI 3: 93; Rao 207; Gamble 431; Bremek. in J. Arnold Arbor. 28: 280. 1947.

Herbs; stems 15-20 cm tall, silky-villous. Leaves 15-21 x 5-8.5 cm, glabrate above, crispate-pubescent along nerves beneath, elliptic or oblong-obovate, obtuse at apex, narrowed at base. Flowers 6-7 cm long, pale blue, villous in axillary or subterminal cymes.

Occasional in the undergrowth of evergreen forests on the way to Agastyarkudum. Fl. & Fr.: May.-Sep.

*Aidia* Lour.

*Aidia gardneri* (Thw.) Tirvengadum in Bull. Mus. Hist. Nat. (Paris) 35: 11. 1978. *Griffithia gardneri* Thw. Enum. Pl. Zeyl. 158. 1859; Bedd. Icon. t. 38. 1868-1874. *Randia gardneri* (Thw.) Hook.f. in Benth. & Hook.f. Gen. Pl. 2: 88. 1873; FBI 3: 112; Bourd. 219; Rao 209; Gamble 435.

Trees or shrubs. Leaves 8-18 x 1-5.5 cm, glabrous, elliptic or lanceolate, acuminate at apex, narrowed at base. Flowers in axillary cymes; peduncles, pedicels and calyx pubescent; corolla villous at throat. Berries 1.7 x 1.8 cm, ovate.

Rare in evergreen forests near Merchiston Fl.: Feb.-Apr.

*Argostemma* Wall.

*Argostemma courtallense* Arn. in Ann. Nat. Hist. Nat. 3: 22. 1839; Wight, Icon. t.1160. 1846; FBI 3: 42; Rao 203; Gamble 417.

Delicate herbs. Leaves 2.5-6 x 1.5-4 cm, pubescent, elliptic, acute at apex, cuneate at base. Flowers white in terminal, 2-3 flowered cymes. Capsules opening at apex.

Very rare on wet rocks, on the way to Boneccord. Fl. & Fr. Aug.-Oct.

*Borreria* G.F.W. Meyer *nom. cons.*

Note: Schumann (Engler & Prantl, Pflanzenfam. 4(4): 144. 1891) transferred the Indian species of *Spermacoce* to *Borreria*. In

*Borreria*, both the cocci of fruits are dehiscent at apex while in *Spermacoce* one coccus is indehiscent and adhering to the axis of septum.

1. Leaves elliptic or obovate:

- |                        |                      |
|------------------------|----------------------|
| 2. Stipules glandular  | <i>B. articulata</i> |
| 2. Stipules eglandular | <i>B. latifolia</i>  |

1. Leaves lanceolate:

- |                     |                     |
|---------------------|---------------------|
| 3. Stems branched   | <i>B. pusilla</i>   |
| 3. Stems unbranched | <i>B. ocymoides</i> |

*Borreria articulata* (L.f.) F.N. Will in Bull. Herb. Boiss. ser.2, 5: 956. 1905. *Spermacoce articulata* L.f. Suppl. Pl. 119. 1781. *S. hispida* L. Sp. Pl. 102. 1753; FBI 2: 200; Rao 217. *Borreria hispida* (L.) Schum. in Engler & Prantl, Pflansenfam. 4(4): 144. 1891, non Schum. 1888; Gamble 461.

Procumbent, branched, hispid herbs. Leaves 1-2 x 0.4-0.8 cm, sessile, scabrous, elliptic, acute at apex, cuneate at base. Flowers white in axillary fascicles; bracteoles few, filiform.

Common in coastal and midland zones. Fl. & Fr.; Jun.-Dec. 'Tharavu'.

*Borreria latifolia* (Aubl.) Schum. in Mart. Fl. Bras. 4(6): 61. 1888. *Spermacoce latifolia* Aubl. Pl. Gui. 1: 55. t.19. 1775. *Borreria eradii* Ravi in J. Bombay Nat. Hist. Soc. 66: 539-541, ff.1-10. 1970.

Trailing herbs (rarely erect up to 2 m tall); stems villous. Leaves 2-5 x 1-3 cm, sessile, strigose, ovate, acute at apex, cuneate at base. Flowers white, fascicled in axils of leaves. Fruits densely strigose.

Abundant in cultivated fields especially in coconut plantations. Fl. & Fr.; Jun.-Nov. 'Vellatharavu'.

*Note*: P. S. Green, Royal Botanic Gardens, Kew (in a letter to C. Parker, Weed Research Organisation, Oxford) states that the validly published name *B. eradii* Ravi is a synonym of *B. latifolia* (Aubl.) Schum.

**Borreria ocyoides** (Burm.f.) DC. Prodr. 4: 544. 1830; Gamble 461. *Spermacoce ocyoides* Burm.f. Fl. Ind. 34, t.13, f.1. 1768; FBI 3: 200; Rao 217.

Erect herbs 25-35 cm tall; stems hispid. Leaves 1.5-3.5 x 0.5-1.3 cm, sessile, elliptic or ovate, scabrid, acute at both ends. Flowers white in axillary fascicles; calyx puberulous.

Frequent in cultivated fields and wastelands. Fl. & Fr.: Jul.-Dec.

**Borreria pusilla** (Wall.) DC. Prodr. 4: 543. 1830. *Spermacoce pusilla* Wall. in Roxb. Fl. Ind. 1: 379. 1820. *Borreria stricta* (L.f.) Schum. in Engler & Prantl, Pflanzenfam. 4(4): 143. 1891, non Meyer 1818; Gamble 461. *Spermacoce stricta* L.f. Suppl. Pl. 120. 1781; FBI 3: 200.

Erect, branched herbs 20-30 cm tall; stems sparsely scabrid. Leaves 1-4 x 0.2-0.8 cm, sessile, linear-lanceolate, finely scabrid, acute or acuminate at apex, cuneate at base. Flowers white in axillary fascicles; bracteoles many, bristle-like.

A common weed in coastal and midland zones. Fl. & Fr.: Jun.-Dec.

#### Byrsophyllum Hook.f.

**Byrsophyllum tetrandrum** (Bedd.) Hook.f. ex Bedd. Fl. Sylv. t.326. 1873; FBI 3: 107; Rao 217; Gamble 433. *Gardenia tetrandra* Bedd., Icon. t.20. 1868-1874.

Trees 3-4 m tall; branches stout, glabrous. Leaves 4.5-8 x 1.8-3.4 cm, coriaceous; elliptic-obovate, obtuse at apex, narrowed at base. Flowers white tinged rose, 1-2 together. Berries ca. 2 cm across, ovoid or subglobose.

Common in exposed areas of Agasthyarkudum. Fl. & Fr.: Sept.-Oct.

#### Canthium Lam.

1. Armed shrubs:

2. Flowers in shortly peduncled cymes,  
4-merous

*C. parviflorum*

2. Flowers fascicled in the axils of leaves,  
5-merous *C. angustifolium*

1. Unarmed shrubs:

3. Leaves obtuse or acute at apex; flowers  
fascicled in the axils of leaves *C. neilgherrense*

3. Leaves caudate-acuminate at apex;  
flowers in peduncled cymes *C. dicoccum*

**Canthium angustifolium** Roxb. Fl. Ind. 2: 169. 1824; Sant. & Merchant in Bull. Bot. Surv. India 3: 107. 1961; FBI 3: 135; Rao 211. *Plectrania rheedii* DC. var. *angustifolia* (Roxb.) Gamble, Fl. Pres. Madras 625. 1921 & 2: 441. 1957 (repr. ed.). *Canthium leschenaultii* (DC.) Wight & Arn. Prodr. 426. 1834; Wight, Icon. t.826. 1844-1845, *Dondisia leschenaultii* DC. Prodr. 4: 469. 1830.

Erect, armed shrubs 1-2 m tall. Leaves 4-8 x 2.5-5 cm, elliptic-lanceolate, obtusely caudate-acuminate at apex, rounded at base. Flowers white.

Occasional in midlands and in mountainous regions at low elevations. Fl.: Aug.-Jan. Fr.: Mar.-Apr. "Kettaramul"

**Canthium dicoccum** (Gaertn.) Teys & Binn. Hort. Bog. 113. 1866.

Flowers in slender peduncled cymes var. *dicoccum*

Flowers in thick peduncled umbels var. *umbellata*

**Canthium dicoccum** (Gaertn.) Teys. & Binn. var. *dicoccum*, *Psydrax dicoccos* Gaertn. Fruct. 1: 126, t.26. 1788. *Canthium didymum* Gaertn.f. Fruct. 3: 94. 1805; FBI 3: 132; Bourd. 220. *Plectrania didyma* (Gaertn.f.) Kurz, For. Fl. Burma 2: 35. 1877; Rao 211; Gamble 440.

Shrubs; branches smooth. Leaves 8-13 x 4.5-7 cm, shining above, ovate-lanceolate, obtusely cordate-acuminate at apex, acute or rounded at base. Flowers in shortly peduncled, puberulous cymes. Fruits ca. 1 x 0.5 cm, obovoid.

Common in open forests at low elevations. Fl.: Apr.-Aug. Fr.: Jun-Oct.

**Canthium dicoccum** (Gaertn.) Teys. & Binn. var. *umbellata* (Wight)

Sant. & Merch. in Bull. Bot. Surv. India 3: 107. 1961. *Canthium umballatum* Wight, Icon. t. 1036. 1845; FBI 3: 132; Bourd. 221; Rao 211. *Plectronia didyma* (Gaertn. f.) Kurz var. *umbellata* (Wight) Gamble, Fl. Pres. Madras 624. 1921 & 440. 1957 (repr. ed.).

Shrubs or trees 5–7 m tall. Leaves 7.5–16 x 2.5–8.5 cm, coriaceous, shining above, broadly elliptic or ovate-lanceolate, obtusely caudate-acuminate at apex, cuneate at base. Flowers greenish-white; peduncles and pedicels puberulous; corolla tube up to 0.5 cm long. Fruits obovoid.

Common in moist regions of the evergreen forests up to 1000 m. Fruits edible. Fl. & Fr.: Dec.-May. 'Nanju'.

**Canthium neilgherrense** Wight, Icon. t. 1064. 1846; FBI 3: 133; Bourd. 221; Rao 221. *Plectronia neilgherrense* (Wight) Bedd. For. Man. 134. 1872; Gamble 441.

Erect shrubs. Leaves 5–8 x 2.5–4 cm, coriaceous, elliptic or ovate, acute or obtuse at base. Flowers in axillary fascicles. Fruits 1–1.5 x 0.5–1 cm, obovoid, green.

Common in evergreen forests of Chemungi and slopes of Agastyarkudum. Fl.: Oct.-Dec. Fr.: Jan.-Mar.

**Canthium parviflorum** Lam. Encycl. 1: 602. 1785; FBI 3: 136; Rao 222. *Plectronia parviflora* (Lam.) Bedd. For. Man. 134. 1872; Gamble 441.

Erect shrubs 1–2 m tall; branchlets glabrous. Leaves 3–10 x 1.5–4.5 cm, coriaceous, ovate, acute or sometimes shortly blunt-acuminate at apex, rounded or cuneate at base. Flowers yellowish white in axillary cymes. Fruits up to 1.5 cm in diam., obcordate.

Common in the coastal and midland zones and in moist deciduous forests at low elevations. Often used in fences around cultivated fields. Fl.: Dec.-May. Fr.: Aug.-Sept. 'Kattaramully'

**Note:** The size of the plants and the leaves are highly variable. In dry habitats (sea coasts) the plants are stunted with small leaves (3–5 x 1.5–2.5 cm) and with longer thorns; but in moist midlands they grow profusely and sometimes take more or less a scandent habit with larger leaves (up to 10 x 4.5 cm) and smaller thorns.

**Oxyceros Lour.**

**Oxyceros rugulosus** (Thw.) Trivengadum in Nord. J. Bot. 3: 466, 1983. Var. *rugulosus*; *Griffithia rugulosa* Thw. Enum. Pl. Zey. 159, 1869. *Randia rugulosa* (Thw.) Bedd. For. Man. Bot. 133, 1871; FBI 3: 113; Rao 209; Gamble 435,

Branches pendulous. Leaves 12-16 x 4-6 cm, coriaceous mostly elliptic, rarely lanceolate, obtusely acuminate at apex, narrowed at base. Flowers white in stout, short, leaf-opposed peduncles; calyx puberulous, corolla glabrous without.

Fairly common in evergreen forests of Bonecord. Fl. & Fr.: Feb.-Apr.

**Cerisoides (Hook.f.) Tirvengadum**

**Cerisoides turgida** (Roxb.) Tirvengadum in Bull. Mus. Nat. Hist. (Paris) 35: 15. 1978. *Gardenia turgida* Roxb. Fl. Ind. 2: 557. 1824; Wight, Icon. t. 579. 1842; FBI 3: 118; Gamble 437.

Trees 5-7 m tall; young branches thorny. Leaves variable in size, 7-15 x 3.5-8 cm, pubescent beneath, elliptic-ovate, acute or shortly acuminate at apex, cuneate at base. Flowers white, bisexual, dimorphic; male in fascicles and female solitary. Fruits woody, ovate or globose.

Common in deciduous forests. Fl. & Fr.: Dec.-Feb.

**Coffea L.**

**Coffea travancorensis** Wight & Arn. Prodr. 435. 1834; FBI 3: 154; Rao 214; Gamble 449.

Shrubs 50-75 cm tall. Leaves 4-7 x 1.8-5.5 cm, sessile, glabrous, elliptic-lanceolate, caudate-acuminate or rarely obtuse at apex, acute at base. Flowers white, fragrant in axillary cymes. Fruits obovoid.

Common in drier areas of coastal zone at Varkala. Fl. & Fr.: Oct.-Dec.

**Hedyotis L.**

*Note:* Bremekamp's (Rec. Trav. Bot. Neerl. 36: 438-445.

1939 & Verh. Akad. Wet. Aust. 45: 1-297, 1952) generic concept of *Oldenlandia* L. sensu Hiern & Schumann, *Houstonia* L. ex Benth. & Hook.f., *Kohautia* Cham. & Schlecht. and *Exallage* Bremek. was not accepted by recent workers like Fosberg (Part 1; Va. J. Sci. 2: 106-111, 1941 & Castanea 19: 25-37, 1945), L.H. Shinners (Field and Lab. 17: 166-169, 1949) and W.H. Lewis (Rhodora 6: 216-223, 1961 & Southwest. Nat. 3: 204.-207, 1959) who made a thorough morphological investigation in Mexican, North American and African species of these genera. Lewis *i.c.* on the basis of cytological data, transferred most of the North American species of *Oldenlandia* L. sensu Hiern & Schumann and *Houstonia* L. ex Benth. & Hook.f. to *Hedyotis* L. According to him, there are no characters consistent enough to recognize these genera and to separate them from *Hedyotis* L. sensu lato.

Following the above treatment, Rolla Rao & Hemadri (Indian Forester 99: 372-379, 1973) made several combinations for the South Indian species.

1. Erect shrubs or undershrubs :

  2. Flowers axillary, solitary, or in sessile cymes:
    3. Leaves clustered towards the tip of branches;  
flowers solitary *H. travancorica*
    3. Leaves not clustered towards the tip of  
branches :
      4. Calyx glabrous *H. albo-nervia*
      4. Calyx pubescent *H. ramarowii*
  2. Flowers in peduncled cymes :
    5. Cymes densely pubescent :
      6. Leaves petioled; stipules pubescent *H. pruinosa*
      6. Leaves sessile; stipules glabrous *H. swertioides*
    5. Cymes glabrous :
      7. Leaves cuneate at base; stipules sparsely  
pubescent *H. purpurascens*  
var. *purpurascens*

7. Leaves rounded at base; stipules  
glabrous *H. purpurascens*  
var. *pallida*
1. Prostrate, decumbent or erect herbs :
8. Flowers solitary, axillary :
9. Flowers sessile *H. diffusa*
9. Flowers pedicelled :
10. Erect herbs; peduncles slender, ca. 1.7  
cm long *H. herbacea*
10. Prostrate herbs; peduncles not more than  
1 cm long *H. pumila*
8. Flowers never solitary :
11. Cymes sessile, fascicled in axils of  
leaves :  
12. Leaves sessile; calyx lobes ciliate;  
capsule glabrous *H. nitida*
12. Leaves shortly petioled; calyx lobes not  
ciliate; capsules hispid *H. auricularia*
11. Cymes peduncled, not fascicled in  
leaf axils :
13. Cymes 2-3-flowered :
14. Fruits 4-angled; seeds globose ;  
leaves ca. 1.3 cm broad *H. biflora*
14. Fruits terete; seeds angular, leaves ca.  
0.5 cm broad *H. corymbosa*
13. Cymes many-flowered :
15. Leaves rosulate *H. ovatifolia*
15. Leaves all caulin :
16. Erect herbs; peduncle slender;  
capsule glabrous *H. umbellata*
16. Prostrate herbs; peduncle stout;  
capsule scabrid *H. wightii*

**Hedyotis albo-nervia** Bedd. Icon. t.3. 1868-1874; FBI 3: 55; Rao 204. *Oldenlandia albo-nervia* (Bedd.) Gamble, Fl. Pres. Madras 696. 1921 & 422. 1957 (repr. ed.).

Erect, glabrous shrubs. Leaves 2.5-8 x 0.8-3 cm, shortly petioled, elliptic or ovate-lanceolate, acute or acuminate at apex, abruptly cuneate at base; stipules ovate, pectinate, segments gland-tipped, pubescent. Flowers in sessile cymes fascicled in axils of leaves.

A common shrub in the undergrowth of evergreen forests of Pandimottai, on the way to Chemungi. Fl. & Fr.: Oct.-Nov.

**Hedyotis auricularia** L. Sp. Pl. 101. 1753: Rolla Rao & Hemadri in Indian Forester 99: 375. 1975; Bedd. Icon. t.27. 1868-1874; FBI 3: 58; Rao 204. *Oldenlandia auricularia* (L.) Schum. in Engler & Prantl, Pflanzenfam. 4(4): 25. 1891; Gamble 421. *Exallage auricularia* (L.) Bremek. in Verh. Kon. Ned. Akad. Wetensch. Sect. 2. 48(2): 142. 1952; Santapau & Merchant in Bull. Bot. Surv. India 3: 108. 1961.

Prostrate or creeping, branched herbs; stems glabrous or slightly hirsute towards the nodes. Leaves 3-8 x 1-2.6 cm, mostly sessile or rarely shortly petioled, hirsute beneath, elliptic or ovate, acuminate at apex, acute at base. Flowers white. Fruits globose, hispid.

A common weed in the cultivated lands especially along water courses and road cuttings. Fl. & Fr.: Aug -Dec.

**Hedyotis biflora** (L.) R.Br. ex Wight & Arn. Prodr. 413. 1834. *Oldenlandia biflora* L. Sp. Pl. 119. 1753; FBI 3: 70; Gamble 425. *O. paniculata* L. Sp. Pl. 1667. 1754; FBI 3: 69. *Thecagonum biflorum* (L.) Babu in Bull. Bot. Surv. India 11: 214. 1969(1971).

Brahched, procumbent herbs. Leaves 1.5-3.5 x 0.5-1.8 cm, elliptic, ovate or oblong, acute at apex, cuneate at base. Flowers white; peduncles up to 2 cm long.

Fairly common in the cultivated fields and wastelands chiefly in the midland and coastal zones. Fl.: Apr.-May. Fr.: May.-Jun.

**Hedyotis corymbosa** (L.) Lam. Tab. Encycl. 1: 272. 1791; Rolla Rao & Hemadri in Indian Forester 99: 375. 1975. *Oldenlandia corymbosa* L. Sp. Pl. 119. 1753; FBI 3: 64; Rao 205; Gamble 423.

Erect or diffusely branched herbs, sometimes rooting at nodes. Leaves 0.8-2.5 x 0.1-0.5 cm, scabrous, elliptic-lanceolate, acute at both ends. Flowers white, long-pedicelled. Capsule globose, glabrous.

Frequent in cultivated fields and wastelands. Fl. & Fr.: Jul.-Nov.

**Note:** This plant is closely allied to *H. diffusa* Willd. in habit and general appearance. However, *H. corymbosa* (L.) Lam. is distinct by the flowers being long-pedicelled always as against sessile in *H. diffusa* Willd.

*Hedyotis diffusa* Willd. Sp. Pl. 1: 566. 1978. *Oldenlandia diffusa* (Willd.) Roxb. ex DC. Prodr. 4: 426. 1830; FBI 3: 65; Rao 205; Gamble 423.

Diffusely branched herbs. Leaves 1-3 x 0.2-0.4 cm, sessile, glabrous on both sides, linear-lanceolate, acute at both ends. Flowers white, axillary. Capsules globose, glabrous.

Frequent in cultivated fields in the midland zone. Fl. & Fr.: Jul.-Aug.

*Hedyotis herbacea* L. Sp. Pl. 102. 1753; Rolla Rao & Hemadri in Indian Forester 99: 376. 1973. *Oldenlandia herbacea* (L.) Roxb. Fl. Ind. 1: 445. 1820; Gamble 424. *O. heyneii* R.Br. ex D.Don, Gen. Syst. 3: 531. 1834; FBI 3: 65; Rao 305.

Erect herbs 20-30 cm tall. Leaves 0.7-3.5 x 0.1-0.3 cm, opposite or in whorls of 3 or more, glabrous, sessile, linear-lanceolate, acute at both ends. Flowers white, solitary, axillary. Capsules ovoid, glabrous.

A very common weed in the cultivated lands. Fl. & Fr.: May.-Jun. 'Monganampillu'

*Hedyotis nitida* Wight & Arn. Prodr. 412. 1834; FBI 3: 61; Rao 205. *H. glabella* R.Br. ex Bedd. Icon. t.36. 1868-1874. *Oldenlandia nitida* (Wight & Arn.) Gamble, Fl. Pres. Madras 597. 1921 & 421. 1957 (repr. ed.).

Branched, decumbent, herbs; stems 4-angled. Leaves 3-6 x 0.5-1.5 cm, scaberulous or smooth, elliptic-lanceolate, acute at both

ends. Flowers white, sessile in axillary clusters. Capsule globose, glabrous.

Common among grasses in open places near Bonecord, Pallode and adjoining areas. Fl. & Fr.: Aug.-Dec.

*Hedyotis ovatifolia* Cav. Icon. 6: 52. 1801; Rolla Rao & Hemadri in Indian Forester 99: 377. 1973. *Oldenlandia nudicaulis* Roth, Nov. Pl. Sp. 95. 1821; FBI 3: 70; Gamble 425. *Hedyotis nudicaulis* (Roth) Wight & Arn. Prod. 416. 1834; Bedd. Icon. t.34. 1868-1874. *Gonotheca ovatifolia* (Cav.) Sant. & Wagh in Bull. Bot. Surv. India 5: 107. 1964. *Thecagonum ovatifolium* (Cav.) Babu in Bull. Bot. Surv. India 11: 214. 1969(1971).

Erect herbs 7-12 cm tall. Leaves 1.2-5.5 x 0.6-3 cm, hirsute when young, ciliate along margins, ovate or suborbicular, subacute at apex, abruptly cuneate at base. Flowers white in slender long trichotomously branched pedunculate cymes.

Occasional in the moist undergrowth of evergreen forests. Fl. & Fr.: Oct.-Dec.

*Hedyotis purpurascens* Hook.f. Fl. Brit. India 3: 50. 1880, var. *purpurascens*; Rao 204. *H. purpurea* Bedd. Icon. t.5. 1868-1874, non A.Gray 1848-1849. *Oldenlandia purpurascens*(Hook.f.) Kuntze. Rev. Gen. Fl. 1: 292. 1891; Gamble 421.

Erect shrubs 4-6 m high. Leaves 3-7.5 x 1-2 cm, glabrous, sessile or subbasile, elliptic or ovate-lanceolate, acute at apex; stipules pectinate. Flowers violet in paniculate, glabrous cymes.

Occasional in open places of the subtropical hill forests of Ponmudi. Fl. & Fr.: Oct.-Nov. *Koonthamaniyan'*.

*Hedyotis purpurascens* Hook.f. var. *pallida* (Gamble) Mohanan in J. Econ. Tax. Bot. 6: 480. 1985. *Oldenlandia purpurascens* (Hook.f.) Kuntze var. *pallida* Gamble, Fl. Pres. Madras 597. 1921.

Erect shrubs. Leaves 2-5 x 1.5-2.5 cm, ovate, acuminate at apex, rounded at base; stipules glabrous, without glands.

Rare in grassy slopes of Ponmudi. Fl. & Fr.: Aug.-Nov.

*Note*: This variety can be easily distinguished in the field by its pale, yellowish leaves.

*Hedyotis pruinosa* Wight & Arn. Prodr. 408. 1834; FBI 3: 53; Rao 204. *H. lentiginosa* Bedd., Icon. t. 6. 1868-1874. *Oldenlandia pruinosa* (Wight & Arn.) Kuntze, Rev. Gen. Pl. 1: 292. 1891; Gamble 421

Erect shrubs 1-2 m tall. Leaves 4.5-11 x 1-3 cm, glabrous above, sparsely hairy below, acute or acuminate at apex, acute at base; stipules pectinate. Flowers pale violet in terminal, paniculate cymes.

Common in the open grassy slopes of hill tops and deciduous forests. Fl. & Fr.: Oct.-Feb, 'Kunthamanian'

*Hedyotis pumila* L.f. Suppl. Pl. 119. 1781; Rolla Rao & Hemadri in Indian Forester 99: 377. 1973. *Oldenlandia crystallina* Roxb. Fl; Ind. 1: 443. 1820. FBI 3: 65. 1880; Gamble 424. *O. pumila* L.f. DC. Prodr. 4: 425. 1830; *O. maheswari* sensu Rangaswami et al. in J. Bomby Nat. Hist. Soc. 64: 390. 1967, non Sant, & Merchant 1964.

Annuals. Leaves 0.5-1 x 0.3-0.5 cm, ovate or elliptic-lanceolate, nearly glabrous, acute or subacute at apex, cuneate at base. Flowers solitary, axillary; calyx lobes sparsely hairy. Capsules obovoid.

Rare in minlands among grasses in shady places. Fl. & Fr.: Aug.-Feb.

*Hedyotis ramarowii* (Gamble) Rolla Rao & Hemadri in Indian Forester 99: 378. 1973. *Oldenlandia ramarowii* Gamblin in Bull. Misc. Inform. 405. 1919 & in Fl. Pres. Madras 423. 1957 (repr. ed.).

Undershrubs; stems soft, thick. Leaves 8-11 x 2-3 cm, elliptic-lanceolate, acute at apex, attenuate at base. Flowers sessile in axillary cymes; calyx and corolla tubes villosus. Capsules subglobose, glabrous

Rare in evergreen forests of Ponmudi and Chemungi. Fl. & Fr.: Dec.-Mar.

*Note*: Included in the list of threatened plants by Henry et al. (J. Bombay Nat. Hist. Soc. 75: 684-687. 1978(1979).

*Hedyotis swertioides* Hook.f. Fl. Brit. India 3: 51. 1880; Rao 204. *Oldenlandia swertioides* (Hook.f.) O.Kuntze, Rev. Gen. Pl. 1: 292. 1891; Gamble 422.

Erect shrubs; branches angular, scabrous. Leaves 2.6 x 0.5-2.5 cm, sessile, glabrous, elliptic or ovate-lanceolate, acuminate at apex, acute or rounded at base; stipules ovate with a long central branched segment. Flowers white in axillary and terminal paniculate cymes.

Occasional in evergreen forests of Agastyarkudum. Fl. & Fr.: Oct.-Dec.

*Hedyotis travancorica* Bedd. Icon. t.7. 1868-1874; FBI 3: 55; Rao 204. *Oldenlandia travancorica* (Bedd.) O.Kuntze, Rev. Gen. Pl. 1: 292. 1891; Gamble 423.

Erect undershrubs; young branches 4-angled, glabrous. Leaves 2.4 x 0.8-1.8 cm, elliptic, glabrous, acute at both ends; stipules rounded, scurfy. Flowers white, solitary or fascicled in terminal axils. Capsules ovoid, glabrous.

Occasional in the shady undergrowth of the moist evergreen forests of Bonecord. Fl. & Fr.: Oct.-Dec.

*Hedyotis puberula* (G. Don) R. Br. ex Arn. in Nov. Act. Phys. Med. Acad. Caes. Leopd.-Carol. Nat. Curios 18: 342. 1856. Mabberley in Bot. Hist. Hort. Malabaricus 108. 1980. *Oldenlandia puberula* D. Don, Gen. Syst. 3: 530. 1834. *O. umbellata* L. Sp. Pl. 119. 1753; FPB 3: 66. 1880; Rao 205; Gamble 424. *Hedyotis umbellata* (L.) Lamk., Tab. Encycl. 1: 272. 1791

Erect, branched annuals, 15-25 cm tall. Leaves 0.5-2 x 0.1-0.4 cm, in whorls of 3 or more, sessile, scaberulous, margins recurved, linear-lanceolate or orbicular, acuminate at apex, cuneate at base; stipules minute, bristle-like. Flowers white, shortly pedicelled, in umbels. Capsules ovoid.

Frequent among grasses in wastelands and cultivated fields. Fl. & Fr.: Jun.-Nov.

*Hedyotis wightii* (Hook.f.) Nair in J. Bombay Nat. Hist. Soc. 79: 453. 1982. *Oldenlandia wightii* Hook.f. Fl. Brit. India 3: 66. 1880; Rao 205; Gamble 424.

Prostrate, branched herbs; branches decumbent, scabrid. Leaves 0.5-1 x 0.1-0.2 cm, sessile, fascicled in whorls of 3 or more, finely scabrid, linear-lanceolate, acuminate at both ends. Flowers white in axillary cymes mainly from the upper axils. Capsules globose.

Common in the strand sand of the coastal zone. Fl. & Fr.: Jul.-Sept.

*Note*: This plant is closely allied to *H. puberula* and is hardly distinguishable from it in the field. But the prostrate habit, shorter leaves, stout peduncles and glabrous capsules are diagnostic characters of *H. wightii*.

*Hymenodictyon* Wall, *nom. cons.*

*Hymenodictyon orixense* (Roxb.) Mabberley in Taxon 31: 66. 1982, *Cinchona orixensis* Roxb. Bot. Descr. Swietenia 21. 1793 & in Med. Faets Obs. 6: 152. 1895. *Hymenodictyon excelsum* (Roxb.) Wall. in Roxb. Fl. Ind. 2: 149. 1824; Wight. Icon. t. 71. 1838; FBI 3: 35; Gamble 416. *Cinchona excelsa* Roxb. Pl. Cent. t. 106, 1799.

Trees 15-20 m tall. Leaves 10-15 x 8-14 cm, elliptic-ovate to oblanceolate, puberulous along nerves above, pubescent beneath, acute to attenuate at apex, shortly acuminate or acute at base. Flowers greenish in terminal and axillary panicles. Capsules obovoid; seeds winged

Common in deciduous forests. Fl. & Fr.: Dec.-Mar.

*Ixora* L.

1. Branches of inflorescence densely white pubescent *I. polyantha*
1. Branches of inflorescence glabrous:
  2. Corolla tube ca. 3.5 cm long *I. coccinea*
  2. Corolla tube less than 2 cm long :
    3. Flowers sessile; calyx lobes minute, teeth-like *I. brachiata*
    3. Flowers shortly petioled; calyx lobes distinct, conspicuous :

4. Fruits beaked; sepals persistent                   *I. malabarica*  
 4. Fruits not beaked; sepals caducous                   *I. nigricans*

*Ixora brachiata* Roxb. ex DC. Prodr. 4: 488. 1830; Wight, Icon. t.710. 1843; FBI 3: 142; Rao 212; Gamble 445.

Trees 7-9 m tall. Leaves 18 x 3-5.5 cm, lanceolate or elliptic-oblong, coriaceous, obtuse at apex, narrowed or rarely rounded at base. Flowers scented in trichotomously branched cymes; corolla tube up to 0.5 cm long, red, lobes white.

A common tree in evergreen and semievergreen forests at low elevations. Fl. & Fr.: Oct.-Feb.

*Ixora coccinea* L. Sp. Pl. 110. 1753; wight, Icon. t.163. 1839; FBI 3: 154; Gamble 445; Rao 213.

Shrubs 1-2.5 m tall. Leaves 3.5-10.5 x 1.5-4.5 cm, elliptic-oblong to ovate, sessile or subsessile, acute at apex, cordate at base. Flowers scarlet in corymbiform cymes; corolla lobes ca. 1 cm long, geniculate, lanceolate, acuminate at both ends.

Common in deciduous forests all over the district. Cultivated in temples and gardens for its ornamental flowers, used in religious ceremonies. Fruits edible. Fl. & Fr.: Throughout the year. 'Thetty'.

*Ixora malabarica* (Dennst.) Mabberley in Taxon 26: 539. 1977.  
*Chiococca malabarica* Dennst. Schlussel. 12, 19, 37. 1818.  
*Ixora lanceolaria* Colebr. in Roxb. Fl. Ind. 1: 397. 1820; Rao 212.  
*I. leucantha* Heyne var. *malabarica* Gamble, Fl. Pres. Madras 630. 1921 & 444, 1957 (repr. ed.).

Erect shrubs up to 1 m tall. Leaves 9-15 x 15-13 cm, shortly petioled, linear-lanceolate, acute at apex, rounded at the base. Flowers white in lax corymbs.

Rare in low elevations in evergreen forests. Fl. & Fr.: Jan. Mar. *Cherukuravu*.

*Ixora nigricans* R.Br. ex wight & Arn. Prodr. 428. 1834; Bremek. in Bull. Jard. Bot. Buitenzorg ser.3. 14: 262. 1937; FBI 3: 148; Bourd. 225; Gamble 445; Rao 213.

Trees 6-8 m tall. Leaves 7-15.5 x 2.3-5 cm, elliptic-oblong or obovate, glabrous, acuminate at apex, narrowed at base. Flowers reddish-white in terminal trichotomously branched corymbose cymes. Fruits didymous; pyrenes planoconvex.

A very common tree of the evergreen forests up to 900 m. Fl. & Fr.: Jan.-May.

*Ixora polyantha* Wight, Icon. t.1066. 1846; FBI 3: 140; Rao 212; Gamble 444.

Erect shrubs 1.5-3 m tall. Leaves 10-24 x 5.5-12 cm, subsessile, coriaceous, elliptic-oblong or obovate, acuminate at apex, narrowed at base. Flowers white in corymbiform pubescent cymes. Fruits yellowish-red.

A very rare shrub collected by Rama Rao in 1913 from Kottur. Could not be located again since his collection. Fl. & Fr.: Mar.-Jul. 'Ka/ingi'

*Knoxia* L.

Leaves linear-lanceolate, grey-pubescent;  
petioles not more than 0.7 cm long *K. sumatrensis*

Leaves ovate-lanceolate, nearly glabrous or  
sparsely hairy along the nerves; petioles  
1-2 cm long *K. heyneana*

*Knoxia heyneana* DC. Prodr. 4: 570. 1830; FBI 3: 129; Gamble 439.

Erect shrubs. Leaves 6-14 x 2-4 cm, acuminate at apex, rounded at base; petioles densely hairy; stipule bristles up to 2 cm long, hairy. Flowers pale violet in corymbose cymes; peduncles pubescent.

Occasional at high altitudes along the western slopes of Agast-yarkudum. Fl. & Fr.: Dec.-May.

*Note:* The stipular bristles are densely hairy in the specimens collected from this District.

*Knoxia sumatrensis* (Retz.) DC. Prodr. 4: 569. 1830; Sant. & Merch. in Bull. Bot. Surv. India 3: 108, 1961. *Spermacoce sumatrensis* Retz. Obs. 4: 23. 1786. *Knoxia corymbosa* Willd. Sp. Pl. 1: 582,

1798; Wight, Ill. t.128. 1840; FBI 3: 128; Rao 210; Gamble 439.

Erect undershrubs 1-2 m tall; stems white pubescent. Leaves 4-11 x 1-2 cm, caudate-acuminate at apex, cuneate at base. Flowers bluish-white in corymbose cymes.

Frequent in open deciduous forests. Fl.: Dec.-Mar. Fr.: Mar.-Oct.

*Lasianthus* Jack *nom. cons.*

|   |                         |
|---|-------------------------|
| Flowers sessile, fascicled in axils of leaves | <i>L. oblongifolius</i> |
| Flowers in shortly peduncled axillary cymes   | <i>L. cinereus</i>      |

*Lasianthus cinereus* Gamble in Bull. Misc. Inform. 249. 1920 & Fl. Pres. Madras 457. 1957 (repr. ed.).

Erect shrubs 2-3 m tall. Leaves 6.5-15 x 2-4.5 cm, elliptic or oblong-lanceolate, glabrous above, glabrate or puberulous beneath. Calyx pubescent; corolla puberulous.

Common in the undergrowth of evergreen forests of Suryakanthi, Bonecord. Fl. & Fr.: Jan.-Mar.

*Lasianthus oblongifolius* Bedd. Icon. t.11 1868-1874; FBI 3: 183; Rao 216; Gamble 456.

Erect shrubs. Leaves 11-20 x 3.5-6 cm, elliptic-lanceolate, caudate-acuminate at apex, acute at base; petioles and stipules densely strigose. Berries globose, strigose.

Common in the undergrowth of evergreen forests of Bonecord. Fl. & Fr.: Dec.-Apr.

*Motinda* L.

|  |                      |
|--|----------------------|
| 1. Climbing shrubs                             | <i>M. reticulata</i> |
| 1. Erect shrubs and trees:                     |                      |
| 2. Leaves 20-27 cm long; flowers white         | <i>M. citrifolia</i> |
| 2. Leaves less than 15 cm long; flowers yellow | <i>M. pubescens</i>  |

*Morinda citrifolia* L. Sp. Pl. 176. 1753; FBI 3: 155; Bourd. 223;

Rao 214; Gamble 459. *M. bracteata* Roxb. Fl. Ind. 1: 544. 1832; Wight, Ill. 1: t.126. 1840.

Erect shrubs 2-3 m tall. Leaves sparsely puberulous, elliptic, acute at both ends. Flowers sessile in umbels.

Occasional in the coastal zone at Kovalam, Vizhinjam and Kazhakkuttam areas. Leaves used against skin diseases. Fl. & Fr.: Jun.-Oct. 'Manjanathi'

*Morinda pubescens* Sm. in Rees, Cyclop. 24. n.3. 1813; Verdcourt in Kew Bull. 37: 543. 1983. *M. tomentosa* Heyne ex Roth, Nov. Pl. Sp. 147. 1821. *M. tinctoria* Roxb. var. *tomentosa* (Heyne ex Roth) Hook.f. Fl. Brit. India 3: 156. 1880; Gamble 459. *M. coreia* Buch.-Ham. in Trans. Linn. Soc. London 13: 537. 1822. *M. tinctoria* Roxb. Fl. Ind. 1: 543. 1832; FBI 3: 156; Bourd. 223; Rao 214; Gamble 459.

Trees 2-4 m tall; young branches densely tomentose. Leaves 7-12 x 2-4 cm, glabrous or densely tomentose, elliptic-lanceolate or ovate-lanceolate, wavy, acuminate at apex, cuneate at base. Flowers sessile in axillary umbels. Syncarpium up to 1.5 cm in diam.

A common deciduous tree of the coastal zone. Fl. & Fr.: Aug.-Nov.

Note : *Morinda pubescens* Sm. was hitherto treated as an endemic to Mascarene, but Verdcourt has shown that the common Indian plant identified so far as *M. tinctoria* Roxb. is synonymous to *M. pubescens* Sm.

*Morinda reticulata* Gamble in Bull. Misc. Inform. 248. 1920 & in Fl. Pres. Madras 460. 1957 (repr. ed.).

Leaves 10-15 x 2.5-5 cm, linear-lanceolate or linear-oblong, glabrous, abruptly caudate-acuminate at apex, cuneate at base. Flowers white in axillary and terminal umbellate heads; calyx fleshy, ring like; petals clothed with long white hairs within. Syncarpium puberulous, orange.

A very rare climber in evergreen forests at Bonecord, Kellar and Merchiston. Fl. & Fr.: Jun.-Oct.

Note : Collected from the type locality after a lapse of over eight decades.

*Mussaenda* L.

- 1. Petaloid sepal present:

  - 2. Leaves subglabrous to glabrous above; seeds spiny *M. glabrata*
  - 2. Leaves pubescent on both the sides; seeds not spiny *M. betilla*

- 1. Petaloid sepal absent *M. tomentosa*

*Mussaenda betilla* Buch.-Ham. in Trans. Linn. Soc. London 14: 203. 1823; Ridsdale in Manilal, Bot. Hist. Hort. Malab. 131. 1980. *M. laxa* (Hook.f.) Hutch. ex Gamble in Fl. Pres. Madras 610. 1921 & 430. 1957 (repr. ed.); Jayaweera in J. Arnold Arbor. 44: 242. 1963. *M. frondosa* L. var. *laxa* Hook.f. Fl. Brit. India 3: 89. 1880; Rao 207.

Climbing shrubs; stems hirsute. Leaves 6-16.5 x 1.5-8.5 cm, ovate, abruptly acuminate at apex, cuneate at base. Flowers orange in lax, di-trichotomously branched pubescent cymes. Berries ovoid, sparsely hirsute.

Common climbers extending from the sea coast to the mountainous regions of the District. Fl.: Apr.-Oct. Fr.: Oct.-Nov. 'Vellila'

*Mussaenda glabrata* (Hook.f.) Hutch. ex Gamble in Fl. Pres. Madras 610. 1921 & 430. 1957 (repr. ed.); Jayaweera in J. Arnold Arbor. 44: 241. 1963. *M. frondosa* L. var. *glabrata* Hook.f. Fl. Brit. India 3: 90. 1880.

Climbing shrubs; stems pubescent at nodes. Leaves 5-10 x 2.5-6.5 cm, broadly elliptic, villous on nerves beneath, acuminate at apex, cuneate at base. Flowers orange-red in dichotomously branched, pubescent cymes. Berries ovoid, nearly glabrous.

Common in moist mixed deciduous and semievergreen forests of Bonecord. Fl. & Fr.: Jul.-Nov.

*Mussaenda tomentosa* Wight ex Wall. in G. Don, Gen. Syst. 3: 491. 1834; Jayaweera in J. Arnold Arbor. 44: 235. 1963; FBI 3: 88; Gamble 430.

Straggling shrubs; stems pubescent. Leaves 4-7.5 x 2.5-5 cm,

tomentose on both the sides, broadly elliptic to lanceolate, acute or obtuse at apex, narrowed at base. Flowers white in terminal and axillary cymes. Berries ovoid.

A rare species in the midland zone. Fl. & Fr.: Nov.-Feb.

#### *Neanotis* W. H. Lewis

*Neanotis monosperma* (Wall. ex Wight & Arn.) Lewis in Ann. Missouri Bot. Gard. 53, 39, 1966. *Hedyotis monosperma* Wall. ex Wight & Arn. Prodri. 410, 1834; Wight, Icon. t.1031, 1845. *Anotis monosperma* (Wall. ex Wight & Arn.) Hook.f. Fl. Brit. India 3: 75, 1880; Rao 206; Gamble 427,

Prostrate or procumbent herbs; stems grey-villous. Leaves 2.5-6.5 x 0.2-2 cm, membranous, villous on both sides, ovate-lanceolate, acuminate at apex, cuneate at base. Flowers white in terminal cymes.

Fairly common in wet localities of evergreen forests. Fl. & Fr.: May-Aug.

*Note:* Lewis J.c. has restricted the generic name *Anotis* DC. to the New World species and proposed a new name *Neanotis* Lewis for the Old World species.

#### *Neurocalyx* Hook.

*Neurocalyx calycinus* (R.Br. ex Benn.) Robinson in Proc. Amer. Acad. Arts. 45: 402, 1910. *Argostemma calycinum* R.Br. ex Benn. Fl. Java Rar. 97, 1838, (Before June 30). *Neurocalyx hookeriana* Wight, Icon. t.52, 1838 (Sept.). *N. wightii* Arn. Ann. Nat. Hist. Soc. ser. I, 3: 22, 1839; FBI 3: 47; Rao 203; Gamble 417.

Herbs 20-40 cm tall. Leaves 10-28 x 3-6 cm, oblanceolate, glabrous above, pubescent along the nerves beneath, acute at apex, narrowed at base. Flowers pinkish-white in axillary racemes; peduncles brown tomentose.

Fairly common in the undergrowth of evergreen forests of Bonecord. Fl. & Fr.: Apr.-Jul.

#### *Octotropis* Bedd.

*Octotropis travancorica* Bedd. Fl. Sylv. t.327, 1873; FBI 3: 131; Rao 120; Gamble 442.

Shrubs 3-4 m tall. Leaves 6.5-18.5 x 2.5-6 cm, elliptic-lanceolate, caudate-acuminate at apex, acute or rounded at base. Flowers white in axillary slender pedunculate cymes. Berries ellipsoid, 1-seeded.

Rare in evergreen forests of Chemungi and slopes of Agastyar-kudum. Fl. & Fr.: Apr.-May.

**Ophiorrhiza L.**

|                                 |   |
|---------------------------------|---|
| 1. Cymes densely villous        | <i>O. eriantha</i>                        |
| 1. Cymes sparsely puberulous:   |   |
| 2. Decumbent or prostrate herbs | <i>O. rugosa</i> var.<br><i>prostrata</i> |
| 2. Erect undershrubs or herbs:  |   |
| 3. Bracteoles absent            | <i>O. mungos</i>                          |
| 3. Bracteoles present           | <i>O. brunonis</i>                        |

**Ophiorrhiza brunonis** Wight & Arn. Prodr. 404. 1834; FBI 3: 79; Rao 206; Gamble 428.

Leaves 6-14 x 2-4.5 cm, membranous, elliptic-ovate, acuminate at apex, attenuate at base. Flowers white in terminal cymes.

Frequent in the undergrowth of evergreen forests at Kallar. Fl. & Fr.: Sept.-Dec.

**Ophiorrhiza eriantha** Wight, Icon. t. 1067. 1846; FBI 3: 81; Rao 207; Gamble 429.

Erect undershrubs 20-35 cm tall; stems hirsute. Leaves 7-20 x 2-5 cm, sparsely puberulous beneath, elliptic-lanceolate, acuminate at apex, acute or cuneate at base. Flowers pale red, sessile in cymes. Capsules hairy.

Common along the river banks in dense evergreen forests. Fl.: Jan.-Mar.

**Ophiorrhiza mungos** L. Sp. Pl. 150. 1753; FBI 3: 77; Rao 206; Gamble 428.

Stems puberulous. Leaves 6-13 x 2.5-4 cm, hairy above, puberulous along the nerves beneath, elliptic-lanceolate, acuminate at apex. Flowers white, shortly pedicelled.

Frequent in the moist undergrowths of evergreen forests. Fl.: Nov.-Jan. Fr.: Jan.-Mar. 'Avilpori'.

*Ophiorrhiza rugosa* Wall. var. *prostrata* (D. Don) Deb & Mondal in Bull. Bot. Surv. India 24: 228, 1982 (1983). *O. prostrata* D. Don, Prodri. Fl. Nep. 136, 1825 p.p.; Santapau & Merchant in Bull. Bot. Surv. India 3: 109, 1961. *O. harrisiae* Heyne ex D. Don, Gen. Syst. 3: 523, 1834 nom. nud.; Wight, Icon. t. 1162, 1846 '*harrisonii*'; FBI 3: 78; Rao 206; Gamble 428.

Stems sparsely tomentose. Leaves 1.5-4.5 x 1-2.5 cm, tomentose along the nerves beneath, ovate or ovate-lanceolate, acute at apex. Flowers white, subsessile; peduncles up to 3.5 cm long, slender.

Common in moist areas in the undergrowth of evergreen forests of Bonecord. Fl.: Sept.-Nov. Fr.: Dec.-Feb.

#### Pavetta L.

- |                             |                        |
|-----------------------------|------------------------|
| 1. Leaves tomentose beneath | <i>P. tomentosa</i>    |
| 1. Leaves glabrous beneath: |                        |
| 2. Leaves lanceolate        | <i>P. calophylla</i>   |
| 2. Leaves oblanceolate      | <i>P. oblanceolata</i> |

*Pavetta calophylla* Bremek. in Feddes Report 37: 90, 1934; Fisch. 1301.

Shrubs 1-1.5 m tall. Leaves 9-23 x 2.5-5 cm, lanceolate, acuminate at apex, cuneate at base. Flowers white in terminal panicles; corolla 4 cm long.

Rare in evergreen forests of Bonecord. Fl. & Fr.: Jan.-May.

*Pavetta oblanceolata* Bremek. in Feddes Report, 37: 91, 1934; Fisch. 1301.

Shrubs 2-2.5 m tall. Leaves 15.5-21.5 x 5.5-7 cm, glabrous, oblanceolate, abruptly acuminate at apex, cuneate at base. Flowers white in subsessile terminal panicles.

Rare in evergreen forests of Bonecord. Fl. & Fr.: Jan.-May.

*Pavetta tomentosa* Roxb. ex Sm. in Rees, Cyclop. 26(2): 52. 1813;  
*Fisch.* 1301. *P. indica* L. var. *tomentosa* (Roxb. ex Sm.) Hook.f.  
*Fl. Brit. India* 3: 150. 1880.

Trees or shrubs 3-5 m tall; young branches tomentose. Leaves 8.5-20 x 2.3-8.5 cm, sparsely puberulous above, tomentose beneath, elliptic-lanceolate, ovate or oblanceolate, acute or acuminate at apex. Flowers pinkish-white in terminal corymbiform sessile cymes. Fruits globose, green.

Occasional in moist deciduous forests of Kallar and Bonecord.  
 Fl. & Fr.: Jan.-Apr.

***Psychotria* L. nom. cons.**

- |   |                        |
|---|------------------------|
| 1. Flowers with rufous hairs                    | <i>P. nigra</i>        |
| 1. Flowers without rufous hairs :               |                        |
| 2. Branches of inflorescence whorled:           |                        |
| 3. Calyx limb truncate :                        |                        |
| 4. Leaves apiculate at apex                     | <i>P. truncata</i>     |
| 4. Leaves not apiculate at apex                 | <i>P. nudiflora</i>    |
| 3. Calyx limb lobed :                           |                        |
| 5. Calyx teeth ciliate                          | <i>P. nilgiriensis</i> |
| 5. Calyx teeth glabrous                         | <i>P. macrocarpa</i>   |
| 2. Branches of inflorescence opposite :         |                        |
| 6. Corolla tube curved                          | <i>P. curviflora</i>   |
| 6. Corolla tube straight :                      |                        |
| 7. Leaves elliptic-oblong; cymes<br>corymbiform | <i>P. flava</i>        |
| 7. Leaves oblanceolate; cymes racemiform        | <i>P. elongata</i>     |

***Psychotria curviflora* Wall.** in Roxb. Fl. Ind. 2: 167. 1824.  
***Chasalia curviflora* (Wall.) Thw.** Enum. 150. 1859; FBI 3: 176;

Rao 216; Gamble 453. *C. ophioxyloides* Craib in Gard. Bull. Straits Settlem. 6: 474. 1930; Sant. & Merch. in Bull. Bot. Surv. India 3: 108. 1961. *Psychotria ambigua* Wight & Arn. Prodr. 433. 1834; Wight, Ill. t.127. 1840.

Shrubs 1.5-2 m tall. Leaves 5-22 x 1.5-6 cm, membranous, elliptic, obovate or linear-oblong, acute, acuminate or cuspidate at apex, cuneate at base. Flowers sessile, reddish-white in terminal cymes. Fruits didymous, smooth.

Fairly common in evergreen forests. Fl. & Fr.: Mar.-Sept.

*Note*: A highly variable species, Hook.f. f.c. recognised two varieties: "*longifolia*" and "*ellipsoidea*" but many intermediate forms were met with.

**Psychotria elongata** (Wight) Hook.f. Fl. Brit. India 3: 163. 1880; Rao 215; Gamble 452. *Grumilea elongata* Wight, Icon. t.1036. 1845.

Shrubs 1.5-2.5 m tall. Leaves 6.5-16.5 x 4-6.5 cm, coriaceous, obovate or oblanceolate, shortly cuspidate at apex, cuneate at base; uppermost stipules connate. Flowers white. Fruits globose, faintly grooved.

Occasional in evergreen forests of Chemungi. Fl. & Fr.: Apr.-Jul.

**Psychotria flava** Talbot, Syst. List, Bombay 113. 1894; Gamble 452.

Shrubs 1.5-2 m tall. Leaves 9.5-21 x 2.5-7.5 cm, acuminate at apex, acute or cuneate at base. Flowers white. Fruits ellipsoid, smooth.

Fairly common in the undergrowth of evergreen forests of Boneccord. Fl. & Fr.: Mar.-May.

**Psychotria macrocarpa** Hook.f. Fl. Brit. India 3: 162. 1880; Rao 215; Gamble 451.

Shrubs 1.5-2.5 m tall. Leaves 9.5-16.5 x 2.5-7 cm, yellow when dry, coriaceous, glabrous, elliptic or oblanceolate, abruptly acuminate at apex, cuneate at base. Flowers white. Fruits ovate.

Occasional in the undergrowth of evergreen forests. Fl. & Fr.: May.-Aug.

**Psychotria nigra** (Gaertn.) Alston in Trimen, Handb. Fl. Ceylon (Suppl.): 152. 1931. *Grumilea nigra* Gaertn. Fruct. 1: 138. t.28. 1788. *Psychotria thwaitesii* Hook.f. Fl. Brit. India 3: 162. 1880; Rao 215; Gamble 451.

Shrubs 1-2.5 m tall. Leaves 7-14 x 2.5-7 cm, rusty puberulous beneath, elliptic, ovate or oblanceolate, abruptly acuminate at apex, cuneate at base. Flowers white. Fruits ellipsoid.

Occasional in evergreen forests. Fl. & Fr.: Feb.-Aug.

**Psychotria nilgiriensis** Deb & Gang. in Taxon 31: 546. 1982. *P. congesta* (Wight & Arn.) Hook.f. Fl. Brit. India 3: 162. 1880, non Spreng. ex DC. 1830; Rao 215; Gamble 451. *Grumilea congesta* Wight & Arn. Prodr. 432. 1834; Wight, Icon. t. 1037. 1845.

Shrubs 1-1.5 m tall. Leaves 7-15.5 x 2-5 cm, coriaceous, elliptic, obovate or oblanceolate, acuminate or acute at apex, cuneate at base. Flowers greenish-white in terminal cymes. Fruits ellipsoid, smooth.

Occasional in the undergrowth of evergreen forests of Suryakanti, Bonecord. Fl. & Fr.: May.-Sept.

**Psychotria nudiflora** Wight & Arn. Prodr. 434. 1834; FBI 3: 175; Rao 216; Gamble 452.

Shrubs up to 1.5 m tall. Leaves 10.5-14.5 x 2-4.5 cm, oblanceolate, abruptly acuminate at apex, cuneate at base. Flowers white. Fruits globose, dark blue.

Fairly common in evergreen forests of Benecord. Fl. & Fr.: Nov.-Mar.

**Psychotria truncata** Wall. in Roxb. Fl. Ind. 2: 162. 1824; FBI 3: 163; Rao 215; Gamble 451.

Shrubs 1.5-2 m tall. Leaves 8-10 x 3.5-5 cm, glabrous, coriaceous, obovate or orbicular, cuneate at base. Flowers white in sessile or shortly peduncled cymes. Fruits ellipsoid.

Occasional in evergreen forests of Chemungi. Fl. & Fr.: Mar.-May.

**Saprosma Blume**

**Saprosma corymbosum** (Bedd.) Bedd., For. Man. 134/12. 1872; FBI 3: 194; Rao 217; Gamble 458. *Serissa corymbosa* Bedd. Icon. t.17. 1868-1874.

Erect shrubs 2-5 m tall. Leaves 5-12 x 2-4 cm, 3-4-whorled, obovate to oblanceolate, shortly petioled, acute or acuminate at apex, cuneate at base. Flowers white in axillary or terminal corymbose cymes. Drupes 1 cm in diam., black, globose.

A common shrub in evergreen forests of Chemungi and nearby areas. Fl. & Fr.: Jan.-Apr.

**Tamilnadia Tirvengadum & Sastre**

**Tamilnadia uliginosa** (Retz.) Tirvengadum & Sastre in Mauritius Inst. Bull. 8(4): 85. 1979. *Gardenia uliginosa* Retz. Obs. 2. 14. 1781. *Randia uliginosa* (Retz.) DC. Prodr. 4: 386. 1830; FBI 3: 110; Bourd. 218; Rao 208; Gamble 434. *Xeromphis uliginosa* (Retz.) Maheswari in Bull. Bot. Surv. India 3. 92. 1962.

Armed shrubs 3-4 m tall; branches 4-angled. Leaves 7-12 x 5-7 cm, elliptic or oblanceolate, obtuse at apex, cuneate at base. Flowers white, fragrant. Berries many-seeded.

Frequent in deciduous forests of Kottur. Fl. & Fr.: Mar.-Apr. 'Karai'

Note: Tirvengadum & Sastre l.c. has accommodated this aberrant species, hitherto treated in *Randia* L. in a new genus *Tamilnadia* Tirvengadum & Sastre.

**Tarennia Gaertn.**

Note: The genus includes all the species treated under the generic names *Chomelia* L., *Rondelatia* L., *Webera* Schreb. and *Stylocoryne* Wight & Arn.

- |   |                      |
|---|----------------------|
| 1. Cymes sessile  | <i>T. monosperma</i> |
| 1. Cymes shortly peduncled:   |                      |
| 2. Calyx densely pubescent; fruits many-seeded                      | <i>T. asiatica</i>   |
| 2. Calyx glabrous or slightly puberulous;<br>fruits 1 or 2-seeded : |                      |

3. Corolla tube equalling the lobes;  
fruits 2-seeded *T. alpestris*
3. Corolla tube almost twice as long as  
the lobes; fruits one-seeded *T. canarica*

*Tarennia alpestris* (Wight) Balakr. in Bull. Bot. Surv. India 22: 175, 1980. *Coffea alpestris* Wight, Icon. t.1040, 1845. *C grumelloides* Wight, Icon. t.1041 1845. *Webera lucens* Hook.f. Fl. Brit. India 3: 106, 1880; Bourd. 216; Rao 208. *Stylocoryne lucens* (Hook.f.) Gamble, Fl. Pres. Madras 635, 1921 & 448, 1957 (repr. ed.).

Trees, 4-5 m tall. Leaves 3.5-9.5 x 1.5-2.5 cm, elliptic or oblanceolate, coriaceous, black when dry, acuminate at apex, cuneate at base. Flowers white in puberulous corymbiform cymes. Fruits ca. 1 cm in diam., globose.

Abundant in subtropical hill forests of Ponmudi and nearby areas. Fl.: Jan.-Mar. Fr.: May-Jul.

Note: *Coffea alpestris* and *C. grumelloides* were published in the same year (1845). Balakrishnan I.c. was the first to combine the two species, choosing the specific epithet 'alpestris' for the combined species and to transfer it to *Tarennia* Gaertn.

*Tarennia asiatica* (L.) O. Kuntze ex Schum. Bot. Tidsskr. 24: 332, 1902. *Rodeletia asiatica* L. Sp. Pl. 172, 1753. *Webera corymbosa* Willd. Sp. Pl. 1: 1224, 1798; FBI 3: 102; Bourd. 216; Rao 207. *Chomelia asiatica* (L.) O. Kuntze. Rev. Gen. Pl. 1: 278, 1891; Gamble 432. *Stylocoryne webera* A. Rich. in Mem. Soc. Hist. Nat. Paris 5: 248, 1834; Wight, Icon. t. 309, 1840 & 584, 1842.

Erect shrubs 2-3 m tall. Leaves 6-11.5 x 1.5-4 cm, black when dry, shining above, glaucous beneath, oblong-lanceolate, cuspidate at apex, cuneate at base. Flowers white in pubescent corymbiform cymes. Berries globose.

Fairly common from coastal zone to evergreen forests. Fl. & Fr.: Mar.-May & Sept.-Oct.

*Tarennia canarica* (Bedd.) Bremek. in Feddes Report. 37(7): 208, 1934. *Pavetta canarica* Bedd. For Man. 134/8, 1872. *Webera canarica* (Bedd.) Hook.f. Fl. Brit. India 3: 106, 1880; Rao 208. *Stylocoryne canarica* (Bedd.) Gamble, Fl. Pres. Madras 635, 1921 & 448, 1957 (repr. ed.).

Erect shrubs 2-4 m tall. Leaves 9-20 x 3-7 cm, glabrous, elliptic or oblanceolate, acute at apex, cuneate or acute at base. Flowers white in shortly petioled puberulous corymbiform cymes. Berries spherical.

Frequent in evergreen and semievergreen forests of Suryakanthi and adjoining areas. Fl. & Fr.: Mar.-Apr.

*Tarenna monosperma* (Wight & Arn.) Raju in Sci. & Cult. 32(11): 554, 1966. *Stylocoryne monosperma* Wight & Arn. Prodr. 401, 1834; Wight, Icon. t.317. 1840; Gamble 448. *Webera monosperma* (Wight & Arn.) Hook.f. Fl. Brit. India 3: 103. 1880; Rao 208.

Erect undershrubs. Leaves 10-21 x 3.5-7 cm, oblanceolate, glabrous, acuminate at apex, cuneate at base. Flowers puberulous in corymbiform cymes. Fruits ca. 0.8 cm in diam., globose, pale green.

Very rare, on the way to Kallar from Merchiston. Fl.: Mar.-May. Fr.: Jun.-Jul. 'Kattucappi'

#### **Wendlandia Bartl.**

*Wendlandia bicuspidata* Wight & Arn. Prodr. 1: 403 1834; Cowan in Notes Roy Bot. Card. Edinburgh 16: 273. 1932; Gamble 415. *W. notoniana* Wall. var. *bicuspidata* (Wight & Arn.) Hook.f. Fl. Brit. India 3: 40. 1882; Rao 203.

Trees 4-5 m tall; branchlets ferruginous-pubescent. Leaves 8-16 x 2-5 cm, elliptic or obovate, glabrous above, sparsely pubescent beneath, acuminate at apex, cuneate at base; stipules bicuspidate, simply cuspidate or blunt. Flowers white in axillary and terminal panicles. Capsules globose, 2-valved.

Common in deciduous forests. Fl. & Fr.: Dec.-May.

*Note*: *Wendlandia bicuspidata* Wight & Arn. is closely allied to *W. heyneana* Wall. but differs by the branchlets being ferruginous-pubescent; calyx lobes triangular and glabrous and shorter corolla tube.

#### **ASTERACEAE Dumort.**

1. Capitula homogamous:

2. Leaves mostly rosulate, few cauline *Elephantopus*

2. Leaves all caulin:
3. Plants stoloniferous; capitula in corymbs *Launaea*
3. Plants not stoloniferous; capitula clustered on the apices of branches:
4. Leaves alternate:
5. Capitula sessile *Struchium*
5. Capitula peduncled:
6. Corolla puberulous, glandular *Adenostemma*
6. Corolla glabrous, eglandular:
7. Styles with long hairs at the junction of stigmatic lobes *Crassocephalum*
7. Styles not as above:
8. Stigmatic lobes tapering into long appendages; plants succulent *Gynura*
8. Stigmatic lobes without appendages; plants not succulent:
9. Achenes truncate at apex *Emilia*
9. Achenes acute or obtuse at apex:
10. Pappus 2-seriate; achenes obtuse at apex *Phyllocephalum*
10. Pappus 1-seriate; achenes acute at apex *Vernonia*
4. Leaves opposite:
11. Achenes of the ray florets 2-ribbed, sometimes horned *Moonia*
11. Achenes of the ray florets 4-5-ribbed, not horned:
12. Achenes 4 mm long, scabrid *Chromolaena*
12. Achenes less than 2 mm long, hirsute *Ageratum*
1. Capitula heterogamous (rarely homogamous in *Bidens* and *Senecio*):

13. Leaves all opposite:
14. Anthers without any appendages at apex:
15. Capitula peduncled, solitary:
16. Capitula terminal *Spilanthes*
16. Capitula axillary *Galinsoga*
15. Capitula sessile or subsessile, not solitary *Eclipta*
14. Anthers with an appendage at apex:
17. Apical appendages of anthers rounded *Synedrella*
17. Apical appendages of anthers ovate:
18. Capitula sessile *Acanthospermum*
18. Capitula peduncled:
19. Capitula solitary:
20. Stems glabrous *Wedelia*
20. Stems hirsute *Tridax*
19. Capitula many:
21. Achenes curved; pappus absent *Sigesbeckia*
21. Achenes not curved; pappus of 2-9 barbed bristles *Bidens*
13. Leaves all or atleast the upper ones alternate:
22. Pappus absent in all achenes :
23. Capitula in glomerules subtended by a single bract *Sphaeranthus*
23. Capitula not as above :
24. Anthers caudate at base *Epaltes*
24. Anthers obtuse at base :
25. Leaves pinnatisect *Artemisia*
25. Leaves not pinnatisect *Centipeda*

22. Pappus present in all achenes of bisexual flowers (absent in achenes of female flowers in *Dichrocephala*) :
26. Anther bases obtuse, without appendages :
27. Pappus of 2-5 weak bristles *Blainvillea*
27. Pappus not as above :
28. Style lobes of bisexual flowers with appendages *Erigeron*
28. Style lobes of bisexual flowers without appendages *Conyza*
26. Anther bases sagittate, caudate or appendaged :
29. Capitula always solitary *Vicoa*
29. Capitula in panicles or corymbs (rarely solitary in *Tithonia*) :
30. Pappus absent in achenes of female flowers *Dichrocephala*
30. Pappus present in all achenes :
31. Pappus of 1-2 awns and intermediate scales *Tithonia*
31. Pappus not as above :
32. Tips of achenes beaked *Crepis*
32. Tips of achenes not beaked :
33. Leaves decurrent in a wing to the stems *Laggera*
33. Leaves not as above :
34. Leaves cottony woolly atleast when young : *Anaphalis*
35. Auricles of anthers connate
35. Auricles of anthers never connate :
36. Achenes 4-5-angled *Helichrysum*

- |                                 |                |
|---------------------------------|----------------|
| 36. Achenes 5-10-ribbed         | <i>Senecio</i> |
| 34. Leaves never cottony woolly | <i>Blumea</i>  |

**Acanthospermum Schr.**

**Acanthospermum hispidum** DC. Prodr. 5: 522. 1836; Gamble 495; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 206. 1980.

Dichotomously branched herbs; stems hispid, glandular. Leaves 2-7 x 1-4 cm, pilose, serrate, broadly ovate, obtuse or acute at apex, cuneate at base. Flowers yellow in axillary capitula. Achenes of ray florets with hooked bristles and two spines; achenes of disc florets glandular.

Fairly common in wastelands and roadsides in the plains. Fl. & Fr.: Throughout the year.

**Adenostemma J.R. & G. Forst.**

- |                        |                        |
|------------------------|------------------------|
| Seeds glabrous, smooth | <i>A. macrophyllum</i> |
| Seeds glandular, warty | <i>A. lavenia</i>      |

**Adenostemma lavenia** (L.) O. Kuntze, Rev. Gen. Pl. 1: 304. 1891; Gamble 476. *Verbesina lavenia* L. Sp. Pl. 902. 1753. *Adenostemma viscosum* Forst. Charact. 90. 1774; Clarke, Comp. Ind. 28. 1876; FBI 3: 242; Rao 221. *A. latifolium* D. Don, Prodr. Fl. Nep. 181. 1825; Wight, Icon. t. 1987. 1846.

Herbs 20-40 cm tall. Leaves 7-9 x 4-6 cm, glabrous, ovate-dentate, acute at apex, truncate at base. Flowers white in pedunculate, corymbose capitula.

Occasional in wastelands in plains. Fl. & Fr.: Aug.-Feb.

**Adenostemma macrophyllum** (Blume) DC. Prodr. 5: 113. 1836; Kosterm. in Blumea 1: 480. 1935; Grierson in Ceylon J. Sci. Biol. Sci. 10: 47. 1972. *Lavenia macrophylla* Blume, Bijdr. 905. 1826. *A. viscosum* var. *reticulatum* (DC.) Clarke, Comp. Ind. 30. 1876; FBI 3: 242; Rao 221; Gamble 476. *A. reticulatum* DC. in Wight, Contrib. 8. 1834.

Erect, annual herbs 30-50 cm tall. Leaves 12-22 x 5-10 cm, pubescent when young, dentate, acuminate at apex, cuneate at base. Flowers white in pedunculate corymbose capitula. Pappus a ring of short hairs.

Frequent in higher altitudes of Agastyarkudum. Fl. & Fr.: Aug.-Nov.

*Ageratum* L.

*Ageratum conyzoides* L. Sp. Pl. 839. 1753; Clarke, Comp. Ind. 30; 1876 FBI 3: 243; Rao 221; Gamble 476; Kosterm. in Blumea 1: 484. 1935; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 141. 1980.

Erect, annual herbs 25-35 cm tall; stems pilose. Leaves 2-6.5 x 1-2.5 cm, hirsute on both sides, crenate, ovate, acute at apex, cuneate to obtuse at base. Flowers purplish-white in terminal corymbose capitula. Achenes oblong with 5 pappus scales.

Abundant from coastal to mountainous zone. Fl. & Fr.: Almost throughout the year.

*Anaphalis* DC.

- |                            |                        |
|----------------------------|------------------------|
| 1. Capitula peduncled      | <i>A. leptophylla</i>  |
| 1. Capitula sessile:       |                        |
| 2. Leaves semi-amplexicaul | <i>A. wightiana</i>    |
| 2. Leaves not as above     | <i>A. subdecurrens</i> |

*Anaphalis leptophylla* (DC.) DC. Prodr. 6: 273. 1837; FBI 3: 285; Gamble 490. *Helichrysum leptophyllum* DC. in Wight, Contrib. 20. 1834.

Herbs 30-45 cm tall. Leaves 1.5-2.5 x 0.2-0.4 cm, cottony woolly, narrowly oblanceolate, acute at apex, cuneate at base. Flowers white in terminal, pedunculate capitula.

Occasional in western slopes of Agastyarkudum. Fl. & Fr.: Aug.-Oct.

*Anaphalis subdecurrens* (DC.) Gamble, Fl. Pres. Madras 695. 1921 & 490. 1957 (repr. ed.); Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 194. 1980. *Gnaphalium subdecurrens* DC. in Wight, Contrib. 21. 1834. *Anaphalis oblonga* DC. Prodr. 6: 274. 1837; Clarke, Comp. Ind. 112. 1876; FBI 3: 283; Rao 224.

Erect herbs 25-35 cm tall; stems cottony woolly. Leaves 2-3 x 0.2-0.5 cm, sessile, cottony woolly, linear-oblong to oblanceolate,

acute at apex, narrowed at base. Flowers white in terminal corymbose capitula. Achenes minutely puberulent.

Common in grassy slopes at Ponmudi and Chemungi. Fl. & Fr.: Throughout the year.

*Anaphalis wightiana* (DC.) DC. Prodr. 6: 273. 1837; FBI 3: 286; Rao 224; Gamble 490. *Gnaphalium wightianum* DC. in Wight, Contrib. 21. 1834.

Herbs 30-40 cm tall with woody, branched stems. Leaves 1.5-4x 0.3-0.6 cm, cottony woolly, oblanceolate, obtuse or slightly apiculate at apex, semiamplexicaul at base. Flowers pinkish-white in sessile capitula.

Rare in exposed areas of evergreen forests. Fl. & Fr.: Aug.-Oct.

#### Artemisia L.

*Artemisia nilagirica* (Clarke) Pamp. Nuov. Giorn. Bot. Ital. 33: 452. 1926. *A. vulgaris* L. var. *nilagirica* Clarke, Comp. Ind. 162. 1876; Rao 227. *A. indica* sensu Wight, Icon. t. 1112. 1846 non Willd. 1803. *A. vulgaris* auct. non L. 1753; Gamble 502.

Erect or straggling shrubs ca. 1 m tall. Leaves 4-6 cm long, pinnatifid, scabrid above, white pubescent beneath. Flowers white.

Abundant along roadsides in the ghats. Fl. & Fr.: Oct.-Feb.

#### Bidens L.

Ray florets white; leaflets serrate *B. pilosa*

Ray florets yellow; leaflets dentate to  
pinnatifid *B. biternata*

*Bidens biternata* (Lour.) Merr. & Sherff in Bot. Gaz. 88: 293. 1929 & in Publ. field. Mus. Nat. Hist. Bot. Ser. 16: 388. pl. 99. f. a and c-m. 1973, *Coreopsis biternata* Lour. Fl. Cochinch. 508. 1790. *Bidens pilosa* var. *bipinnata* (L.) Hook.f. Fl. Brit. India 3: 309. 1881. *B. pilosa* auct. non L. 1753; Gamble 499.

Erect herbs 20-30 cm tall. Leaves 5-8 cm long, pilose, simple or pinnate; terminal leaflets 3.5-6 x 1.5-2 cm, ovate, acuminate

at apex, laterals smaller. Flowers pale yellow in dichotomously branched paniculate capitula. Achenes glabrous or sparsely pubescent.

Abundant in cultivated fields and waste places. Fl. & Fr.; Aug.-Dec.

*Bidens pilosa* L. var. *minor* (Blume) Sherff in Bot. Gaz. 70, 387. 1925 & in Publ. Field. Mus. Nat. Hist. Bot. Ser. 16: 421; Pl. 102, f.c, D & K r. 1973; Rao 226. *Bidens bundaica* var. *minor* Blume, Bijdr. 914. 1826.

Erect shrubs. Leaves 5-9 cm long, pilose, trifoliolate; terminal leaflets 6.5-8 x 2-2.4 cm, serrate, ovate-lanceolate, acuminate at apex; cuneate at base; laterals 3-4 x 1-2 cm. Flowers white or pale yellow in pedunculate capitula. Achenes ca. 0.5 cm, long, scabrid; pappus 3, ciliate.

A common weed in tea and coffee estates. Fl. & Fr.: Aug.-Dec.

#### *Blainvillea* Cass.

*Blainvillea acmella* (L.) Philipson in Blumea 6: 350. 1950; Girerson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 263. 1980. *Verbesina acmella* L. Sp. Pl. 901. 1953. *Blainvillea latifolia* (L.f.) DC. in Wight, Contrib. 17. 1834 & Prodr. 5: 492. 1836; Clarke, Comp. Ind. 135. 1876; FBI 3: 305; Rao 225; Gamble 496. *Eclipta latifolia* L.f. Suppl. Pl. 378. 1781.

Herbs 50 cm tall; stems angular, hispid. Leaves 6-13 x 2-7 cm, hirsute, serrate, ovate, acuminate at apex, cuneate at base. Flowers white in solitary pedunculate capitula. Achenes triquetrous, awned.

Rare in moist areas of the plains. Fl.: Dec.-Feb. Fr.: Apr.-May.

#### *Blumea* DC. *nom. cons.*

1. Shrubs 2 m or more tall                   *B. lanceolaria* var. *spectabilis*
1. Herbs or undershrubs, under 1 m tall:
2. Achenes glabrous :

- 3. Corolla lobes of bisexual flowers  
hispida  
*B. belangeriana*
- 3. Corolla lobes of bisexual flowers  
glabrous  
*B. mollis*
- 2. Achenes hairy :
  - 4. Leaves velutinous, white-hairy  
beneath  
*B. barbata*
  - 4. Leaves glabrate or sparsely hairy:
    - 5. Achenes 8-ribbed  
*B. virens*
    - 5. Achenes 5-ribbed :
      - 6. Leaves glandular hairy;  
capitula ca. 0.6 cm across  
*B. lacera*
      - 6. Leaves eglandular; capitula  
ca. 1 cm across  
*B. membranacea*

*Blumea barbata* DC. in Wight, Contrib. 14. 1834 & Prodr. 5: 434, 1836; Clarke, Comp. Ind. 73. 1876; FBI 3: 262; Rao 222; Gamble 483; Randeria in *Blumea* 10: 267. 1960; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 171. 1980.

Erect undershrubs up to 50 cm tall. Leaves 3-7x1-2 cm, glandular hairy on the upper surface, white silky pubescent beneath, dentate, ovate, acute at apex, attenuate at base. Florets yellow in paniculate capitula. Achenes ribbed, pubescent, pappus white.

Rare in submontane zones of Agastyarkudum and Ponmudi, Fl. & Fr.: Dec.-Jul.

*Blumea belangeriana* DC. Prodr. 5: 444. 1836; FBI 3: 266; Gamble 482; Randeria in *Blumea* 10: 277. 1960.

Erect herbs 10-30 cm tall. Leaves 1-3 x 0.5-1.5 cm, glandular hairy above, white silky pubescent beneath, ovate or oblanceolate, dentate, acute at apex, cuneate at base. Flowers yellow.

Occasional along streams and roadsides at Ponmudi, Fl. & Fr.: Dec.-Feb.

*Blumea lacera* (Burm.f.) DC. in Wight, Contrib. 14. 1834; FBI 3: 263; Clarke, Comp. Ind. 76. 1876; Rao 222; Gamble 483; Rande-

ria in *Blumea* 10: 264. 1960; Grierson in *Ceylon J. Sci. Biol. Sci.* 11: 13. 1974 & Dassanayake, Rev. Handb. Fl. Ceylon 170. 1980. *Conyza lacera* Burm.f. Fl. Ind. 180. t.59, f.1. 1768.

Annual herbs 30-40 cm tall. Leaves 2.5-7.5 x 0.8-4.5 cm, obovate, obtuse at apex, attenuate at base. Florets yellow with pink tinge in axillary and terminal, paniculate capitula. Achenes 4-angled, glabrate.

Common in road cuttings in Ponmudi and Bonecord. Crushed leaves locally used to stop bleeding. Fl. & Fr.: Dec.-Feb.

*Blumea lanceolaria* (Roxb.) Druce var. *spectabilis* (DC.) Randeria in *Blumea* 10: 218. 1960. *B. spectabilis* DC. Prodr. 5: 445. 1836; FBI 3: 269; Rao 222; Gamble 484.

Leaves 7-24 x 1-5 cm, sparsely pubescent beneath, denticulate elliptic-oblong, acuminate at apex, cuneate at base. Flowers yellowish-white in paniculate capitula. Achenes linear-oblong, puberulous, 10-ribbed; pappus reddish on drying.

Occasional in semievergreen forests. Fl. & Fr.: Aug.-Mar.

*Blumea membranacea* Wall. ex DC. Prodr. 5: 440. 1836; Randeria in *Blumea* 10: 269. 1960; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 172. 1980. *Blumea membranacea* var. *gardneri* Hook.f. Fl. Brit. India 3: 265. 1881; Rao 222; Gamble 484.

Annual herbs 30-50 cm tall. Leaves 3-9.5 x 1-4 cm, sparsely pubescent, lyrate pinnatisect, acute at apex, attenuate at base. Flowers yellow in terminal and axillary, pedunculate capitula. Achenes 5-ribbed, pubescent,

Fairly common in evergreen forests of Ponmudi. Fl. & Fr.: Oct.-Apr.

*Blumea mollis* (D.Don) Merr. in Philipp, J. Sci. 5: 395. 1910; Randeria in *Blumea* 10: 261. 1960; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 169. 1980. *Erigeron molle* D.Don, Prodr. Fl. Nep. 172. 1825. *Blumea wightiana* DC. in Wight, Contrib. 14. 1834. *B. neilgherrensis* Hook.f. Fl. Brit. India 3: 261. 1881; Gamble 483.

Erect, hirsute herbs 20-30 cm tall; stems pilose, glandular. Leaves 2.5-4 x 1-2 cm, pilose, stipitate-glandular, serrate, obovate,

acute and apiculate at apex, cuneate at base. Flowers pinkish in terminal and axillary paniculate capitula. Achenes angular; pappus white.

Fairly common along streams in moist deciduous and evergreen forests. Fl. & Fr.: Jun.-Nov.

*Blumea virens* Wall. ex DC. in Wight, Contrib. 14. 1834 & Prod. 5: 439. 1836; FBI 3: 264; Gamble 483; Rao 222; Randeria in Blumea 10: 272. 1960; Grierson in Ceylon J. Sci. Biol. Sci. 17: 13. 1974 & in Dassanayake, Rev. Handb. Fl. Ceylon 1: 173. 1980.

Undershrubs 30-50 cm tall. Leaves 5-10 x 3-5 cm, sparsely pilose, irregularly serrate, lower lobed, oblanceolate, acute or shortly acuminate at apex, attenuate at base. Flowers yellowish-white in terminal paniculate capitula. Achenes linear-elliptic, 8-ribbed, finely pubescent.

Occasional in secondary moist deciduous forests of Kottur and Bonecord. Fl. & Fr.: Dec.-Apr.

Note: The plant is often confused with *B. membranacea* as it resembles with it in general appearance but *B. virens* is distinguishable by its eglandular indumentum.

#### *Centipeda* Lour.

*Centipeda minima* (L.) R.Br. et Aschers. Ind. Bom. Hort. Berol. App. 6. 1867; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 236. 1980. *Artemisia minima* L. Sp. Pl. 849. 1753. *Centipeda orbicularis* Lour. Fl. Cochinch. 493. 1790; FBI 3: 317; Clarke, Comp. Ind. 151. 1876; Rao 226; Gamble 477.

Diffuse herbs. Leaves 1-1.5 x 0.2-0.5 cm, serrate, oblanceolate, acute at apex, cuneate at base. Flowers brown, scented in axillary sessile capitula. Achenes 4-angled, glandular hairy.

Common in moist situations in the ghats. Leaves applied for tooth-ache. Fl. & Fr.: May.-Jul.

#### *Chromolaena* DC.

*Chromolaena odorata* (L.) King & Robinson in Phytologia 20: 204. 1970. *Eupatorium odoratum* L. Syst. ed. 10. 1205. 1759; FBI 3: 224; Clarke in Comp. Ind. 30. 1876; Robinson in Proc. Amer. Acad.

Arts 54: 280. 1918; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 143. 1980.

Straggling shrubs. Leaves 5-10 x 2.5-5.0 cm, puberulous above, pubescent beneath, ovate, deeply dentate, acuminate at apex, cuneate at base. Florets bluish-white in terminal corymbose capitula. Achenes blackish, 4-5 ribbed, scabrid; pappus white.

Abundant along roadsides and wastelands in plains and margins of estates. '*Communistpacha*' Fl. & Fr.: Dec.-Feb.

*Conyza* Less. nom. cons.

*Conyza bonariensis* (L.) Cronquist in Bull. Torrey Bot. Club 70: 632. 1943; Grierson in Ceylon J. Sci. Biol. Sci. 10: 53. 1972. *Erigeron bonariensis* L. Sp. Pl. 863. 1753; Burtt in Kew Bull. 371. 1948. *E. linifolius* Willd. Sp. Pl. 3: 1955, 1803; FBI 3: 254. *Conyza ambigua* DC. Fl. Fr. 6: 468. 1815; Gamble 480.

Erect annual herbs up to 50 cm tall; stems appressed hairy. Leaves 2-7 x 0.3-1.5 cm, hirsute, serrate, oblanceolate, acute at apex, attenuate at base. Flowers yellow in terminal paniculate capitula. Achenes glabrous or hairy; pappus brownish.

A common weed in tea estates. Fl. & Fr.: Jul.-Sept.

*Crassocephalum* Moench

*Crassocephalum crepidoides* (Benth.) Moore in J. Bot. 50: 211. 1912; Belcher in Kew Bull. 462. 1955; Steenis in J. Indian Bot. Soc. 46: 463. 1967; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 248. 1980; Nair & Srinivasan in J. Econ. Tax. Bot. 3: 290. 1982. *Gynura crepidoides* Benth. in Hook.f. Nigr. Fl. 438. 1849; Raju, Trop. Ecol. 7: 171. 1968.

Erect herbs up to 60 cm tall. Leaves 4.5-15 x 1.5-5 cm, pilose, lanceolate, dentate, or lobed, acuminate at apex, cuneate at base. Flowers orange in downturned terminal capitula. Achenes oblong, finely puberulous.

Abundant in tea estates. Fl. & Fr.: Jul.-Sept.

Note: This weed is often confused with *Erechtites valerianifolia* (Wolf) DC. and these two were mostly misidentified. However, *Crassocephalum crepidoides* is distinct from the latter by

the uniformly cylindric and weakly ribbed achenes of tubular florets, homogamous heads, brick red florets without female flowers and white pappus.

*Dicrocephala* L. Herit.

Peduncles ca. 1.5 cm long *D. integrifolia*

Peduncles ca. 2.5 cm long *D. chrysanthemifolia*

*Dicrocephala chrysanthemifolia* DC. in Wight, Contrib. 11: 1834 & Prodr. 5: 327, 1836; Wight, Icon. t. 1095, 1846; FBI 3: 245; Gamble 477.

Erect herbs 60-75 cm tall; stems hispid. Leaves 4-7 x 2-3 cm, hispid, serrate to pinnatifid, ovate or obovate. Flowers pinkish in globose capitula.

Occasional in moist areas of tea estates. Fl. & Fr.: Dec.-Feb.

*Dicrocephala integrifolia* (L.f.) O.Kuntze, Rev. Gen. 1: 333. 1891; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 149. 1980. *Hippia integrifolia* L.f. Suppl. Pl. 389. 1781. *Grangea latifolia* Lam. Encycl. Suppl. 2: 826. 1812, l. 111. t. 699 f. 1. 1823. *Dicrocephala latifolia* (Lam.) DC. in Wight, Contrib. 11: 1834 & Prodr. 5: 372. 1836; Wight, Icon. t. 1096. 1846; Clarke, Comp. Ind. 36. 1876; Rao 221; FBI 3: 245; Gamble 679.

Decumbent, villous herbs 15-30 cm tall. Leaves 2-4.5 x 1-2.0 cm, dentate or irregularly pinnatisect, acute at apex, cuneate at base. Florets greenish-white in terminal and axillary panicles. Achenes minutely glandular at apex.

A fairly common weed in tea estates in wet areas. Fl.: Apr.-June. Fr.: Jul.-Sept.

*Eclipta* L. nom. cons.

*Eclipta prostrata* (L.) L. Mant. Alt. 286. 1771; Grierson in Rev. Handb. Fl. Ceylon 1: 212. 1980. *Verbesina prostrata* L. Sp. Pl. 902. 1753. *Eclipta alba* (L.) Hassk. Pl. Jav. Rar. 528. 1841; Clarke, Comp. Ind. 134. 1876; FBI 3: 304; Rao 224; Gamble 496. *Verbesina alba* L. Sp. Pl. 902. 1753.

Herbs; stems red, rooting at nodes, pilose. Leaves 2.5 x 0.8-1.5 cm, pilose, entire or obscurely serrate, elliptic-ovate, acute

at apex, cuneate at base. Flowers white, axillary. Achenes sparsely pubescent at tip.

Abundant in wet areas of the plains. Fl. & Fr.: May-Jul. '*Kytonni*'.

*Note*: Roxburgh (Fl. Ind. 3: 438. 1832) was the first to unite the species *Eclipta prostrata* (L.) L. and *E. alba* (L.) Hassk. and his choice of the specific epithet 'prostrata' must be retained (vide Taxon 30: 505: 1981).

#### *Elephantopus* L.

*Elephantopus scaber* L. Sp. Pl. 814. 1753; Wight, Icon. t.1086. 1846; FBI 3: 242; Rao 220; Gamble 476; Koster. in Blumea 1: 456. 1935; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 135. 1980.

Erect herbs with rhizomatous, rootstocks; stems strigose. Leaves 4-7 x 1.5-2.5 cm, scabrous or sparsely hirsute above, pilose beneath, crenate, serrate, oblong, acute at apex, narrowed at base; cauline leaves shorter, sessile. Flowers blue in glomerules surrounded by 3 bracts. Achenes oblong, 10-ribbed.

Common throughout the plains and mountainous zones up to 1200 m. Fl. & Fr.: Dec.-Feb.

#### *Emilia* Cass.

- |  |                       |
|--|-----------------------|
| 1. Leaves crisped pubescent on both surfaces | <i>E. javanica</i>    |
| 1. Leaves glabrous above :                   |                       |
| 2. Leaves entire or obscurely crenate        | <i>E. ramulosa</i>    |
| 2. Leaves irregularly pinnatifid             | <i>E. sonchifolia</i> |

*Emilia javanica* (Burm.f.) C.B. Robs. in Philip. J. Sci. 3: 217. 1908; Raizada in Indian Forester 94: 442. 1968. *Hieracium javanicum* Burm.f. Fl. Ind. 174. t.57. f.1. 1768. *Emilia flammula* Cass. in Dict. Sci. Nat. 14: 406. t.5. 1819; FBI 3: 336; Gamble 503.

Erect herbs; stems pilose. Leaves 2.5-12.5 x 1.5-5 cm, obovate or subspatulate, acute or obtuse at apex, sagittately auricled at base. Flowers scarlet in terminal pedunculate capitula. Achenes 5-ribbed, scabrid.

Occasional in the plains. Fl. & Fr.: Apr.-Aug.

*Emilia ramulosa* Gamble in Bull. Misc. Inform. 120. 1921 & Fl. Pres. Madras 504. 1957 (repr. ed.); Gerab. in Bull. Misc. Inform. 144. 1924.

Herbs 20-30 cm tall. Leaves 3.5-5 x 0.5-1.5 cm, crispate, hirsute beneath, entire or obscurely crenate, spatulate, obtuse at apex, cuneate at base. Flowers pink in terminal capitula. Achenes hispid along angles.

Scarce in Agastyarkudum. Fl. & Fr.: May.-Oct.

*Emilia sonchifolia* (L.) DC. in Wight, Contrib. 24. 1834 & Prodr. 6: 302. 1837; FBI 3: 336; Rao 227; Gamble 503; Fosberg in Ceylon J. Sci. Biol. Sci. 10: 65. 1972; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 252. 1983. *Cacalia sonchifolia* L. Sp. Pl. 835. 1753.

Herbs 15-20 cm tall. Leaves 3-7 x 0.5-3.5 cm, sparsely pubescent beneath, irregularly dissected, terminal part triangular. Flowers pink in terminal capitula. Achenes 5-ribbed, ribs grooved, pubescent.

A common weed of cultivated lands both in plains and ghats.  
Fl. : Dec.-Feb.

#### *Epaltes* Cass.

*Epaltes divaricata* (L.) Cass. in Bull. Sci. Soc. Philom. Paris 139. 1818; FBI 3: 274; Rao 223; Gamble 486; Grierson in Ceylon J. Sci. Biol. Sci. 11: 15. 1974 & in Dassanayake, Rev. Handb. Fl. Ceylon 178. 1980. *Ethulia divaricata* L. Mant. Pl. 110. 1767.

Erect or diffuse herbs. Leaves 2-5 x 0.2-0.7 cm, dentate, linear-oblong or oblanceolate, acute at apex, narrowed at base. Flowers violet, solitary or in corymbose capitula. Achenes glandular, 10-ribbed.

Rare along the sand strands of the coast. Fl. & Fr.: May.-Oct.

#### *Erigeron* L.

Prostrate herbs; leaves mucronate at apex

*E. karvinskianus*

Erect undershrubs; leaves not mucronate  
at apex

*E. canadensis*

*Erigeron canadensis* L. Sp. Pl. 863. 1753; Clarke, Comp. Ind. 51. 1876; FBI 3: 254. 1881; Gamble 479.

Undershrubs 0.5-1 m tall. Leaves 1.2-5.5 x 0.2-1.2 cm, pubescent, serrate, obovate-oblong, acute at apex, cuneate at base. Flowers pale yellow in corymbose panicles. Achenes minutely villos.

A common weed in tea estates of Ponmudi and Bonecord.  
Fl. & Fr.: Almost throughout the year.

*Erigeron karvinskianus* DC. Prodr. 5: 285. 1836; Grierson in Ceylon J. Sci. Biol. Sci. 10: 52. 1972 & in Dassanayake, Rev. Handb. Fl. Ceylon 1: 164. 1980. *E. mucronatus* DC. Prodr. 5: 285. 1836; Gamble 480.

Prostrate herbs. Leaves 1-2.5 x 0.2-0.5 cm, entire or dissected, fascicled at nodes, oblanceolate, cuneate at base. Ray florets white, disc florets yellow. Achenes puberulous.

Abundant in tea estates. Fl.: Throughout the year.

Note: Of the two competing names of De Candolle *E. mucronatus* was widely adopted. However, Standley (Contrib. U. S. Nat. Herb. 23: 1499. 1926), who first united the two species, adopted *E. karvinskianus* DC. for the combined species, and his choice should be retained. Gaullochet (Bull. Soc. Bot. France 111: 126-137. 1954) and Gaullochet et al. (Comptes Rendus 90. Congr. Nat. Soc. Sav. 3: 481-490. 1965) clarified that the lobing of the leaves is only photoperiodic modifications.

#### *Galinsoga Ruiz, & Pav.*

*Galinsoga parviflora* Cav. Icon. t-3: 41. t.281. 1896; Clarke in Comp. Ind. 142. 1876; FBI 3: 331; Gamble 500; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 231. 1980.

Herbs 20-30 cm tall. Leaves 1.5-4.5 x 0.8-2.5 cm, ovate, shortly acuminate at apex, rounded at base. Flowers yellow in axillary and terminal capitula. Achenes angled or dorsally compressed

A common weed in tea estates at Ponmudi and Bonecord.  
Fl. & Fr.: Throughout the year.

#### *Gynura Cass. nom. cons.*

Leaves auricled at base; achenes hispid  
between ribs

*G. nitida*

Leaves not auricled at base; achenes  
villous *G. pseudo-china*

*Gynura nitida* DC. in Wight, Contrib. Bot. Ind. 24. 1834; Wight,  
Icon. t. 1121. 1846; FBI 3: 333; Gamble 502.

Succulent glabrous herbs. Leaves 5-7 x 2-3 cm, crowded to-  
wards the bases of branches, serrate, oblanceolate, obtuse at  
apex, auricled at base. Flowers orange in hispid heads.

Common in the upper ghats of Ponmudi. Fl. & Fr.: Jun.-  
Sept.

*Gynura pseudo-china* DC. Prodr. 5: 299. 1836; FBI 3: 334;  
Rao 227; Gamble 502.

Erect herbs ca. 0.5 m tall. Leaves 6-11 x 1-2 cm, glabrous,  
fleshy, linear-oblanceolate, crenate, acute at apex, cuneate at  
base. Flowers yellow.

A common weed in the tea estates. Fl. & Fr.: Aug.-Dec.

#### *Helichrysum* Mill. *nom. cons.*

*Helichrysum buddleoides* DC. var. *hookerianum* (Wight & Arn.)  
Hook.f. Fl. Brit. India 3: 291. 1881; Grierson in Ceylon J. Sci.  
Biol. Sci. 11: 17. 1974 & in Dassanayake, Rev. Handb. Fl.  
Ceylon 1: 178. 1980. *H. hookerianum* Wight & Arn. In DC. Prodr.  
6: 201. 1837; Gamble 699.

Erect or scrambling herbs, ca. 1.5 m tall; stems cottony  
white tomentose. Leaves 3.5-4.5 x 1-1.5 cm, sessile, cottony, ob-  
lanceolate, acute, narrowed at base. Flowers yellow in terminal  
corymbose capitula. Achenes oblong, puberulous.

Fairly common along the road cutting and in exposed slopes  
of hills. Fl.: Apr.-Sept.

#### *Laggera* Schultz ex Oliver

*Laggera alata* (D. Don) Schultz ex Oliver in Trans. Linn. Soc.  
London 39: 94. 1137; Clarke in Comp. Ind. 91. 1876; FBI 3: 271;  
Rao 222; Gamble 485. *Erigeron alatum* D. Don, Prodr. Fl. Nepal  
171. 1825. *Blumea alata* (D. Don) DC. Prodr. 5: 1836; Grierson  
in Ceylon J. Sci. Biol. Sci. 11: 12. 1974 & in Dassanayake, Rev.  
Handb. Fl. Ceylon 1: 167. 1910.

Herbs 30 cm tall. Leaves 2.5-6 x 0.8-2.5 cm, sessile, scabrid on both surfaces, ovate-oblong, serrate, acute at apex, cuneate at base. Flowers white in racemose panicles. Achenes silky-villous, faintly 5-6-ribbed.

Rare in evergreen forests of Ponmudi. Fl. & Fr.: Dec.-Mar.

#### *Launaea* Cass.

*Launaea acaulis* (Roxb.) Bab., ex Kerr, in Craib, Fl. Siam. Enum. 2: 229, 1936. *Premnanthus acaulis* Roxb. Fl. Ind. 3: 403, 1832. *Lactuca glabra* DC. in Wight, Contrib. 26, 1834. *Microrhynchus glabra* (DC.) Wight, Icon. t.1145, 1846. *Crepis acaulis* (Roxb.) Hook.f. Fl. Brit. India 3: 396, 1881; Rao 224; Gamble 513.

Stoloniferous herbs 15 cm tall. Leaves 8-23 x 1-3 cm, radical, entire or pinnatisect, acute at apex, narrowed at base. Flowers yellow with purple striations. Achenes ellipsoid, 8-ribbed, glabrous.

Rare on exposed moist areas at Ponmudi. Fl. & Fr.: Dec.-Feb.

#### *Moenia* Arn.

*Moenia heterophylla* Arn. Nov. Actorum Caes. Leop. Carol. Nat. Cur. 18: 349, 1836; Stuessy in Brittonia 27: 98, 1975; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 207, 1980. *Chrysogonum heterophyllum* (Arn.) Clarke in Comp. Ind. 132, 1876 & FBI 3: 303; Rao 224; Gamble 495.

Annual herbs ca. 1 m tall. Leaves 8-16 cm long, pinnatifid or pinnate; leaflets 3-8 x 1-3 cm, brown pubescent when young, deeply serrate, ovate, acuminate at apex, cuneate at base. Florets golden-yellow. Achenes horned at tip.

Rare in the undergrowth of evergreen forests at Bonecord. Fl. & Fr.: Sept.-Jun.

#### *Phyllocephalum* Blume

*Phyllocephalum scabridum* (DC.) Krikman in Rhodora 83(833): 10, 1981. *Decaneurum scabridum* DC. in Wight, Contrib. 7, 1834. *Centratherum rangacharii* Gamble in Bull. Mic. Inform. 338, 1920 & Fl. Pres. Madras 667, 1921; 469, 1957 (repr. ed.).

Erect herbs 20-35 cm tall; stems pubescent. Leaves 2-6 x 0.5-3 cm, hirsute, black above, white tomentose beneath except the nerves, crenulate, obovate, acute at apex, cuneate at base. Flowers pink. Achenes 10-ribbed; pappus yellowish.

Fairly common in grassy slopes of Ponmudi. Fl. & Fr.: Feb.-Oct.

Note: Krikman J.c. studied the geographical correlation of pollen grains and chromosomes of *Centratherum* sensu Benth. and proposed 2 genera. *Centratherum* Cass. distributed in New World, Australia and Philippines, and *Phyllocephalum* Blume distributed in India and Java. Based on the above study, she argues a polyphyletic origin and a convergent evolution of these two genera from *Vernonia* L.

#### *Senecio* L.

- |                                    |   |
|------------------------------------|---|
| 1. Climbing shrubs; leaves dentate | <i>S. corymbosus</i> var.<br><i>walkeri</i> |
| 1. Erect herbs; leaves pinnatifid: |   |
| 2. Leaves glabrous                 | <i>S. tenuifolius</i>                       |
| 2. Leaves hispid                   | <i>S. ludens</i>                            |

*Senecio corymbosus* Wall. ex DC. var. *walkeri* (Arn.) Grierson in Ceylon J. Sci. Biol. Sci. 11: 22. 1974 & in Dassanayake, Rev. Handb. Fl. Ceylon 1: 261. 1980. *S. walkeri* Arn. in Nova Acta Physc. Med. Acad. Caes. Leop. Carol. Nat. Cur. 18: 349. 1836, non Thw. 1860; FBI 3: 351; Gamble 723.

Climbing shrubs. Leaves 6-10 x 2.5-6 cm, cottony pubescent along the nerves beneath, dentate, ovate, acuminate at apex, truncate or cordate at base. Florets yellowish-white in terminal and axillary discoid capitula. Achenes glabrous, 5-ribbed.

Fairly common on the edges of evergreen forests near Agasthyakudum. Fl. & Fr.: Dec.-Feb.

*Senecio ludens* Clarke, Comp. Ind. 199. 1875; FBI 3: 345; Rao 228; Gamble 508; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 258. 1980.

Rhizomatous herbs ca. 30 cm tall. Leaves 3.5-8 x 1.5-3 cm, hispid, pinnatifid, terminal lobes orbicular, cordate. Florets yellow

in terminal corymbose capitula. Achenes 5-angled, hispid; pappus white.

Occasional in moist deciduous forests of Kotur. Fl.: Oct.-Feb.

*Senecio tenuifolius* (Wight) Burm.f. Fl. Ind. t.60, f.4. 1768; FBI 3: 345; Rao 228; Gamble 508. *Doronicum tenuifolium* Wight, Icon. t.1129. 1846.

Herbs ca. 30 cm tall. Leaves 2-4 cm long, bipinnatifid. Florets yellow in divaricate corymbose capitula. Achenes white, villous; pappus white.

Occasional in moist deciduous forests at Peppara and Neyyar. Fl.: Oct.-Dec.

#### *Sigesbeckia* L.

*Sigesbeckia orientalis* L. Sp. Pl. 900. 1753; Wight, Icon. t.1103. 1843; FBI 3: 304; Rao 224; Gamble 704; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 210. 1980.

Annual hirsute herbs. Leaves 4-11.5 x 1.5-5.5 cm, deeply serrate, ovate-lanceolate, acuminate at apex, cuneate at base. Flowers white in leafy panicles. Achenes glabrous, curved, angled.

Common in cultivated lands in the plains. Fl. & Fr.: Nov.-Feb.

#### *Sphaeranthus* L.

*Sphaeranthus africanus* L. Sp. Pl. ed.2, 1314. 1762; FBI 3: 275; Rao 223; Gamble 692; Robyns in Bull. Misc. Inform. 196. 1924; Grierson in Ceylon J. Sci. Biol. Sci. 11: 16. 1974 & in Dassanayake, Rev. Handb. Fl. Ceylon 1: 182. 1980.

Erect, annual herbs ca. 0.5 m tall; stems winged. Leaves 4-8 x 1.5-3 cm, sparsely pubescent, oblanceolate, serrate, acute at apex, attenuate at base. Flowers greenish white in terminal glabrous heads. Achenes angled, glandular.

Fairly common near backwaters along the coast. Fl. & Fr.: Nov.-Apr.

*Spilanthes* Jacq.

*Spilanthes paniculata* Wall. ex DC. Prodr. 5: 625. 1836; Koster, & Philip. in Blumea 6: 354. 1950; Grierson in Ceylon J. Sci. Biol. Sci. 10: 56. 1972 & in Dassanayake, Rev. Handb. Fl. Ceylon 1: 220. 1980. *S. acmella* auct. non (L.) Merr. 1774; Rao 225; FBI 3: 307; Gamble 708.

Erect or decumbent herbs. Leaves 2.5 x 1.2-3 cm, sparsely pubescent, crenate, ovate, acute at apex, truncate at base. Florets yellow in terminal peduncled capitula. Achenes hairy.

Common in mountainous zone above 600 m. A common weed in the margins of tea plantation. 'Kuppamanjal' Fl. & Fr.: Nov.-Jan.

*Struchium* P. Br.

*Struchium sparganophorum* (L.) O.Kuntze, Rev. Gen. Pl. 366. 1891; Koster in Blumea 1: 370. 1935; Grierson in Ceylon J. Sci. Biol. Sci. 10: 42. 1972 & in Dassanayake, Rev. Handb. Fl. Ceylon 1: 120. 1980; Vasudevan Nair in Bull. Bot. Surv. India 8: 202. 1966(1967) *Ethulia sparganophora* L. Sp. Pl. ed.2. 1171. 1763.

Erect or procumbent herbs. Leaves 6-15 x 2.5-4 cm, pubescent, serrate, elliptic, acute at apex, cuneate at base. Florets white in axillary sessile capitula. Achenes irregularly angular.

Fairly common along the banks of rivers and streams in coastal and midland zones. Fl. & Fr.: Jun.-Feb.

Note: This species was first reported by Vasudevan Nair / c but did not seem to be of a recent introduction as it is very abundant in some backwater areas near Chirayinkil and near streams and rivers in the midland.

*Synedrella* Gaertn. nom. cons.

*Synedrella nodiflora* (L.) Gaertn. Fruct. 2: 456, t.171. 1791; FBI 3: 308; Rao 226; Gamble 708; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 222. 1980. *Verbesina nodiflora* L. Amoen. Acad. 4: 290. 1787.

Erect herbs ca. 30 cm tall. Leaves 3-7 x 1.5-2.5 cm, hirsute, serrate, ovate, acute at apex, cuneate at base. Florets yellow in axillary short peduncled capitula. Achenes winged, spinous.

Abundant in coconut plantations. Fl.: Oct.-Dec. '*Mudianpacha*'

**Thithonia Desf. ex Juss.**

**Thithonia diversifolia** (Hemsl.) A. Gray in Proc. Amer. Acad. Arts 19: 5. 1883; Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.): 166. 1931. *Mirasa/ia diversifolia* Hemsl. in Bot. Centr. Amer. 2: 16. t. 47. 1881.

Erect shrubs 1-3 m tall. Leaves 8-15 cm long, three lobed, each lobe again divided, serrate, lobes acuminate at apex. Flowers yellow. Achenes dark brown, sericeous.

An escape from gardens, now running wild in Ponmudi and adjacent areas. Fl. & Fr.: Sept.-Dec.

**Tridax L.**

**Tridax procumbens** L., Sp. Pl. 900. 1753; FBI 3: 311. 1881; Rao 226; Gamble 711; Powell in Brittonia 17: 80. 1965; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 232. 1980.

Perennial, procumbent, hirsute herbs. Leaves 2.5-5 x 1-2.5 cm, crenate, ovate, acute at apex, cuneate at base. Florets yellow. Achenes biconical, sericeous, truncate at apex; pappus unequal.

A common weed in the cultivated lands. Fl. & Fr.: Nov.-Feb.

**Vernonia Schreb. nom. cons.**

- |  |                        |
|--|------------------------|
| 1. Trees   | <i>V. travancorica</i> |
| 1. Shrubs and herbs :  |                        |
| 2. Straggling shrubs   | <i>V. beddomei</i>     |
| 2. Erects shrubs or herbs:   |                        |
| 3. Leaves sessile, hightly rugose above,<br>white woolly beneath     | <i>V. salvifolia</i>   |
| 3. Leaves petioled, smooth above, tomentose<br>or pubescent beneath: |                        |
| 4. Achenes glabrous; leaves crispate-<br>tomentose                   | <i>V. bourdillonii</i> |

4. Achenes hairy; leaves slightly pubescent:
5. Outer pappus fimbriate *V. ramaswamii*
5. Outer pappus not fimbriate :
6. Leaves sharply serrate *V. conyzoides*
6. Leaves undulate *V. cinerea*

*Vernonia beddomei* Hook.f. Fl. Brit. India 3: 1881; Rao 219 Gamble 474.

Straggling shrubs. Leaves 5.5-15 x 2-3.5 cm, distantly serrate, elliptic-lanceolate, acuminate, at apex, crenate at base. Florets yellow, few in branched corymbose capitula. Achenes hairy.

Rare in deciduous forests near streams. Fl. & Fr.: Oct.-Feb.

*Vernonia bourdillonii* Gamble in Bull. Misc. Inform. 339, 1920. & in Fl. Pres. Madras 3: 675, 1921.

Shrubs 1-3 m tall. Leaves 2.5-6 x 1-2 cm, crispate tomentose beneath, obovate, acute at apex, cuneate at base. Florets pink in terminal many flowered capitula. Achenes glandular.

Rare in the crevices of rocks at Chemungi and western slopes of Agasthyarkudum; confined to altitudes above 1500 m.

*Note*: This very rare plant was relocated after a lapse of about four decades from the type locality. The syntype of this species is traced at UCT.

*Vernonia cinerea* (L.) Less. in Linnaea 4 (1): 241, 1829; Clarke in Comp. Ind. 20, 1876; FBI 3: 223; Gamble 475; Rao 219. *Conyzia cinerea* L. Sp. Pl. 862, 1753.

Erect or decumbent herbs. Leaves 2-7 x 1-3 cm, pubescent, obscurely dentate, ovate, obtuse at apex, cuneate at base. Flowers white in terminal corymbose capitula. Achenes blackish with an inner long and outer short ring of pappus.

Common in the cultivated lands and secondary forests. Fl. & Fr.: Throughout the year.

*Note*: The plants of the mountainous and coastal zones show a little variation in overall size and pubescence.

**Vernonia conyzoides** DC, in Wight, Contrib. 6, 1834 & Icon. t.1076, 1846; Gamble 475. *V. cinerea* sensu Hook.f. Fl. Brit. India 3: 233. 1881 p.p.

Herbs up to 0.5 m tall. Leaves 3-10 x 1.5-2.5 cm, pubescent, serrate, ovate-lanceolate, acuminate at apex, rounded or slightly cuneate at base. Florets pink in terminal corymbose capitula.

Fairly common in moist deciduous forests of Bonecord and Ponmudi. Fl.: Nov.-Dec. Fr.: Feb.-Mar.

*Note*: Closely resembles *V. cinerea* (L.) Less. but can be distinguished by the extremely smaller outer pappus.

**Vernonia ramaswamii** Hutch. in Bull. Misc. Inform. 35, 1916; Gamble 475.

Undershrubs 1.5 m tall. Leaves 4-6 x 0.5-1 cm, crowded towards the ends of branches, serrulate, sparsely pubescent beneath, linear-ob lanceolate, acute at apex, narrowed at base. Florets pinkish. Achenes 4-5-angled, glandular-pubescent.

Rare in subtropical forests of Agastyarkudum along water courses; confined to 1500 m and above. Fl. & Fr.: May-Oct.

**Vernonia salvifolia** Wight, Icon.t. 1097. 1846; Clarke in Comp. Ind. 20. 1876; FBI 3: 237; Rao 220; Gamble 475.

Erect undershrubs ca. 1 m tall. Leaves 4-9 x 1.5-3 cm, crowded at the tips of branches, lanceolate, acute or obtuse at apex, cuneate at base. Florets pink in terminal corymbose capitula. Achenes 3-4-angled.

Occasional in rocky slopes of Agastyarkudum in association with *V. boudillonii* Gamble. Fl. & Fr.: Oct.-Mar.

**Vernonia travancorica** Hook.f. Fl. Brit. India 3: 240. 1881; Bourd. 227; Rao 220; Gamble 473. *V. volkameriaeefolia* sensu Bedd. Fl. Sylv. t.225. 1872, non DC. 1836.

Trees 6-7 m tall. Leaves 7-21 x 2-7 cm, coriaceous, obovate, obtuse at apex, cuneate at base. Florets pink in terminal paniculate capitula. Achenes yellow, glandular between the ribs.

Fairly common in subtropical forests of Agastyarkudum and Ponmudi. Fl. & Fr.: Dec.-Feb.

*Vicoa* Cass.

*Vicoa indica* (L.) DC, in Wight, Contrib. 10, 1834 & Prod. 5; 474. 1836; Gamble 701; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 200. 1980. *Inula indica* L. Sp. Pl. ed.2, 1237. 1762. *Vicoa auriculata* Cass. in Ann. Sci. Nat. Bot. 17: 418. 1829; Wight, Icon. t.1148. 1846; FBI 3: 297; Rao 224.

Herbs ca. 0.5 m tall. Leaves 1.5-5 x 0.5-1 cm, sessile, hirsute, punctate beneath, serrate, oblong, acute at apex, truncate and auricled at base. Florets yellow, solitary in terminal or leaf-opposed capitula. Achenes 5-ribbed, appressed pubescent.

Abundant in cultivated lands of the plains. Fl. & Fr.: Nov.-Dec. 'Kammalchedi'.

*Wedelia* Jacq. *nom. cons.*

*Wedelia chinensis* (Osbeck) Merr. in Philipp. J. Sci. 12: 111. 1917 & Trans. Amer. Philos. Soc. N.S. 24: 390. 1935; Grierson in Dassanayake, Rev. Handb. Fl. Ceylon 1: 215. 1980. *Solidago chinensis* Osbeck, Dagboek Ostind. Resa 241, 1/57. *Wedelia calendulacea* (L.) Less. Syn. 222. 1832; Clarke in Comp. Ind. 136. 1876; FBI 3: 306; Rao 225; Gamble 497. *Verbesina calendulacea* L. Sp. Pl. ed.2, 1272. 1763.

Procumbent herbs. Leaves 1.5-4.5 x 0.5-1 cm, entire or serrate, sparsely hispid, oblanceolate, acute and apiculate at apex, attenuate at base. Florets yellow in terminal capitula.

Common in moist areas near streams in coastal zone. Leaves used in the preparation of hair oil; powdered plants mixed with sugar given for promoting digestion and appetite. Fl. & Fr.: Aug.-Mar.

LOBELIACEAE R.Br.

*Lobelia* L.

Erect shrubs

*L. nicotianifolia*

Prostrate herbs

*L. alsinoides*

*Lobelia alsinoides* Lam. Encycl. 3: 588. 1791; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 4: 168. 1983. *L. trigona* Roxb. Fl. Ind. 2: 111. 1824; FBI 3: 423; Rao 230; Gamble 518.

Leaves 0.5-1.5 x 0.4-1 cm, glabrous, crenate, serrate, ovate, acute at apex, rounded or slightly cordate at base. Flowers yellow, solitary; peduncles up to 3 cm long. Capsules ovoid or obconical.

Frequent in moist localities all over. Fl. & Fr.: Aug.-Sept.

*Lobelia nicotianifolia* Heyne in Roth. Nov. Pl. Sp. 143. 1821; FBI 3: 427; Rao 230; Gamble 518; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 4: 172. 1983.

Leaves 5-10 x 1-5 cm, glabrous, linear-oblong, serrate, acuminate at apex, obtuse at base. Flowers white with purplish tinge in terminal dense racemes.

Frequent near tea plantations in Ponmudi and Bonecord. Fl. & Fr.: Nov.-Feb.

*Note*: Cramer *l.c.* recognizes 2 varieties based on the density of pubescence on the anthers, leaves and calyx. Our specimens fit with var. *nicotianifolia*.

#### SPHENOCLEACEAE (Lindl.) Mart. ex DC.

##### *Sphenoclea* Gaertn. *nom. cons.*

*Sphenoclea zeylanica* Gaertn. Fruct. 1: 113. t.24. f.5. 1788; FBI 3: 438; Rao 230; Gamble 520; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 4: 146. 1983.

Erect shrubs 25-35 cm tall. Leaves 3-8.5 x 0.9-2.5 cm, glabrous, elliptic-lanceolate, acute at apex, cuneate at base. Flowers purple in terminal spikes. Capsules ca. 3 mm diam., depressed-globose.

Frequent along backwaters in Veli. Fl. & Fr.: Almost throughout the year.

#### PLUMBAGINACEAE Juss.

##### *Plumbago* L.

Flowers rose-red

*P. indica*

**Flowers white**

*P. zeylanica*

*Plumbago indica* L. Diss. Stickman 24. 1754; Steenis, Fl. Males. 4: 111. 1949; Sachet in Smithsonian Contrib. Bot. 23: 12. 1975. *P. rosea* L. Sp. Pl. ed. 2. 215. 1762; FBI 3: 481; Rao 232; Gamble 525.

Erect shrubs ca. 1 m tall. Leaves 7-14 x 3-7 cm, lanceolate, acute or acuminate at apex, cuneate at base. Flowers in terminal racemes.

Commonly cultivated in gardens; sometimes as an escape in wastelands. Fl. & Fr.: Jul.-Jan. '*Chivappu-koduvelli*'

*Plumbago zeylanica* L. Sp. Pl. 151. 1753; Wight, Icon. t. 179. 1839; FBI 480; Rao 231; Gamble 524.

Scandent shrubs; leaves ovate-elliptic. Flowers white in terminal spikes.

Abundant along the coast. Fl. & Fr.: Jul.-Feb. '*Vella-koduvelli*'

#### MYRSINACEAE R. Br.

- |                                   |                |
|-----------------------------------|----------------|
| 1. Climbing shrubs                | <i>Embelia</i> |
| 1. Erect shrubs:                  |                |
| 2. Sepals adnate to ovary         | <i>Maesa</i>   |
| 2. Sepals free:                   |                |
| 3. Corolla lobes imbricate in bud | <i>Ardisia</i> |
| 3. Corolla lobes contorted in bud | <i>Rapanea</i> |

#### *Ardisia* Sw. nom. cons.

- |  |                         |
|--|-------------------------|
| 1. Flowers in terminal paniculate umbels           | <i>A. amplexicaulis</i> |
| 1. Flowers in axillary or lateral cymes or umbels: |                         |
| 2. Calyx and corolla lobes punctate                | <i>A. depressa</i>      |
| 2. Calyx and corolla lobes not punctate            | <i>A. pauciflora</i>    |

*Ardisia amplexicaulis* Bedd. Icon. t.170. 1868-1874; FBI 3: 521; Rao 234; Gamble 531.

Shrubs 2-3 m tall. Leaves 7-15 x 2-3.5 cm, membranous, gland-dotted, crenulate, oblong-lanceolate, acuminate at apex, rounded at base. Flowers white in terminal or subterminal panicles.

Frequent in the undergrowth of evergreen forests. Fl. & Fr.: Dec.-Jun.

*Ardisia depressa* Clarke in Hook.f. Fl. Brit. India 3: 522. 1882; Gamble 531.

Trees 4-7 m tall. Leaves 5-8.5 x 1.5-2.5 cm, elliptic-oblong, acuminate at apex, cuneate at base. Flowers pinkish in axillary or lateral panicles.

Frequent in evergreen forests of Chemungi. Fl. & Fr.: Jan.-Apr.

*Ardisia pauciflora* Heyne ex Roxb. Fl. Ind. 2: 279. 1824; FBI 3: 529; Bourd. 233; Rao 234; Gamble 531.

Erect shrubs 2-4 m tall. Leaves 4.5-12 x 1.5-3.8 cm, glabrous above, pellucid dotted beneath, elliptic or elliptic-oblong, acuminate at apex, cuneate at base. Flowers white in axillary racemes. Fruits red.

Occasional in evergreen forests of Chemungi. Fl. & Fr.: Dec.-Jun.

#### *Embelia* Burm.f. *nom. cons.*

*Embelia ribes* Burm.f. Fl. Ind. 62. t.23. 1768; FBI 3: 513; Rao 223; Gamble 529. *E. glandulifera* Wight, Icon. t.1207. 1848.

Climbing shrubs. Leaves 4-7.5 x 2-3 cm, elliptic or elliptic-oblong, acuminate at apex, cuneate at base. Flowers white in axillary racemes.

Frequent in the edges of evergreen forests. Fl. & Fr.: Jan.-Apr. 'Vizhal'

*Maesa* Forsk.

*Maesa indica* (Roxb.) DC. Trans. Linn. Soc. London 17: 134. 1834. *Baeobotrys indica* Roxb. Fl. Ind. 2: 230. 1824. *B. dubia* Wall. in Roxb. Fl. Ind. 2: 235. 1824. *Maesa dubia* (Wall.) DC. Trans. Linn. Soc. London 17: 134. 1834; Gamble 527. *M. indica* (Roxb.) DC. var. *perrottetiana* (A. DC.) Clarke in Hook.f. Fl. Brit. India 3: 509. 1882.

Erect shrubs 2-4 m tall. Leaves 5-14 x 2-4.5 cm, dentate, ovate or lanceolate, acuminate at apex, rounded or cuneate at base. Flowers white in axillary racemes. Berries white, globose.

Frequent in sholas of Ponmudi. Fl. & Fr.: Nov.-Mar. 'Kirithi'

*Rapanea* Aubl.

*Rapanea wightiana* (Wall. ex A. DC.) Mez in Engler, Pflanzenreich. 9: 360. 1902; Gamble 528. *Myrsine wightiana* Wall. ex A. DC. in DC. Prodr. 8: 94. 1844. *M. capitellata* var. *lanceolata* Clarke in Hook.f. Fl. Brit. India 3: 512. 1882. *M. capitellata* sensu Wight, Icon. t. 1211. 1848 non Wall. 1824; Bourd. 231; Rao 233.

Trees 3-6 m tall. Leaves 6-13 x 1.2-3 cm, puncate, oblong-lanceolate, obtuse at apex, narrowed at base. Flowers pinkish-yellow in clusters in the axils of fallen leaves. Fruits purple.

Common in evergreen forests of Ponmudi. Fruits edible. Fl & Fr.: Jan.-Jun.

## SAPOTACEAE Juss.

1. Corolla lobes 18 or more;
2. Fruits globose *Manilkara*
2. Fruits ovoid or ellipsoid *Mimusops*
1. Corolla lobes less than 12:
  3. Corolla lobes always 4 *Isonandra*
  3. Corolla lobes 5-12:
    4. Stamens equal to the number of corolla lobes *Chrysophyllum*

4. Stamens twice as many as the corolla  
lobes or more :
5. Calyx lobes 4 (rarely 5) *Madhuca*  
5. Calyx lobes 6 *Palaquium*

***Chrysophyllum* L.**

***Chrysophyllum lanceolatum* (Blume)** DC. Prodr. 8: 162. 1844.  
*Nycterision lanceolatum* Blume, Bijdr. 12: 676. 1826. *Chrysophyllum roxburghii* G.Don, Gen. Syst. 4: 33. 1838; Bedd, Fl. Sylv. t.236. 1873; FBI 3: 533; Bourd. 235; Rao 235; Gamble 533.

Trees 20-25 m tall. Leaves 2.5-15 x 2-3.5 cm, oblong-lanceolate, acuminate at apex, narrowed at base. Flowers greenish-white in axillary clusters. Fruits yellowish, globose.

Occasional in semievergreen forests. Often cultivated in gardens and avenues. Fl. & Fr.: Nov.-Feb. 'Atha'.

***Isonandra* Wight**

- |                          |                      |
|--------------------------|----------------------|
| Leaves obtuse at apex    | <i>I. montana</i>    |
| Leaves acuminate at apex | <i>I. lanceolata</i> |

***Isonandra lanceolata* Wight**, Icon. t.359. 1840; FBI 3: 534; Bourd. 286; Rao 235; Gamble 535; Jenken in Blumea 6: 557. 1952.

Erect shrubs 3-6 m tall. Leaves 5-17 x 2-4.5 cm, sparsely pubescent beneath, shortly acuminate at apex, cuneate at base. Flowers brown, subsessile, in axillary fascicles. Fruits ovate, green.

Frequent in evergreen forests of Boneccord and Ponmudi. Fl. & Fr.: Mar.-Jul.

***Isonandra montana* (Thw.)** Gamble, Fl. Pres. Madras 761. 1921 & 2: 535. 1957 (repr. ed.); Jenken in Blumea 6: 57. 1952. *I. wightiana* A.DC. var. *montana* Thw. Enum. 177. 1864; FBI 3: 540.

Trees 4-6 m tall. Leaves 3-8.5 x 1-3.5 cm, obovate, obtuse at apex, cuneate at base; petioles 0.5-1 cm long. Flowers pale yellow in axillary clusters.

Rare in evergreen forests of Chemungi and Agastyarkudum.  
Fl. & Fr.: Mar.-Jun.

**Madhuca Gmelin**

**Madhuca nerifolia** (Moon) H.J. Lam in Bull. Jard. Bot. Buitenzorg ser.3, 7: 182, 265, 1925; Royan in Blumea 10: 98, 1960.  
**Bassia nerifolia** Moon, Cat. Pl. Ceylon 36, 1824; Bedd. For. Man. 140, 1870. **B. malabarica** Bedd. For. Man. 140, 1870; FBI 3: 544; Bourd. 238; Rao 237; Gamble 537; Parker in Indian Forester 57: 489, 1931.

Trees 12-5 m tall; branchlets angular. Leaves 5-15 x 1-8 cm, glabrous, oblong, obtuse at apex, cuneate at base. Flowers white in axillary fascicles. Berries 2 x 0.5 cm, ovoid, fleshy.

Frequent in evergreen and semievergreen forests along the river banks. Fl. & Fr.: Nov.-May. *Attu-illupa'*.

**Manilkara Adans. nom. cons.**

**Manilkara hexandra** (Roxb.) Dubard in Contr. Gray Herb. Harv. Univ. (n.s.) 3(53): 17, 1918. **Mimusops hexandra** Roxb. Pl. Cor. 16, t.15, 1795; Wight, Icon. t.1587, 1850; FBI 3: 549; Rao 238; Gamble 538.

Trees 15-20 m tall. Leaves 2.5-11 x 2.5-5 cm, obovate or oblong, rounded or emarginate at apex, narrowed or acute at base. Flowers white in axillary fascicles. Fruits reddish-yellow.

Rare in the coast of Veli. Fl. & Fr.: Sept.-Nov.

*Note:* According to Gamble l.c. this species is absent in the west coast.

**Mimusops L.**

**Mimusops elengi** L. Sp. Pl. 349, 1753; Wight, Icon. t.1586, 1850; Bedd. Fl. Sylv. t.40, 1871; FBI 3: 548; Bourd. 240; Rao 238; Gamble 538; Royan in Blumea 5: 594, 1952.

Trees 10-15 m tall. Leaves 8-11 x 3-4.5 cm, coriaceous, elliptic, acuminate at apex, acute or rounded at base. Flowers white, axillary, solitary. Berries 1.8 x 1.2 cm, ellipsoid.

Cultivated in gardens and along roadsides, in the Midland zone. Fl. & Fr.: Apr.-Sept. '*Elenji*'.

### Palaquium Blanco

*Palaquium ellipticum* (Dalz.) Baillon, Trait. Bot. Med. Phan. 1560. 1884; FBI 3: 542; Bourd. 239; Rao 236; Gamble 537; Royan in Blumea 10: 509. 1960. *Bassia elliptica* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 3: 36. 1851; Bedd. Fl. Sylv. t.43. 1870.

Trees 20-30 m tall. Leaves 7.5-12 x 3-5.5 cm, ovate or obovate, bluntly acuminate at apex, obtuse at base. Flowers white, fragrant, in fascicles in the axils of fallen leaves.

Fairly common in evergreen forests at low elevations. Yields a gum; wood used for rafters. Fl. & Fr.: Apr.-Aug.

### EBENACEAE Gurke

#### *Diospyros* L.

- |  |                        |
|--|------------------------|
| 1. Flowers 3-merous                            | <i>D. ferrea</i>       |
| 1. Flowers 4-5-merous :                        |                        |
| 2. Branchlets pubescent                        | <i>D. humilis</i>      |
| 2. Branchlets glabrous :                       |                        |
| 3. Flowers rusty-tomentose :                   |                        |
| 4. Stamens 10, unequal                         | <i>D. candolleana</i>  |
| 4. Stamens 12-18, equal                        | <i>D. bourdillonii</i> |
| 3. Flowers glabrous :                          |                        |
| 5. Calyx enlarged into a truncate cup in fruit | <i>D. oocarpa</i>      |
| 5. Calyx deeply lobed; foliaceous in fruit     | <i>D. paniculata</i>   |

*Diospyros candolleana* Wight, Icon. tt. 1221-1222. 1848; FBI 3: 566; Bourd. 253; Rao 241; Gamble 543.

Trees 8-12 m tall. Leaves 7.5-17 x 3-7.5 cm, appressed hairy when young, oblong, cuneate at both ends. Flowers pale yellow in dense axillary fascicles. Fruits conical.

Fairly common in evergreen forests at low elevations and 'Kavus' in the plains. Fl. & Fr.: Feb.-Nov. 'Kari'.

*Diospyros bourdillonii* Brandis, Ind. Trees. 435. 713. 1906; Bourd. 254; Rao 242; Gamble 547.

Trees 15-25 m tall; young shoots strigose. Leaves 7.5-15 x 2.5-5.5 cm, coriaceous, oblong-lanceolate, acuminate at apex, cuneate at base. Flowers white in cymes axillary or from the old wood. Fruits globose.

Rare in evergreen forests. Fl. & Fr.: Feb.-Apr.

*Diospyros ferrea* (Willd.) Bakh. in Gard. Bull. Straits Settlem. 7: 162. 1933.

|                              |                          |
|------------------------------|--------------------------|
| Leaves less than 2.5 cm long | var. <i>ferrea</i>       |
| Leaves more than 3 cm long   | var. <i>angustifolia</i> |

*Diospyros ferrea* (Willd.) Bakh. var. *angustifolia* (Miq.) Mohanan comb. nov. *Maba buxifolia* (Rottb.) Juss. var. *angustifolia* (Miq.) Thw. Enum. 183. 1860; FBI 3: 551; *M. angustifolia* Miq. Anlecta Bot. Ind. 3: 13. 1852. *Diospyros ferrea* (Willd.) Bakh. var. *neilgherrensis* (Wight) Bakh. in Bull. Jard. Bot. Buitenzorg. ser. 3. 15: 57. 1937. *Maba neilgherrensis* Wight, Icon. tt. 1228 & 1229. 1848; Gamble 510.

Trees 6-9 m tall. Leaves 3-10 x 1.5-2.5 cm, chartaceous, glabrous above, sparsely pubescent beneath. elliptic-lanceolate, obtusely acuminate at apex, narrowed at base. Flowers yellowish-white. Fruits globose.

Fairly common in evergreen forests of Chemungi. Fl. & Fr.: Jan.-May.

*Diospyros ferrea* (Willd.) Bakh. var. *ferrea*. *Ehretia ferrea* Willd. Phytogr. 1: 4. t.2. f.2. 1794. *Maba buxifolia* (Rottb.) Juss. Ann. Mus. Hist. Nat. 5: 418. 1804; Wight, Icon. t.763. 1844; FBI 3: 551. *Pisonia buxifolia* Rottb. in Nye San. Danske Vidensk. Selsk. Skr. 2: 536. t.4. f.2. 1782.

Trees 6-9 m tall. Leaves 0.7 x 2.5 x 0.5-0.7 cm, glabrous, obovate, obtuse at apex, cuneate at base. Flowers reddish, 1-3 together, axillary. Fruits green, globose.

Fairly common in evergreen forests. Fl. & Fr.: Feb.-Sep.

*Diospyros humilis* Bourd. in J. Bombay Nat. Hist. Soc. 12: 352, t.6. 1899; Gamble 544. *D. orixensis* Wight ex Hiern in Trans. Cambr. Phil. Soc. 12. 264. 1873 non Klein ex Willd. 1844; FBI 3: 571; Bourd. 248; Rao 242.

Trees 7-9 m tall. Leaves 5-9.5 x 3-4.3 cm, pubescent along nerves beneath, elliptic-lanceolate, obtusely acuminate at apex, obtuse at base. Flowers white in clusters from the axils of fallen leaves. Fruits ovoid or subglobose.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Jul.-Sept.  
'Meruvalam'

Note : Bakh. *op. cit.*, however, included this species in *Diospyros montana* complex; but unlike *D. montana*, the calyx of *D. humilis* is never enlarged in fruit.

*Diospyros oocarpa* Thw. Enum. 180. 1860; FBI 3: 560; Bourd. 244; Rao 241; Gamble 544.

Trees 5-9 m tall. Leaves 5.5-10 x 2.5-3.5 cm, coriaceous, ovate, obtusely acuminate at apex, narrowed towards base. Flowers yellowish-white. Fruits ovoid.

Rare in evergreen forests of Merchiston. Fl. & Fr.: Mar.-Aug.

*Diospyros paniculata* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 4: 109. 1852; FBI 3: 580; Bourd. 245; Rao 241; Gamble 244.

Trees 10-15 m tall. Leaves 5-16 x 3-6 cm, coriaceous, oblong, obtusely acuminate at apex, rounded at base. Male flowers greenish-white in pedunculate cymes; females solitary, recurved. Fruits ovoid, green.

Rare in low evergreen forests at Suryakanthi, Bonecord, Fl. & Fr.: Jan.-Jul. 'Karivella'

### S Y M P L O C A C E A E Desf.

#### *Symplocos* Jacq.

- |                             |  |
|-----------------------------|--|
| 1. Leaves pubescent beneath | <i>S. macrophylla</i> var.<br><i>macrophylla</i> |
| 1. Leaves glabrous beneath: |  |

|                                     |  |
|-------------------------------------|--|
| 2. Drupes ribbed                    | <i>S. cochinchinensis</i><br>var. <i>laurina</i> |
| 2. Drupes smooth:                   |  |
| 3. Branchlets pubescent             | <i>S. macrocarpa</i>                             |
| 3. Branchlets glabrous:             |  |
| 4. Leaves caudate-acuminate at apex | <i>S. wynadense</i>                              |
| 4. Leaves not as above:             |  |
| 5. Racemes ca. 3.5 cm long          | <i>S. racemosa</i>                               |
| 5. Racemes ca. 10 cm long           | <i>S. macrophylla</i> var.<br><i>rosea</i>       |

*Symplocos cochinchinensis* (Lour.) Moore in J. Bot. 52: 148. 1914. subsp. *laurina* (Retz.) Nootb. Rev. Symploc. Old World 156. 1975. var. *laurina*; Clarke in Hook.f. Fl. Brit. India 3: 573. 1882. *Myrtus laurinus* Retz. Obs. Bot. 4: 26. 1786; Rao 243. *Symplocos spicata* Roxb. Fl. Ind. 2: 542. 1832; Bourd. 258; Gamble 549.

Trees 7-9 m tall. Leaves 14-19 x 4-4.5 cm, glabrous, chartaceous, serrate, elliptic-oblong, acuminate at apex, cuneate at base. Flowers white in axillary branched spikes. Drupes ampuliform.

Fairly common in moist deciduous forests of Bonecord on the way to Agastyarkudum. Fl. & Fr.: Oct.-May. 'Kambilivetti'

*Symplocos macrocarpa* Wight ex Clarke in Hook.f. Fl. Brit. India 3: 682. 1882; Bourd. 257; Rao 224; Gamble 549; Nootb. Rev. Symploc. Old World 221. 1975.

Trees 8-10 m tall. Leaves 8.5-14.5 x 2.5-5.6 cm, serrate, oblong-lanceolate, acuminate at apex, cuneate at base. Flowers greenish-white, rusty pubescent in axillary racemes. Drupes 2.5-3.5 cm long, ellipsoid.

Occasional in evergreen forests of Bonecord. Fruits edible. Fl. & Fr.: Mar.-Oct. 'Malaparala'

*Symplocos macrophylla* Wall. ex DC. Prodr. 8: 257. 1844, subsp. *macrophylla* var. *macrophylla*; Nootb. Symploc. Old World 227. 1975. *S. gardneriana* Wight. Icon. t.1231. 1848; FBI 3: 578; Bourd. 257; Rao 244; Gamble 550.

Trees 5-7 m tall. Leaves 12-18.5 x 3.5-6.5 cm, serrate, glabrous above, pubescent beneath, elliptic-oblong or oblanceolate, abruptly acuminate at apex, narrowed at base. Flowers white in axillary racemes. Drupes purple, densely pubescent.

Fairly common in evergreen forests of Ponmudi. Fl. & Fr.: Feb.-May.

*Symplocos macrophylla* Wall. ex DC. subsp. *rosea* (Bedd.) Nootb. Rev. Symploc. Old World 220. 1975, var. *rosea*. *S. rosea* Bedd. in Trans. Linn. Soc. London 25: 219. 1866. *S. rosea* var. *glabrior* Clarke in Fl. Brit. India 3: 583. 1882; Bourd. 257; Gamble 550.

Trees 6-8 m tall. Leaves 7-14 x 3-5 cm, glabrous, serrate, elliptic-oblong or slightly oblanceolate, acuminate at apex, cuneate at base. Flowers white in axillary racemes. Drupes red, ellipsoid.

Fairly common in evergreen forests of Chemungu and Ponmudi. Fl. & Fr.: Nov.-Mar.

*Symplocos racemosa* Roxb. Fl. Ind. 2: 539. 1832; FBI 3: 576; Nootb. Rev. Symploc. Old World 271. 1975. *S. beddomei* Clarke in Hook.f. Fl. Brit. India 3: 582. 1882; Gamble 551.

Trees 10-12 m tall. Leaves 9-14 x 3-5 cm, glabrous, chartaceous, entire or slightly serrate, elliptic-oblong, acuminate at apex, cuneate at base. Flowers white with pink tinge, in axillary racemes.

Occasional in evergreen forests of Ponmudi. Fl. & Fr.: Nov.-Mar.

*Symplocos wynadense* (O.Kuntze) Nootb. Rev. Symploc. Old World 293. 1975. *Eugenioides wynadense* O.Kuntze, Rev. Gen. Pl. 2: 975. 1891. *Symplocos acuminata* Bedd. For. Man. 150. 1872. & Icon. t.117. 1874, non Miq. 1859; FBI 3: 583; Gamble 550.

Trees or shrubs with pilose or glabrescent twigs. Leaves 6-11 x 2.5-3.2 cm, glabrous, ovate-elliptic, caudate-acuminate at apex, cuneate at base. Flowers white in axillary racemes. Fruits ellipsoid.

Occasional in evergreen forests of Chemungu. Fl. & Fr.: Dec.-May.

*Note* : This plant was collected from the type locality after a lapse of 88 years.

## OLEACEAE Hoffm. &amp; Link

1. Trees or erect shrubs:

  2. Flowers in terminal panicles *Ligustrum*
  2. Flowers in axillary panicles:
    3. Petals free *Chionanthus*
    3. Petals connate *Olea*
  1. Climbing or straggling shrubs:
    4. Leaves with prominent side ribs *Myxopyrum*
    4. Leaves without side ribs *Jasminum*

*Chionanthus* Gaertn.

*Chionanthus courtallensis* Bedd. Fl. Sylv. t.155. 1871. *Linociera courtallensis* (Bedd.) Bourd. For. Trees Travancore 260. 1908; Rao 248; Gamble 558. *L. leprocarpa* Thw. var. *courtallensis* (Bedd.) Clarke in Hook.f. Fl. Brit. India 3: 609. 1882. *Chionanthus leprocarpa* Thw. var. *courtallensis* (Bedd.) K. K. N. Nair in J. Econ. Tax. Bot 7: 354. 1985.

Trees 15-18 m tall. Leaves 5-12 x 2.5-6 cm, coriaceous, oblong-lanceolate, acuminate at both ends. Flowers white in racemose cymes up to 2.5 cm long.

Occasional in evergreen forests of Bonecord. Fl. & Fr.; Jan.-May.

*Jasminum* L.

1. Leaves simple:
  2. Cymes trichotomously branched; calyx glabrous *J. cordifolium*
  2. Cymes not as above; calyx pubescent:
    3. Calyx lobes lanceolate, white *J. rotterianum*
    3. Calyx lobes linear-subulate, green *J. sambac*
  1. Leaves compound;

4. Leaves imparipinnate *J. grandiflorum*  
 4. Leaves trifoliate *J. azoricum*

***Jasminum azoricum* L.** Sp. Pl. 7. 1753.

- Terminal leaflets narrowed at base var. *travancorense*  
 Terminal leaflets rounded at base var. *azoricum*

***Jasminum azoricum* L.** Sp. Pl. 7. 1753, var. *azoricum*; Backer & Bakh.f. in Fl. Java 2: 217, 1965. *J. flexile* Vahl, Symb. Bot. 3: 1. 1794; FBI 3: 601; Rao 246; Gamble 554.

Climbing shrubs. Leaflets 4-9 x 1-3 cm, glabrous, petioled, lanceolate or oblong-lanceolate, acuminate at apex, rounded at base. Flowers white, fragrant in paniculate cymes. Berries green.

Frequent in evergreen forests. Fl. & Fr.: Oct.-Mar.

***Jasminum azoricum* L.** var. *travancorense* (Gamble) Mohanan in J. Econ. Tax. Bot. 6: 480, 1985. *J. flexile* Vahl var. *travancorense* Gamble, Fl. Pres. Madras 791, 1921

Climbing shrubs. Terminal leaflets 5-11 x 1.8-3.2 cm, elliptic-oblong, caudate-acuminate at apex, narrowed at base; lateral 4-9 x 1.3-3.3 cm, lanceolate, elliptic or oblong, caudate-acuminate at apex, rounded or cuneate at base; petioles twining. Flowers white in paniculate cymes. Berries 1 x 0.7 cm, ellipsoid.

Occasional in evergreen forests of Boneccord. Fl. & Fr.: Dec.-Apr.

***Jasminum cordifolium*** Wall. ex G.Don, Gen. Syst. 4: 60, 1837; FBI 3: 596; Wight, Icon. t.1251, 1848; Rao 246; Gamble 790. *J. erectiforum* A.DC. in DC. Prodr. 8: 308, 1844.

Climbing shrubs. Leaves 5-12 x 2.5-5 cm, glabrous, ovate-lanceolate, caudate-acuminate at apex, rounded, truncate or cuneate at base. Flowers white in trichotomously branched glabrous cymes. Berries 1 x 0.5 cm, ellipsoid.

A common climber in the sholas of Ponmudi and Chemungi. Fl. & Fr.: Jan.-Apr.

***Jasminum grandiflorum* L.** Sp. Pl. 8, 1753; Wight, Icon. t.1257, 1848; FBI 3: 603; Rao 246; Gamble 556; Green in Baileya 13: 146, 146, 1965.

Scandent shrubs. Leaves 7-9-foliate; leaflets 1.5-3 x 1-1.5 cm elliptic to elliptic-lanceolate, acute or acuminate at apex, cuneate or rounded at base. Flowers white, fragrant in lax terminal corymbose panicles.

Fairly common in plains. Cultivated in gardens. Fl. & Fr.: Throughout the year. '*Malathi*, '*Pichakam*'

*Note*: This species has since been reduced to a form of *J. officinale* L. by Kobuski (J. Arnold. Arbor. 13: 161, 1932). However, *J. grandiflorum* L. can be distinguished by the cymose inflorescence and longer corolla tube as against subumbellate inflorescence and shorter corolla tube in *J. officinale* L.

***Jasminum rotundifolium*** Wall. ex A.DC. in DC. Prodr. 8: 305. 1844; Wight, Icon. t.1249. 1848; FBI 3: 593; Gamble 554.

Climbing shrubs; stems pubescent. Leaves 3-12 x 2-6 cm, villous when young, turning glabrous later, elliptic, ovate-lanceolate or oblong-lanceolate, acuminate at apex, rounded or slightly cordate at base. Flowers white in terminal pubescent cymes. Berries globose, black.

Common in moist deciduous forests of Kottur. Fl. & Fr.: Jan.-Jun. '*Vellakattumulla*'

***Jasminum sambac* (L.) Ait.** Hort. Kew 1: 8. 1789; FBI 3: 591; Wight, Icon. t.704. 1843; Rao 245; Gamble 554; Green in Baileya 13: 157. 1965. *Nyctanthes sambac* L. Sp. Pl. 5. 1753.

Leaves 3.5-9 x 2-3.5 cm, glabrous, elliptic, apiculate at apex, acute at base. Flowers white in terminal cymes. Calyx and corolla glabrous.

Commonly cultivated for flowers. Fl. & Fr.: Throughout the year. '*Cherupichakam*'.

#### **Ligustrum L.**

***Ligustrum travancoricum*** Gamble in Bull. Misc. Inform. 119. 1922 & Fl. Pres. Madras 560. 1957 (repr. ed.).

Trees 4-6 m tall. Leaves 3-7.5 x 2-2.5 cm, long petioled, lanceo-

late, acuminate at apex, attenuate at base. Flowers pale yellow in panicles up to 7 cm long. Drupes ellipsoid.

Occasional in evergreen forests. Fl. & Fr.: Jan.-Mar.

### **Myxopyrum Blume**

**Myxopyrum serratulum** Hill in Bull. Misc. Inform. 41, 1910; Gamble 798. **M. smilacifolium** Blume in Ann. Mus. Bot. Lugduno Batavum 320, 1849 p.p.; Wight, Ill. t.151 1840; FBI 3: 618; Rao 249.

Woody climbing shrubs; stems 4-angular. Leaves 6-16 x 2.5-6.5 cm, glabrous, elliptic-oblong, acuminate at apex, acute at base. Flowers pale yellow in axillary panicles.

Fairly common in evergreen forests. Fl. & Fr.: Apr.-Jun.

### **Olea L.**

**Olea dioica** Roxb. Fl. Ind. 1: 105. 1820; Wight, Ill. t.151. 1840; FBI 3: 612; Rao 248; Gamble 559.

Trees 7-12 m tall. Leaves 4.5-15 x 2-6.5 cm, serrate, glabrous, elliptic or oblong-lanceolate, acuminate at apex, cuneate at base. Flowers white in axillary panicles. Drupes ellipsoid, bluish-black.

Frequent in moist deciduous forests of Kottur and Bonecord. Fl.: Aug.-Mar. Fr.: Apr.-May. 'Edena'

### **NYCTANTHACEAE J.G. Agardh.**

**Note:** The genus *Nyctanthes* L. was included in Oleaceae, till Airy Shaw (Kew Bull. 272, 1952) transferred it to Verbenaceae. Embryological and chemotaxonomic evidences (Crete 1963, Das & Rao 1966) show its close affinity towards cleaceae whereas palynological and anatomical evidences (Kundu 1966) do not support its inclusion either in Oleaceae or Verbenaceae. Hence, revival of the family Nyctanthaceae to accommodate the genus *Nyctanthes* is warranted.

### **Nyctanthes L.**

**Nyctanthes arbor-tristis** L. Sp. Pl. 6. 1753; FBI 3: 603. 1882; Gamble 556; Moldenke & Alma Moldenke in Rev. Handb. Fl. Ceylon 4: 179. 1983.

Trees 3-4 m tall. Leaves 5-10 x 2.5-5 cm, strigose, entire or crenate-serrate, ovate, acuminate at apex, cuneate at base. Flowers white, sessile in axillary or terminal cymes. Capsules orbicular or obcordate, mucronate at apex.

Commonly cultivated in public and house gardens. Fl.: Jun.-Feb.  
'Pavizhamulla'

APOCYNACEAE Juss.

- 1. Plants armed *Carissa*
- 1. Plants unarmed :
  - 2. Climbing shrubs :
  - 3. Plants hairy :
    - 4. Whole plant rusty villous *Ichnocarpus*
    - 4. Leaves only tomentose beneath *Chonemorpha*
  - 3. Plants glabrous or nearly so :
    - 5. Fruit a spinescent capsule *Allamanda\**
    - 5. Fruit not as above :
      - 6. Leaves dotted *Vallaris\**
      - 6. Leaves not as above :
  - 2. Erect herbs, undershrubs, shrubs or trees:
    - 7. Fruit with fibrous woody pericarp *Cerbera*
    - 7. Fruit not as above:
      - 8. Flowers solitary or in pairs; herbs or undershrubs *Catharanthus*
      - 8. Flowers in cymes; plants shrubby or arborescent
    - 9. Leaves alternate:
      - 10. Leaves narrow, linear; flowers yellow *Thevetia\**
      - 10. Leaves broadly oblong; flowers white *Plumeria\**
    - 9. Leaves opposite or whorled:

11. Leaves whorled:

12. Corolla with a scaly corona *Nerium\**

12. Corolla without corona:

13. Fruit a follicle of 2 mericarps *Alstonia*

13. Fruit a globose drupe *Rauvolfia*

11. Leaves opposite:

14. Anthers sagittate; corolla with 2 rows of corona *Wrightia*

14. Anthers not sagittate; corolla without corona:

15. Fruit a berry *Hunteria*

15. Fruit not a berry:

16. Mericarps 1-2-seeded *Kopsia\**

16. Mericarps more than 2-seeded:

17. Mericarps obliquely ovoid, curved and beaked at apex *Tabernaemontana*

17. Mericarps linear, slender, not curved and beaked *Holarrhena*

*Alstonia* R. Br. *nom. cons.*

Leaves obovate or oblanceolate, obtuse or subobtuse at apex *A. scholaris*

Leaves narrowly oblong-lanceolate, acuminate at apex *A. venenata*

*Alstonia scholaris* (L.) R.Br. In Mem. Wer. Nat. Hist. Soc. 1: 76. 1811, prep. 1810; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 12. 1973; Markgraf in Blumea 22: 23. 1974; FBI 3: 642; Bourd. 265; Rao 253; Gamble 569. *Echites scholaris* L. Mant. 1: 53. 1767.

Trees 12-15 m tall. Leaves 7-13 x 1.5-3.5 cm, coriaceous, cuneate at base. Flowers white in umbellate cymes. Follicles ca. 45 cm long, narrow, pendulous; seeds papillose.

Frequent throughout the low elevations near rivers and streams. Wood used for making match boxes. Fl.: Dec.-Feb. 'Ezhilampala'

**Alstonia venenata** R. Br. in Mem. Wer. Nat. Hist. Soc. 1: 77. 1809; FBI 3: 642; Rao 254; Gamble 569.

Erect shrubs or small trees 3-5 m tall. Leaves 8-22 x 1.5-3 cm, glabrous, narrowly oblong-lanceolate, acuminate at apex, cuneate at base. Flowers white in terminal corymbose cymes. Follicles up to 9 cm long.

Occasional in evergreen forests of Ponmudi and nearby areas Fl. & Fr.: Dec.-Aug.

#### Carissa L.

**Carissa spinarum** L. Mant. Plant. Alt. 559, 1771 excl. syn. Rumph.; FBI 3: 631; Rao 251; Gamble 565; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 9, 1973. **C. diffusa** Roxb. Fl. Ind. 2: 524 1824 var. *macrophylla* Gamble, Fl. Pres. Madras 805, 1951 & 566, 1956(repr. ed.).

Spreading, thorny shrubs; thorns up to 2 cm long, straight. Leaves 1.5-2.5 x 1-2 cm, glabrous, elliptic or ovate, mucronate at apex, rounded or cuneate at base. Flowers white in axillary cymes. Berries ovoid, green.

Frequent in dry areas of the sea coast. Fruits edible, Fl. & Fr.: Mar.-May, 'Mully'

#### Chonemorpha G.Don

**Chonemorpha fragrans** (Moon) Alston in Ann. Roy. Bot. Gard. Paradeniya 11: 203, 1929; Chatterjee in Kew Bull. 1947, 52, 1947. **Echites fragrans** Moon, Cat. Pl. Ceylon 20, 1824. **E. macrophylla** (Roxb.) Fl. Ind. ed. Carey 2: 13, 1832. **Chonemorpha macrophylla** (Roxb.) G.Don, Gen. Hist. 4: 76, 1837; FBI 3: 661; Rao 257; Gamble 575.

Climbing shrubs. Leaves 8-28 x 6-18 cm, pubescent, broadly elliptic, acuminate at apex, rounded or cordate at base. Flowers yellowish-white in terminal cymes; corolla lobes undulate-crispate along margins.

Rare in moist deciduous forests. Fl. & Fr.: Sep.-May. 'Appuppanthadi'

*Catharanthus* G. Don

*Note:* The main distinguishing features of *Catharanthus* from *Vinca* are: the axillary cymose flowers, salverform corolla and 15-30-seeded follicles.

Herbs; leaves acuminate at apex *C. pusillus*

Undershrubs; leaves obtuse at apex *C. roseus*

*Catharanthus pusillus* (Murr.) G.Don, Gen. Hist. 4: 95. 1837; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 13. 1973. *Vinca pusilla* Murr. in Comm. Gotting 3: 66. 1773; FBI 3: 640; Rao 252. *Lochnera pusilla* (Murr.) K. Schum. in Engler & Prantl, Pflanzenfam. 4(2): 145. 1895; Gamble 568.

Erect herbs 15-20 cm tall. Leaves 2.5-4.5 x 0.5-1.2 cm, glabrous, membranous, lanceolate, acuminate at apex, acute at base. Flowers white, solitary, axillary. Follicles up to 4 cm long.

Frequent in cultivated fields in plains. Fl. & Fr.: Dec.-Jun.

*Catharanthus roseus* (L.) G.Don, Gen. Hist. 4: 95. 1837; Huber, in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 13. 1973. *Vinca rosea* L. Syst. Nat. ed. 10, 2: 944. 1759; FBI 3: 640. *Lochnera rosea* (L.) Reichenb. Consp. Regni. Veg. 134. 1828; Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.): 191. 1931.

Erect undershrubs 0.3-0.5 m tall. Leaves 3-6.5x1.5-3 cm, obscurely strigose, obovate, obtuse and mucronate at apex, cuneate at base. Flowers white in axillary pairs. Follicles up to 2.5 cm long, strigose.

Cultivated in gardens; often runs wild. Fl. & Fr.: Throughout the year. 'Kasithetty'

*Cerbera* L.

*Cerbera odallam* Gaertn. Fruct. 2: 193. t.124, f.1. 1791; FBI 3: 638; Bourd. 262; Rao 252; Gamble 566; Huber in Dassanayake, Rev. Handb. Fl. Ceylon 4: 53. 1983. *C. manghas* L. Sp. Pl. 205. 1753 p.p.; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 18. 1973.

Trees 4-6 m tall. Leaves 10-18 x 2.5-5 cm, sparsely pubescent, oblanceolate, abruptly acuminate at apex, cuneate at base. Flowers white in terminal panicles.

Frequent along the backwaters of Veli. Leaves used in skin, diseases. Fl. & Fr.: Throughout the year. '*Odallam*'

*Note*: *Cerbera manghas* L. as understood by Linnaeus comprises 3 elements: *C. odallam*, another species of *Cerbera* collected from Java and *Paglantha dichotoma* (Roxb.) Margar. Gaertner (1791) was the first to resolve the problem by restricting *C. manghas* to Java (the element represented by Osbeck,) and proposing a new name *C. odallam* for the Indian species.

#### Holarrhena R. Br.

*Holarrhena pubescens* (Buch.-Ham.) Wall. ex Don Gen. Hist. 4: 78. 1837. *Echites pubescens* Buch.-Ham. in Trans. Linn. Soc. London 13: 521. 1821. *Holarrhena antidysenterica* (Roxb. ex Fleming) Wall. Cat. 1672. 1829; DC. Prodr. 8: 413. 1844; Wight, Icon. t. 439. 1841; FBI 3: 644; Rao 254; Gamble 570. *Echites antidysenterica* Roxb. ex Fleming in Pl. Asiat. Res. 11: 166. 1810.

Trees 4-6 m tall; stems pubescent. Leaves 10-20 x 3.5-12.5cm, densely pubescent, ovate or elliptic, acute or acuminate at apex, rounded at base. Flowers white in axillary and terminal cymes. Follicles up to 32 cm long, slender.

Common in deciduous forests and teak plantations. Fl.: Mar.-May. '*Kodagappala*

*Note*: Mabberley in Manilal, Bot. Hist. Hort. Malab. 103. 1980 has given a list of validly published names in Wallich Catalogue which included *H. antidysenterica*, *Nerium antidysentericum* L. which is often cited as basionym of the above species is now *Walidda antidysenterica* (L.) M. Pichon, a monotypic genus endemic to Sri Lanka.

#### Hunteria Roxb.

*Hunteria zeylanica* (Retz.) Gard. ex Thw. Enum. 191. 1860; Huber,

in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 10. 1973. *Cameraria zeylanica* Retz. Obs. Bot. 4: 24. 1786. *Hunteria corymbosa* Roxb. Fl. Ind. 1: 695. 1832; FBI 3: 637; Bourd. 263; Rao 252; Gamble 568.

Trees. Leaves 7.5-12.5 x 2-5 cm, glabrous, oblong-lanceolate, obtuse or acuminate at apex, acute at base. Flowers pale yellow in lateral and leaf-opposed cymes; carpels beaked, smooth. Fruits fleshy, 2-seeded; seeds ovoid.

Rare in evergreen forests at Merchiston. Fl.: May-Jun. Fr.: Jan.-Feb.

*Ichnocarpus* R.Br. *nom. cons.*

*Ichnocarpus frutescens* (L.) Ait. & Aitton.f. Hort. Kew ed.2, 2: 69. 1811; Huber, in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 27. 1973; FBI 3: 660; Rao 258; Gamble 577. *Apocynum frutescens* L. Sp. Pl. 213. 1753.

Climbing shrubs; stems rusty villous. Leaves 2-7.5 x 0.5-4 cm, villous, upper ovate-elliptic, acute at both ends. Flowers white in terminal panicles.

Frequent in cultivated and wastelands in the plains. Fl. & Fr.: Jan.-Apr. 'Paparavalli'.

*Parsonia* R.Br. *nom. cons.*

*Parsonia alboflavescens* (Dennst.) Mabberley in Taxon 26, 532. 1977. *Periploca alboflavescens* Dennst. Schlussel 12, 23, 35. 1818. *P. laevigata* (Moon) Alston in Ann. Roy. Bot. Gard. Paraedeniya 11: 203. 1927. *Echites laevigata* Moon, Cat. Plants Ceylon 20. 1824. *Parsonia spiralis* Wall. ex G.Don, Gen. Hist. 4: 80. 1837; FBI 3: 650; Rao 255; Gamble 572.

Climbing shrubs. Leaves 5-15 x 5-7.5 cm, coriaceous, elliptic-ovate or lanceolate, acute at apex, cuneate at base. Flowers white in dichotomously branched terminal or lateral cymes. Follicles up to 18 cm long.

Frequent in moist deciduous forests of Kottur. Fl. & Fr.: May-Oct.

**Rauvolfia L.**

1. Leaves glabrous beneath:
2. Peduncles ca. 12.5 cm long; drupes ovoid,  
slightly connate *R. serpentina*
2. Peduncles less than 5.5 cm long; drupes  
ellipsoidal, distinct *R. verticillata*
1. Leaves pubescent beneath *R. tetraphylla*

*Rauvolfia verticillata* (Lour.) Baill. Bull. Soc. Linn. Paris 1: 768. 1888, non Chiov. 1913; Markaraf in Blumea 30(1): 160. 1984. *Dissolena verticillata* Lour. Fl. Cochinch. 137. 1790. *Rauvolfia densiflora* Wall. in Edward's Bot. Reg. 15: 1273. 1829; FBI 3: 663; Gamble 567. *Ophioxylon zeylanicum* Wight, Icon. t.1291. 1848.

Erect shrubs 1-2 m tall. Leaves 5-18 x 1.5-6.5 cm, sparsely pubescent, oblanceolate, acuminate at apex, cuneate at base. Flowers white in branched cymes. Drupes green, ellipsoid.

Occasional in evergreen forests at Agastyarkudum. Fl. & Fr.: Oct.-Apr.

*Rauvolfia serpentina* (L.) Benth. ex Kurz, For. Fl. Brit. Burma 2. 171. 1877; Huber, in Abeywickrama, Rev. Handb. Fl. Ceylon 1 (1): 15. 1973; FBI 3: 632; Rao 250; Gamble 567. *Ophioxylon serpentinum* L. Sp. Pl. 1043. 1753.

Erect shrubs 30-60 cm tall. Leaves 8-14 x 3-4.5 cm, sparsely pubescent above when young, glabrous beneath, elliptic-lanceolate or oblanceolate, acuminate at apex, cuneate at base. Flowers in axillary cymes; peduncles up to 7 cm long, pubescent.

Very rare in natural habitats. Cultivated for its medicinal use Fl. & Fr.: May-Aug. 'Suvapavalporian'

*Rauvolfia tetraphylla* L. Sp. Pl. 208. 1753; Rao in Ann. Misc. Bot. Gard. 43: 285. 1956. *R. canescens* L. Sp. Pl. ed.2. 303. 1762; Gamble 568.

Erect shrubs 60-100 cm tall; stems pubescent. Leaves 2-8 x 1.5-4 cm, unequal, 3-4-whorled at nodes, puberulous above, tomentose beneath, ovate or elliptic, acute at both ends. Flowers yellow in axillary cymes. Drupes red, globose.

Commonly cultivated in gardens. Fl. & Fr.: Nov.-Mar.

**Tabernaemontana L.**

*Note*: The genus *Tabernaemontana* L. was splitted into several genera by Stapf (Dyer, Fl. Trop. Africa 4: 25. 1902) thereby excluding *Tabernaemontana* proper from Old World. However, Merrill (Contr. Arnold Arbor. 8: 140. 1934) has shown that the division was not justifiable. The following treatment is after Merrill (1934).

- |                                    |                      |
|------------------------------------|----------------------|
| 1. Corolla lobes twisted to left   | <i>T. divaricata</i> |
| 1. Corolla lobes twisted to right: |                      |
| 2. Calyx lobes unequal, ciliate    | <i>T. gamblei</i>    |
| 2. Calyx lobes equal, glabrous     | <i>T. heyneana</i>   |

*Tabernaemontana divaricata* (L.) R.Br. in Roem. & Schult. Syst. 4: 427. 1819; Merr. in Contr. Arnold Arbor. 8: 140. 1934. *Nerium divaricatum* L. Sp. Pl. 209. 1753. *Ervatamia coronaria* (Jacq.) Stapf in Dyer, Fl. Trop. Africa 4: 127. 1902; Gamble 571. *Tabernaemontana coronaria* (Jacq.) Willd. Enum. Hort. Berol. 275. 1819; Wight, Icon. t.477. 1841; FBI 3: 646; Rao 255. *Nerium coronarium* Jacq. Collect. 1: 138. 1786.

Shrubs 4-6 m tall. Leaves 6-15 x 5-7.5 cm, obovate or oblanceolate, acuminate at apex, narrowed at base. Flowers white in axillary cymes. Fruits spindle shaped, divaricate.

Often cultivated in gardens. Fl. & Fr.: Dec.-Mar.

*Note*: A native of Southern Himalayas, in gardens as 'Grape-Jasmine'.

*Tabernaemontana gamblei* Subr. & Henry in Bull. Bot. Surv. India 12: 5. 1970. *Ervatamia caudata* Gamble in Bull. Misc. Inform. 310. 1921 & Fl. Pres. Madras 571. 1957 (repr. ed.) non *Tabernaemontana caudata* Merr. 1909.

Glabrous shrubs 2-4 m tall. Leaves 6.5-19 x 2-5.5 cm, elliptic-oblong or obovate-oblong, caudate-acuminate at apex, cuneate at base. Flowers white in axillary cymes. Follicles ca. 4.5 x 1.5 cm, ovoid.

Frequent in evergreen forests of Chemungi. Fl. & Fr.: Dec.-May.

*Tabernaemontana heyneana* Wall. in Edward's Bot. Reg. 15; Sub. t.1273. 1829; FBI 3: 672; Bourd. 267; Rao 254. *Ervatamia heyneana* (Wall.) Cooke, Fl. Bombay 2: 134. 1904; Gamble 572.

Trees 6-9 m tall. Leaves 11-20 x 3.5-6 cm, elliptic or oblong-lanceolate, acuminate at apex, cuneate at base. Flowers white in axillary cymes. Follicles orange-red, oblong.

Frequent throughout the low elevations. Fl. & Fr.: Dec.-Apr. 'Pala'

*Wrightia* R. Br.

|                       |                     |
|-----------------------|---------------------|
| Leaves glabrous above | <i>W. tinctoria</i> |
|-----------------------|---------------------|

|                        |                   |
|------------------------|-------------------|
| Leaves tomentose above | <i>W. arborea</i> |
|------------------------|-------------------|

*Wrightia arborea* (Dennst.) Mabberley in Taxon 26: 533. 1977. *Periploca arborea* Dennst. Schluss. 13, 23, 25, 1818. *Wrightia tomentosa* Roem. & Schult. Syst. 4: 414. 1819; Wight, Icon. t.1319. 1848; FBI 3: 653; Bourd. 268; Rao 256; Gamble 573. *W. wallichii* A.DC. Prodr. 8: 405. 1844; Wight, Icon. t.157. 1839.

Trees 3-6 m tall. Leaves 5-10 x 2.5-5.5 cm, ovate or obovate, acuminate at apex, acute at base. Flowers yellowish-green with an orange corona in terminal tomentose cymes.

Fairly common in deciduous forests of Kottur. Fl. & Fr.: Jun.-Jul. 'Mailam-pala'

*Wrightia tinctoria* R. Br. in Mem. Wern. Nat. Hist. Soc. 1: 47. 1811; Wight, Icon. t.444. 1841; FBI 3: 653; Bourd. 267; Rao 256; Gamble 573.

Trees 5-7 m tall. Leaves 5.5-11 x 2-3.5 cm, glabrous above, puberulous beneath, ovate to oblong-lanceolate, caudate-acuminate at apex, cuneate at base. Flowers white in axillary branched cymes.

Occasional in coastal regions. Fl. & Fr.: Mar.-Sept. 'Aiva-pala'

\**Allamanda cathartica* L., *A. violacea* Gaertn., *Kopsia fruticosa* A.DC. *Nerium odoratum* Soland. *Odentadenia speciosa* Benth., *Vallaris*

*solanacea* (Roth) kuntze, *Plumeria rubra* L. and *Tevitia peruviana* (Pers.) Merr. are found in Gardens.

### ASCLEPIADACEAE R. Br.

|   |                   |
|---|-------------------|
| 1. Corona single, angular                     | <i>Holostemma</i> |
| 1. Corona 5 or more :                         |                   |
| 2. Corona 2- seriate                          | <i>Ceropegia</i>  |
| 2. Corona 1- seriate:                         |                   |
| 3. Fruits hairy                               | <i>Asclepias</i>  |
| 3. Fruits glabrous:                           |                   |
| 4. Flowers subsessile                         | <i>Cynanchum</i>  |
| 4. Flowers distinctly pedunculate:            |                   |
| 5. Corona of 5 stellate horny processes       | <i>Hoya</i>       |
| 5. Corona not as above:                       |                   |
| 6. Erect shrubs                               | <i>Calotropis</i> |
| 6. Climbing herbs or shrubs:                  |                   |
| 7. Style apex pentagonal or lobed             | <i>Tylophora</i>  |
| 7. Style apex convex or conical or depressed: |                   |
| 8. Plants tomentose                           | <i>Gymnema</i>    |
| 8. Plants glabrous                            | <i>Wattakaka</i>  |

#### Asclepias L.

*Asclepias curassavica* L. Sp. Pl. 215. 1753; FBI 4: 18; Rao 260; Gamble 585.

Erect shrubs up to 1 m tall. Leaves 7-12.5 x 1.5-2.6 cm, sparsely pubescent when young, glabrous on maturity, lanceolate, acuminate at apex, acute at base. Flowers bright-orange in umbellate lateral cymes.

Common in wastelands and along roadsides of mountainous zone; often cultivated in gardens. Fl. & Fr.: Jun-Oct.

***Calotropis* R.Br.**

***Calotropis gigantea* (L.) R.Br.** in Aiton, Hort. Kew. ed.2. 2: 78; 1811; FBI 4: 17; Rao 269; Gamble 585; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 35, 1973. *Asclepias gigantea* L. Sp. Pl. 214. 1753.

Erect shrubs ca. 1-1.5 m tall with milky sap; stems woolly, glabrous on drying. Leaves 4-14 x 3-8 cm, glaucous beneath, sessile, obovate, obtuse at apex, cordate at base. Flowers pale pink in axillary racemes.

Abundant along the seacoast and along roadsides. Sap poisonous. Fl. & Fr.: Dec.-Mar. 'Erukku'

***Ceropegia* L.**

|                               |                              |
|-------------------------------|------------------------------|
| <b><i>Corona ciliata</i></b>  | <b><i>C. thwaitesii</i></b>  |
| <b><i>Corona glabrous</i></b> | <b><i>C. candelabrum</i></b> |

***Ceropegia candelabrum* L.** Sp. Pl. 211. 1753; Huber in Mem. Soc. Brot. 12: 58. 1957 p.p. & in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 53, 1973. *C. tuberosa* Roxb. Pl. Cor. t.9. 1795; Wight, Icon. t.353. 1840; FBI 4: 71; Rao 265; Gamble 603.

Twining herbs with tuberous rootstocks. Leaves 3.5-7.5 x 1.5-3 cm, membranous, nearly glabrous, ovate, apiculate at apex, obtuse at base. Flowers greenish with brown streaks and yellow beck, solitary, axillary.

Occasional in sandy areas of the coast of Veli. Fl. & Fr.: Nov., Feb.

***Ceropegia thwaitesii* Hook.f.** in Bot. Mag. t.4758. 1854; FBI 4: 71; Rao 267; Gamble 603; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 54. 1973.

Glabrous twiners with slender rootstock. Leaves 5-10 x 1.5-3.2 cm, ovate-lanceolate, acuminate at apex, rounded or cordate at base. Flowers greenish with purple blanches, in 1-5-flowered cymes; inner processes of corona clavate.

Rare in exposed areas of Ponmudi. Fl. & Fr.: Nov.-Mar.

***Cynanchum* L.**

***Cynanchum callialata* Buch.-Ham.** in Wight, Contrib. 56, 1834;

Wight, Icon. t.1279. 1848; FBI 4: 24; Rao 261; Gamble 588.

Glabrous, twining shrubs. Leaves 2.5-10 x 2.5-5 cm, elliptic-ovate or linear-oblong, apiculate at apex, cordate at base; stipules foliaceous. Flowers in axillary cymes, Follicles winged.

Rare in deciduous forests of Bonecord. Fl. & Fr.: Oct.-Jan.

**Gymnema R. Br.**

**Gymnema trigens** (Roxb.) Wight & Arn. in Wight, Contrib. 44. 1834; FBI 4: 31; Gamble 590. *Asclepias trigens* Roxb. Pl. Cor. t.239. 1811. *Gymnema trigens* Wight var. *cordifolia* Wight, Icon. t.593. 1842.

Climbing shrubs. Leaves 10-16 x 5.5-11 cm, broadly elliptic-ovate, acuminate at apex, base rounded. Flowers in umbels; coronae villous. Follicles 15-17.5 cm long.

Occasional in the coastal zone at Nadayara. Fl. & Fr.: Sept.-Mar.

**Holostemma R Br.**

**Holostemma ada-kodien** Schultes, Syst. Veg. 6: 95. 1820; Hara in Fl. East. Himalaya 91. 1975. *H. annulare* Schum. in Engl. & Prantl, Pflanzenfam. 4(2): 250. 1895; Gamble 180; Huber in Abeywickrama, Rev. Handb. Fl Ceylon 1(1): 37. 1973. *Asclepias annulare* Roxb. Fl. Ind. 2: 37. 1832. *Holostemma rheedii* Wall. Pl. Asiat. Rar. 2: 51. 1831; FBI 4: 21, Rao 261.

Creeping shrubs. Leaves 2-12 x 4-7 cm, puberulous, ovate, acute or slightly acuminate at apex, sinuate at base. Flowers pale pink in axillary cymes.

Very rare in open grasslands of Kurisumalai, Bonecord Fl. & Fr.: May-Sept, 'Adakodian'.

*Note:* The earliest validly published name of this species is however, ignored by many authors till Hara /c, pointed out.

**Hoya R. Br.**

Flowers yellow; plants stout

*H. wightii*

Flowers white; plants slender *H. pauciflora*

*Hoya pauciflora* Wight, Icon. t. 1269. 1848 (Sphalm 'parviflora' in text); FBI 4: 56; Gamble 597.

Slender climbing or rambling undershrubs. Leaves 2.5-5 x 0.5-0.8 cm, linear-lanceolate, fleshy, glabrous, obtuse at apex, narrowed at base. Flowers white, usually 1-3, in umbels.

Occasional as dense mats over moist rocks along the banks of streams and rivers. Fl. & Fr.: May.-Aug.

*Hoya wightii* Hook.f. Fl. Brit. India 4: 59. 1883; Rao 264; Gamble 597.

Stout climbing shrubs. Leaves 5-9 x 2.5-3 cm, elliptic-lanceolate, bluntly acuminate at apex, rounded or subacute at base. Flowers yellow in lateral umbels. Follicles up to 10 cm long.

Rare in deciduous forests. Fl. & Fr.: Dec.-Feb.

#### *Tylophora* R.Br.

- |                                   |                       |
|-----------------------------------|-----------------------|
| 1. Erect undershrubs              | <i>T. fasciculata</i> |
| 1. Twining shrubs or undershrubs: |                       |
| 2. Calyx and corolla glabrous     | <i>T. tenuis</i>      |
| 2. Calyx and corolla pilose       | <i>T. indica</i>      |

*Tylophora fasciculata* Buch.-Ham. ex Wight, Contrib. 50. 1834; Wight, Icon. t. 848. 1844-1845; FBI 4: 40; Gamble 592.

Undershrubs 50-75 cm tall. Leaves 2.5-5 x 1-2.2 cm, pubescent beneath, ovate or lanceolate, acute at apex, acute or rounded at base. Flowers in lateral racemiform umbels. Follicles up to 6 cm long; fusiform.

Rare in open grasslands at low elevations. Fl. & Fr.: Jul.-Aug.

*Tylophora indica* (Burm.f.) Merr. in Philipp. J. Sci. 19: 373. 1921.

- |   |                    |
|---|--------------------|
| Peduncles 2-3 cm long; stems, leaves and cymes pubescent          | var. <i>indica</i> |
| Peduncles less than 0.5 cm long; stems, leaves and cymes glabrous | var. <i>glabra</i> |

**Tylophora indica** (Burm.f.) Merr. in Philipp. J. Sci 19: 373. 1921, var. *indica*; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 42. 1973. *Cynanchum indicum* Burm.f. Fl. Ind. 70. 1768. *Asclepias asthmatica* L.f. Suppl. 171. 1781. *Tylophora asthmatica* (L.f.) Wight & Arn. in Wight, Contrib. 51. 1834; Wight, Icon. t.1277. 1848; FBI 4: 44; Rao 263; Gamble 593.

Twining shrubs. Leaves 4-9 x 2-4 cm, glabrous or pubescent above, densely pubescent beneath, elliptic-ovate to elliptic-lanceolate, acuminate and apiculate at apex, cordate at base. Flowers pale yellow in umbellate cymes.

Fairly common in the coast of Veli. Fl. & Fr.: Jun.-Nov.  
'Valli-pala'

**Tylophora indica** (Burm.f.) Merr. var. *glabra* (Decne) Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 43. 1973. *T. asthmatica* (L.f.) Wight var. *glabra* Decne in DC. Prodr. 8: 611. 1844 p.p.

Twining shrubs. Leaves up to 2.5-4.5 x 1.5-2 cm, ovate, apiculate at apex, cordate at base. Flowers pale yellow in umbellate cymes.

Rare in coastal zone especially towards the north (Varkala). Fl. & Fr.: Aug.-Nov.

**Tylophora tenuis** Blume, Bijdr. 1062. 1827; FBI 4: 42; Rao 236; Gamble 592. *Asclepias tenuissima* Roxb. Fl. Ind. 2: 41. 1832. *Tylophora carnosa* Wall. ex Wight in Wight, Contrib. 49. 1834; Wight, Icon. t.351. 1840. *T. tenuissima* (Roxb.) Wight & Arn. in Wight, Contrib. 49. 1834; Wight, Icon. t.588. 1840-1843.

Slender twining herbs. Leaves 2-3.5 x 1.5-2.3 cm, fleshy, ovate or elliptic-oblong, obtuse or acute at apex, acute or rounded at base. Flowers purple in paniculate cymes. Follicles ca. 8.5 cm long.

Rare in exposed areas of forests at low elevations. Fl. & Fr.: May-Jun. 'Nanjarippan'

#### Wattakaka Hassk.

**Wattakaka volubilis** (L.f.) Stapf in Curtis, Bot. Mag. Sub. t.8976. 1923; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 50. 1973. *Asclepias volubilis* L.f. Suppl. 170. 1781. *Dregia volubilis* (L.f.) Benth. ex Hook.f. Fl. Brit. India 4: 46. 1883; Rao 263.

*Marsdenia volubilis* (L.f.) Cooke, Fl. Pres. Bombay 2: 166, 1904; Gamble 595.

Glabrous twining shrubs. Leaves 5-14 x 3-10 cm, ovate, acuminate at apex, cordate at base. Flowers pale yellow in axillary, pendulous umbels. Follicles 8-10 x 2-2.5 cm, woody.

Common in coastal zone. Fl. & Fr.: Mar.-Aug.

#### PERILOCACEAE Schltr.

- |                                    |                    |
|------------------------------------|--------------------|
| 1. Erect shrubs                    | <i>Janakia</i>     |
| 1. Climbing shrubs :               |                    |
| 2. Anthers with appendages at apex | <i>Hemidesmus</i>  |
| 2. Anthers without appendages      | <i>Cryptolepis</i> |

#### *Cryptolepis* R. Br.

*Cryptolepis buchananii* Roem. & Schult. Syst. Veg. 4: 409. 1819; Wight, Icon. t.494. 1849; FBI 4: 5; Rao 259; Gamble 580; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 29. 1973.

Climbing shrubs. Leaves 7-14 x 2-6 cm, glabrous, nearly white beneath, oblong, caudate, acuminate and apiculate at apex, cuneate at base. Flowers white in axillary cymes.

Common in open forests of Ponmudi and Bonecord. Fl. & Fr.: Apr.-Jun. 'Palvalli'.

#### *Hemidesmus* R. Br.

*Hemidesmus indicus* (L.) R. Br. in Aiton, f. Hort. Kew. ed. 2. 2: 75. 1811; Wight, Icon. t.594. 1842; FBI 4: 5; Rao 258; Gamble 580; Huber in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 30. 1973. *Periploca indica* L. Sp. Pl. 211. 1753.

Twining shrubs. Leaves 3-6 x 0.5-1.2 cm, glabrous, narrowly oblong, acuminate at apex, rounded at base. Flowers yellow in axillary cymes. Follicles 15-20 cm long, slender.

Common throughout the plains and moist deciduous forests. Fl. & Fr.: Jun.-Feb. 'Narunotti'

*Janakia Joseph & Chandras.*

*Janakia arayalpathra* Joseph & Chandras. in J. Indian Bot. Soc. 54(4): 308-312. 1978.

Erect shrubs 1-1.5 m tall; tubers moniliform. Leaves 5-9 x 1.5-3.5 cm, elliptic or ovate-lanceolate, acuminate at apex, narrowed at base. Flowers pale yellow in axillary cymes. Follicles ca. 2 cm long, oblong.

Common in restricted areas of kurisumalai. Bonecord. Tubers reported to be used in medicine for stomach ache. Fl. & Fr.: Dec.-Apr.

#### POTALIACEAE Mart.

Note: Potaliaceae differ from Loganiaceae by the contorted corolla lobes, baccate fruits and unwinged seeds. Potaliaceae have a close affinity towards Gesneriaceae but for the regular flowers and completely developed androecium (Airy Shaw 1973).

|                     |                   |
|---------------------|-------------------|
| Herbs 10-15 cm tall | <i>Mitrasacme</i> |
| Trees               | <i>Fagraea</i>    |

#### *Fagraea* Thunb.

*Fagraea ceilanica* Thunb. Vet. Aced. Handl. Stockh. 3: 132. t.4. 1782; Blume, Rumphia 2: 29. t.78. f.2. 1831, 'zeylanica'; FBI 4: 83; Rao 266; Gamble 608; Leenh, in Bull. Jard. Bot. Brux. 32: 420. 1962. *F. obovata* Wall. in Roxb. Fl. Ind. 2: 53. 1824, non. Blume 1826; FBI 4: 83 p.p.; Rao 266; Gamble 608.

Trees 7-10 m tall, initially epiphytic. Leaves 9-18 x 3-8 cm fleshy, yellow when dry, margins recurved, obovate, obtuse at apex, cuneate at base. Flowers yellow in terminal corymbose cymes. Berries green, obovate.

Occasional in evergreen forests near streams and rivers. Fl. & Fr.: Feb.-Mar.

#### *Mitrasacme* Labill.

*Mitrasacme pygmaea* R.Br. var. *malaccensis* (Wight) Hara in J. Jab. Bot. 30: 24. 1955; Leenh. in Steenis, Fl. Malesiana ser. 1, 6:

382. 1862. *M. malaccensis* Wight, Icon. t.1601. 1850. *M. polymorpha* auct. non R.Br. 1810; Gamble 608.

Leaves 0.5-1 x 0.2-0.4 cm, radical ovate, acute at apex, narrowed at base. Flowers greenish-white, solitary.

Rare amidst coconut plantations in Veli. Fl. & Fr.: Jun.-Dec.

### STRYCHNACEAE Link

#### *Strychnos* L.

|                            |                       |
|----------------------------|-----------------------|
| 1. Trees                   | <i>S. nux-vomica</i>  |
| 1. Climbing shrubs:        |                       |
| 2. Tendrils simple, hooked | <i>S. wallichiana</i> |
| 2. Tendrils bifid          | <i>S. minor</i>       |

*Strychnos minor* Dennst. Schluss. Hort. Malab. 33 1818; Bisset & Philcox in Taxon 20: 542. 1971. *S. colubrina* Stocks, Bot. Mat. Med. 1: 414. 1812 p.p., non L. 1753; FBI 4: 87; Rao 267; Gamble 610.

Leaves 7-10 x 2.5-5 cm, coriaceous, 3-ribbed, elliptic-ovate, acute or acuminate at apex, narrowed at base. Flowers white in cymes up to 2.5 cm long. Berries ca. 2 cm in diam., pericarp fleshy.

Rare in coastal zone at Varkala. Leaves and roots medicinal. Fl. & Fr.: Dec.-Jun.

*Strychnos nux-vomica* L. Sp. Pl. 189. 1753; Bedd. Fl. Sylv. t.243. 1872; FBI 4: 90; Rao 267; Hill in Bull. Misc. Inform. 183. 1917; Gamble 610; Leenh. in Steenis, Fl. Malesiana ser.1, 6: 349. 1962.

Trees 15-20 m tall. Leaves 6-12 x 5-10 cm, broadly ovate, acuminate at apex, obtuse at base. Flowers greenish-white in terminal cymes. Berries 2-5 cm in diam., orange-red.

Fairly common in the plains and at low elevations of ghats. Fl. & Fr.: Feb.-Mar. 'Kanjiram'

*Strychnos wallichiana* Steud. ex DC. Prodr. 9: 13. 1845; Bisset & Philcox in Taxon 20: 543. 1971. *S. colubrina* L. Sp. Pl. 1: 189. 1753 nom. illeg. *S. cinnamomifolia* Thw. var. *wightii* Hill in Bull.

Misc. Inform. 194. 1917; FBI 4: 89; Gamble 611, *S. bourdillonii* Brandis, Ind. Trees 474. 1906; Rao 268.

Leaves 9-12 x 2-5 cm, coriaceous, elliptic-ovate, acuminate at apex, obtuse at base. Flowers greenish-yellow in terminal cymes. Berries up to 10 cm in diam.

Frequent in low elevations of deciduous forests near rivers and streams. Fl. & Fr.: Jan.-Mar. 'Vallikanjiram'

GENTIANACEAE Juss.

- |  |                 |
|--|-----------------|
| 1. Stigmas entire; stamens all fertile                 | <i>Exacum</i>   |
| 1. Stigmas 2-lobed; 1 or more stamens sterile :        |                 |
| 2. Calyx keeled or winged; filaments unequal in length | <i>Canscora</i> |
| 2. Calyx not as above; filaments equal in length       | <i>Hoppea</i>   |

*Canscora* Lam.

- |                  |                     |
|------------------|---------------------|
| Calyx winged     | <i>C. decussata</i> |
| Calyx not winged | <i>C. diffusa</i>   |

*Canscora decussata* (Roxb.) Schult. & Schult. Mant. 3: 224. 1827; FBI 4: 104; Rao 269; Gamble 618. *Pladera decussata* Roxb. Fl. Ind. 1: 418. 1820.

Erect herbs up to 75 cm tall; stems 4-angular, winged. Leaves 1.5-3 x 0.5-1.5 cm, glabrous, narrow, oblong, acute at apex, cuneate or rounded at base. Flowers white, solitary. Capsules linear-oblong, tipped by persistent styles.

Occasional in plains towards the coast. Fl.: Nov.-Feb.

*Canscora diffusa* (Vahl) R.Br. Prodr. 451. in Obs. 1810; FBI 4: 103; Rao 269; Gamble 617. *Gentiana diffusa* Vahl. Symb. Bot. 3: 47. 1794. *Canscora lawii* Wight, Icon. t.1327. 1848.

Erect herbs 20-30 cm tall. Leaves 0.5-2 x 0.4-0.6 cm, sessile, glabrous, ovate, acute at apex, cuneate at base. Flowers pink in terminal cymes. Capsules linear-ovoid.

Fairly common in dampy areas towards coastal zone. Fl. & Fr.: Aug.-Jan. 'Jeerakapullu'

## Exacum L.

|   |  |
|---|--|
| 1. Petals 4                                   | <i>E. sessile</i>                                  |
| 1. Petals 5:                                  |  |
| 2. Flowers in cymes                           | <i>E. courallense</i> var.<br><i>laxiflorum</i>    |
| 2. Flowers mostly solitary:                   |  |
| 3. Leaves spathulate                          | <i>E. travancoricum</i>                            |
| 3. Leaves not spathulate :                    |  |
| 4. Leaves acuminate at apex, ca. 8 cm long    | <i>E. courallense</i><br>var. <i>bonecordensis</i> |
| 4. Leaves acute at apex, less than 6 cm long: |  |
| 5. Leaves ca. 2 cm broad                      | <i>E. walkeri</i>                                  |
| 5. Leaves ca. 4.5 cm broad                    | <i>E. atropurpureum</i>                            |

*Exacum atropurpureum* Bedd. Icon. t. 119, 1874; FBI 4; 97; Rao 268; Gamble 614.

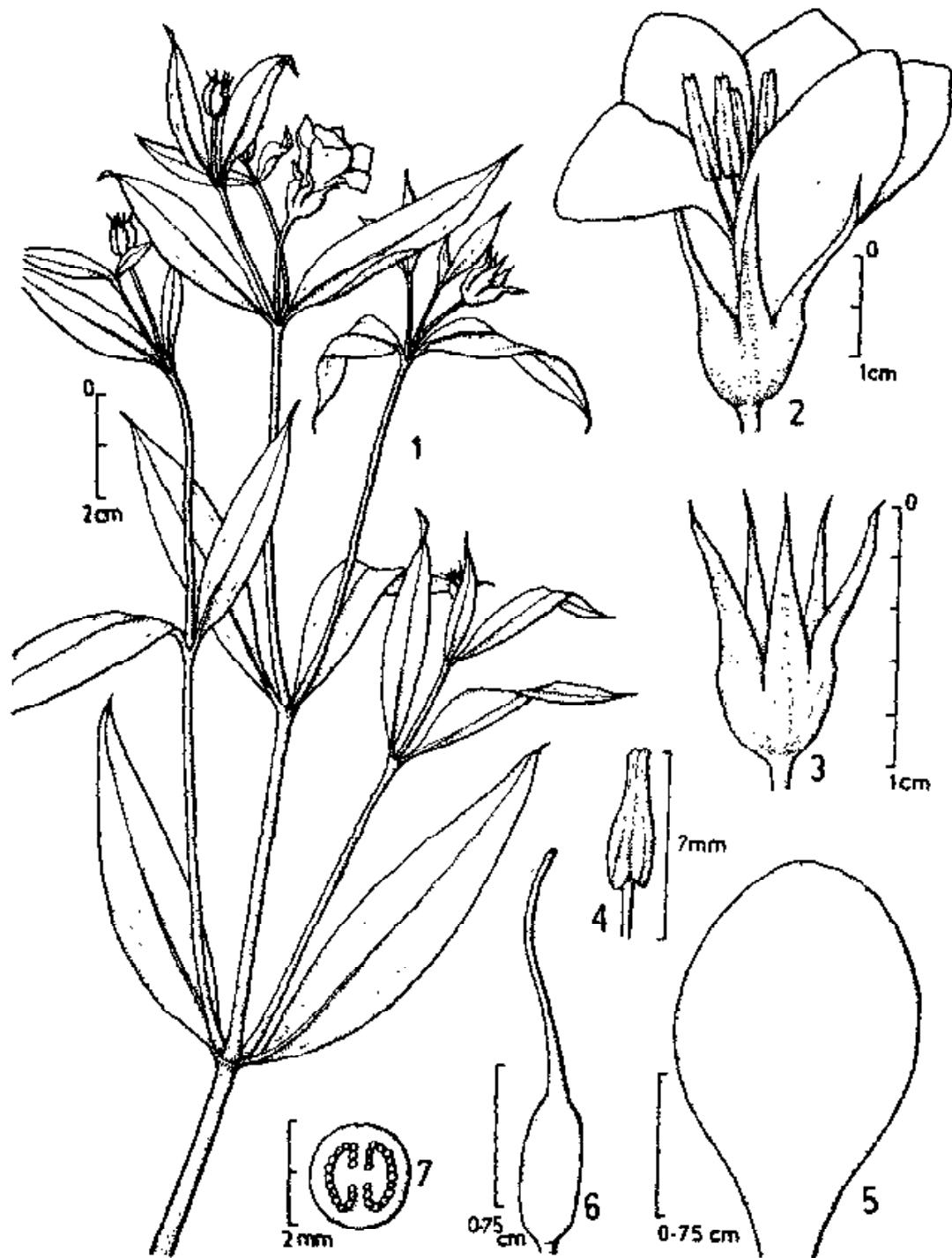
Herbs. Leaves 3-6 x 2-4.5 cm, sessile, ovate, acute at apex, rounded or cordate at base. Flowers deep blue, solitary in the upper axils.

Rare in open grasslands of Chemungi. Fl. & Fr.: Aug.-Dec.  
*Exacum courallense* Arn. var. *bonecordensis* Mohanan var. nov.

*Exacum courallense* Arn. var. *laxiflorum* Gamble affinis, sed floribus solitariis, pediceltis longioribus, foliis membranaceis magnioribus, foliis ubique caules semote dipositis differt.

Undershrubs 30-50 cm tall; stems quadrangular towards the ends. Leaves 6-8 x 1-2 cm, glabrous, membranous, sessile, narrowly elliptic-lanceolate, faintly 3-veined, acuminate at apex, narrowed at base. Flowers solitary, axillary; pedicels ca. 3.5 cm long; calyx tubes ca. 4 mm long, 5-lobed, lobes ca. 6 mm long, lanceolate, winged at base; petals up to 1.5 x 0.7 cm, obovate or oblanceolate, blue; stamens 5, ca. 7 mm long. Ovary up to 5 x 2 mm, glabrous, 2-loculed, ovules many in axile placenta; styles ca. 1 cm long.

Occasional in moist areas near Bonecord. Fl. & Fr.: Apr.-Aug. Mohanan 63225; Holotype in CAL & Isotype in MH.



*Exacum courallense* Arn. var. *bonecordensis* Mohanan var. nov.  
(Gentianaceae). 1. Habit. 2. Flower. 3. Calyx. 4. Stamen. 5. Petal.  
6. Pistil. 7. T.S. of ovary.

*Exacum courtallense* Arn. var. *laxiflorum* Gamble, Fl. Pres. Madras 873, 1923 & 614, 1957 (repr. ed.).

Erect shrubs 30-75 cm tall. Leaves 2.5-9 x 0.5-1.5 cm, 3-ribbed-membranous, glabrous, elliptic-lanceolate, acuminate at apex, cuneate at base. Flowers blue in terminal branched cymes.

Common in moist areas at Bonecord. Fl. & Fr.: Oct.-Mar.

*Exacum sessile* L. Sp. Pl. 112, 1753; Wight, Icon. t.1324 (1), 1848, FBI 4: 98; Rao 269; Gamble 614.

Erect shrubs 10-15 cm tall. Leaves 0.5-1.2 x 0.4-0.7 cm, sessile, glabrous, ovate, acute at apex, rounded at base. Flowers pale blue, subsessile, solitary or in cymes at the ends of branches. Capsules globose.

Frequent in moist areas in grasslands of ghats. Fl. & Fr.: Jul.-Sept.

*Exacum travancoricum* Bedd. Icon. t.118. 1868-1874; Gamble 614. *E. courtallense* Arn. var. *travancorica* (Bedd.) Clarke in Hook.f. Fl. Brit. India 4: 67. 1883.

Low, bushy herbs 15-20 cm tall. Leaves 1.5-2 x 0.3-0.5 cm, crowded towards the tips, spatulate, incurved, plicate. Flowers blue, solitary, terminal.

Rare in grassy slopes of Agastyarkudum. Fl. & Fr.: Sept.-Oct.

*Exacum walkeri* Griseb. Gen. Sp. Gent. 110, 1838 & in DC. Prodr. 9: 45, 1845; Wight, Ill. t.157b. f.1. 1850; FBI 4: 96; Mohanan, Henry & Nair in J. Bombay Nat. Hist. Soc. 79: 450, 1982.

Annuals. Stems 50-60 cm tall, dichotomously branched. Leaves 2-5.4 x 1.5-2 cm, 3-ribbed, broadly ovate, acute at apex, rounded at base. Flowers yellow, mostly solitary (rarely in terminal dichasial cymes). Capsules ellipsoid or ovoid.

Very rare in rocky slopes of Upper Ponmudi. Fl. & Fr.: Aug.-Feb.

*Note:* A new record for India. Previous report is only from Sri Lanka.

*Hoppea* Willd.

*Hoppea fastigiata* (Griseb.) Clarke in Hook.f. Fl. Brit. India 4: 100. 1883; Rao 269; Gamble 616. *Cicendia fastigiata* Griseb. Gen. Sp. Gent. 158. 1839.

Herbs 8-12 cm tall with woody rootstocks. Leaves 4-9 x 5-7 cm, broadly ovate, obtuse or subacute at apex, truncate or rounded at base. Flowers white in axillary or terminal cymes. Capsules elliptic-oblong.

Occasional in dampy areas of moist deciduous forests of Kottur. Fl. & Fr.: Dec.-Mar.

## MENYANTHACEAE Dumort.

*Nymphoides* Seguier

|                      |                       |
|----------------------|-----------------------|
| Corolla lobes entire | <i>N. hydrophylla</i> |
|----------------------|-----------------------|

|                         |                   |
|-------------------------|-------------------|
| Corolla lobes fimbriate | <i>N. indicum</i> |
|-------------------------|-------------------|

*Nymphoides hydrophylla* (Lour.) Kuntze, Rev. Gen. Pl. 429. 1891; Cramer in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 3: 208. 1981. *Menyanthes hydrophylla* Lour. Fl. Cochinch. 1: 129. 1790. *Nymphoides cristata* (Roxb.) Kuntze, Rev. Gen. Pl. 2: 429. 1891. *Menyanthes cristata* Roxb. Pl. Cor. t. 105. 1799. *Limnanthemum cristatum* (Roxb.) Griseb. Gen. Sp. Gent. 342. 1839; FBI 4: 131; Rao 270; Gamble 620.

Aquatic herbs. Leaves 8-10 cm in diam., orbicular, purplish, sinuate at base. Flowers white, clustered. Seeds few with glochidiate tubercles.

Occasional in stagnant pools in midlands. Fl. & Fr.: Oct.-Dec.

*Nymphoides indicum* (L.) O. Kuntze, Rev. Gen. Pl. 429. 1891; Baker & Bakb.f. Fl. Java 2: 441. 1965. *Menyanthes indica* L. Sp. Pl. 145. 1753. *Limnanthemum* (L.) Griseb. emend. Thw. Enum. 205. 1860; FBI 4: 131; Rao 271; Gamble 621

Aquatic herbs. Leaves 7-9 x 6.5-9 cm, fleshy, glabrous, rounded, deeply sinuate at base. Flowers white; pedicels up to 9 cm long. Seeds many.

Fairly common in stagnant pools in the midlands. Fl. & Fr.: Oct.-Dec. 'Chinnambal'.

**H Y D R O P H Y L L A C E A E** R.Br. ex Edwards

*Hydrolea* L. *nom. cons.*

*Hydrolea zeylanica* (L.) Vahl, Symb. Bot. 2: 46. 1791; Wight, Icon. t. 601. 1842; FBI 4: 133; Rao 271; Gamble 621. *Nama zeylanica* L. Sp. Pl. 226. 1753.

Annual herbs rooting at lower nodes. Leaves 3-5 x 0.5-1 cm, lanceolate, acuminate at apex, cuneate at base. Flowers bright blue in terminal racemes; calyx glandular-pubescent. Capsules transparent.

Fairly common in plains towards the coast in swamps and paddy fields. Fl. & Fr.: Oct.-Dec.

**B O R A G I N A C E A E** Juss.

Ovules 2 in each locule *Coldenia*

Ovules 1 in each locule *Heliotropium*

*Coldenia* L.

*Coldenia procumbens* L. Sp. Pl. 125. 1753; FBI 4: 144; Rao 273; Gamble 627.

Prostrate silky herbs. Leaves 1-3 x 0.5-1 cm, crenate, obovate-oblong, obtuse at apex, cuneate at base. Flowers yellow. Fruits grooved.

Occasional in the plains. Fl. & Fr.: Sept.-Dec.

*Heliotropium* L.

Erect herbs *H. indicum*

Prostrate herbs *H. marifolium*

*Heliotropium indicum* L. Sp. Pl. 130. 1753; Johnston in J. Arnold Arbor. 32: 111. 1951; FBI 4: 152; Rao 274; Gamble 630.

Stems hispid. Leaves 4-8 x 1.5-4 cm, hispid, ovate or suborbicular, acute or obtuse at apex, cuneate at base. Flowers white in axillary spikes up to 16 cm long.

Abundant near rice fields in midlands. Fl. & Fr.: Nov.-Mar.  
'Venapacha'

*Heliotropium marifolium* Retz. Obs. Bot. 2: 8. 1781; Baker & Bakh.f., Fl. Java 2: 462. 1965; Riedl in Reehinger, Fl. Iran 48: 16. 1967. *H. scabrum* Retz. Obs. Bot. 2: 8. 1781; FBI 4: 152; Rao 274; Gamble 630.

Leaves up to 0.5 x 0.2 cm, hirsute, ovate, acute at both ends. Flowers white in axillary and terminal cymes. Nuts bristly.

Frequent in sand strands of Veli. Fl. & Fr.: Mar.-May.

Note: Baker & Bakh.f. /c. united *Heliotropium marifolium* and *H. scabrum* and selected 'marifolium' as the specific epithet for the combined species.

### EHRETIACEAE Lindl.

|                                 |                |
|---------------------------------|----------------|
| Leaves acuminate at apex        | <i>Ehretia</i> |
| Leaves rounded or lobed at apex | <i>Carmona</i> |

#### *Carmona* Cav.

*Carmona retusa* (Vahl) Masamune in Trans. Nat. Hist. Soc. Taiwan 30: 61. 1940; Baker & Bakh.f. Fl. Java 2: 459. 1965. *Cordia retusa* Vahl, Symb. Bot. 2: 42. 1791. *Carmona microphylla* (Lam.) Don, Gen. Syst. 4: 391. 1837; Johnston in J. Arnold Arbor. 32: 17. 1951. *Ehretia microphylla* Lam. Ill. 1: 425. 1792; Gamble 891. *E. buxifolia* Roxb. Pl. Cor. 1: 42. t. 57. 1795; FBI 4: 144; Rao 273.

Shrubs 3-4 m tall. Leaves 1.5-2.5 x 0.5-1 cm, coriaceous, covered with glandular bristles above, obovate, cuneate at base. Flowers white in corymbose cymes. Drupes globose, scarlet.

Occasional in drier areas of deciduous forests. Fl. & Fr.: Sept.-Oct.

Note: Johnston /c. has re-established the genus *Carmona* Cav. *Carmona* Cav. differs from *Ehretia* P.Br. by the styles divided to the base as against the forked styles in *Ehretia*, and by the entire endocarp of mature seeds as against divided endocarp in *Ehretia*.

*Ehretia* P.Br.

*Ehretia canarensis* (Clarke) Gamble, Fl. Pres. Madras 891, 1923 & 626, 1957 (repr. ed.). *E. laevis* Roxb. var. *canarensis* Clarke in Hook.f. Fl. Brit. India 4: 142. 1883. *E. laevis* sensu Wight, Icon. t.1382. 1848 non Roxb. 1793; Bourd. 274; Rao 272.

Trees 6-7 m tall. Leaves 6-12 x 2.5-7 cm, ovate, acuminate at apex, tapering to base. Flowers white, fragrant in terminal corymbose cymes. Drupes globose, scarlet.

Common in deciduous forests of Kottur. Fl. & Fr.: Sept.

## CONVOLVULACEAE Juss.

- 1. Fruit a berry:

  - 2. Filaments villous at base; anthers oblong *Argyreia*
  - 2. Filaments glabrous at base; anthers ovate-lanceolate *Erycibe*

- 1. Fruit a capsule:

  - 3. Calyx not enlarged in fruit:

    - 4. Prostrate herbs *Evolvulus*
    - 4. Climbing shrubs or herbs:

      - 5. Leaves ovate or cordate *Jaquemontia\**
      - 5. Leaves hastate or lobed *Merremia*

  - 3. Calyx enlarged in fruit:

    - 6. Flowers in panicles *Porana\**
    - 6. Flowers solitary or in few numbered cymes:

      - 7. Ovary silky pubescent *Hewittia*
      - 7. Ovary glabrous:

        - 8. Sepals usually equal *Ipomoea*
        - 8. Sepals not equal (Three outer sepals larger, two inner smaller) *Aniseia*

*Aniseia* Choisy

*Aniseia martinicensis* (Jacq.) Choisy in Mem. Soc. Phys. Geneve

8: 66. 1838; Gamble 649; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 291. 1930. *Convolvulus martinicensis* Jacq. Sel. Strip. Amer. 26: t.17. 1763. *C. uniflorus* Burm.f. Fl. Ind. 47. t. 21. f.2. 1768. *Ipomoea uniflora* (Burm.f.) Roem. & Schult. Syst. Veg. 4: 247. 1819; FBI 4: 201; Rao 277.

Creeping herbs. Leaves 3.6-7 x 1-2 cm, elliptic-oblong, emarginate at apex, cuneate at base. Flowers white, axillary, solitary. Capsules ovoid, subtended by the enlarged calyx.

Common in marshes along backwaters. Fl. & Fr.: Sept.-Dec.

*Argyreia* Lour.

- |                                       |                   |
|---------------------------------------|-------------------|
| 1. Erect shrubs                       | <i>A. fulgens</i> |
| 1. Climbing shrubs                    |                   |
| 2. Leaves acute or emarginate at apex | <i>A. pomacea</i> |
| 2. Leaves acuminate at apex           | <i>A. hirsuta</i> |

*Argyreia fulgens* Choisy, Conv. Or. 33. 1834; Wight, Icon. t.1357. 1841; FBI 4: 191; Rao 275; Gamble 639.

Leaves 8.5-17 x 3.5-6.5 cm, silky pubescent beneath, elliptic-lanceolate, acuminate at apex, obtuse at base. Flowers purple in axillary cymes.

Frequent in moist deciduous forests of Pallode. Fl. & Fr.: Dec.-Mar.

*Argyreia hirsuta* Wight & Arn. Nov. Acterum Acad. Caes. Leop. Carol. Nat. Cur. 18: 365c. 1836; FBI 4: 189; Gamble 638; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 296. 1980.

Leaves 15-23 x 8-14 cm, puberulous above, hirsute beneath broadly ovate, rounded or slightly retuse at base. Flowers purple in axillary cymes. Capsules yellow.

Fairly common in evergreen forests towards edges. Fl. & Fr.: Nov.-Mar.

*Argyreia pomacea* Choisy in DC. Prodr. 9: 329. 1845; FBI 4: 188; Rao 275; Gamble 638; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 298. 1981.

Stems densely pubescent. Leaves 4.5-9 x 3-9 cm, densely woolly, cordate; petioles up to 4 cm long. Flowers purple in axillary cymes; peduncles up to 5 cm long.

Frequent in disturbed areas of Forests and in plains. Fl. & Fr.: Nov.-Apr.

**Erycibe Roxb.**

*Erycibe paniculata* Roxb. Pl. Corom. 2: 31. t.159. 1798; FBI 4: 180; Rao 274; Gamble 653; Hoogland in Blumea 7: 352. 1953 (excl. syn. *E. rheedii* Blume).

Scandent shrubs. Leaves 6-8 x 2-3.5 cm, tomentose beneath, obovate, acuminate at apex, narrowed at base. Flowers white in axillary racemes.

Occasional in evergreen forests. Fl. & Fr.: Dec.-Mar.

**Evolvulus L.**

|                  |                       |
|------------------|-----------------------|
| Leaves glabrous  | <i>E. nummularius</i> |
| Leaves pubescent | <i>E. alsinoides</i>  |

*Evolvulus alsinoides* (L.) L. Sp. Pl. ed.2. 392. 1762; FBI 4: 220; Rao 281; Gamble 648; Oost, in Steenis, Fl. Malesiana ser. 1, 4: 395, 1953; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 309, 1980. *Convolvulus alsinoides* L. Sp. Pl. 157. 1753.

Creeping herbs; stems pubescent. Leaves 0.5-1 x 0.3-0.5 cm, ovate, mucronate at apex, acute at base. Flowers blue, axillary, solitary.

Fairly common in wastelands of coastal zone. Fl. & Fr.: Jan.-May. '*Vistnacandi*'

*Evolvulus nummularius* (L.) L. Sp. Pl. ed. 2. 391. 1762; Sivarajan & Manilal in Bull. Bot. Surv. India 12: 279. 1970 (1972); Stern in Taxon 21: 649. 1979. *Convolvulus nummularius* L. Sp. Pl. 157. 1753.

Trailing herbs. Leaves 1-2.3 x 0.8-1.8 cm, oblong, rounded or suborbicular, retuse at apex, cordate at base. Flowers white, axillary, solitary.

Fairly common in midlands. Fl. & Fr.: Dec.-Apr.

**Hewittia Wight & Arn.**

**Hewittia scandens** (Milne) Mabberley in Manilal, Bot. Hist. Hort. Malab. 84. 1980. *Convolvulus scandens* Milne, Descr. Cat. 2. 1773. *C. sublobatus* L.f. Suppl. Pl. 135. 1781. *Hewittia sublobata* (L.f.) Kuntze, Rev. Gen. Pl. 441. 1891. *H. bicolor* (Vahl) Wight & Arn. in Madras J. Sci. 5: 22. 1837; Wight, Icon. t.835. 1844-1845; FBI 4: 216; Rao 281; Gamble 649. *Convolvulus bicolor* Vahl, Symb. Bot. 3: 25. 1794.

Twining herbs. Leaves 2.5-10 x 1-6 cm, pilose, ovate, lower entire-orbicular, or angled, acute at apex, cordate at base. Flowers yellow with a purple centre, axillary solitary. Capsules ovoid, pilose.

Fairly common from sea level to 600 m. Fl. & Fr.: Jan.-Apr.

**Ipomoea L.**

1. Creeping or trailing herbs:
2. Leaves palmately 5-7-lobed, hirsute                           *I. pes-tigridis*
2. Leaves entire or bilobed, glabrous:
  3. Flowers pink, solitary   *I. pes-caprae*
  3. Flowers white, in cymes   *I. asarifolia*
1. Straggling or climbing herbs or shrubs:
  4. Leaves entire:
    5. Leaves 8-16 cm long   *I. carnea* subsp.  
*fistulosa*
    5. Leaves less than 7 cm long                                   *I. sepia*
  4. Leaves lobed:
    6. Leaves pinnately dissected                                   *I. quamoclit*
    6. Leaves not as above:
      7. Leaves glabrous   *I. mauritiana*
      7. Leaves hairy :

8. Leaves strigose above, silky beneath *I. nil*  
 8. Leaves sparsely puberulous beneath *I. hederifolia*

*Ipomoea asarifolia* (Desr.) Roem. & Schult. Syst. Veg. 4: 251. 1819; Oost. in Steenis, Fl. Malesiana ser.1. 4: 477. 1953; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 319. 1980. *Convolvulus asarifolius* Desr. in Lam. Encycl. 3: 562. 1789. *Ipomoea repens* Lam. Tabl. Encycl. 1: 467. 1791 non Roth 1821; Gamble 643. *I. beladamboe* Roem. & Schult. Syst. Veg. 4: 233. 1819; FBI 4: 209; Rao 279.

Leaves 7-11.5 x 3.5-7 cm, reniform, obtuse at apex, cordate at base. Flowers white in axillary cymes. Capsules subglobose.

Fairly common near paddy fields Fl. & Fr.: Nov.-Apr.

*Ipomoea carnea* Jack. subsp. *fistulosa* (Mart. ex Choisy) Austin in Taxon 26: 237. 1977. *I. fistulosa* Mart. ex Choisy in DC. Prodr. 9: 349. 1845.

Straggling shrubs. Leaves 8-16 x 4-8 cm, ovate, acuminate at apex, cordate at base. Flowers rose-red in terminal and axillary cymes.

Often cultivated in hedges. Fl.: Aug.-Mar.

Note: Austin *I. c.*, after a thorough study of literature and populations of plants in the field reduced *I. fistulosa* to a subspecies of *I. carnea*.

*Ipomoea hederifolia* L. Syst. Nat. ed. 10. 925. 1759; Verdcourt in Fl. Trop. East Africa 132. 1963. *I. angulata* Lam. Encycl. 1: 464. 1791; Oost. in Steenis, Fl. Malesiana ser. 1. 4: 481. g t.54. 1953. *Quamoclit phoenicea* Choisy in Mem. Soc. Phys. Geneve 6: 433. 1883; FBI 4: 199; Gamble 645.

Leaves 9-3 x 5-8 cm, ovate-cordate, 3-lobed, lobes acuminate at apex. Flowers red in axillary long-pedunculate cymes. Capsules ovoid; seeds pubescent.

Frequent in moist deciduous forests. Fl. & Fr.: Jan.-Mar.

*Ipomoea mauritiana* Jacq. Collect. 4: 216. 1791; Oost. in Steenis, Fl. Malesiana ser.1. 4: 483. 1953; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 331. 1980. *I. digitata* sensu Clarke in Hook.f.

Fl. Brit. India 4: 202. 1883 non L. 1753. *I. paniculata* R.Br. Prodr. 486. 1810; Gamble 644.

Leaves 5-15 x 4-8 cm, palmately 3-6-lobed, lobes entire or sinuate, acuminate at apex, cordate at base. Flowers pink in axillary cymes. Capsules ellipsoid.

Frequent from coastal zone to moist deciduous forests. Fl. & Fr.: Jul.-Dec.

*Note*: This plant was hitherto misidentified as *I. digitata* L. in Indian Floras. *I. digitata* is a Haitian species, and the correct name of Indian plant is *I. mauritiana* Jacq.

*Ipomoea nil* (L.) Roth, Cat. 1: 36. 1797; Oost. in Steenis, Fl. Malesiana ser. 1. 4: 465. 1953; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 332. 1980. *Convolvulus nil* L. Sp. Pl. ed. 2. 219. 1762. *Ipomoea hederacea* auct. non (L.) Jacq. 1787; FBI 4: 199. 1883; Rao 277; Gamble 644.

Stems covered with trichomes. Leaves 7-15 x 5-9 cm, strigose above, silky pubescent beneath palmately 3-lobed; lobes lanceolate-acuminate at apex, cordate at base. Flowers blue with violet centre,

Frequent near tea plantations. Fl. & Fr.: Mar.-Jun.

*Ipomoea pes-caprae* (L.) R.Br. in Turkey Narr. Exped. R.Zaine 477. 1818; Sweet, Hort. Suburb. Lond. 35. 1818; Sant. in J. Bombay Nat. Hist. Soc. 47: 347. 1947; Gamble 644; Oost. in Steenis, Fl. Malesiana ser. 1. 4: 475. 1953; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 334. 1980. *Convolvulus pes-caprae* L. Sp. Pl. 159. 1753. *Ipomoea biloba* Forsk. Fl. Aeg.-Arab. 44. 1775; FBI 4: 212. Rao 280.

Leaves 4-6 x 3-5 cm, bilobed, lobes obtuse at apex, rounded at base. Flowers red or pink, axillary, solitary. Capsules ovoid.

Abundant along the sea coast. A good sand binder. Fl.: Dec.-Mar. 'Adumbuvali'.

*Ipomoea pes-tigridis* L. Sp. Pl. 162. 1753; Wight, Icon. 1, 836. 1844; FBI 4: 204; Rao 278; Sant. in J. Bombay Nat. Hist. Soc. 47: 348. 1947; Oost. in Steenis, Fl. Malesiana ser. 1. 4: 467. 1, 40. 1953; Gamble 644; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 336. 1980.

Stems hirsute. Leaves 4-7-lobed; lobes 2.5-3.5 x 1-2 cm, ovate-

elliptic, obtuse at apex, narrowed at base. Flowers white in paniculate heads. Capsules globose.

Fairly common in cultivated fields of the midland zone.  
Fl. & Fr.: Jul.-Nov.

*Ipomoea quamoclit* L. Sp. Pl. 159. 1753; FBI 4: 199; Rao 276; Oost. in Steenis, Fl. Malesiana ser. 1, 4: 482. 1953. *Quamoclit pinnata* Bojer, Hort. Maurit. 224. 1837; Gamble 645.

Leaves 4-6 cm long, pinnately dissected, lobes narrow linear. Flowers scarlet, in axillary cymes. Capsules globose.

A common weed in tapioca fields. A beautiful climber, cultivated in gardens. Fl. & Fr.: May-Dec.

*Ipomoea sepia* Roxb. Fl. Ind. 2: 90. 1824; FBI 4: 209; Verdcourt in Fl. East Trop. Africa 117. 1963. *I. maxima* auct. non (L.f.) G.Don ex Sweet 1798; Oost. in Steenis, Fl. Malesiana ser. 1, 4: 472, t.45. 1953; Sant. in J. Bombay Nat. Hist. Soc. 47: 346. 1947.

Leaves 3-7 x 2-4 cm, ovate or hastate, acuminate at apex, cordate at base. Flowers pink in axillary panicles.

Frequent in moist deciduous forests. Fl. & Fr.: Oct.-Mar.

Note: Verdcourt (Kew Bull. 15: 7, 1961) studied the specimens including types of *I. maxima* and *I. sepia* and proved that they were separate species. Our specimens fit into the description of *I. sepia*.

#### *Merremia* Dennst. ex Endl.

- |                            |                      |
|----------------------------|----------------------|
| 1. Leaves lobed            | <i>M. dissecta</i>   |
| 1. Leaves entire:          |                      |
| 2. Leaves ovate-lanceolate | <i>M. umbellata</i>  |
| 2. Leaves narrow-linear    | <i>M. tridentata</i> |

*Merremia dissecta* (Jacq.) Hall.f. in Engler's Bot. Jahrb. Syst. 16: 552. 1893; Oost. in Steenis, Fl. Malesiana ser. 1, 4: 448. 1953; Gamble 652; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 349. 1980. *Convolvulus dissectus* Jacq. Obs. Bot. 2: 4, 28. 1767; *Ipomoea sinuata* Ortega, Hort. Matr. Dec. 7: 84. 1798; FBI 4: 214.

Climbing shrubs; stems densely hirsute. Leaves 10-12 x 9-15 cm, pedately 7-lobed, each lobe again lobed or sinuate; petioles 4-11 cm long. Flowers white. Capsules crowned by the calyx.

Fairly common in coastal zone. Fl. & Fr.: Apr.-Aug.

*Merremia tridentata* (L.) Hall.f. in Engler's Bot. Jahrb. Syst. 16: 552. 1893; Oost. in Steenis, Fl. Malesiana ser.1. 4: 445. 1953; Gamble 652; Austin in Dassanayake, Rev. Handb. Fl. Ceylon 1: 351. 1980. *Convolvulus tridentatus* L. Sp. Pl. 157. 1753. *Ipomoea tridentata* (L.) Roth in Roem. Arch. Bot. 1(2): 38. 1798; FBI 4: 203; Rao 279. *Merremia tridentata* (L.) Hall.f. subsp. *hastata* (Desr.) Oost. in Blumea 3: 317. 1939. *Convolvulus hastatus* Desr. in Lam. Encycl. 3: 542. 1791, non Forsk. 1775.

Twining herbs. Leaves 1.5-4.5 x 0.2-0.5 cm, narrow-linear to oblong, mucronate at apex, auriculate at base, auricles toothed. Flowers white. Capsules globose.

A common weed in the cultivated fields. Fl. & Fr.: Dec.-Mar.

*Merremia umbellata* (L.) Hall.f. in Engler's Bot. Jahrb. Syst. 16: 552. 1893; Oost. in Steenis, Fl. Malesiana ser.1. 4: 449. 1953; Gamble 651. *Convolvulus umbellatus* L. Sp. Pl. 155. 1753. *Ipomoea cymosa* (Desr.) Roem. & Schult. Syst. 4: 241. 1819; FBI 4: 211; Rao 280. *Convolvulus cymosa* Desr. in Lam. Encycl. 3: 556. 1791.

Leaves 5-14.5 x 2.5-6 cm, sparsely pubescent beneath, ovate-lanceolate, acuminate at apex, rounded or cuneate at base. Flowers white in axillary cymes.

Frequent in moist deciduous forests. Fl. & Fr.: Jan.-May.

\**Porana volubilis* Burm.f.; *Jaquemontia paniculata* (Burm.f.) Hall.f. are escapes from Garden.

#### SOLANACEAE Juss.

- |                                 |                   |
|---------------------------------|-------------------|
| 1. Calyx persistent in fruits   | <i>Physalis</i>   |
| 1. Calyx not persistent:        |                   |
| 2. Flowers solitary :           |                   |
| 3. Flowers ca. 30 cm long       | <i>Brugmansia</i> |
| 3. Flowers less than 15 cm long | <i>Datura</i>     |

## 2. Flowers not solitary :

- |                         |                   |
|-------------------------|-------------------|
| 4. Flowers in cymes     | <i>Solanum</i>    |
| 4. Flowers in fascicles | <i>Lycianthes</i> |

*Brugmansia* Pers.

*Brugmansia suaveolens* (Humb. & Bonpl. ex Willd.) Bercht. & Presl. in Priv. Rostlin, 1. Solan. 45, 1824; Matthew, in Rec. Bot. Surv. India 20: 167, 1969. *Datura suaveolens* Humb. & Bonpl. ex Willd. Enum. Hort. Berol. 227, 1809.

Erect shrubs 2-3 m tall. Leaves 12-30 x 4.5-10 cm, sparsely pubescent beneath along the nerves, elliptic-lanceolate, acuminate at apex, cuneate at base. Flowers white, pubescent.

Frequent in wastelands near tea estates. Fl. & Fr.: Apr.-Jul.

*Datura* L.

*Datura metel* L. Sp. Pl. 179, 1753; Gamble 660; Sant. in Rec. Bot. Surv. India 16: 174, 1967; Subramanyam in Ind. Drugs. Pharm. Indust. 2, 1968. *D. fastuosa* L. Syst. Nat. ed. 10, 2, 932, 1759; Wight, Icon. t.1396, 1848; FBI 4: 242; Rao 287; Gamble 660; Blatt. et Hallb. in J. Bombay Nat. Hist. Soc. 26: 548, 1919. *D. alba* Nees in Trans. Linn. Soc. London 17: 173, 1837; Wight, Icon. t.852, 1844. *D. fastuosa* L. var. *alba* (Nees) Clarke in Hook.f. Fl. Brit. India 4: 243, 1883.

Erect shrubs 50-75 cm tall. Leaves 8-23 x 5-11.5 cm, deeply sinuate, sparsely pubescent, ovate, acuminate at apex, unequally rounded at base. Flowers 12-15 cm long, white, axillary. Capsules ellipsoid, spinous.

Fairly common in wastelands used in ayurvedic preparations  
Fl. & Fr.: May-Jun. 'Ummam'

*Note:* *Datura metel* L., the species indigenous to India was first published by Linnaeus in his Sp. Pl. ed. 1, 1753. Linnaeus in his Systema Naturae ed. 10, 1759, published another binomial *D. fastuosa* which was subsequently proved to be conspecific with *D. metel*. Linnaeus while treating this in his Sp. Pl. ed. 2, 1762, incorrectly added that the leaves of *D. metel* were pubescent which led to confusion since the American species *D. innoxia* Mill.

was having pubescent leaves. Consequently, Nees (1873) renamed the Indian plant as *D. alba* and restricted *D. metel* to American plant, Dunal (1852) treated *D. metel* and *D. innoxia* conspecific. Finally, Safford (Ann. Rep. Smith Inst. 1920: 357-567, 1922) restored the correct name of Indian species.

**Lycianthes Hassl.**

*Lycianthes laevis* (Dun.) Bitter in Abh. Naturwiss. Vereine Bremen 24: 484. 1920; Backer & Bakh.f. Fl. Java 2: 476. 1965, 'levis'. *Solanum laeve* Dun. Solan. Synop. 22. 1816; FBI 5: 231; Gamble 657. *S. bigeminatum* Nees in Trans. Linn. Soc. London 17: 42. 1837; Rao 283. *Lycianthes bigeminata* (Nees) Bitter in Abh. Naturwiss. Vereine Bremen 24: 480. 1920.

Shrubs 1-2 m tall. Leaves 5-12 x 1.5-3.5 cm, lanceolate, acuminate at apex, cuneate at base. Flowers white, axillary, solitary. Fruits yellowish-red.

Fairly common in wastelands near tea plantations. Fl. & Fr.: Apr.-Oct.

*Note*: *Lycianthes* Hassl. differs from *Solanum* by the ellipsoid anthers with oblique apical pores facing inwards.

**Physalis L.**

*Physalis minima* L. Sp. Pl. 183. 1753; FBI 4: 238; Rao 285; Gamble 659; Sant. in Rec. Bot. Surv. India 16: 174. 1967. *P. pubescens* auct. non L. 1753; Wight, Ill. t.166B, f.6. 1850.

Erect succulent herbs 20-30 cm tall. Leaves 4-10 x 2-3.5 cm, sparsely pubescent along the nerves, sinuate, ovate, acuminate at apex, cuneate at base. Flowers white, axillary, solitary.

Fairly common in wastelands at low elevations. Fl. & Fr.: Apr.-Jul. 'Njodinjotta'.

**Solanum L.**

- |                                  |                         |
|----------------------------------|-------------------------|
| 1. Climbing shrubs               | <i>S. seaforthianum</i> |
| 1. Erect undershrubs or shrubs : |                         |
| 2. Leaves glabrous               | <i>S. nigrum</i>        |

2. Leaves hairy:

3. Plants unarmed:

- 4. Shrubs up to 6 m tall, densely stellate-tomentose *S. erianthum*
- 4. Undershrubs up to 2 m tall, sparsely pubescent or glabrescent *S. vagum*

3. Plants armed:

- 5. Flowers in racemes *S. anguivi*
- 5. Flowers in cymes:

  - 6. Leaves entire *S. giganteum*
  - 6. Leaves lobed or lacerate:

    - 7. Flowers white:

      - 8. Berries 1 cm across, glabrous *S. torvum*
      - 8. Berries 4 cm across, hairy *S. ferox*

- 7. Flowers bluish-purple *S. surattense*

*Solanum anguivi* Lam. Ill. 2: 23, 1794; Brummitt in Taxon 32: 279, 1983. *S. indicum* auct. non L. 1753 p.p.; Wight, Icon. t. 346, 1840; FBI 4: 234 p.p.; Rao 284; Gamble 658; Sant. in Rec. Bot. Surv. India 16: 173, 1967.

Erect, prickly shrubs 1-2 m tall; stems pubescent. Leaves 5-11 x 3-5 cm, stellately pubescent beneath, pinnately sinuate. Flowers pale blue. Berries globose, bright yellow.

Common in roadsides and wastelands in plains. Fl. & Fr.: Jul.-Aug.; Dec.-Mar. 'Cheruchunda'

*Note:* Hepper (Taxon 27: 555, 1978) points out that the lectotype of *S. indicum* is referable to another species *S. ferox* L. His proposal to reject the name *S. indicum* is accepted by the nomenclatural committee (*vide* Brummitt *I.c.*).

*Solanum erianthum* D. Don, Prodr. Fl. Nepal. 96, 1826; Roe in Taxon 17: 176, 1868 & Brittonia 24: 251, 1972. *S. verbascifolium* auct. non L. 1753; Wight, Icon. t. 1398, 1848; FBI 4: 230; Gamble 657.

Shrubs 3-4 m tall; branchlets fulvous-tomentose. Leaves 6-12.5 x 3-7.5 cm, elliptic-oblong, acute to acuminate at apex, obliquely acute at base. Flowers white in terminal and axillary corymboid panicles. Berries yellow.

Common in the slopes of higher ghats. Fl. & Fr.: Apr.-Oct.

**Solanum ferox** L. Sp. Pl. ed.2. 267. 1762; FBI 4: 223; Rao 284; Gamble 658; Hepper in Bot. J. Linn. Soc. 76: 287. 1978; Brummitt in Taxon 32: 279. 1983.

Stellately tomentose shrubs. Leaves 20-30 x 15-26 cm, ovate-lanceolate, triangular lobed, acute at apex, cordate at base. Flowers white, tomentose in lateral cymes. Berries globose, hairy.

Occasional in evergreen forests of Benecord. Fl. & Fr.: May.-Feb. 'Vellathu-vazhuthana'.

*Note* : Brummitt *l.c.* states that *S. ferox* L. is the correct name and not superfluous as claimed by Tjaden (*vide* Taxon 28: 594. 1979).

**Solanum giganteum** Jacq. Collectanea 4: 125. 1791; Wight, Icon. t. 893. 1844-45; FBI 4: 233; Gamble 657.

Armed shrubs 4-6 m tall; branchlets fulvous-tomentose. Leaves 15-25 x 4-8 cm, glabrescent above, fulvous-tomentose beneath, broadly oblong-lanceolate, gradually acuminate at apex, narrowed at base. Flowers violet in umbellate extra-axillary panicles. Berries red.

Common along the margins of sholas at higher ghats. Fl. & Fr.: Jan.-Apr.

**Solanum nigrum** L. Sp. Pl. 186. 1753; FBI 4. 229; Rao 283; Gamble 657; Sant. in Rec. Bot. Surv. India 16: 172. 1967. *S. rubrum* Mill. Gard. Dict. ed.8. 4. 1768, non L. 1767; Wight, Icon. t.344. 1843.

Erect herbs 20-35 cm tall. Leaves 2-12 x 1.5-4 cm, membranous, sinuate, ovate, acuminate at apex, cuneate at base. Flowers white in supra-axillary umbels. Berries globose, red.

Common in exposed areas of Ponmudi. Fruits used as vegetable. Fl. & Fr.: Jun.-Dec.

**Solanum seaforthianum** Andr. Bot. Rep. 8: t.504. 1808; Bor & Raizada, Indian Climbers & Shrubs 127. 1954.

Leaves 6-11 cm long, pinnatifid, nearly glabrous, lobes lanceolate. Flowers white in terminal paniculate cymes. Berries globose, red.

Fairly common in plains; used as a hedge plant in gardens. Fl. & Fr.: Dec.-Oct.

*Solanum surattense* Burm.f. Fl. Ind. 57. 1768; Sant. Fl. Khandala 173. 1967. *S. xanthocarpum* Schard. & Wendl. ser. 1: 8. t.2. 1795; FBI 4: 236; Rao 285; Gamble 658.

Prickly herbs. Leaves 7-11-lobed, 6-10 x 2.5-6 cm, ovate-elliptic, acute at apex, unequal at base. Flowers purple. Berries globose.

Occasional in wastelands of Bonecord. Fl. & Fr.: Aug.-Nov. 'Kandankathiri'

*Solanum torvum* Sw. Prodri. Descr. Veg. Ind. 47. 1788; FBI 4: 234; Sant. in J. Bombay Nat. Hist. Soc. 47: 654. 1948; Rao 284; Gamble 658.

Stellate-tomentose prickly shrubs. Leaves 12-20 x 7-14 cm, ovate-oblong, sinuate or lobed, acute or acuminate at apex, unequally cordate at base. Flowers white, pubescent in lateral cymes. Berries 1-1.3 cm across, red, subglobose or obovoid.

Fairly common in wastelands of Bonecord and Ponmudi. Fl. & Fr.: Nov.-Mar. 'Anachunda'

*Solanum vagum* Heyne ex Nees in Trans. Linn. Soc. London 17: 48. 1834; FBI 4: 230; Gamble 657.

Undershrubs or shrubs 1-2 m tall; branches sparsely white-stellate pubescent. Leaves 6.5-14 x 2.2-5.3 cm, glabrescent above, sparsely stellate pubescent beneath, elliptic-lanceolate, acute or shortly acuminate at apex, narrowed at base. Flowers white in extra-axillary racemose cymes. Berries red.

Occasional in slopes of higher ghats. Fl. & Fr.: May-Sept.

#### SCROPHULARIACEAE Juss.

- |  |                 |
|--|-----------------|
| 1. Styles subclavate; stigmas notched  | <i>Scoparia</i> |
| 1. Styles filiform, dilated towards the tip;<br>stigmas winged, entire or 2-lamellate: |                 |

2. Plants parasitic; calyx tubular, tube ribbed:  
 3. Anthers 1-loculed *Striga*  
 3. Anthers 2-loculed *Sopubia*
2. Plants autotrophic; calyx not tubular,  
 not ribbed:  
 4. Sepals unequal or subequal:  
 5. Lower sepals the largest *Limnophila*  
 5. Upper sepals the largest:  
 6. Plants pubescent *Adenosma*  
 6. Plants glabrous *Bacopa*
4. Sepals equal:  
 7. Plants trailing; sepals winged *Torenia*  
 7. Plants ascending; sepals not winged:  
 8. Leaves 4-10.5 cm long *Artanema*  
 8. Leaves up to 3 cm long *Lindernia*

*Adenosma* R. Br.

- Trailing herbs; flowers axillary *A. subrepens*  
 Erect herbs; flowers in capitate spikes or heads *A. indianum*

*Adenosma indianum* (Lour.) Merr. in Trans. Amer. Philos. Soc. n.s. 24(2): 351. 1935. *Manulia Indiana* Lour. Fl. Cochinch. 386. 1790. *Stemodia capitata* Benth. in Bot. Reg. 17; sub, t. 1470. 1832. *A. capitatum* (Benth.) Hance in J. Linn. Soc. Bot. 13: 114. 1873; FBI 4: 274; Rao 289; Gamble 667.

Erect herbs 30-50 cm tall; stems pilose. Leaves 3-4 x 0.8-1.5 cm, sessile, pilose above, glandular-pilose beneath, serrate, ovate-oblong, acute at apex, rounded at base. Flowers blue.

A common weed in coconut plantations, Fl. & Fr.: Jun.-Aug.

*Adenosma subrepens* (Thw.) Benth. ex Hook. f. Fl. Brit. India 4: 263. 1884; Gamble 666; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 447. 1981. *Pterostigma subrepens* Thw. Enum. Pl. Zeyl. 426. 1864.

Decumbent herbs. Leaves 1.5-3 x 0.8-1.5 cm, glabrous above, sparsely pubescent beneath, crenate, ovate, obtuse at apex, cuneate at base. Flowers purple. Capsules ovoid.

Frequent in marshy areas near backwaters. Fl. & Fr.: Jun.-Sept.

*Note:* *Rama Rao* 1326 (UCT), collected from Pallode and identified as *A. ovatum* Benth. is hardly distinguishable from *A. subrepens* (Thw.) Benth. ex Hook.f.

*Artanema* D. Don. *nom. cons.*

*Artanema longifolia* (L.) Vatke in Linnaea 43: 207. 1880-1882; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 404. 1981. *Columnea longifolia* L. Mant. Pl. 1: 90. 1767. *Artanema sesamoides* (Vahl) Benth. Scroph. Ind. 39. 1835; Wight, Icon. t.1410. 1849; FBI 4: 274; Rao 290; Gamble 670. *Achimenes sesamoides* Vahl, Symb. Bot. 2: 71. 1791.

Erect herbs or undershrubs 30-50 cm tall; stems angled. Leaves 4-10.5 x 0.8-2.5 cm, puberulous above, nearly glabrous beneath, obscurely serrate, linear-lanceolate, acuminate at apex, cuneate at base. Flowers pink in terminal racemes.

Occasional in marshy places throughout low elevation. Fl. & Fr.: Nov. 'Kolivalan'

*Bacopa* Aubl. *nom. cons.*

*Bacopa monnieri* (L.) Wettstein in Engler & Prantl, Pflanzenfam. 4(3b): 77. 1891, 'monnieria'; Pennell in Proc. Acad. Nat. Sci. Philadelphia 98: 94. 1946; Sant. in J. Bombay Nat. Hist. Soc. 49: 30. 1950, *Lysimachia monnieri* L. Cent. Pl. 2: 9. 1756. *Gratiola monnieri* (L.) L. Syst. Nat. ed. 10. 851. 1759; Amoen Acad. 4: 306. 1759, 'monnieria'. *Moniea cuneifolia* Michx. Fl. Bor. Amer. 2: 22. 1803, 'Monnieria'; Gamble 669, *Herpestis monnieria* (L.) H.B.K. Nova. Gen. Sp. Pl. 2: 368. 1817 *nom. illeg.*; FBI 4: 272; Rao 290. *Bramia monnierii* Pennell Proc. Acad. Nat. Sci. Philadelphia 71: 243. 1920.

Prostrate herbs. Leaves 0.7-1.2 x 0.2-0.5 cm, sessile, fleshy, glabrous, obovate, obtuse at base. Flowers pale pink, axillary, solitary.

Fairly common in moist situations of the coast of Veli. Fl. & Fr.: Dec.-Aug. 'Nerbrahami'.

*Limnophila* R. Br. *nom. cons.*

- 1. Submerged leaves dissected :
- 2. Stems glabrous *L. heterophylla*
- 2. Stems villous *L. indica*
- 1. Submerged leaves entire :
  - 3. Plants densely hirsute *L. chinensis*
  - 3. Plants glabrous or scabrous:
    - 4. Pedicels ca. 1.5 cm long *L. aromatica*
    - 4. Pedicels ca. 3 mm long *L. repens*

*Limnophila aromatica* (Lam.) Merrill, Interpr. Rumph. Herb. Amb. 466. 1917; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 430. 1981. *Ambulia aromatica* Lam. Encycl. 1: 128. 1783. *Limnophila gratissima* Blume, Bijdr. 749. 1826; FBI 4: 268; Rao 290; Gamble 667.

Aquatic herbs 20-30 cm tall. Leaves 1.2-4 x 0.4-1 cm, sessile, serrate, linear-oblong, acute at apex, narrowly rounded at base. Flowers pink in axillary or terminal racemes; pedicels 1-5 cm long, hirsute.

Frequent in marshy places and paddy fields of the plains. Fl. & Fr.: Throughout the year.

*Limnophila chinensis* (Osbeck) Merrill in Amer. J. Bot. 3: 581. 1916; Philcox in Kew Bull. 24: 151. 1970. *Columnea chinensis* Osbeck, Ostind. Resa 230. 1757. *Sternodia hirsuta* Heyne ex Benth. in Bot. Reg. 17: sub t.1470, sp. 15. 1832. *Limnophila hirsuta* (Heyne ex Benth.) Benth. in DC. Prodr. 10: 388. 1846; FBI 4: 268; Rao 290; Gamble 668.

Erect hirsute herbs 25-35 cm tall. Leaves 2.5-4.5 x 1-1.5 cm sessile, serrate, linear-oblong, acute at apex, cuneate at base. Flowers blue, solitary, axillary.

Fairy common in marshy places of Veli. Fl. Aug.-Apr.

*Limnophila heterophylla* (Roxb.) Benth. Scroph. Ind. 25. 1835; FBI 4: 270; Gamble 668; Rao 290; Philcox in Kew Bull. 24:

124. 1970. *Columnea heterophylla* Roxb. Fl. Ind. 3: 97. 1832.

Semi-submerged herbs. Upper leaves 1-1.5 x 0.2-0.4 cm, glabrous, serrate, oblong, acute at apex, narrowed at base. Flowers violet in the axils of upper leaves.

Occasional along backwaters at Vellayani. Fl.: Dec.-Feb.

*Limnophila indica* (L.) Druce in Bot. Exch. Club. Soc. Brit. Isles 3: 420. 1914; Philcox in Kew Bull. 24: 115. 1970. *Hottonia indica* L. Syst. Nat. ed.10. 919. 1979. *Cyrilla aquatica* Roxb. Pl. Cor. t.189. 1798. *Limnophila gratiooides* R.Br. Prodr. 442. 1810; Rao 290; FBI 4: 271; Gamble 668.

Decumbent herbs with ascending branches. Upper leaves 3-fid or entire, 6-20 x 1.5-5 cm, acute at apex, narrowed at base. Flowers yellow in the axils of upper leaves. Capsules subovoid.

Frequent in marshy areas and paddy fields in the plains. Fl. & Fr.: Dec.-Oct.

*Limnophila repens* (Benth.) Benth. in DC. Prodr. 10: 37. 1846; Philcox in Kew Bull. 24: 154. 1970. *Stemodia repens* Benth. in Edward's Bot. Reg. 17: sub. t.1470, sp. 11. 1832. *Limnophila conferta* Benth. in DC. Prodr. 10: 387. 1846; FBI 4: 266; Rao 290; Gamble 667.

Erect herbs 20-35 cm tall. Leaves subsessile, serrate, scabrous, ovate or obovate, acute at apex, cuneate at base. Flowers violet, axillary, solitary or in racemes.

Common in paddy fields and marshy places. Fl. & Fr.: Apr.

#### *Lindernia Allioni*

Note: Pennell (Monogr. Acad. Nat. Sci. Philadelphia 1935) merged the genera *Ilysanthes* Rafin., *Bonnaya* Link & Otto, and *Vandellia* L. under the combined genus *Lindernia* All. based on similar corolla, recurved filaments in the anterior stamens and septicidal dehiscence of capsules.

1. Leaves hirsute at least on the lower surface;
2. Flowers solitary *L. pusilla*
2. Flowers in terminal racemes *L. ciliata*
1. Leaves glabrous on both the surfaces:

3. Leaves serrate or crenate:
3. Leaves entire *L. parviflora*
4. All stamens fertile:
5. Pedicels ca. 3 cm long *L. anagallis*
5. Pedicels ca. 1.5 cm long *L. crustacea*
4. All stamens not fertile:
6. One stamen fertile; 1 staminode *L. rotundifolia*
6. Two stamens fertile; 2 sterile:
7. Capsules less than 1 cm long *L. hyssopioides*
7. Capsules more than 1 cm long *L. antipoda*

**Lindernia anagallis** (Burm.f.) Pennell in J. Arnold Arbor. 24: 252, 1943; Philcox in Kew Bull. 17: 484, 1864. *Ruellia anagallis* Burm. f. Fl. Ind. 135, 1768. *Vandellia pedunculata* Benth. Scroph. Ind. 37, 1835; FBI 4: 282; Rao 291; Gamble 673. *Lindernia cordifolia* (Colsm.) Merr. Enum. Philipp. Fl. Pl. 3: 437, 1923; Mukherjee in J. Indian Bot. Soc. 24: 132, 1945. *Gratiola cordifolia* Colsm. Prodr. Descrip. Grat. 15, 1793.

Erect or decumbent herbs 15–20 cm tall. Leaves 0.8–1.5 x 0.2–0.4 cm, glabrous, serrate, subsessile, oblanceolate, acute at apex, cuneate at base. Flowers pink in axillary pedicels.

Fairly common in moist situations in the midlands and lower ghats. Fl. & Fr.: Aug.–Feb.

**Note:** Philcox I. c. examined the type of *Ruellia anagallis* Burm.f. and found that it markedly differed from *R. antipoda* L. with which it was identified till that time. *R. anagallis* Burm. f. rightly matches with the description of *Gratiola cordifolia* Colsm. (1793). Philcox separated *Ruellia anagallis* Burm.f. from *R. antipoda* L.

**Lindernia antipoda** (L.) Alston in Trimen, Handb. Fl. Ceylon 6: 214, 1931; Philcox in Kew Bull. 17: 484, 1864. *Ruellia antipoda* L. Sp. Pl. 635, 1753. *Gratiola veronicifolia* Retz. Obs. Bot. 4: 8, 1786. 'veronicaefolia' *Bonnaya veronicifolia* (Retz.) Spreng. Syst. Veg. 1: 14, 1825; Wight, Icon. t. 1412, 1849; FBI 4: 285; Rao 292. *Hysanthes veronicifolia* (Retz.) Urban in Ber. Deutsch. Bot. Ges. 2: 436, 1884; Gamble 675.

Prostrate herbs. Leaves 0.8-4 x 0.3-0.5 cm, sessile, serrate, glabrous, obovate, acute at apex, cuneate at base. Flowers violet in terminal racemes.

Common in marshy places and rice fields from the coast up to 400 m in the ghats. Fl. & Fr.: Throughout the year.

*Lindernia ciliata* (Colsm.) Pennell in Brittonia 2: 182. 1936. *Gratiola ciliata* Colsm. Prodr. Descr. Grat. 14. 1793. *G. serrata* Roxb. Fl. Ind. 1: 140. 1820. *Ilysanthes serrata* (Roxb.) Urban Ber. Deutsch. Bot. Ges. 2: 436. 1884; Gamble 673. *Bonnaya brachiata* Link & Otto, Icon. Pl. Silect. 25, t.11. 1820; Rao 292; FBI 4: 284.

Erect or decumbent herbs 8-15 cm long. Leaves 1-2.5 x 0.4-0.8 cm, sessile, glabrous above, sparsely hirsute beneath, finely serrate, oblong, obtuse at apex, rounded at base. Flowers pink in terminal racemes. Capsules 1-5 cm long.

Occasional in wet situations in the plains and lower ghats. Fl. & Fr.: Aug.-Mar.

*Lindernia crustacea* (L.) F.v. Muell. Syst. Census. Austr. Pl. 97. 1882. *Capraria crustacea* L. Mant. Pl. 87. 1767. *Vandellia crustacea* (L.) Benth. Scroph. Ind. 35. 1835; Wight, Icon. t.863. 1845; FBI 4: 279; Rao 291; Gamble 673.

Prostrate or decumbent herbs. Leaves 0.5-2 x 0.4-1 cm, glabrous, suborbicular or ovate, rounded or acute at apex, cuneate at base. Flowers white with pink spots, solitary, axillary; pedicels up to 1.5 cm long. Capsules up to 0.6 x 0.3 cm.

Frequent in moist places throughout the district. Fl. & Fr.: Aug.-Mar.

*Lindernia hyssopoides* (L.) Haines, Bot. Bihar & Orissa 635. 1922. '*hyssopoides*' *Gratiola hyssopoides* L. Mant. Alt. 174. 1771. '*hyssopoides*' *Ilysanthes hyssopoides* (L.) Benth. in DC. Prodr. 10: 419. 1846. '*hyssopoides*'; FBI 4: 283; Rao 291; Gamble 675.

Slender herbs. Leaves 4-7 x 2-4 mm, elliptic-acute. Flowers white with purple blotches. Capsules ovoid.

Frequent in marshy areas of moist deciduous forests. Fl. & Fr.: Oct.-Dec.

*Lindernia parviflora* (Roxb.) Haines, Bot. Bihar & Orissa 635, 1922. *Gratiola parviflora* Roxb. Pl. Cor. t 203, 1811. *Ilysanthes parviflora* (Roxb.) Benth. in DC. Prodr. 10: 419, 1846; FBI 4: 283; Rao 291; Gamble 675.

Erect or prostrate herbs. Leaves 0.5-1.3 x 0.2-0.3 cm, glabrous, entire, ovate, acute at apex, rounded or narrowed at base. Flowers pinkish white, axillary, solitary.

Frequent in rice fields in plains. Fl. & Fr.: Aug.-Dec.

*Lindernia pusilla* (Willd.) Boldingh, Zakfl. Landbonwaster. Java 1916; Philcox in Kew Bull. 22: 41, 1968. *Gratiola pusilla* Willd. Sp. Pl. 1: 105, 1767. *Selago pusilla* Thunb. Prodr. Pl. Cap. 99, 1800. *Torenia hirta* Cham. & Schlect. in Linnaea 2: 571, 1827. *Vandellia scabra* Benth. Scroph. Ind. 36, 1835; FBI 4: 281; Rao 291; Gamble 673. *Lindernia hirta* (Cham. & Schlect.) Pennell in J. Arnold Arbor. 24: 250, 1943; Mukerjee in J. Indian Bot. Soc. 24: 131, 1945.

Prostrate herbs. Leaves 1-1.5 x 0.5-1 cm, rounded or ovate, serrate. Flowers white, solitary, axillary (rarely in pairs). Capsules globose or subglobose.

Frequent in moist areas of the plains and in rice fields. Fl. & Fr.: May.-Dec.

*Note* : The above treatment follows Philcox *l. c.* who treated *Gratiola pusilla* Willd. (1797) and *Selago pusilla* Thunb. (1800) conspecific.

*Lindernia rotundifolia* (L.) Mukherjee in J. Ind. Bot. Soc. 24: 132, 1945; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 416, 1981. *Ilysanthes rotundifolia* (L.) Benth. in DC. Prodr. 10: 420, 1846. *Gratiola rotundifolia* L. Mant. Pl. 274, 1767; FBI 4: 284, 1884; Rao 291; Gamble 675.

Diffuse herbs, rooting at lower nodes. Leaves 3-13 x 4-12 cm, orbicular. Flowers purplish-white, solitary in the axils of upper leaves. Capsules subglobose.

Frequent in marshy areas and rice fields in the plains. Fl. & Fr.: May-Dec.

*Scoparia* L.

*Scoparia dulcis* L. Sp. Pl. 116. 1753; FBI 4: 289; Rao 242; Gamble 678; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 439. 1981.

Erect herbs 30-40 cm tall. Leaves 1-3 x 0.4-1 cm, glabrous, serrate, elliptic or elliptic-lanceolate, acute at apex, cuneate at base. Flowers greenish-white, axillary, solitary or in pairs. Capsules globbose.

Very common near rice fields and wetlands in the plains. Fl. & Fr.: Nov.

*Sopubia* Buch.-Ham.

*Sopubia delphinifolia* (L.) G.Don, Gen. Syst. 4: 450. 1837; FBI 4: 302; Rao 293; Gamble 682; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 389. 1981. *Gerardia delphinifolia* L. Cent. Pl. 2: 21. 1756.

Annuals with erect stems 0.5-1 m tall. Lower leaves 1.5-5 cm long, in verticils; segments filiform. Flowers white with purple blotches, axillary, solitary. Capsules oblong.

Occasional in grassy slopes or on roadcuttings in moist deciduous forests. Fl. & Fr.: Sep.-Dec.

*Striga* Lour.

Calyx ribs hirsute *S. angustifolia*

Calyx ribs glandular; spiny *S. asiatica*

*Striga angustifolia* (D.Don) Saldanha in Bull. Bot. Surv. India 5: 70. 1963; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 401. 1981. *Buchnera angustifolia* D.Don, Prodr. Fl. Nepal 91. 1825. *B. euphrasioides* auct. non Vahl 1794; Benth. Scroph. Ind 41. 1835. *Striga euphrasioides* (Vahl) Benth. Companion Bot. Mag. 1: 364. 1836 quoad descrip.; FBI 4: 299; Rao 292; Gamble 680.

Herbs 30-40 cm tall; scabrid. Leaves 7-18 x 1.5-2.3 mm, ciliolate, setulose, linear. Flowers white in terminal spikes up to 12.5 cm long; calyx scabrid on ribs; corolla tube hirsute. Capsules ovoid.

Occasional in wet situations in Veli hills; parasitic on grasses.  
Fl. & Fr.: Aug.-Oct. 'Thiduvan'

*Note*: The combination *Striga euphrasioides* (Vahl) Benth. although refers to this plant as far as description is concerned, must be restricted to Vahl's plant according to Art.55 of the 'Code'. Hence, Saldanha *I.c.* selected *Buchnera angustifolia* D Don which is the next earlier validly published name and effected the combination *Striga angustifolia* (D.Don) Saldanha.

*Striga asiatica* (L.) O.Kuntze, Rev. Gen. Pl. 2: 466. 1891; Hepper in Rhodora 76: 46. 1974. *Buchnera asiatica* L. Sp. Pl. 630. 1753. *Striga lutea* Lour. Fl. Cochinch. 22. 1790; FBI 4: 299; Rao 292; Gamble 680.

Erect, scabrous herbs 15-20 cm tall. Leaves 1-2 x 0.1-0.2 cm, scabrid, linear-subulate. Flowers yellow, axillary, solitary.

Common in Veli hills in marshy areas. Fl.: Apr.-Sept.

*Note*: Hepper *I.c.* has lectotypified the *Striga asiatica* (L.) Kuntze complex. The name *Buchnera asiatica* L. was originally applied to several Linnean species.

#### Torenia L.

1. Calyx winged; leaves nearly glabrous:
2. Leaves truncate at base; pedicels  
*ca.* 3.5 cm long *T. courtallensis*
2. Leaves obtuse at base; pedicels *ca.* 2.8  
cm long *T. travancorica*
1. Calyx not winged; leaves hirsute *T. hirsuta*

*Torenia courtallensis* Gamble, Fl. Pres. Madras 956. 1923 & 671, 1957 (repr. ed.) & in Bull. Misc. Inform. 116. 1923.

Decumbent herbs. Leaves 2.5-4.5 x 0.8-2 cm, nearly glabrous, serrate, lanceolate, acuminate at apex. Flowers blue with a purple centre.

Frequent along water courses in moist deciduous forests of Boneccord and Kottur. Fl. & Fr.: Aug.-Dec.

*Torenia hirsuta* Willd. Sp. Pl. 3: 266. 1800; Gamble 672; Rao 291; *T. asiatica* L. var. *hirsuta* (Willd.) Hook.f. in Hook.f. Fl. Brit. India 4: 277. 1884.

Prostrate herbs. Leaves 1.5-6 x 0.5-2 cm, hirsute, serrate, ovate-lanceolate, acute at apex, truncate or slightly cordate at base. Flowers blue with a purple centre.

Frequent in marshy areas throughout the district. Fl. & Fr.: Sept.-Nov.

*Torenia travancorica* Gamble, Fl. Pres. Madras 957. 1923 & 671. 1957 (repr. ed.); Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 442. 1981. *T. asiatica* Hook.f. Fl. Brit. India 4: 277. 1884 p.p.

Prostrate herbs with ascending branches. Leaves 3-5 x 1-2 cm, serrate, nearly glabrous, ovate-lanceolate, acuminate at apex, obtuse at base. Flowers purple with a violet centre.

Fairly common in marshy areas of Ponmudi. Fl. & Fr.: Oct.

#### OROBANCHACEAE Vent.

|                     |                     |
|---------------------|---------------------|
| Anthers spurred     | <i>Christisonia</i> |
| Anthers not spurred | <i>Aeginetia</i>    |

#### *Aeginetia* L.

|                   |                       |
|-------------------|-----------------------|
| Scapes bracteate  | <i>A. pedunculata</i> |
| Scapes ebracteate | <i>A. indica</i>      |

*Aeginetia indica* L. Sp. Pl. 632. 1753; Wight, Icon t. 895. 1844-1845; FBI 4: 320; Rao 293; Gamble 685.

Parasitic herbs with fleshy fibrous roots. Flowers deep purple. Capsules partially 2-valved.

Fairly common in moist deciduous forests of Bonecord. Fl. & Fr.: Jul.-Sept. 'Keripu'.

*Aeginetia pedunculata* (Roxb.) Wall. Pl. Asiat. Rar. t. 219. 1831; Wight, Icon. t. 1421. 1849; FBI 4: 320; Rao 293; Gamble 685 exct. syn. *Orobancha pedunculata* Roxb. Fl. Ind. 3: 29. 1832.

Parasitic herbs with short underground stems. Flowers orange.

Fairly common in secondary grasslands of Bonecord. Fl. & Fr.: Jul.-Nov.

**Christisonia** Gardn.

**Christisonia tubulosa** (Wight) Benth. ex Hook.f. Fl. Brit. India 4: 321. 1884; Rao 293; Gamble 685. *Oligopholis tubulosa* Wight, Icon. t. 1422, 1849.

Fleshy, parasitic herbs with light brown stems up to 30 cm long. Flowers pink with yellowish lower lip.

Occasional in the Bamboo Brakes towards Agastyarkudum, Fl. & Fr.: Oct.-Dec.

**LENTIBULARIACEAE** L.C. Rich.

**Utricularia** L.

- |   |                          |
|---|--------------------------|
| 1. Floating plants                                | <i>U. aurea</i>          |
| 1. Marshy terrestrials or epiphytes:              |                          |
| 2. Scapes usually twining:                        |                          |
| 3. Upper lip of corolla emarginate at apex        | <i>U. scandens</i>       |
| 3. Upper lip of Corolla not emarginate at apex:   |                          |
| 4. Calyx lobes similar, enlarged in fruits        | <i>U. reticulata</i>     |
| 4. Calyx lobes dissimilar, not enlarged in fruits | <i>U. smithiana</i>      |
| 2. Scapes not twining:                            |                          |
| 5. Upper lip of corolla emarginate at apex        | <i>U. striatula</i>      |
| 5. Upper lip of corolla not as above:             |                          |
| 6. Lower lip of corolla crenulate                 | <i>U. caerulea</i>       |
| 6. Lower lip of corolla entire:                   |                          |
| 7. Spur curved upwards                            | <i>U. uliginosa</i>      |
| 7. Spur straight                                  | <i>U. roseo-purpurea</i> |

**Utricularia aurea** Lour. Fl. Cochinch. 26, 1790; Backer & Bakh.f. Fl. Java 2: 517. 1965. *U. flexuosa* Vahl, Enum. 198. 1805; FBI 4: 329; Rao 294; Gamble 689.

Stoloniferous aquatic herbs. Leaves dissected, whorled, capillary with bladders. Flowers yellow in racemes; pedicels deflexed. Seeds angled, winged.

Fairly common in marshy areas in low elevations. Fl. & Fr.: Oct.-Jan.

*Utricularia caerulea* L. Sp. Pl. 18, 1753; Wight, Icon. t. 1583, 1850; Rao 294; Gamble 691. *U. racemosa* Wall. ex A. DC. Prodri. 8: 21, 1844; FBI 5: 333. *U. nivea* Vahl, Enum. 203, 1805; Wight, Icon. t. 1582, 1850.

Herbs. Leaves 1.5-5 cm long, linear-oblong, obtuse at apex, attenuate at base. Scapes 5-15 cm long. Flowers bluish purple in racemes; spur violet, conical and curved. Capsules ovoid; seeds ellipsoid, reticulate.

Common in marshy areas of Kottur. Fl. & Fr.: Oct.-Dec.

*Utricularia reticulata* Sm. Exot. Bot. 2, t. 19, 1805; Wight, III. 2: t. 143, 1850; FBI 4: 331; Rao 294; Gamble 690. *U. uliginosa* Sensu Wight, Icon. t. 1574, 1850, non Vahl 1804.

Herbs 25-35 cm long. Leaves disappearing on flowering. Flowers blue or purple on long turning scapes. Seeds rhomboid, reticulate.

Common in marshy areas of the lower ghats usually in association with *Fimbristylis* spp. Fl.: Mar.-Jun.

*Utricularia roseo-purpurea* Stapf, ex Gamble, Fl. Pres. Madras 983, 1924 & 691, 1957 (repr. ed.). *U. rosea* Clarke in Hook.f. Fl. Brit. India 4: 333, 1884, non Edgew. 1847.

Slender herbs. Leaves short, spathulate. Flowers pinkish, subsessile in twining scapes; bracts and scales attached to the scapes by their middle; spur shorter than corolla. Capsules globose; seeds reticulate.

Occasional in moist areas at Agastyarkudum. Fl. & Fr.: Oct.-Dec.

*Utricularia scandens* Benj. in Linnaea 20: 309, 1847; Taylor in Kew Bull. 18: 46, 1964. *U. wallichiana* Wight, Icon. t. 1572, f. 1, 1850; FBI 4: 332; Gamble 690.

Slender herbs with short filiform leaves and 2-horned blades

from stolons. Flowers yellow in twining scapes up to 15 cm long; spur conical, pendent. Seeds reticulate.

Fairly common in moist deciduous forests at Bonecord. Fl. & Fr.: Oct.-Dec.

*Utricularia smithiana* Wight in Hooker's J. Bot. Kew Gard. Misc. 1: 373. 1849; Gamble 690. *U. caerulea* L. var. *smithiana* (Wight) Clarke in Hook.f. Fl. Brit. India 4: 331. 1884.

Herbs, stoloniferous, filiform, bearing bladders. Leaves linear-spathulate. Flowers blue in twining scapes up to 25 cm long; spur conical, curved. Seeds globose, scrobiculate.

Occasional in moist situations at Agastyarkudum. Fl. & Fr.: Oct.-Dec.

*Utricularia striatula* Sm. in Rees, Cyclop. 37. no.17, 1819; Gamble 691; Taylor in Kew Bull. 8: 91. 1964. *U. orbiculata* Wall. ex A.DC. Prodr. 8: 18. 1844; FBI 4: 334. *U. glochidiata* Wight, Icon. t. 1581. 1850,

Slender herbs; stolons filiform, creeping. Leaves 3 mm in diam., rosulate, reniform; bladders ovoid. Flowers violet with an yellow spot in scapes up to 15 cm long. Capsules subglobose; seeds glochidiatae.

Fairly common in most areas of Kottur. Fl. & Fr.: Sep.-Dec.

*Utricularia uliginosa* Vahl, Enum. 1: 203. no.25. 1804; Gamble 689. *U. affinis* Wight, Icon. t. 1580. f.1. 1850; FBI 4: 330; Rao 294. *U. brechypoda* Wight, Icon. t.1578. f.1. 1850.

Slender herbs 6-10 cm tall. Leaves linear-oblong or spathulate. Flowers blue, 2-4 in slender scapes; spur conical, curved. Seeds subglobose, reticulate.

Fairly common in marshes at low elevations. Fl. & Fr.: Aug.-Nov.

#### GESNERIACEAE Dumort.

- |                            |                      |
|----------------------------|----------------------|
| 1. Scapigerous herbs       | <i>Didymocarpus</i>  |
| 1. Plants not scapigerous: |                      |
| 2. Epiphytes               | <i>Aeschynanthus</i> |
| 2. Terrestrial shrubs      | <i>Rhynchotechum</i> |

*Aeschynanthus* Jack *nom. cons.*

*Aeschynanthus perrottetii* A.DC. in DC. Prodr. 9: 261. 1845; FBI 4: 339; Gamble 692. *A. planiculmis* (Clarke) Gamble, Fl. Pres. Madras 692. 1957 (repr. ed.). *A. perrottetii* A.DC. var. *planiculmis* Clarke in Hook.f. Fl. Brit. India 4: 340. 1884. '*platyculmis*'; Rao 295. *A. ceylanica* auct. non Gardn. 1846; Wight, Icon. t. 1347. 1848.

Succulent epiphytes. Leaves 4-9 x 2-3 cm, glabrous, fleshy, elliptic-oblong, acuminate at apex, cuneate at base. Flowers scarlet with purple lines in fascicles on terminal or axillary peduncles; corolla glabrous or pubescent. Capsules 15-25 cm long, linear, cylindric.

Common in evergreen forests of Ponmudi and Bonecord. Fl. & Fr.: Jul.-Oct.

*Note:* Subramanyam & Henry (Bull. Bot. Surv. India 12: 1-5. 1970) merged *Aeschynanthus perrottetii* A.DC. and *A. planiculmis* (Clarke) Gamble, as the distinguishing characters of these plants were overlapping.

*Didymocarpus* Wall. *nom. cons.*

- |                                   |                      |
|-----------------------------------|----------------------|
| 1. Trailing herbs; leaves caudine | <i>D. repens</i>     |
| 1. Scapigerous herbs :            |                      |
| 2. Leaves subsessile :            |                      |
| 3. Peduncle ca. 15 cm long        | <i>D. tomentosus</i> |
| 3. Peduncle ca. 25 cm long        | <i>D. fischeri</i>   |
| 2. Leaves petiolate               | <i>D. ovalifolia</i> |

*Didymocarpus fischeri* Gamble in Bull. Misc. Inform. 117. 1923 & in Fl. Pres. Madras 989. 1924 & 694. 1957 (repr. ed.).

Scapigerous herbs. Leaves 6.5-15 x 6-7.5 cm, bullate with white hairs, irregularly crenate, spatulate, rounded at apex, cuneate at base; older leaves shortly petiolate, younger sessile. Scape 15-20 cm long, stout, dichotomously branched. Flowers blue in racemes. Capsules slightly villous.

Rare in evergreen forests of Agasthyarkudum. Fl. & Fr.: Jun.-Jul.

*Didymocarpus ovalifolia* Wight, Icon. t.1351, 1848; FBI 4: 354; Rao 295; Gamble 694.

Leaves 5-9.5 x 2-5 cm, white-strigose, crenate-serrate, elliptic-ovate, obtuse at apex, cuneate at base. Flowers blue in umbels; scapes up to 11 cm long. Capsules ca. 2.5 cm long, pubescent.

Occasional in the crevices of rocks at Ponmudi. Fl. & Fr.: May-Oct.

*Didymocarpus repens* Bedd. Icon. t.120. 1868-1874: FBI 4: 354; Rao 295; Gamble 694.

Stems tomentose. Leaves 3-8 x 3.5-8 cm, densely pubescent; rounded, crenate-serrate, shortly acuminate at apex, cordate at base; petioles ca. 9.5 cm long. Flowers blue. Capsules ca. 2.5 cm long, pubescent.

Fairly common in moist shaded areas of dense evergreen forests towards Chemungi. Fl. & Fr.: Apr.-Nov.

*Didymocarpus tomentosus* Wight, Icon. t.1349, 1848; FBI 4: 353; Rao 295; Gamble 695.

Leaves 7-19 x 4-10 cm, rosulate, orbicular or spatulate, tomentose, crenate or incised. Flowers purple in dichotomously branched scapes up to 23 cm tall. Capsules ca. 2.5 cm long, villous.

Frequent on rocky slopes in Ponmudi. Fl. & Fr.: May-Oct.

#### Rhynchotechum Blume

*Rhynchotechum permolle* (Nees) Burtt in Notes Roy. Bot. Gard. Edinburgh 24: 39, 1962; Theobald & Grupe in Dassanayake, Rev. Handb. Fl. Ceylon 3: 105, 1981. *Isanthera permollis* Nees in Trans. Linn. Soc. London 17: 82, 1834; FBI 4: 372; Rao 295; Gamble 697.

Undershrubs 20-50 cm tall; stems woolly tomentose. Leaves 5-20 x 2.5-9 cm, woolly tomentose, serrate, oblanceolate, acute at apex, tapering to base. Flowers white, in axillary dichasial cymes.

Very rare in the undergrowth of dense evergreen forests of Bonecord. Fl. & Fr.: Jun.-Nov.

## BIGNONIACEAE Juss.

## Pajanalia DC.

*Pajanalia longifolia* (Willd.) K. Schum. in Engler & Prantl, Pflanzenfam. 4(3B): 244. 1895. *Bignonia longifolia* Willd. Sp. Pl. 3: 306. 1800. *Pajanalia rheedii* Wight, Icon. t. 1343-1344. 1850; FBI 4: 384; Rao 298; Gamble 702.

Trees 14-18 m tall. Leaves 60-120 cm long; leaflets 12-14 pairs, 10-25 x 5-10 cm, ovate, acuminate at apex, oblique at base. Flowers reddish without, whitish within, fleshy, in terminal racemes. Capsules 30-45 x 5-7.5 cm, winged; seeds white.

Commonly planted for the soft wood used by Fischermen as "Catumarans". This tree is often grown as a support to *Piper* vines. Fl. & Fr.: Dec.-Mar. 'Azhantha'

*Kigelia africana* (Lam.) Benth; *Jacaranda mimosifolia* D. Don. *Millingtonia hortensis* L.f., *Tecoma stans* (L.) H.B.K., *Spathodea campanulata* P. Beauv. etc. are cultivated in gardens.

## PEDALIACEAE R. Br.

Plants glabrous, fleshy; fruits indehiscent *Pedalium*

Plants pubescent, not fleshy; fruits dehiscent *Sesamum*

*Pedalium Royen ex L.*

*Pedalium murex* L. Syst. Nat. ed. 10, 1123. f. 2E. 1759; Theobald & Grupe in Abeywickarma, Rev. Handb. Fl. Ceylon 1 (1): 83. 1973; Wight, Icon. t. 1615. 1850; FBI 4: 386; Rao 298; Gamble 704.

Succulent herbs. Leaves 2.5-5 x 1-3 cm, glabrous, ovate, margin irregularly lobed, obtuse at apex, truncate at base. Flowers blue, solitary, axillary. Fruits spinescent, trigonal, green.

Fairly common in the sandy coast. Fl. & Fr.: Jun.-Dec. 'Kaka-mulla'.

*Sesamum L.*

*Sesamum prostratum* Retz. Obs. 4: 28. 1779; Wight, Icon. t. 1346.

1848; FBI 4: 387; Gamble 704; Bruce in Fl. East Trop. Africa 17. 1953.

Herbs 50-60 cm tall. Leaves 4-8.5 x 1-2.5 cm, pubescent; lower, serrate, ovate, acute at apex, obtuse at base; upper entire, linear-elliptic. Flowers pale red, solitary. Capsules up to 2 x 5 cm, 2-valved, hairy.

Occasional in wastelands. Fl. & Fr.: Oct.-Dec.

### MARTYNIACEAE Stapf

*Martynia* L.

*Martynia annua* L. Sp. Pl. 618. 1753; Theobald & Grube in Abeywickrama, Rev. Handb. Fl. Ceylon 1(1): 109. 1973. Gamble 705. *M. didandra* Gloxin, Obs. 14. t.1. 1785; FBI 4: 386; Rao 299.

Succulent herbs. Leaves 7-20 x 7-18 cm. ovate or orbicular, pubescent, acute at apex, cordate at base. Flowers rose with purple blotch, in terminal or axillary racemes. Fruits with 2 hooks at apex.

Rare in the sandy coast of Veli. Fl. & Fr.: Jul.-Dec.

### ACANTHACEAE Juss.

- |  |                      |
|--|----------------------|
| 1. Leaves pinnatifid                     | <i>Acanthus</i>      |
| 1. Leaves not as above:                  |                      |
| 2. Filaments dilated at base or middle : |                      |
| 3. Filaments hairy at base               | <i>Andrographis</i>  |
| 3. Filaments glabrous :                  |                      |
| 4. Bracts linear                         | <i>Gendarussa</i>    |
| 4. Bracts ovate                          | <i>Justicia</i>      |
| 2. Filaments not dilated :               |                      |
| 5. Filaments monadelphous                | <i>Nilgirianthus</i> |
| 5. Filaments not as above :              |                      |
| 6. Filaments connate at base in pairs    | <i>Asystasia</i>     |
| 6. Filaments free:                       |                      |

7. Sepals 4:
8. Stamens all fertile; anthers hairy at margin *Blepharis*
8. Stamens usually sterile; anthers glabrous:
7. Sepals 5:
9. Corolla distinctly 2-lipped *Rostellularia*
9. Corolla subequally 5-lobed *Barteria*
10. Inflorescence a spiciform raceme:
11. Stamens 4:
12. Filaments hairy *Staurogyne*
12. Filaments glabrous *Phaulopsis*
11. Stamens 2:
13. Leaves crenate-serrate *Phlebophyllum*
13. Leaves entire:
14. Fertile bracts with scarious  
hyaline margins *Rungia*
14. Fertile bracts not as above *Ecbolium*
10. Inflorescence not as above:
15. Anthers superposed *Rhinacanthus*
15. Anthers parallel:
16. Filaments glabrous:
17. Stamens 2 *Diotacanthus*
17. Stamens 4 *Hygrophila*
16. Filaments hairy:
18. Stamens 4:
19. Flowers in pedunculate  
cymes *Dipteracanthus*
19. Flowers in sessile cymes *Ruellia*
18. Stamens 2 *Indoneesiella*

*Acanthus* L.

*Acanthus ilicifolius* L. Sp. Pl. 639. 1753; FBI 4: 481; Sant. in Bot. Mem. Univ. Bombay 2: 16. 1952; Rao 304; Gamble 712.

Erect spinous shrubs. Leaves 4-9.5 x 1.4-4 cm, glabrous, pinnatifid, lobes ending in spines. Flowers blue in dense terminal spikes. Capsules ellipsoid, compressed.

Frequent in the castal zone. Fl. & Fr.: Nov.-Jun.

*Andrographis* Wall. ex Nees

|                                |                      |
|--------------------------------|----------------------|
| 1. Calyx glabrous              | <i>A. neesiana</i>   |
| 1. Calyx glandular pubescent : |                      |
| 2. Leaves glabrous above       | <i>A. producta</i>   |
| 2. Leaves puberulous above :   |                      |
| 3. Leaves ca. 2 cm broad       | <i>A. paniculata</i> |
| 3. Leaves less than 2 cm broad | <i>A. wightiana</i>  |

*Andrographis neesiana* Wight, Icon. t.1561. 1850; FBI 5: 504; Rao 308; Gamble 735.

Erect shrubs 4-6 cm tall. Leaves 2.5-10 x 2.5-5.5 cm, clothed with scattered jointed hairs, elliptic, acute at both ends. Flowers brownish in paniculate racemes.

Occasional in evergreen forests of Kottur. Fl. & Fr.: Jun.-Nov.

*Andrographis paniculata* (Burm. f.) Wall. ex Nees in Wall. Pl. Asiat. Rar. 3: 116. 1832; FBI 4: 502; Rao 307; Sant. in Bot. Mem. Univ. Bombay 2: 50. 1952 & J. Bombay Nat. Hist. Soc. 51: 359. 1953; Gamble 734. *Justicia paniculata* Burm.f. Fl. Ind. 9. 1768.

Erect shrubs 30-60 cm tall; stems tetragonal, puberulous. Leaves 2-8 x 1.5-2 cm, puberulous on both the surfaces, lanceolate, acuminate at apex, cuneate at base. Flowers white with pink spots in axillary and terminal panicles.

Abundant in cultivated lands in the plains. Fl. & Fr.: Aug.-Jan. 'Kariyath'.

*Andrographis producta* (Clarke) Gamble, Fl. Pres. Madras 1049, 1924 & 735, 1957 (repr. ed.). *A. neesiana* var. *producta* Clarke in Hook.f. Fl. Brit. India 4: 504. 1884.

Erect shrubs up to 1.5 m tall. Leaves 2.5-10 x 2.5-3 cm, lanceolate, acuminate at both ends. Flowers in paniculate racemes, Capsules ca. 2.5 cm long, glandular-strigose.

Occasional in exposed areas of Ponmudi. Fl. & Fr.: Dec.-Feb.

*Andrographis wightiana* Arn. ex Nees in DC. Prodr. 11: 517, 1847; Wight, Icon. t. 1558. 1850; FBI 4: 503; Rao 308; Gamble 734.

Herbs. Leaves 5-7.5 x 1-2.3 cm, lanceolate, acuminate at apex, rounded at base. Flowers pink with red lower lip, in elongate sub paniculate racemes. Capsules linear-oblong.

Occasional in evergreen forests in open areas. Fl. & Fr.: Dec.-Apr.

#### Asystasia Blume

1. Leaves glabrous above      *A. chelonoides* var. *quadrangularis*  
1. Leaves hairy above :

- |                                 |                       |
|---------------------------------|-----------------------|
| 2. Petioles ca. 1.5 cm long     | <i>A. dalzelliana</i> |
| 2. Petioles less than 1 cm long | <i>A. gangetica</i>   |

*Asystasia chelonoides* Nees var. *quadrangularis* Clarke in Hook.f. Fl. Brit. India 4: 494. 1884; Rao 307; Gamble 744.

Decumbent herbs. Leaves 8-13 x 4-6 cm, sparsely puberulous beneath, elliptic, ovate, acuminate at apex, cuneate at base. Flowers blue in terminal secund paniculate racemes. Capsules elliptic.

Frequent in moist deciduous forests of Kottur. Fl. & Fr.: Aug.-Dec. 'Murikootipacha'.

*Asystasia dalzelliana* Sant. in Kew Bull. 3: 276. 1948. *A. violacea* Dalz. ex Clarke in Hook.f. Fl. Brit. India 4: 494. 1884, non Dalzell 1850; Rao 307; Gamble 745.

Procumbent herbs; stems quadrangular. Leaves 6-11 x 2.5-4.5 cm, sericeous above, glabrous beneath, ovate-lanceolate, acuminate at apex, cuneate at base. Flowers blue with pink tinge.

Frequent in edges of forests at Ponmudi. Fl. & Fr.: Aug.-Dec.

*Asystasia gangetica* (L.) T. And. in Thw. Enum. 235. 1860; Gamble 744. *Justicia gangetica* L. in Turner, Cent. 11. Pl. 3. 1756. *Asystasia coromandeliana* Wight ex Nees in Wall. Pl. Asiat. Rar. 3: 82. 1832; FBI 4: 493.

Procumbent herbs. Leaves 3-6.5 x 1-3.2 cm, puberulous above, pubescent along the veins beneath, ovate-lanceolate, acuminate at apex, cuneate at base. Flowers yellow in terminal 1-sided racemes.

Frequent in moist deciduous forests of Kottur. Fl. & Fr.: Oct.-Dec.

**Barleria L.**

|                             |   |
|-----------------------------|---|
| Corolla ca. 10 cm long      | <i>B. involucrata</i> var. <i>elata</i> |
| Corolla less than 6 cm long | <i>B. courtallica</i>                   |

*Barleria courtallica* Nees in DC. Prodr. 11: 226. 1847; Wight. Icon. t. 1529. 1850; FBI 4: 489; Rao 306; Gamble 743.

Erect shrubs 25-40 cm tall. Leaves 4-11 x 1.5-3.5 cm, sparsely puberulous, lanceolate, shortly acuminate at apex, cuneate at base. Flowers in terminal spikes; corolla tubes white, lobes purple with yellow base.

Occasional in evergreen forests of Ponmudi. Fl. & Fr.: Dec.-Mar. "Venkurunji"

*Barleria involucrata* Nees in Wall. Pl. Asiat. Rar. 3: 92. 1832 var. *elata* (Dalz.) Clarke in Hook.f. Fl. Brit. India 4: 486. 1884; Gamble 742. *B. elata* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 3: 227. 1851.

Erect or scandent shrubs; stems appressed pubescent. Leaves 7.5-13 x 3-5.5 cm, appressed pubescent, lanceolate, acuminate at apex, cuneate at base. Flowers blue, axillary.

Fairly common in moist deciduous forests up to 1700 m. Fl. & Fr.: Nov.-Mar.

**Blepharis Juss.**

*Blepharis maderaspatensis* (L.) Heyne ex Roth, Nov. Pl. Sp. 320, 1821; Sant. in Bot. Mem. Univ. Bombay 2: 15, 1951. *Acanthus maderaspatensis* L. Sp. Pl. 639, 1753. *Blepharis boerhaviifolia* Pers. Syn. Pl. 2: 180, 1806; Wight, Icon. t.458, 1841; FBI 4: 478; Rao 304; Gamble 712.

Prostrate herbs; stems sericeous. Leaves 1.5-4.5 x 1-2.5 cm, puberulous above, glaucous beneath, entire or serrate, ovate or obovate, acute and mucronate at apex, cuneate at base. Flowers white with yellow spots and pink striations at the throat of the lower lip.

Frequent in the exposed areas of lower ghats and plains.  
Fl. & Fr.: Nov.-Mar.

**Diotacanthus Benth.**

*Diotacanthus grandis* (Bedd.) Benth. Gen. Pl. 2: 1101, 1876; FBI 4: 355; Rao 309; Gamble 739. *Phlogacanthus grandis* Bedd. Icon. t.180, 1872.

Erect shrubs 3-4 m tall. Leaves 16-31 x 5-10 cm, glabrous, elliptic-lanceolate or oblanceolate, acuminate at apex, cuneate at base. Flowers bright pink in axillary pedunculate cymes. Capsules ca. 4 cm long, linear-terete.

Fairly common in evergreen forests of Chemungi. Fl. & Fr.: Oct.-Jan.

**Dipteracanthus Nees emend. Bremek.**

|             |                   |
|-------------|-------------------|
| Erect herbs | <i>D. patulus</i> |
|-------------|-------------------|

|                  |                      |
|------------------|----------------------|
| Prostrates herbs | <i>D. prostratus</i> |
|------------------|----------------------|

*Dipteracanthus patulus* (Jacq.) Nees in Wall. Pl. Asiat. Rar. 3: 81, 1832; Bremek. in Verh. Kon. Ned. Akad. Inst. Wetensch. II, 45(1): 16, 1948. *Ruellia patula* Jacq. Misc. Bot. 2: 358, 1781. Wight, Icon. t.1505, 1850; FBI 4: 412; Rao 301; Gamble 714.

Prostrate herbs. Leaves 0.8-2 x 0.5-1 cm, sparsely pubescent, ovate, acute at apex, cuneate at base. Flowers white with pink tinge, axillary, solitary.

Frequent throughout the plains in wastelands. Fl. & Fr.: Aug.-Feb.

*Dipteracanthus prostratus* (Poir.) Nees in Wall. Pl. Asiat. Rar. 3: 81. 1832, *Ruellia prostrata* Poir. in Lam. Encycl. 6: 349. 1804; Bedd. Icon. t. 282. 1868-1874; FBI 4: 411; Gamble 714.

Diffuse herbs, rooting at lower nodes. Leaves ca. 5 x 2 cm, elliptic or ovate, acute at apex, cuneate at base. Flowers ca. 2.5 cm long, pale blue, solitary, axillary. Capsules ca. 2 cm long, linear-oblong, hairy.

Frequent in plains and at lower altitudes of hills. Fl. & Fr.: Mar.-Jul.

#### *Ecbolium* Kurz

*Ecbolium viride* (Forssk.) Alston in Trimen, Handb. Fl. Ceylon 6 (Suppl.): 229. 1931 var. *laetevirens* (Clarke) Raizada in Indian For. Rec. 5 (1): 16. 1958, *E. lineatum* Kurz var. *laetevirens* Clarke in Hook.f. Fl. Brit. India 4: 545. 1885; Rao 311; Gamble 752.

Erect shrubs 50-75 cm tall. Leaves 3-11 x 1.5-5 cm, glabrous above, pubescent beneath, ovate, acute or slightly acuminate at apex, cuneate at base. Flowers yellow. Bracts 2 x 1.5 cm, ovate, obtuse at apex, truncate at base. Capsules ovoid.

Frequent in the plains and at low elevations of ghat. Fl. & Fr.: Oct.-Dec. 'Odiemandantha'.

#### *Eranthemum* L.

*Eranthemum capense* L. Sp. Pl. 9. 1753; Bremek. Verh. Kon. Ned. Akad. Inst. Wetensch. II. 45(1): 34. 1948, *Justicia montana* Roxb. Pl. Cor. 2: 41. t. 76. 1805; Rao 309 *Eranthemum montanum* Roxb. Fl. Ind. 1: 110. 1820; Gamble 720. *Daedalacanthus montanus* T. Andr. in J. Linn. Soc. Bot. 9: 489. 1867; FBI 4: 421.

Woody shrubs 1-1.5 m tall. Leaves 15-23 x 5-7.5 cm, elliptic, acuminate at apex, narrowed at base. Flowers pink in terminal and axillary spikes. Capsules clavate.

Rare in moist deciduous forests. Fl. & Fr.: Dec.-Feb.

**Gendarussa Nees**

**Gendarussa vulgaris** Nees in Wall. Pl. Asiat. Rar. 3: 104, 1832 & in DC. Prodr. 11: 410, 1847. *Justicia gendarussa* Burm.f. Fl. Ind. 10, 1768; FBI 4: 532; Rao 309; Gamble 755.

Shrubs 50-150 cm tall. Leaves 6-12.5 x 1-2 cm, linear-oblong, acuminate at apex, cuneate at base. Flowers white with pink tinge, in terminal spikes. Capsules 1.5 cm long, clavate.

Rare in moist deciduous forests along streams. Fl. & Fr.: Dec.-Mar. 'Karunochi'.

**Hygrophila R. Br.**

|                |                      |
|----------------|----------------------|
| Plants armed   | <i>H. auriculata</i> |
| Plants unarmed | <i>H. erecta</i>     |

**Hygrophila auriculata** (Schum.) Heine in Kew Bull. 16: 173, 1962; *Barleria auriculata* Schum. in Schum. & Thonn. Besker Guin. Pl. 285, 1827. *B. longifolia* L. Cent. Pl. 2: 122, 1756. *Asteracantha longifolia* (L.) Nees in Wall. Pl. Asiat. Rar. 3: 90, 1832; FBI 4: 408. *Hygrophila longifolia* (L.) Kurz in J. Asiat. Soc. Bengal 39: 78, 1870, non Nees 1847.

Hispid herbs. Leaves 10-17 x 1-2.5 cm, narrowly lanceolate, acuminate at apex. Flowers blue, clustered in axils. Capsules linear-oblong.

Common in the sandy coast. Fl. & Fr.: Aug.-Dec. 'Neermully'

*Note*: The monotypic genus *Asteracantha* Nees was established only on the basis of the presence of spines, which Heine *i.c.* had proved as a variable character.

**Hygrophila erecta** (Burm.f.) Hochr. in Candollea 6: 230, 1934. *Ruellia erecta* Burm.f. Fl. Ind. 135, 1784. *Hygrophila quadrivalvis* Nees in Wall. Pl. Asiat. Rar. 3: 80, 1832; FBI 4: 408; Rao 300; Gamble 714. *H. obovata* Wight, Icon. t.1489, 1849.

Erect shrubs 30-75 cm tall. Leaves 3-7 x 1.2-3 cm, glandular, puberulous, crenate, ovate-oblong, obtuse at apex, cuneate at base. Flowers pink, axillary.

Fairly common in coastal zone. Fl. & Fr.: Aug.-Dec.

*Indoneesiella* Sreem.

*Indoneesiella echiooides* (L.) Sreem. in *Phytologia* 16: 466. 1968.  
*Justicia echiooides* L. Sp. Pl. 16. 1753. *Andrographis echiooides* (L.) Nees in Wall. Pl. Asiat. Rar. 3: 117. 1831; Wight, Icon. t.467. 1841; FBI 4: 505; Rao 308; Gamble 736. *Neesiella echiooides* (L.) Sreem. in *Phytologia* 15: 271. 1967.

Erect, villous herbs 30-45 cm tall. Leaves 2.5-4 x 0.5-1 cm, elliptic-oblong, subobtuse or acute at apex, cuneate at base. Flowers pink or white with pink spots in axillary branched racemes. Capsules up to 1.3 x 0.4 cm, hairy.

A common weed in cultivated fields and wastelands.  
 Fl. & Fr.: Dec.-May. 'Gopuramthangi'

*Note*: Sreemadhavan (1967) segregated this species hitherto treated under *Andrographis* Wall. ex Nees to a new genus *Neesiella* Sreem. Since *Neesiella* Sreem. became a later homonym of *Neesiella* Schiffn. (1893), he subsequently renamed it as *Indoneesiella* Sreem. (1968).

*Justicia* L.

1. Erect shrubs or undershrubs:
2. Anther cells not spurred at base *J. adhatoda*
2. Anther cells spurred at base:
  3. Capsules ca. 2.5 cm long *J. santapaui*
  3. Capsules less than 1.3 cm long *J. betonica*
1. Diffuse herbs *J. traquebariensis*

*Justicia adhatoda* L. Sp. Pl. 15. 1753; Stearn in J. Arnold Arbor. 52: 640. 1971. *Adhatoda ceylanica* Medic. in Hist. & Commentat. Acad. Elect. Sci. theod.-Palat 6: 393. 1790. *A. vasica* Nees in Wall. Pl. Asiat. Rar. 3: 103. 1832. FBI 4: 540; Rao 310; Gamble 758.

Shrubs 1-3 m tall; young branches pubescent. Leaves 13-30 x 3-7.5 cm, glabrous, ovate-lanceolate, acute or acuminate at apex, cuneate at base. Flowers white in axillary peduncles up to 6.5 cm long.

Occasional in the plains; cultivated as hedge plant; leaves

used in the treatment of rheumatism. Fl. & Fr.: May-Jul.  
'Adalodakam'

*Justicia betonica* L. Sp. Pl. 15. 1703; FBI 4: 525; Rao 309; Sant. in Bot. Mem. Univ. Bombay no.2. 85. 1952; Gamble 755.

Shrubs 1-2.5 m tall. Leaves 7.5-12.5 x 2-6 cm, broadly lanceolate, acuminate at apex, narrowed at base. Flowers pinkish white in long terminal spikes. Capsules ca. 1.5 cm long, clavate, pubescent. Seeds spinulose.

Occasional in the undergrowth of evergreen forests at low elevations. Fl. & Fr.: Jan.-Apr. 'Vellakurinji'.

*Justicia santapaui* Bennet in J. Bombay Nat. Hist. Soc. 67: 358. 1970. *J. montana* (Nees) Wall, ex T. And. in J. Linn. Soc. Bot. 9: 509. 1867, non Roxb. 1805; FBI 4: 525; Rao 309; Gamble 755. *Hemichoriste montana* Nees in Wall. Pl. Asiat. Rar. 3: 102. 1832.

Shrubs 4-6 cm tall; stems tetragonal. Leaves 13.5-25 x 5.5-8.5 cm, elliptic-lanceolate, acute at apex, attenuate at base. Flowers white in terminal paniculate spikes.

Fairly common in evergreen forests of Bonecord. Fl. & Fr.: Jan.-Feb.

*Justicia tranquebariensis* L.f. Suppl. Pl. 85. 1781; FBI 4: 530; Rao 309; Gamble 755.

Diffuse herbs with woody rootstocks. Leaves 0.5-1.3 x 0.4-1 cm, puberulous, orbicular or suborbicular-obtuse. Flowers white with pink spots. Capsules up to 9 mm long; seeds echinate.

Frequent in the sandy coast. Fl. & Fr.: Sept.-Mar.

#### *Nilgirianthus* Bremek.

|                   |                      |
|-------------------|----------------------|
| 1. Stamens 2      | <i>N. foliosus</i>   |
| 1. Stamens 4:     |                      |
| 2. Bracts rounded | <i>N. heyneanus</i>  |
| 2. Bracts ovate   | <i>N. warreensis</i> |

*Nilgirianthus foliosus* (Wight) Bremek, in Verh. Kon. Ned. Akad. Inst. Wetensch. 40(1): 275. 1944. *Endopogon foliosns* Wight, Icon. t.1501. 1849. *Strobilanthes foliosus* (Wight) T. And. in J.

Linn. Soc. Bot. 9: 467. 1867; FBI 4: 433; Rao 301; Gamble 726.

Shrubs 3-6 m tall; stems glandular-pilose. Leaves 5-12 x 2.5-3 cm, serrulate, ovate, acuminate at apex, cuneate at base. Flowers blue in capitate heads; bracts foliaceous.

Common in the undergrowth of subtropical hill forests in Ponmudi. Fl. & Fr.: Oct.-Dec.

*Nilgirianthus heyneanus* (Nees) Bremek. in Verh. Kon. Ned. Akad. Inst. Wetesch. 40(1): 277. 1944. *Strobilanthes heyneanus* Nees in Wall. Pl. Asiat. Rar. 3: 85. 1832; FBI 4: 443; Rao 303; Gamble 730.

Shrubs 3-6 m tall. Leaves 6-13.5 x 3-7 cm, bulbous based hairy above, ovate-elliptic, acuminate at apex, cuneate at base. Flowers pale blue in corymbose spikes.

Fairly common in sholas of Ponmudi. Fl. & Fr.: Sept.-Dec.

*Nilgirianthus warreensis* (Dalz.) Bremek. in Verh. Kon. Ned. Akad. Inst. Wetesch. 40(1): 287. 1944. *Strobilanthes warreensis* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 2: 341. 1850; Rao 320; *Strobilanthes asper* Wight, Icon. t. 1518. 1850; FBI 4: 452; Gamble 730.

Shrubs 3-4 m tall; stems strigose. Leaves 3.5-12 x 2-5 cm, stri-gose, ovate-lanceolate, acuminate at apex, cuneate at base. Flowers purplish-white, scented in terminal spikes.

Fairly common in evergreen forests of Bonecord. Fl. & Fr.: Sept.-Jan.

***Phaulopsis* Willd. *emend.* Spreng. *nom. cons.***

*Phaulopsis imbricata* (Forssk.) Sweet, Hort. Brit. ed. 1. 327. 1827. *Ruellia imbricata* Forssk. Fl. Aeg.-Arab. 113. 1775. *R. dorsiflora* Retz. Obs. Bot. 6: 31. 1791. *Phaulopsis dorsiflora* (Retz.) Sant. in Kew Bull. 3: 276. 1948 & Bot. Mem. Univ. Bombay No. 2. 30. 1951. *Micranthus oppositifolius* Wendl. Bot. Beobacht 39. 1798; Gamble 718. *Phaulopsis parviflora* Willd. Sp. Pl. 3: 342. 1800. "Phaylopsis"; FBI 4: 417; Rao 301. *Aetheilema reniforme* Nees in Wall. Pl. Asiat. Rar. 3: 94. 1832; Wight, Icon. t. 1533. 1850.

Diffuse herbs 3-6 m long, rooting at nodes. Leaves 2.5-7.5

x 2.5-3.5 cm, pubescent, acuminate at apex, tapering to unequal base. Flowers white in pubescent spikes. Capsules clavate, pubescent.

Fairly common in evergreen forests of Bonecord. Fl. & Fr.: Oct.-Feb.

#### **Phlebophyllum Nees**

**Phlebophyllum spicatum** (Roth) Bremek. var. *amomum* (Nees) Bremek. in Verh. Kon. Ned. Akad. Inst. Wetensch, 40(1): 272, 1944. *Endopogon amomum* Nees in Wall. Pl. Asiat. Rar. 3: 99. 1832. *Strobilanthes consanguinea* (Nees) T.And. var. *amomum* (Nees) Clarke in Hook.f. Fl. Brit. India 4: 435. 1885; Rao 302; Gamble 726.

Erect shrubs 1-2 m tall. Leaves 10-17 x 5-10 cm, nearly glabrous, dentate, ovate-lanceolate, acuminate at apex, cuneate at base. Flowers white in paniculate spikes; bracts subulate, hairy. Capsules ca. 9 mm long.

Fairly common in evergreen forests of Ponmudi. Fl. & Fr.: Sept.-Mar.

#### **Rhinacanthus Nees**

**Rhinacanthus nasutus** (L.) Kurz in J. Asiat. Soc. Bengal 39(2): 79. 1870; Backer & Bakh.f. Fl. Java 2: 585. 1965. *Justicia nasuta* L. Sp. Pl. 16. 1753. *Rhinacanthus communis* Nees in Wall. Pl. Asiat. Rar. 3: 109. 1832; Wight, Icon. t.464. 1841; FBI 4: 541; Gamble 758.

Erect shrubs up to 1.5 m tall. Leaves 5-10 x 2-4 cm, puberulous, entire or obscurely serrate, ovate-lanceolate, caudate-acuminate at apex.

Fairly common along roadsides in the drier areas of the ghats Fl. & Fr.: Dec.-Feb. 'Puzhukkoli'.

#### **Rostellularia Reichb.**

*Note:* Nees (Wall. Pl. Asiat. Rar. 3: 76-100. 1832) proposed the segregation of *Adhatoda*, *Gendarussa* and *Rostellularia* from the genus *Justicia* sensu lato. Subsequently, Bremekamp (op-cit.) resurrected all these genera. *Rostellularia* Nees however, was

a latter homonym of *Rostellaria* Gaertn., a Sapotaceous genus. Reichenbach (Handb. 190, 1837) has renamed the genus as *Rostellularia*.

- 1. Capsules hairy at tip:

  - 2. Bracts equalling the calyx lobes *R. japonica*
  - 2. Bracts shorter than the calyx lobes *R. prostrata*

- 1. Capsules glabrous :

  - 3. Calyx lobes ciliate *R. latispica*
  - 3. Calyx lobes glabrous :
    - 4. Spikes hairy *R. diffusa*
    - 4. Spikes glabrous *R. quinqueangularis*

*Rostellularia diffusa* (Willd.) Nees in Wall. Pl. Asiat. Rar. 3: 100, 1832, *Justicia diffusa* Willd. Sp. Pl. 1: 87, 1798; FBI 4: 538; Rao 340; Gamble 756.

Herbs. Leaves 2.5-6 x 1.5-3 cm, ovate, black when dry, obtuse or acute at apex, cuneate at base. Flowers pale pink in dense terminal spikes.

Occasional in shaded areas of evergreen forests at Klamala. Fl. & Fr.: Sept.-Oct. 'Cherupulladi'.

*Rostellularia japonica* (Thunb.) Ellis in Bull. Bot. Surv. India 22: 196, 1980, *Justicia japonica* Thunb. Fl. Jap, 20, 1764, *J. simplex* D.Don, Prodr. Fl. Nep. 118, 1829 non *Rostellularia simplex* Wight 1850; FBI 4: 539; Rao 310; Gamble 756.

Decumbent herbs. Leaves 2-5 x 0.2-0.5 cm, appressed hairy, oblong, acute at apex, cuneate at base. Flowers pink in terminal spikes up 2 cm long.

Fairly common in undergrowth of evergreen forests. Fl. & Fr.: Aug.-Mar.

*Note:* Ellis l.c., after a thorough analysis of the characters of *Justicia japonica* Thunb. and *J. simplex* D.Don reduced *J. simplex* into the synonymy of *J. japonica* as they were conspecific and transferred it to *Rostellularia* Reichenb.

**Rostellularia latispica** (Clarke) Bremek. in Verh. Kon. Ned. Akad. Web. Aust. Af. Naturk. Sec. 2, 14(2): 71, 1948. *Justicia procumbens* L. var. *latispica* Clarke in Hook.f. Fl. Brit. India 4: 539, 1885. *Justicia latispica* (Clarke) Gamble, Fl. Pres. Madras 1080, 1924 & 756, 1957 (repr. ed.).

Diffuse branched herbs. Leaves 2.5-5.5 x 1.5-2.5 cm, strigose, ovate or elliptic, acute at apex, cuneate at base. Flowers white in spikes. Capsules papery.

Very rare in open grasslands of Ponmudi. Fl. & Fr.: Nov.-Mar.

**Rostellularia prostrata** (Roxb. ex Clarke) Majumdar in Bull. Bot. Soc. Bengal 25: 75, 1971. *Justicia diffusa* Willd. var. *prostrata* Roxb. ex Clarke in Hook.f. Fl. Brit. India 4: 538, 1885. *J. prostrata* (Roxb. ex Clarke) Gamble, Fl. Pres. Madras 1081, 1924 & 2: 757, 1957 (repr. ed.).

Prostrate or procumbent herbs. Leaves 0.3-4 x 0.5-1 cm, hirsute, ovate, obovate or oblong, obtuse at apex, cuneate at base. Flowers pale pink in terminal spikes up to 4 cm long.

Fairly common in open grasslands of ghats at low elevations. Fl. & Fr.: Aug.-Dec.

**Rostellularia quinqueangularis** (Koen. ex Roxb.) Nees in Wall. Pl. Asiat. Rar. 3: 101, 1832. *Justicia quinqueangularis* Koen. ex Roxb. Fl. Ind. 134, 1832; FBI 4: 756; Gamble 756.

Decumbent herbs, rooting at nodes. Leaves 1.5-3 x 0.2-0.4 cm, scabrous, linear-oblong or linear-lanceolate, acute at apex, cuneate at base. Flowers pink in terminal spikes up to 5 cm long. Capsules glabrous.

Fairly common in the drier areas of deciduous forests. Fl. & Fr. Aug.-Dec.

#### Ruellia L. emend. Bremek.

**Ruellia tuberosa** L. Sp. Pl. 735, 1753; Bremek. in Verh. Kon. Ned. Akad. Inst. Wetensch. 45(1): 11, 1948; Sant. in Bot. Mem. Univ. Bombay 2: 23, 1952; Gamble 714.

Erect herbs 40-60 cm tall. Leaves 2.8-6 x 1.2-2 cm, puberulous on both surfaces, dentate, ovate-oblong, acute or obtuse at apex, cuneate at base. Flowers blue in axillary cymes.

Fairly common in the plains in wastelands. Fl. & Fr.: Dec.-Jyln.

**Rungia Nees**

- |   |                      |
|---|----------------------|
| 1. Erect shrubs   | <i>R. wightiana</i>  |
| 1. Erect or decumbent herbs:  |                      |
| 2. Sterile and fertile bracts similar                               | <i>R. repens</i>     |
| 2. Sterile and fertile bracts dissimilar:                           |                      |
| 3. Fertile bracts only ciliate along margins,<br>otherwise glabrous | <i>R. pectinata</i>  |
| 3. Fertile bracts villous   | <i>R. parviflora</i> |

**Rungia parviflora** Nees in Wall, Pl. Asiat. Rar. 3: 110. 1832; FBI 4: 550; Rao 312; Gamble 750.

Decumbent herbs. Leaves 1.5-5 x 0.5-1.5 cm, ovate-lanceolate or linear-spathulate, acute at apex, cuneate at base. Flowers blue in terminal spikes.

Occasional in moist deciduous forests of Kottur and Nedumangad. Fl. & Fr.: Oct.-Nov.

**Rungia pectinata** (L.) Nees in DC. Prodr. 11: 469. 1847; Wight, Icon. t.1547. 1850; Sant. in Bot. Mem. Univ. Bombay no.2, 77. 1951. *Justicia pectinata* L, in Turner, Cent. Pl. 3. 1756. *Rungia parviflora* var. *pectinata* (L.) Clarke in Hook.f. Fl. Brit. India 4: 550. 1885; Gamble 750.

Decumbent herbs, glabrous or pubescent. Leaves 1.5-5.5 x 0.5-2.3 cm, elliptic-lanceolate or oblong-lanceolate, subobtuse at apex, acute at base. Flowers blue, subsessile in terminal spikes.

A common weed in tea and rubber plantations. Fl. & Fr.: Nov.-Feb.

**Rungia repens** (L.) Nees in Wall, Pl. Asiat. Rar. 3: 110. 1832; Wight, Icon. t.465. 1841; Rao 312; FBI 4: 549; Gamble 750. *Justicia repens* L. Sp. Pl. 15. 1753.

Decumbent herbs. Leaves 2-4 x 1-2 cm, puberulous, ovate, acute at apex, rounded at base. Flowers white in terminal spikes.

Fairly common in the floor of evergreen forests at Chemungi. Fl. & Fr.: Jun.-Jul.

*Rungia wightiana* Nees in Wall. Pl. Asiat. Rar. 3: 110. 1832 & in DC. Prodr. 9: 472. 1845; Wight, Icon. t.1549. 1850; FBI 4: 546; Rao 311; Gamble 750. *R. arnottiana* Wight, Icon. t.1550. 1850.

Erect shrubs 1-1.5 m tall. Leaves 9-15 x 2-3.5 cm, puberulous above, glabrous beneath, entire or obscurely serrate, lanceolate, acuminate at apex, cuneate at base. Flowers greenish-white.

Occasional in evergreen forests of Bonneccord and Ponmudi, Fl. & Fr.: Oct.-Jan.

#### Staurogyne Wall.

*Staurogyne zeylanica* (Nees) O.Kuntze, Rev. Gen. Pl. 497. 1891; Gamble 710. *Ebermaiera zeylanica* Nees in DC. Prodr. 11: 74. 1847; FBI 4: 397.

Procumbent herbs. Leaves 1.5-3 x 0.5-1.5 cm, hispid, oblanceolate, Flowers pinkish-white in terminal hispid spikes.

Fairly common in moist shaded areas of evergreen forests in Ponmudi, Fl. & Fr.: May.-Jul.

#### THUNBERGIAEAE van Tiegh.

##### *Thunbergia* Retz. nom. cons.

- |                         |                      |
|-------------------------|----------------------|
| 1. Petioles winged      | <i>T. alata</i>      |
| 1. Petioles not winged: |                      |
| 2. Climbing shrubs      | <i>T. mysorensis</i> |
| 2. Erect shrubs         | <i>T. erecta</i>     |

*Thunbergia alata* Bojer ex Sims, Bot. Mag. t.2591. 1825; FBI 4: 391; Gamble 708.

Twining shrubs with ovate, cordate or hastate leaves and yellow flowers.

Often grown in gardens. Sometimes found run wild. Fl. & Fr.: Oct.-Nov.

*Thunbergia erecta* (Benth.) T.And. in J. Linn. Soc. Bot. 7: 18. 1864; Bremek. in Verh. Kon. Ned. Akad. Inst. Wetensch. 50(4): 37. 1955; Gamble 708. *Meyenia erecta* Benth. in Hook. Niger Fl. 476. 1846.

Erect shrubs. Leaves elliptic-ovate. Flowers dark purple.

Often grown as hedges around gardens and cultivated lands.  
Fl. & Fr.: Aug.-Jan.

*Thunbergia mysorensis* (Wight) T. And. in J. Linn. Soc. Bot. 9: 448. 1867; FBI 4: 393; Rao 300; Gamble 708. *Hexacentris mysorensis* Wight, Icon. t. 871, 1845.

Climbing shrubs. Leaves 7-16 x 2-4 cm, glabrous, coriaceous, 3-ribbed, lanceolate, obscurely dentate, acuminate at apex, rounded at base. Flowers in pendulous racemes; sepals red, petals yellow.

Very rare along the margin of evergreen forests at Ponmudi.  
Fl. & Fr.: Nov.-Mar.

#### VERBENACEAE Jume St. Hill

1. Plants spinescent or prickly:
2. Flowers densely tomentose *Gmelina* (p. p.)
2. Flowers glabrous *Lantana*
1. Plants unarmed:
3. Prostrate herbs *Phyla*
3. Erect or climbing shrubs and trees:
4. Flowers in terminal spikes *Stachytarpheta*
4. Flowers in cymes:
5. Leaves 3-7-foliate *Vitex*
5. Leaves simple:
6. Each locule of the ovary 2-ovuled:
7. Trees *Callicarpa*
7. Climbing shrubs *Sphenodesme*
6. Each locule of the ovary 1-ovuled:
8. Calyx bladder like in fruits *Tectona*
8. Calyx not as above:
9. Throat of corolla woolly *Premna*
9. Throat of corolla not woolly:
10. Stamens exserted *Clerodendrum*
10. Stamens included *Gmelina* (p.p.)

**Callicarpa L.**

**Callicarpa tomentosa** (L.) Murray, Syst. Veg. ed. 13. 130. 1774; Moldenke in Feddes Report, 40: 106. 1936; Meeuse in Blumea 5: 71. 1942. *Tomex tomentosa* L. Sp. Pl. 118. 1753. *Callicarpa lanata* L. Mant. Alt. 331. 1771; Wight, Icon. t. 1480. 1849; FBI 4: 567; Rao 314; Gamble 764.

Trees 3-4 m tall; branches tomentose. Leaves 12-24 x 8.5-15 cm, grey tomentose along veins above, densely grey tomentose beneath, broadly ovate, acuminate at apex, rounded at base. Flowers violet, tomentose in axillary, corymbose cymes. Fruits black.

Frequent in evergreen forests of Ponmudi. Fl. & Fr.: Nov.-Mar. 'Cheruthekku'.

**Clerodendrum L.**

- |  |                     |
|--|---------------------|
| 1. Leaves glabrous                       | <i>C. inerme</i>    |
| 1. Leaves hairy:                         |                     |
| 2. Calyx lobes caudate-ecuminate at apex | <i>C. phlomidis</i> |
| 2. Calyx lobes not as above:             |                     |
| 3. Leaves cordate at base                | <i>C. viscosum</i>  |
| 3. Leaves cuneate at base                | <i>C. serratum</i>  |

**Clerodendrum inerme** (L.) Gaertn. Fruct. 1: 271. t. 75. 1788; FBI 4: 589; Rao 319; Gamble 769; Moldenke & Alma Moldenke in Dassanayake, Rev. Handb. Fl. Ceylon 4: 447. 1983. *Volkameria inermis* L. Sp. Pl. 899. 1753.

Erect or straggling shrubs. Leaves 3-4 x 1-2 cm, glabrous, ovate, subobtuse or acute at apex, cuneate at base. Flowers white in axillary cymes.

Common in coastal zone at Kovalam. Leaves used against external parasites. Fl. & Fr.: Nov.-Mar. 'Vishamadari'

**Clerodendrum phlomidis** L.f. Suppl. 292. 1781; Gamble 769, 'phlomoides'; Wight, Icon. t. 1473. 1849; FBI 4: 690; Rao 318. *C. multiflorum* (Burm.f.) O. Kuntze, Rev. Gen. Pl. 2: 506. 1891. non G. Don 1824. *Volkameria multiflora* Burm.f. Fl. Ind. 137. t. 45. f. 1. 1768.

Scandent shrubs; branchlets pubescent. Leaves 3.5-7.5 x 2.5-8 cm, ovate or deltoid, crenate, obtuse at apex, subcordate or truncate at base. Flowers pink in dichotomously branched paniculate axillary cymes. Fruits 4-lobed.

Occasional in deciduous forests of Neyyar. Fl. & Fr.: Nov.-Dec. 'Thiruthali'.

*Clerodendrum serratum* (L.) Moon, Cat. 46, no.382, 1824; Wight, Icon. t.1472, 1849; FBI 4: 592; Rao 318; Gamble 770; Moldenke & Alma Moldenke in Dassanayake, Rev. Handb. Fl. Ceylon 4: 417, 1983. *Volkameria serrata* L. Mant. Pl. 5: 90, 1767.

Erect shrubs 1-1.5 m tall. Leaves 14-22 x 3-7.5 cm, sparsely pubescent, dentate, oblanceolate, acute and apiculate at apex, cuneate at base. Flowers bluish-purple in terminal panicles. Drupes purple.

Frequent in exposed areas of secondary forests. Fl. & Fr.: Jul.-Oct. 'Cheruthekku'

*Clerodendrum viscosum* Vent. Jard. Majm. t.25, 1803; Sant. in Bull. Bot. Surv. India 3: 14, 1961(1962). *C. infortunatum* auct. non L. 1753; FBI 4: 694; Rao 319; Gamble 770.

Woody shrubs 3-4 m tall; branchlets pubescent. Leaves 10-28 x 9-19 cm, serrate, pubescent, ovate, acuminate at apex, cordate at base. Flowers white in terminal panicles. Drupes purple.

Abundant in the plains and exposed areas in low level forests. Fl. & Fr.: Aug.-Dec.

*Note:* Meeuse I.c. restricted *C. infortunatum* to Ceylon and included the Indian plant in *C. petasites* (Lour.) Moore. Merrill (Trans. Amer. Phil. Soc. n.s. 24: 338. 1935) pointed out that *C. petasites* is endemic to Indo-China. Subsequently, Santa-pau I.c. adopted *C. viscosum* Vent. as the correct name of Indian plant.

#### *Gmelina* L.

|                   |                    |
|-------------------|--------------------|
| Unarmed trees     | <i>G. arborea</i>  |
| Spinescent shrubs | <i>G. asiatica</i> |

*Gmelina arborea* Roxb, Pl. Cor. 3: 42. t.246. 1815; Wight, Icon.

t.1470. 1849; FBI 4: 581; Rao 316; Gamble 768; Moldenke & Alma Moldenke in Dassanayake, Rev. Handb. Fl. Ceylon 4: 390. 1983.

Trees 6-9 m tall. Leaves 10-18 x 6-12 cm, stellately fulvov-tomentose beneath, broadly ovate, acuminate at apex, cordate or truncate at base. Flowers brownish-yellow in pubescent panicles up to 25 cm long. Drupes orange yellow.

Rare in deciduous Forests. Roots medicinal. Wood used for furniture. Fl.: Mar.-Apr. Fr.: Nov.-Dec.

*Gmelina asiatica* L. Sp. Pl. 626. 1753; FBI 4: 582; Rao 316; Gamble 768; Moldenke & Alma Moldenke in Dassanayake, Rev. Handb. Fl. Ceylon 4: 394. 1983.

Spinescent shrubs, often straggling. Leaves 2.5-6.5 x 1.2-3.5 cm, glabrous or puberulous above, glaucous or tomentose beneath, ovate or orbicular, obtuse at apex, cuneate at base. Flowers yellow, densely golden-tomentose without, in racemes.

Common in coastal zone at Veli Hills. Fl. & Fr.: May-Jun. 'Cherukumuzhi'.

#### *Lantana* L.

*Lantana camara* L. Sp. Pl. 627. 1753 var. *aculeata* (L.) Moldenke in Torreya 34: 2. 1834. *L. aculeata* L. Sp. Pl. 627. 1753; Gamble 761. *L. camara* auct. non L. 1753; FBI 4: 562; Rao 313.

Erect shrubs 1-3 m tall. Leaves 6-9 x 2.5-5.5 cm, hirsute, dentate, ovate, acute or shortly acuminate at apex, rounded, truncate or slightly cordate at base. Flowers yellow, in axillary pedunculate umbels. Mature drupes black, globose.

A common weed in the disturbed areas of deciduous forests. Fl. & Fr.: Dec.-Jul. 'Poochedi'.

#### *Phyla* Lour.

*Phyla nodiflora* (L.) Greene in Pittonia 4: 46. 1899. *Verbena nodiflora* L. Sp. Pl. 20. 1753. *Lippia nodiflora* (L.) Michx. Fl. Bor. Amer. 2: 15. 1803; FBI 4: 563; Rao 313; Gamble 762.

Creeping herbs, rooting at nodes. Leaves 0.5-1.5 x 0.2-1.3 cm, sparsely pubescent, serrate, obovate, obtuse at apex, cuneate at base. Flowers white in spikes. Drupes globose.

Common in the sand strands of Veli. Fl. & Fr.: Jun.-Oct.  
•*Kattuthippali*.

*Premna L. nom. cons.*

*Premna glaberrima* Wight, Icon. t.1484. 1849; FBI 4: 677; Rao 315; Gamble 767; Henry et al. in J. Bombay Nat. Hist. Soc. 75: 693. 1978 (1979).

Climbing shrubs. Leaves 5.5-10 x 2-5 cm, glabrous, elliptic, acuminate at apex, obtuse at base. Flowers white in terminal corymbose cymes. Drupes globose.

Very rare in evergreen forests of Kallar. Fl. & Fr.: May.-Sep.

Note: A threatened plant (Henry et al., /c.) relocated.

*Sphenodesme* Jack.

*Sphenodesme paniculata* Clarke in Hook.f. Fl. Brit. India 4: 600. 1842; Rao 320; Gamble 773.

Scandent shrubs; branchlets rusty-villous. Leaves 5-12 x 3.5-7 cm, ovate or elliptic, acute at apex, narrowed at base. Flowers white, fragrant, in paniculate cymes; bracts foliaceous, emarginate at apex. Drupes globose or obovoid.

Rare in evergreen forests of Kallar and Pallode. Fl. & Fr.: Jan.-Feb.

*Stachytarpheta* Vahl *nom. cons.*

- |                                     |                       |
|-------------------------------------|-----------------------|
| 1. Spikes villous; flowers pink     | <i>S. mutabilis</i>   |
| 1. Spikes glabrous; flowers blue:   |                       |
| 2. Lateral nerves prominent beneath | <i>S. jamaicensis</i> |
| 2. Lateral nerves faint beneath     | <i>S. urticifolia</i> |

*Stachytarpheta jamaicensis* (L.) Vahl, Enum. Pl. 1: 206. 1804; FBI 4: 564; Moldenke & Alma Moldenke in Dassanayake, Rev. Handb. Fl. Ceylon 4: 253. 1983. *Verbena jamaicensis* L. Sp. Pl. 19. 1753. *Stachytarpheta indica* var. *jamaicensis* Vahl ex Trim. Cat. 68. 1885; Gamble 763.

Dichotomously branched herbs. Leaves 4-9 x 2-3.5 cm, serrate, ovate-oblong, acute at apex, tapering to base. Flowers bluish-purple, in terminal spikes.

Occasional in plains, Fl. & Fr.: Throughout the year.

*Stachytarpheta mutabilis* (Jacq.) Vahl, Enum. 1: 208. 1805; Gamble 76; Bor & Raizada in J. Bombay Nat. Hist. Soc. 43: 294. 1942; Moldenke & Alma Moldenke in Dassanayake, Rev. Handb. Fl. Ceylon 4: 248. 1983. *Verbena mutabilis* Jacq. Collect. 5(2): 334. 1788.

Shrubs 50-60 cm tall. Leaves 6-12 x 3-6 cm, pubescent, serrate ovate, acute at apex, cuneate at base. Flowers in excavations of terminal spikes.

Frequent in disturbed areas of ghats. Fl. & Fr.: May-Dec.

*Stachytarpheta urticifolia* (Salisb.) Sims in Bot. Mag. t.1848. 1816, 'urticaefolia'; Raizada in Indian Forester 92: 324. 1966. *Cymburus urticaefolius* Salisb. Parad. London 53. 1805-1807. *Stachytarpheta indica* auct. non (L.) Vahl 1804; FBI 4: 564; Rao 313; Gamble 763.

Erect shrubs 30-50 cm tall. Leaves 3.5-8.5 x 1.5-2 cm, puberulous above, pubescent beneath, serrate, ovate, acute at apex, cuneate at base. Flowers blue in terminal spikes.

Frequent in wastelands throughout the district. Fl. & Fr.: Aug.-Dec. 'Kadaladi'.

#### *Tectona* L.f. *nom. cons.*

*Tectona grandis* L.f. Suppl. Pl. 151. 1781; FBI 4: 570; Bourd. 283; Rao 314; Gamble 765; Moldenke & Alma Moldenke in Dassanasake, Rev. Handb. Fl. Ceylon 4: 304. 1983.

Deciduous trees 20-25 m tall. Leaves 30-60 x 15-25 cm, tomentose beneath, obovate, acute or obtuse at apex, narrowed at base. Flowers greenish-yellow in terminal panicles.

Occasional in deciduous forests. Extensively cultivated for its wood. Fl. & Fr.: Aug.-Mar. 'Thekku'

#### *Vitex* L.

- |  |                     |
|--|---------------------|
| 1. Leaflets densely grey pubescent beneath | <i>V. negundo</i>   |
| 1. Leaflets not as above:                  |                     |
| 2. Bracts foliaceous, persistent           | <i>V. pinnata</i>   |
| 2. Bracts not foliaceous, caducous         | <i>V. altissima</i> |

*Vitex altissima* L.f. Suppl. Pl. 294. 1781; Bedd. Fl. Sylv. t.252.

1872; FBI 4: 584; Bourd. 280; Rao 317; Gamble 772; Moldenke & Alma Moldenke in Dassanayake, Rev. Handb. Fl. Ceylon 4: 353, 1983.

Trees 6-9 m tall. Leaves trifoliolate or rarely 4-5-foliate; leaflets 6-16 x 2-4 cm, pubescent, elliptic, acuminate at apex, cuneate at base. Flowers pale blue in axillary and terminal, paniculate cymes. Fruits globose green.

Frequent in deciduous forests. Wood used for furniture. Fl. & Fr.: Apr.-Sep. '*Myila*'

*Vitex negundo* L. Sp. Pl. 638. 1753; Bedd. Fl. Sylv. t.71. 1870; FBI 4: 583; Bourd. 281; Rao 317; Gamble 771; Moldenke & Alma Moldenke in Dassanayake, Rev. Handb. Fl. Ceylon 4: 373, 1983.

Erect undershrubs 1.5-2 m tall. Leaves 3-5-foliate; terminal leaflets 6-11 x 1-2 cm, laterals 3-7 x 0.4-1.6 cm, all puberulous above, grey pubescent beneath, linear-elliptic, acuminate at apex. Flowers violet, grey pubescent in paniculate cymes.

Fairly common in deciduous forests. Used in hedges. Fl. & Fr.: Throughout the year.

*Note*: Townsend (Kew Bull. 27: 147-49, 1978) has segregated another species *V. pseudonegundo* which was hitherto sunk in this species. In *V. pseudonegundo* the inflorescence is more congested; calyx veined zig-zag and petiole short in central leaflets. Based on the colour of pubescence and floral parts, Sivarajan & Moldenke (Phytologia 28(4): 404, 1974) described a variety '*purpurascens*' our specimens fit with var. *negundo* only.

*Vitex pinnata* L. Sp. Pl. 638. 1753; Raizada in Indian Forester 92: 326. 1966; Moldenke & Alma Moldenke in Dassanayake, Rev. Handb. Fl. Ceylon 4: 361. 1983. *V. pubescens* Vahl, Symb. Bot. 3: 85. 1794, non Heyne 1829; Bedd. Fl. Sylv. t.71. 1870; FBI 4: 583; Bourd. 282; Rao 318; Gamble 772. *V. arborea* Roxb. Fl. Ind. 3: 73. 1832; Wight, Icon. t.1465. 1849.

Trees 8-12 m tall; stems pubescent. Leaves trifoliolate, sometimes 4-5-foliate, pubescent; terminal leaflets 11-20 x 5.5-9 cm, elliptic, acuminate at apex, acute at base; laterals 5-12 x 3-7 cm, elliptic. Flowers white in terminal paniculate cymes.

Frequent in semievergreen forests along streams. Fl. & Fr.: Jan.-Jun. '*Attamayil*'.

*Duranta repens* L. is a common hedge plant. *Petrea volubilis* L. is a beautiful climber found in Thiruvananthapuram Zoo.

A V I C E N N I A C E A E Endl. ex Schuizl.

*Avicennia* L.

*Avicennia officinalis* L. Sp. Pl. 110, 1753; FBI 4: 604; Bourd. 261; Rao 320; Gamble 774; Moldenke in Phytologia 15: 477. 1968.

Trees 7-9 m tall; branchlets pubescent. Leaves 3.5-7.5 x 2-3.5 cm, pubescent beneath, ovate, elliptic or obovate, obtuse at apex, acute at base. Flowers pale yellow in axillary cymes. Capsules ca. 2.5 cm long, pale yellow, obliquely ovoid.

Rare in tidal mangroves in the coastal zone at Veli.  
Fl. & Fr.: Apr.-Jun.

L A M I A C E A E Juss.

1. Styles entire; stigma capitate or clavate *Orthosiphon*
1. Styles bifid; stigma bifid (upper lobes obsolete in *Leucas*):

  2. Filaments appendaged or hairy at base:
    3. Calyx 2-lipped *Ocimum*
    3. Calyx equally 5-lobed :
      4. Flowers usually in axillary cymes *Gomphostemma*
      4. Flowers in terminal racemules *Pogostemon*
  2. Filaments not appendaged, glabrous:
    5. Calyx 10-ribbed *Leucas*
    5. Calyx not as above:
      6. Calyx equally or subequally 5-lobed:
        7. Upper anthers 2-loculed; lower 1-loculed, locule transverse *Anisomeles*
        7. All anthers 2-loculed; locules confluent *Hyptis*
      6. Calyx 2-lipped:

|                                     |                     |
|-------------------------------------|---------------------|
| 8. Ovary stalked with a gynophore   | <i>Scutellaria</i>  |
| 8. Ovary sessile:                   |                     |
| 9. Lower lip of the corolla toothed | <i>Acrocephalus</i> |
| 9. Lower lip of the corolla entire: |                     |
| 10. Corolla red, glandular          | <i>Anisochilus</i>  |
| 10. Corolla not red, eglandular     | <i>Plectranthus</i> |

*Acrocephalus* Benth.

*Acrocephalus hispidus* (L.) Nicolson & Sivadasan in Taxon 29: 24. 1980, *Gomphandra hispida* L. Sp. Pl. ed. 2, 326. 1762, *Acrocephalus indicus* (Burm.f.) O. Kuntze, Rev. Gen. Pl. 511. 1891; FBI 4: 611; Gamble 780; Keng in Gard. Bull. Straits Settlem. 24: 26. 1969, *Prunella indica* Burm.f. Fl. Ind. 130. 1768.

Erect herbs 30-45 cm tall. Leaves 1.5-3.5 x 0.4-1.3 cm, sparsely pubescent, serrate, ovate or lanceolate, acute at apex, cuneate at base. Flowers pale purple in terminal heads.

Common throughout the cultivated fields in the midland zone.  
Fl. & Fr.: Sept.-Dec.

*Anisochilus* Wall.

*Anisochilus carnosus* (L.f.) Wall. Pl. Asiat. Rar. 2: 18. 1831; FBI 4: 627; Rao 325; Gamble 788; Mukerjee in Rec. Bot. Surv. India 14(1): 55. 1940, *Lavandula carnosa* L.f. Suppl. Pl. 213. 1781.

Erect herbs 30-50 cm tall; stems tetragonal, hispid. Leaves 2-5 x 1.4-4 cm, fleshy, tomentose, crenate, ovate, obtuse at apex, truncate at base; petioles 5-6 cm long. Flowers purple in terminal spikes up to 5 cm long.

Fairly common in plains and in moist deciduous forests.  
Fl. & Fr.: Dec.-Jan. 'Karpuravalli'.

*Anisomeles* R.Br.,

*Anisomeles indica* (L.) O.Kuntze, Rev. Gen. Pl. 512. 1891; Gamble 797; Keng in Gard. Bull. Straits Settlem. 24: 54. 1969, *Nepeta indica* L. Sp. Pl. 571. 1753. *Anisomeles ovata* R.Br. in Ait.f. Hort. Kew. 3: 364. 1811; Wight, Icon. t.865. 1844; FBI 4: 672; Rao 325.

Perennial herbs up to 1 m tall; stems angular, pubescent. Leaves 2-7.5 x 1.5-5 cm, pubescent, crenate, ovate, obtuse at apex, truncate at base. Flowers white with pink spots on the lower lips, in sessile cymes.

Fairly common in wastelands in plains. Used in local medicine. Fl. & Fr.: Nov.-Jan.

**Comphostemma Wall. ex Benth.**

**Comphostemma eriocarpum** Benth. in Wall. Pl. Asiat. Rar. 2: 12. 1831; Mukerjee in Rec. Bot. Surv. India 14(1): 210. 1940; FBI 4: 698; Rao 327; Gamble 808. *G. oblongum* sensu Wight, Icon. t. 1547. 1850 non Wall. ex Benth. 1831.

Erect shrubs up to 1 m tall; stems stellate pubescent. Leaves 11-18 x 3-6 cm, sparsely stellate above, densely stellate tomentose beneath, acute at apex, cuneate at base. Flowers yellow in axillary cymes; calyx lobes subulate, pubescent; corolla tomentose without.

Scarce in the undergrowth of evergreen forests of Agastyarkudum towards the edges of grasslands. Fl. & Fr.: May-Nov.

**Hyptis Jacq. nom. cons.**

**Hyptis suaveolens** (L.) Poit. in Ann. Mus. Hist. Nat. 7: 472. t. 29. f.2. 1806; FBI 4: 630; Gamble 789; Keng in Gard. Bull. Straits Settlem. 24: 96. 1969. *Ballota suaveolens* L. Syst. Nat. ed.10. 1100. 1759.

Erect aromatic herbs 30-50 cm tall. Stems tetragonal. Leaves densely pubescent, denticulate, ovate, acute at apex, truncate at base. Flowers purple in axillary cymes or fascicles.

Abundant in wastelands and cultivated fields of plains. The juice of leaves used to heal wounds. Fl. & Fr.: Nov.-Mar.

**Leucas R.Br.**

- |    |   |                   |
|----|---|-------------------|
| 1  | Verticillaster not more than 4-flowered<br>on either side | <i>L. biflora</i> |
| 1. | Verticillaster more than 4-flowered on<br>either side :   |                   |

- 2. Calyx tube glabrous in the lower half,  
hairy on the upper half *L. aspera*
- 2. Calyx tube similar on both upper and  
lower halves, either glabrous or hairy:
  - 3. Calyx throat glabrous:
    - 4. One of the calyx teeth longer than the rest *L. indica*
    - 4. Calyx teeth all uniform *L. zeylanica*
  - 3. Calyx throat villous:
    - 5. Calyx teeth up to 4 mm long, ciliate. *L. ciliata*
    - 5. Calyx teeth less than 2 mm long, not ciliate:
      - 6. Leaves less than 2.5 cm broad *L. vestita*
      - 6. Leaves more than 3 cm broad *L. hirta*

*Leucas aspera* (Willd.) Link, Enum. Pl. Hort. Berol 2: 113. 1822; FBI 4: 690. 1885; Mukerjee in Rec. Bot. Surv. India 14: 166. 1940; Gamble 803; Rao 326. *Phlomis aspera* Willd. in Link, Eunm. Pl. Hort. Berol. 2: 621. 1822.

Erect herbs 20-35 cm tall. Leaves 2-7 x 0.4-1.2 cm, pubescent, distantly serrate, linear-lanceolate, acute at apex, cuneate at base. Flowers white in axillary whorls.

Fairly common in the plains. Fl. & Fr.: Jun.-Nov. 'Thumba'.

*Leucas biflora* (Vahl) R.Br. Prodr. 504. 1890; Mukerjee in Rec. Bot. Surv. India 14: 180. 1940; FBI 4: 683; Rao 326; Gamble 804; Wight, Icon. t.866. 1845. *Phlomis biflora* Vahl, Symb. Bot. 3: 77. 1794.

Decumbent herbs. Leaves 1-2.2 x 0.4-1.3 cm, pubescent, crenate, ovate, acute at apex, cuneate or truncate at base. Flowers white, sessile. Seeds trigonous.

Frequent in the plains in wastelands. Fl. & Fr.: Nov.-Dec.

*Leucas ciliata* Benth. in Wall, Pl. Asiat. Rar. 1: 61. 1830; Wight, Icon. t.1465. 1849; FBI 4: 685; Gamble 806.

Erect herbs up to 25 cm tall. Leaves 2.5-8 x 1.3-3 cm, serrate pubescent, ovate-lanceolate, acute at apex, cuneate at base. Flowers

white, many in terminal verticillasters of 4.5 cm in diam., upper lip of the corolla with rufous hairs.

Rare on the exposed rocky slopes in Ponmudi. Fl. & Fr.: Aug.-Jan.

*Leucas hirta* (Heyne ex Roth) Spreng. Syst. 2: 743. 1825; FBI 4: 686; Rao 326; Gamble 806. *Phlomis hirta* Heyne ex Roth, Nov. Pl. Sp. 264. 1821.

Undershrubs with woody rootstocks. Leaves 2.5-7 x 1.5-2.5 cm, narrowly oblong, pubescent, shallowly crenate, subobtuse at apex, narrowed at base. Flowers white in 2-3 terminal whorls.

Occasional in grassy slopes of Ponmudi. Fl. & Fr.: Nov.-Feb.

*Leucas indica* (L.) R. Br. ex Vatke, Oesterr. Bot. Z. 25: 95. 1875. *Leonurus indicus* L. Syst. Nat. ed. 10, 1101. 1760. *Leucas lavan-dulifolia* J.E. Sm. in Rees, Cyclop. 20: No.2. 1812, 'lavandulæ-folia'; Keng in Gard. Bull. Straits Settlem. 24: 103. 1969. *Phlo-mis linitolia* Roth, Nov. Pl. Sp. 260. 1821. *Leucas linitolia* (Roth) Spreng. Syst. 2: 743. 1825; FBI 4: 690; Rao 327; Gamble 863.

Erect herbs 15-20 cm tall. Leaves 3-5.5 x 0.4-1 cm, pubescent, serrate, linear-oblong, acuminate at apex, cuneate at base. Flowers white, many, in terminal verticillasters.

Fairy common in wastelands of plains. Fl. & Fr.: Aug. 'Rudrapushpam'

*Leucas vestita* Benth. in Wall. Pl. Asiat. Rar. 1: 61. 1830; Mukerjee in Rec. Bot. Surv. India 14: 175. 1940; FBI 4: 686; Gamble 803; Wight, Icon. t.338. 1840.

Erect herbs 25-45 cm tall. Leaves 3-7 x 1.5-3 cm, hirsute, crenate, ovate, acute at apex, obtuse or cuneate at base. Flowers white, many, in terminal verticillasters.

Rare; confined to the exposed rocky slopes of hill top evergreen forests above 1300 m, Fl. & Fr.: May-Nov.

*Leucas zeylanica* (L.) R.Br. Prodr. 604. 1810; Benth. in Wall. Pl. Asiat. Rar. 1: 60. 1830; Wight, III. 1: t.176. 1840; FBI 4: 689; Gamble 803. *Phlomis zeylanica* L. Sp. Pl. 820. 1753.

Annual herbs 30-50 cm tall; stems hispidulous. Leaves 3-7 x 0.5-

1.5 cm, minutely serrate, hispidulous, ovate-lanceolate, acute at apex, cuneate at base. Flowers white, sessile, in terminal 6-8-fid whorls.

Frequent in moist deciduous forests at low elevations. Fl. & Fr.: Oct.-Dec.

**Ocimum L.**

|                              |                     |
|------------------------------|---------------------|
| Posterior filaments hairy    | <i>O. basilicum</i> |
| Posterior filaments glabrous | <i>O. canum</i>     |

**Ocimum basilicum** L. Sp. Pl. 597. 1753; FBI 4: 608; Rao 321; Gamble 777. *O. americanum* L. Cent. Pl. 15. 1755.

|                   |                          |
|-------------------|--------------------------|
| Plants purple     | var. <i>purpurascens</i> |
| Plants not purple | var. <i>pilosum</i>      |

**O. basilicum** L. var. *pilosum* (Willd.) Benth. Lab. Gen. Sp. 5, 1832; Gamble 777. *O. pilosum* Willd. in Link, Enum. Hort. Berol. 2: 629. 1822.

Erect herbs up to 1 m tall. Leaves 1.5-3.3 x 0.4-1.2 cm, serrulate, sparsely hairy, oblong, obtuse at both ends. Flowers white.

Cultivated near temples. Leaves used for skin diseases, Fl. & Fr.: Aug.-Dec. '*Ramathulasi*'.

**Ocimum basilicum** L. var. *purpurascens* Benth. Labiat. Gen. Sp. 5. 1832; Gamble 777.

Erect herbs 1-2 m tall. Leaves 2-4 x 0.5-1.5 cm, serrate, ovate-lanceolate, acuminate at apex, narrowed at base. Flowers white, in simple racemes.

Frequent in wastelands of the plains. Fl. & Fr.: Almost throughout the year.

**Ocimum canum** Sims in Bot. Mag. 51: t.2452. 1824; FBI 4: 607; Rao 320; Gamble 777; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 114. 1981. *O. americanum* auct. non L. 1755.

Erect undershrubs 40-60 cm tall. Leaves 1.5-5.5 x 0.3-1.5 cm, entire or obscurely serrate, pubescent, ovate, acute at both ends. Flowers white in racemes up to 14 cm long.

Frequent in wastelands of the plains. Leaves used in local medicine. Fl. & Fr.: Throughout the year. '*Kattuthulasi*.

**Orthosiphon** Benth.

**Orthosiphon thymiflorum** (Roth) Sleesen in Reinwardtia 5: 42 1959. *Ocimum thymiflorum* Roth, Nov. Pl. Sp. 269, 1821. *Orthosiphon tomentosus* Benth. in Wall. Pl. Asiat. Rar. 2: 14, 1831; FBI 4: 613; Rao 322; Gamble 779. *O. glabratus* Benth. in Wall. Pl. Asiat. Rar. 2: 14. 1831; Rao 322.

Erect shrubs 70-90 cm tall. Leaves 2.5-8 x 1.3-5.5 cm, puberulous on both surfaces, broadly ovate, dentate, acute at apex, truncate or slightly cordate at base. Flowers purple in terminal racemes.

Common in deciduous forests at low elevations and throughout plains. Fl. & Fr.: Jan.-Apr.

**Plectranthus** L. Herit.

**Note:** There was much dispute on the generic delimits of *Coleus-Plectranthus* complex. Bentham (Labiat. Gen. Sp. 29-58, 1832) separated *Coleus* Lour. from *Plectranthus* L. Herit. on the basis of the fused bases of stamens. Morton (J. Linn. Soc. Bot. 58: 231-283, 1962) strongly advocated the transference of *Coleus* to *Plectranthus*. Cramer (Kew Bull. 32: 551-591, 1977 & in Dassanayake, Rev. Handb. Fl. Ceylon 3: 145, 1981) however, did not agree with Morton and treated *Coleus* distinct. Willemse (Blumea 25: 501-511, 1979), after a thorough examination of Asian and African *Coleus* transferred most of the *Coleus* spp. to *Plectranthus*. Also, he did not favour the elevation of *Rabdosia* (Blume) Hassk. to generic level. Willemse's treatment is followed.

Filaments cannae

*P. malabaricus*

Filaments free

*P. wightii*

**Plectranthus malabaricus** (Benth.) Willemse in Blumea 25: 509, 1979. *Coleus malabaricus* Benth. in Wall. Pl. Asiat. Rar. 2: 16, 1831; FBI 4: 626; Gamble 786; Cramer in Kew Bull. 32: 555, 1978 & in Dassanayake, Rev. Handb. Fl. Ceylon 3: 145, 1981.

Herbs 50-75 cm tall. Leaves 5.6-15 x 3.5-12 cm, membranous, ovate, acuminate at apex, cordate at base. Flowers white with purple tinge in panicles.

Fairly common in moist areas of evergreen forests of Kallar.  
Fl. & Fr.: Jul.-Aug.

**Plectranthus wightii** Benth. in Labiat. Gen. Sp. 41. 1832; Wight, Icon. t.1429. 1849; FBI 4: 619; Rao 322; Gamble 784; Mukerjee in Rec. Bot. Surv. India 14: 42. 1940. *Rabdosia wightii* (Benth.) Hara in J. Jap. Bot. 47: 203. 1972.

Erect herbs 30-60 cm tall. Leaves 5-10 x 2.5-4 cm, crenate, hispid, ovate, acute at apex, truncate at base. Flowers white in terminal panicles.

Common in the grassy slopes of Adhirumalai and Ponmudi.  
Fl. & Fr.: Oct.-Jan.

**Pogostemon Desf.**

1. Leaves puberulous or nearly glabrous on the upper surface:  
  2. Petiole more than 7 cm long *P. heyneanus*
  2. Petiole less than 7 cm long:  
    3. Flowers reflexed; plants black when dry *P. travancoricus*
    3. Flowers not as above, plants not black when dry *P. pubescens*
  1. Leaves densely pubescent on both the surfaces:  
    4. Fruiting calyx villous; plants woody at base *P. mollis*
    4. Fruiting calyx ciliate or nearly glabrous; plants herbaceous:  
      5. Bracts linear *P. wightii*
      5. Bracts ovate or ovate-lanceolate:  
        6. Leaves in unequal pairs; flower clusters one sided in the rachis *P. paniculatus*
        6. Leaves in equal pairs; flower clusters not as above:  
          7. Calyx ca. 0.5 cm long, not enlarged in fruit *P. purpurascens*
          7. Calyx ca. 0.3 cm long, enlarged in fruit *P. auricularius*

**Pogostemon auricularius** (L.) Hassk. *Tijdschr. Naturl. Gesch. Physiol.* 10: 127. 1843; El-Gazzar & Watson in *Taxon* 16(3): 188. 1967; Cramer in Dassanayake, *Rev. Handb. Fl. Ceylon* 3: 172. 1981, *Mentha auricularia* L. Mant. Pl. 81. 1767. *Dysophylla auricularia* (L.) Blume, *Bijdr.* 825. 1826; Wight, *Icon.* t.1445. 1849; FBI 4: 638; Rao 324; Gamble 794.

Erect or decumbent herbs 35-50 cm tall; stems pubescent. Leaves 2-5.2 x 1-2 cm, crenate, ovate, acute at apex, obtuse at base. Flowers white in terminal spikes.

Frequent along water courses in low level evergreen forests below Ponmudi. Fl. & Fr.: Oct.-Jut.

**Note:** There was much dispute among taxonomists (Keng & Steenis, *Taxon* 19: 280. 1970; Airy Shaw, *Taxon* 16. 189. 1967; Bhak. & Steenis, *Taxon* 17: 235. 1968) regarding the generic delimits of *Pogostemon* Desf. and *Dysophylla* Blume. El-Gazzar and Watson *f.c.* transferred four species of *Dysophylla* to *Pogostemon* including the type species *D. auricularia* (L.) Hassk, and redefined the circumscription of these two genera.

**Pogostemon heyneanus** Benth. in *Wall. Pl. Asiat. Rar.* 1: 31. 1830; Wight, *Icon.* t.1440. 1849; Mukerjee in *Rec. Bot. Surv. India* 14: 71. 1940; Gamble 792; Cramer in Dassanayake, *Rev. Handb. Fl. Ceylon* 3: 171. 1981. *P. patchaulti* sensu Hook.f. *Fl. Brit. India* 4: 653. 1885, non Pellet. 1844; Rao 324.

Erect shrubs 30-60 cm tall. Leaves 3.5-12 x 1.5-6.5 cm, tomentose beneath, ovate, crenate, acute at apex, cuneate at base; petioles up to 8 cm long. Flowers greenish-white in axillary and terminal panicles.

Frequent in moist deciduous forests. Fl. & Fr.: Oct.-Jan.

**Pogostemon mollis** Benth. *Lab. Gen. Sp. Pl.* 155. 1833; Wight, *Icon.* t.1441. 1849; FBI 4: 635; Rao 324; Gamble 793.

Woody undershrubs 30-50 cm tall. Leaves 2-3.5 x 1-3 cm, serrate, ovate, acute at apex, truncate at base. Flowers white in simple hispid racemes up to 6 cm long.

Frequent in exposed areas of Ponmudi. Fl. & Fr.: Oct.-Feb.

**Pogostemon paniculatus** (Willd.) Benth. in *Wall. Pl. Asiat. Rar.* 1: 30. 1830; Mukerjee in *Rec. Bot. Surv. India* 14: 68. 1940;

Gamble 793; FBI 4: 631; Rao 323, *Elsholtzia paniculata* Willd. Sp. Pl. 3: 59, 1800.

Erect shrubs 50-100 cm tall; stems pubescent. Leaves 5-14 x 2-7 cm, crenate, ovate, acuminate at apex, cuneate at base. Flowers greenish, second in panicles.

Frequent in the undergrowth of evergreen forests at Ponmudi and Bonecord. Fl. & Fr.: Sept.-Feb.

**Pogostemon pubescens** Benth. in DC. Prodr. 12: 152, 1848; Mukerjee in Rec. Bot. Surv. India 14: 69, 1940; Gamble 793, *P. parviflorus* Benth. in Wall. Pl. Asiat. Rar. 1: 30, 1930 p.p.; FBI 4: 632.

Erect shrubs up to 1 m tall. Leaves 2-9 x 0.9-3.5 cm, crenate, serrate, ovate, acute at apex, cuneate at base. Flowers pinkish white in axillary and terminal spikes.

Frequent in the undergrowth of evergreen forests at Ponmudi Fl. & Fr.: Aug.-Mar.

**Pogostemon purpurascens** Dalz. in Hooker's J. Bot. Kew Gard. Misc. 2: 337, 1850; FBI 4: 632; Rao 324; Mukerjee in Rec. Bot. Surv. India 14: 71, 1940; Gamble 793,

Erect shrubs up to 1 m tall. Leaves 3-7 x 1-3 cm, crenate-serrate, ovate-lanceolate, acute at apex, cuneate at base. Flowers blue in axillary pubescent spikes.

Frequent in evergreen forests at exposed areas. Fl. & Fr.: Aug.-Feb.

**Pogostemon travancoricus** Bedd. Icon. t.159. 1868-1874; FBI 4: 637; Mukerjee in Rec. Bot. Surv. India 14: 76, 1940; Rao 324; Gamble 794; Mohanan & Henry in Bull. Bot. Surv. India 22: 236, 1980.

Erect undershrubs 50-70 cm tall. Leaves 4-12.5 x 2-5 cm, ovate, double-serrate, acute at apex, cuneate at base. Flowers violet in racemes up to 9 cm long.

Very rare in exposed areas in Agastyarkudum. Fl. & Fr.: Jan.-Mar.

**Pogostemon wightii** Benth. Labiat. Gen. Sp. 156, 1833; FBI 4: 635; Rao 324; Gamble 793. *P. petiolaris* Benth. in DC. Prodr. 12:

154. 1848. *P. hirsutus* sensu Wight, Icon. t.1442. 1849, non Benth. 1833.

Erect hispid shrubs up to 1 m tall; stems 4-angled. Leaves 2-3.5x 1-2 cm, incised, ovate, acute at apex, cuneate or rounded at base. Flowers pinkish in simple spikes up to 10 cm long.

Frequent in moist deciduous forests. Fl. & Fr.: Aug.-Feb.

#### *Scutellaria* L.

*Scutellaria violacea* Heyne ex Benth. In Wall. Pl. Asiat. Rar. 1: 66. 1830; FBI 4: 668; Mukerjee in Rec. Bot. Surv. India 14(1): 145. 1940; Gamble 798; Cramer in Dassanayake, Rev. Handb. Fl. Ceylon 3: 158. 1981.

Decumbent, pubescent herbs. Leaves 1.5-4 x 0.6-2.5 cm, crenate-serrate, ovate, acute at apex, cordate or rounded at base. Flowers pink in terminal racemes.

Occasional in shady, moist areas of sholas. Fl. & Fr.: Throughout the year.

#### NYCTAGINACEAE Juss.

1. Erect or procumbent herbs:

- |   |                  |
|---|------------------|
| 2. Flowers ca. 5 cm long, showy               | <i>Mirabilis</i> |
| 2. Flowers not more than 5 mm long, not showy | <i>Boerhavia</i> |

1. Climbing shrubs or trees:

- |  |                       |
|--|-----------------------|
| 3. Thorny climbing shrubs with petaloid bracts | <i>Bougainvillea*</i> |
| 3. Unarmed trees without petaloid bracts       | <i>Pisonia*</i>       |

#### *Boerhavia* L.

- |                   |                   |
|-------------------|-------------------|
| Fruits glandular  | <i>B. erecta</i>  |
| Fruits eglandular | <i>B. diffusa</i> |

*Boerhavia diffusa* L. Sp. Pl. 3. 1753; FBI 4: 709; Gamble 814. *B. procumbens* Banks ex Roxb. Fl. Ind. 1: 148. 1820 nom. illeg. Wight, Icon. t.874. 1844-1845.

Decumbent herbs. Leaves 1-6.5 x 0.8-3.5 cm, scabrid, ovate,

obtuse or mucronate at apex, rounded or truncate at base. Flowers pinkish in cymes at the ends of branches.

Abundant in the plains in wastelands. Fl. & Fr.: Jun.-Dec., '*Thamizhama*'.

*Boerhavia erecta* L. Sp. Pl. 3. 1753; Nair in Bull. Bot. Surv. India 9: 1967. *B. punarnava* Saha & Krishnamurthy in J. Sci. Indust. Res. 210: 249. 1962; Nair & Nair in J. Bombay Nat. Hist. Soc. 61: 216-217. 1964.

Erect herbs 30-40 cm tall. Leaves 2.5-4 x 0.5-1.6 cm, crenate, puberulous, ovate-lanceolate, acuminate at apex, acute at base. Flowers reddish in terminal branched cymes.

Frequent along railway tracks in the coastal zone. Fl. & Fr.: Aug.-Dec.

#### *Mirabilis* L.

*Mirabilis jalapa* L. Sp. Pl. 177. 1753; Gamble 815.

Herbs. Leaves ovate-lanceolate. Flowers crimson coloured.

An escape from garden; abundant in wastelands.

\**Pisonia morindifolia* R.Br. and different varieties of *Bougainvillea spectabilis* Willd. are cultivated in gardens.

#### A M A R A N T H A C E A E Juss.

1. Leaves opposite:

  2. Flowers unisexual *Amaranthus*
  2. Flowers bisexual:
    3. Flowers in long terminal spikes :
      4. Bracts and bracteoles spinescent, winged at base *Achyranthes*
      4. Bracts and bracteoles not as above *Cyathula*
    3. Flowers in axillary or terminal heads:
      5. Sepals pilose without *Gomphrena*
      5. Sepals glabrous without *Alternanthera*
  1. Leaves alternate (sometimes fascicled in *Aerva*):

6. Flowers in dense axillary spikes *Aerva*  
 6. Flowers in terminal or leaf-opposed heads *Allmania*

*Achyranthes L.*

*Achyranthes aspera* L. Sp. Pl. 204. 1753; Wight, Icon. t. 1777. 1852; Moq. in DC. Prodr. 314. 1849; FBI 4: 730; Rao 331; Gamble 823; Townsend in Dassanayake, Rev. Handb. Fl. Ceylon 1: 38. 1980.

Erect herbs ca. 0.5 m tall. Leaves 2-6 x 1-3.5 cm. pubescent, obovate, mucronate at apex, cuneate at base. Flowers greenish-white in terminal spikes.

Common in wastelands and cultivated fields. Leaves and roots medicinal. Fl. & Fr.: Nov.-May.

*Aerva* Forsk. *nom. cons.*

Spikes all axillary, flowers bisexual *A. lanata*

Spikes mostly terminal, flowers unisexual *A. Persica*

*Aerva persica* (Burm.f.) Merr. in Philipp. J. Sci. 19: 348. 1928; Bhandari, Fl. Ind. Desert 320. 1978. *Iresine persica* Burm.f. Fl. Ind. 212. 1768. *Aerva javanica* (Burm.f.) Juss. ex Schultes in Roem. & Schultes, Syst. 5: 565. 1819; Wight Icon. t. 876, 1844-1845, FBI 4: 727. *Iresine javanica* Burm.f. Fl. Ind. 218. 1768. *Aerva tomentosa* Forssk. Fl. Aeg.-Arab. 122, 727. 1775; Gamble 824.

Herbs, dioecious, 75-100 cm tall. Leaves sessile, tomentose, yellowish, narrow-linear to suborbicular. Flowers white, in axillary spikes.

Occaional in grasslands in plains. Fl. & Fr.: Sept.-Dec.

*Aerva lanata* (L.) Juss. ex Schult. Syst. Veg. ed. 15, 5: 564. 1819; FBI 4: 728; Rao 331; Gamble 825; Townsend in Dassanayake, Rev. Handb. Fl. Ceylon 1: 52. 1980. *Achyranthes lanata* L. Sp. Pl. 204. 1753.

Prostrate herbs. Leaves 1.5-2 x 0.5-1.2 cm, sparsely pubescent beneath, ovate, elliptic or suborbicular, obtuse at apex, cuneate at base. Flowers white in axillary heads.

Common in the sandy areas of the coast. Plants medicinal Fl. & Fr.: Apr.-Jul. 'Cherupula'

*Allmania R. Br. ex Wight*

*Allmania nodiflora* (L.) R. Br. ex Hook.f. Fl. Brit. India 4: 716, 1885.

1. Heads sessile or subsessile :
2. Leaves linear-lanceolate var. *nodiflora*
2. Leaves oblanceolate var. *aspera*
1. Heads pedunculate var. *longipedunculata*

*Allmania nodiflora* (L.) R. Br. ex Hook.f. Fl. Brit. India 4: 716, 1885 var. *nodiflora*; Wight, Icon. t. 1771, 1852; Rao 322; Gamble 817. *Celosia nodiflora* L. Sp. Pl. 204, 1753; Townsend in Dassanayake, Rev. Handb. Fl. Ceylon 1: 7, 1980.

Diffuse branched herbs. Leaves 1.2-5 x 0.2-3 cm, linear-lanceolate, mucronate, attenuate at base. Flowers white on sessile or subsessile axillary heads,

Frequent in the sandy coast of Veli. Fl. & Fr.: Oct.-Dec.

*Allmania nodiflora* (L.) R. Br. ex Hook.f. var. *aspera* (Wight) Hook.f. Fl. Brit. India 4: 716, 1885; Gamble 818. *Chamissoa aspera* Wight, Icon. t. 1772, 1852.

Erect herbs 6-8 cm tall. Leaves 1.3-2.5 x 0.3-0.4 cm, pubescent, oblanceolate, acute at apex. Flowers red in axillary heads.

Very rare near backwaters of Vellayani. Fl. & Fr.: Oct.-Dec.

*Allmania nodiflora* (L.) R. Br. ex Hook.f. var. *longipedunculata* Trim, Handb. Fl. Ceylon 3: 394, 1895. *A. longipedunculata* (Trim.) Gamble, Fl. Pres. Madras 116B, 1921 & 818, 1957 (repr. ed.).

Erect or procumbent herbs 30-40 cm tall. Leaves 2-6 x 1-3.5 cm, sparsely hairy beneath, spatulate, obtuse at apex, cuneate at base. Flowers greenish in leaf opposed heads.

Frequent along the coast of Veli in sand strands. Fl. & Fr.: Nov.-Jan.

Note: Backer (in Steenis, Fl. Malesiana ser. 1, 75: 1949) commented that the above mentioned varieties existed only in paper and that he had never seen a specimen with completely sessile heads. However, plants with distinctly pedicelled heads as well as sessile ones were found in this district and hence the above treatment.

*Alternanthera* Foresk.

*Alternanthera sessilis* (L.) DC. Cat. Hort. Monsp. 77. 1813; FBI 4: 731; Townsend in Dassanayake, Rev. Handb. Fl. Ceylon 1: 49. 1980. *Gomphrena sessilis* L. Sp. Pl. 225. 1753. *Alternanthera triandra* Lam. Encycl. 1: 95. 1783; Gamble 825.

Prostrate or procumbent herbs. Leaves 1.5-3.5 x 0.5-1.3 cm, glabrous, shortly petioled, obovate, obtuse at apex, cuneate at base. Flowers white in axillary heads.

Frequent in marshy areas. Leaves used for preparation of hair oil. Fl. & Fr.: Almost throughout the year.

*Amaranthus* L.

|                       |                    |
|-----------------------|--------------------|
| Plants spinescent     | <i>A. spinosus</i> |
| Plants not spinescent | <i>A. viridis</i>  |

*Amaranthus spinosus* L. Sp. Pl. 991. 1753; Wight, Icon. t.513. 1841; FBI 4: 718; Rao 329; Gamble 819; Backer in Steenis, Fl. Malesiana ser.1, 4: 78. 1949; Townsend in Dassanayake, Rev. Handb. Fl. Ceylon 1: 9. 1980.

Erect herbs 40-100 cm tall. Leaves 4-11 x 2-3.5 cm, ovate or oblong-lanceolate, acute at apex, narrowed at base. Flowers green in terminal spikes.

Fairly common in wastelands in the plains. Fl. & Fr.: Sept.-Dec. 'Kattumullenkeera'.

*Amaranthus viridis* L. Sp. Pl. ed.2, 1405. 1763; FBI 4: 720; Rao 330; Gamble 820; Townsend in Dassanayake, Rev. Handb. Fl. Ceylon 1: 19. 1980. *A. fasciatus* Roxb. Fl. Ind. 3: 609. 1832; Wight, Icon. t.717. 1843. *A. gracilis* Desf. Tabl. Ec. Bot. 43. 1804; Backer in Steenis, Fl. Malesiana ser.1, 4: 76. 1949.

Erect herbs 40-75 cm tall. Leaves 3-8.5 x 2-6 cm, ovate-lanceolate, obtuse or emarginate at apex, truncate or cuneate at base. Flowers green in slender terminal and axillary paniculate spikes.

Abundant in wastelands and along roadsides. Fl. & Fr.: Aug.-Dec.

*Cyathula* Blume *nom. cons.*

*Cyathula prostrata* (L.) Blume, Bijdr. 549, 1825; FBI 4: 723; Rao 330; Gamble 820; Townsend in Dassanayake, Rev. Handb. Fl. Ceylon 1: 26, 1980, *Achyranthes prostrata* L. Sp. Pl. ed. 2, 296, 1762.

Procumbent herbs. Leaves 2-4 x 1-2.5 cm, sparsely pubescent, ovate or elliptic, acute at apex, rounded or cuneate at base. Flowers white in terminal spikes.

A common weed of cultivated lands. Fl. & Fr.: Sept.-Nov.

*Gomphrena* L.

*Gomphrena celosioides* Mart. in Nov. Act. Phys. Med. Acad. Caes. Leop. Carol. Nat. Cur. 13: 301, 1826; Back. in Steenis, Fl. Malesiana ser. 1, 4(2): 96, 1949; Townsend in Dassanayake, Rev. Handb. Fl. Ceylon 1: 53, 1980. *G. decumbens* sensu Gamble, Fl. Pres. Madras 1179, 1925 & 825, 1957 (repr. ed.), non Jacq. 1804.

Erect herbs 15-30 cm tall. Leaves 1.5-6 x 0.4-1 cm, pubescent, elliptic-oblong to oblanceolate, acute at apex, cuneate at base. Flowers white in terminal sessile heads.

Fairly common in cultivated areas and wastelands. Fl. & Fr.: Jul.-Dec.

## PHYTOLACCACEAE R.Br.

*Rivinia* L.

*Rivinia humilis* L. Sp. Pl. 121, 1753; Wilson in Addisonia 12: 51, 1927; Furtado in Gard. Bull. Straits Settlem. 4: 416, 1929. *R. laevis* L. Mant. Pl. 41, 1767; FBI 5: 21.

Erect undershrubs 30-50 cm tall. Leaves 3.5-10 x 1-3 cm, scabrid beneath, lanceolate, acuminate at apex, obtuse at base. Flowers white on terminal racemes up to 8.5 cm long. Fruits red, globose.

Abundant along roadsides in Thiruvananthapuram City. Fl. & Fr.: Nov.-Jan.

Note: Gamble did not record this species in his Fl. Pres. Madras. A native of Tropical America, well acclimatized in this region.

## POLYGONACEAE Juss.

*Polygonum* L.

1. Leaves glabrous:

- 2. Erect herbs; leaves cuneate at base *P. glabrum*
- 2. Decumbent or climbing shrubs; leaves rounded at base *P. chinense*

1. Leaves hairy:

- 3. Leaves acute at apex, flowers red *P. nepalense*
- 3. Leaves acuminate at apex; flowers white *P. barbatum*

**Polygonum barbatum** L. Sp. Pl. 362, 1753; Wight, Icon. t. 1806, 1852; FBI 5: 37; Gage in Rec. Bot. Surv. India 2: 397, 1903; Gamble 833; Sebastine in Bull. Bot. Surv. India 2: 5. 1960.

Erect herbs up to 0.5 m tall. Leaves 6-14 x 1.2-3.5 cm, pubescent, elliptic-oblong to lanceolate, acuminate at apex, cuneate at base; sheaths pubescent. Flowers white in terminal racemes.

Frequent along banks of rivers and streams in the plains.  
Fl. & Fr.: Oct.-Mar.

**Polygonum chinense** L. Sp. Pl. 362, 1753; Wight, Icon. t. 1806, 1852; FBI 5: 44; Rao 334; Gage in Rec. Bot. Surv. India 2: 393, 1903; Gamble 833.

Decumbent or climbing shrubs. Leaves 6.5-13 x 2.5-5 cm, glabrous, obscurely serrate, lanceolate, shortly acuminate at apex rounded at base; ligule up to 3.5 cm long. Flowers white in terminal panicles.

Frequent in moist areas near tea estates of Ponmudi and Bonecord. Fl. & Fr.: Jan.-Mar.

**Polygonum glabrum** Willd. Sp. Pl. 2: 447. 1799; Wight, Icon. t. 1797, 1852; Rao 335; FBI 5: 34; Gamble 832.

Erect herbs up to 0.5 m tall. Leaves 9-22 x 0.8-2.3 cm, glabrous, linear-lanceolate, acuminate at apex, cuneate at base; petiole base sheathed. Flowers red in terminal paniculate racemes.

Frequent near ponds and rivers in the plains. Fl. & Fr.: Oct.-Dec. 'Kozhivalan'

*Polygonum nepalense* Meissn. Monog. 84. 1826; FBI 5: 41;  
*P. punctatum* Buch.-Ham. ex D.Don, Prodr. Fl. Nepal, 72. 1825,  
 non Raf. 1820; Gamble 833; Sebastine in Bull. Bot. Surv. India  
 2: 5. 1960. *P. alatum* Benth.-Ham. ex Spreng. Syst. Veg. 154.  
 1827 nom. illeg.; FBI 5: 41.

Procumbent herbs. Leaves 2-4 x 1-2 cm, shortly petioled,  
 sericeous, ovate, acute at apex, cuneate at base. Flowers pale  
 red, sessile, in pedunculate corymbs. Nuts dark brown, tenuicular

Frequent in marshy areas of higher altitudes of Ponmudi &  
 Bonecord. Fl. & Fr.: Oct.-Dec.

#### TRISTICHACEAE Willis

|   |                      |
|---|----------------------|
| Roots thread like; free-floating            | <i>Indotristicha</i> |
| Roots thalloid, frondose, attached to rocks | <i>Dalzellia</i>     |

#### *Dalzellia* Hassk.

*Dalzellia zeylanica* (Gardn.) Wight, Icon. t. 1919-1920. 1852;  
 Nagendran & Arekal in Bull. Bot. Surv. India 24: 229. 1981;  
 Brink in Taxon 18: 598. 1969. *Tristicha zeylanica* Gardn. in Calcutta  
 J. Nat. Hist. 7: 177. 1847. *Lawia zeylanica* Tul. in Ann. Sci. Nat. Ser.  
 III, 2: 112. 1849 emend. Willis in Ann. Roy. Bot. Gard. Perad.  
 1: 213. 1902. *Terniola zeylanica* (Gardn.) Tul. Arch. Mus. Hist.  
 Nat. Paris 6: 190. t. 13. f. 3. 1852.

Submerged, thalloid. Leaves numerous in closed rosettes.  
 Flowers white. Capsules ellipsoid.

Fairly common on rocky beds of rivers in evergreen forests.  
 Fl. & Fr.: Nov.-May.

#### *Indotristicha* van Royen

*Indotristicha ramosissima* (Wight) van Royen in Act. Bot. Neerl.  
 8: 474. 1954. *Dalzellia ramosissima* Wight, Icon. t. 1920. f. 1.  
 1852. *Tristicha ramosissima* (Wight) Willis in Ann. Roy. Bot.  
 Gard. Peradeniya 1(3): 208. 1902; Gamble 836. *Terniola ramosissima*  
 (Wight) Wedd. in DC. Prodr. 17: 47. 1873; FBI 5: 63;  
 Rao 335.

Stems branched. Leaves narrow linear in tufts. Flowers solitary, pedicellate.

Fairly common in rivers in evergreen forests of Bonecord.  
Fl. & Fr.: Jul-Sept.

### A R I S T O L O C H I A C E A E Juss.

|                                  |                     |
|----------------------------------|---------------------|
| Erect shrubs; leaves hairy       | <i>Thottea</i>      |
| Climbing shrubs; leaves glabrous | <i>Aristolochia</i> |

#### *Aristolochia* L.

*Aristolochia indica* L. Sp. Pl. 960. 1753; FBI 5: 75; Rao 336; Gamble 821. *A. lanceolata* Wight, Icon. t.1858, 1852.

Twining shrubs. Leaves 6.5-16 x 1.5-5.5 cm, lanceolate, gradually acuminate at apex, cordate at base. Flowers brownish-grey, solitary or in racemes. Capsules ca. 2 x 1.5 cm, 6-valved, oblong.

Fairly common in evergreen and moist deciduous forests.  
Fl. & Fr.: Jun.-Sep. 'Eshwaramulli'

#### *Thottea* Rottb.

|   |                     |
|---|---------------------|
| Petals apiculate at apex, anthers free            | <i>T. barberi</i>   |
| Petals not apiculate at apex; anthers in 3 groups | <i>T. siliquosa</i> |

*Thottea barberi* (Gamble) Ding Hou in Blumea 27(2): 315. 1981.  
*Apama barberi* Gamble in Bull. Misc. Inform. 386. 1924 & Fl. Pres. Madras 840. 1957 (repr. ed.); Subramanyam & Henry in Bull. Bot. Surv. India 12: 4. f.1-5. 1970,

Erect low undershrubs, 30-40 cm tall. Leaves 9-13.5 x 2.5-4.5 cm, sessile, chartaceous, lanceolate, acuminate at apex, obtuse at base. Flowers grey, axillary.

Occasional in evergreen forests near Agastyarkudum. Fl. & Fr.: Dec.-Mar.

*Note*: This species is characterized by the glabrous styles and free stamens.

*Thottea siliquosa* (Lam.) Ding Hou in Blumea 27(2): 327. 1981.  
*Apama siliquosa* Lam. Encycl. 1: 91. 1783; Gamble 840. *Bragantia*

*wallichii* R.Br. ex Wight & Arn. in 15: Edinburgh New Philos. J. 181. 1833; Wight, Icon. t.520. 1824; FBI 5: 73; Rao 335.

Erect shrubs. Leaves 12-18 x 3-6 cm, oblong-lanceolate, acute or acuminate at apex, rounded at base. Flowers grey, axillary. Capsules up to 10 cm long.

Frequent in the undergrowth of evergreen forests. Fl. & Fr.: Dec.-Mar. 'Kotaashari'

#### PIPERACEAE C.A.Agardh.

|   |                   |
|---|-------------------|
| 1. Flowers unisexual                                      | <i>Piper</i>      |
| 1. Flowers bisexual:                                      |                   |
| 2. Leaves up to 29 x 32 cm, orbicular,<br>cordate at base | <i>Lepianthes</i> |
| 2. Leaves less than 5 x 5 cm, not as above                | <i>Peperomia</i>  |

#### *Lepianthes* Raf.

*Lepianthes umbellata* (L.) Raf., Sylv. Tellur. 84, 1838; Howard in J. Arnold Arbor. 54: 380. 1973. *Piper umbellatum* L. Sp. Pl. 30. 1753. *P. subpellatum* Willd. Sp. Pl. 1: 166. 1797; FBI 5: 95. *Heckeria subpellata* (Willd.) Kunth, in Linnaea 13: 171. 1837; Gamble 846. *Pothomorphe subpellata* (Willd.) Miq. Syst. Pip. 213. 1843; Wight, Icon. t.1925. 1853; Rao 338.

Erect, succulent herbs up to 1 m tall. Leaves 19-29 x 28-32 cm, sparsely puberulous above, densely pubescent along nerves beneath, deltoid; petiole up to 25 cm long. Flowers grey in short peduncled umbellate spikes.

Rare in the undergrowth of evergreen forests of Ponmudi along water courses. Fl. & Fr.: Apr.-Jun.

Note: *Lepianthes* Rafin. (Sylva Tell. 84, 1838) is the earliest validly published name for the genus. According to Baker et al. (Fl. Trop. W. Africa 6(2): 144. 1913) and *Piper umbellatum* L. and *P. subpellatum* Willd. are conspecific.

#### *Peperomia* Ruiz & Pavon

|                      |                         |
|----------------------|-------------------------|
| 1. Leaves pubescent  | <i>P. dindigulensis</i> |
| 1. Leaves glabrous : |                         |

2. Leaves thick, succulent, obtuse at apex                    *P. portulacoides*  
 2. Leaves membranous, acute at apex                    *P. pellucida*

**Peperomia dindigulensis** Miq. Syst. Pip. 122. 1848; FBI 5: 98; Rao 338; Gamble 847.

Leaves 2.3 x 1.5-2.5 cm, ovate or obovate, rounded or slightly acute at apex, cuneate at base. Flowers greenish-yellow in terminal panicles up to 10 cm long.

Occasional on moist rocks or decaying tree trunks in evergreen forests. Fl. & Fr.: Mar.-May.

**Peperomia pellucida** (L.) H.B.K. Nov. Gen. et Sp. 1: 172. 1831; FBI 5: 98; Gamble 847. *Piper pellucidum* L. Sp. Pl. 30. 1753.

Erect, flaccid herbs with translucent stems. Leaves 1.5-2.5 cm in diam., deltoid, cordate at base. Flowers greenish in slender, erect spikes.

Frequent in plains and disturbed areas of ghats. Fl. & Fr.: Jul.-Dec. 'Slettipacha'.

**Peperomia portulacoides** (Lam.) A.Dietr. Sp. Pl. 1: 172. 1831; Wight, Icon. t.1922. 1853; Rao 338; FBI 5: 98; Gamble 847. *Piper portulacoides* Lam. Tabl. Encycl. 1: 82. 1791. *P. courtoisii* Miq. in Hooker's J. Bot. Kew Gard. Misc. 5: 549. 1846; Wight, Icon. t.1924. 1853.

Succulent herbs 20-30 cm tall, epiphytic on tree trunks or lithophytic. Leaves 1.5-4 x 1-3 cm, obovate, obtuse at apex, cuneate at base. Flowers greenish in fleshy terminal spikes up to 7.5 cm long.

Fairly common throughout dense, evergreen forests. Fl.: Mar.-May.

#### Piper L.

- |                                     |                         |
|-------------------------------------|-------------------------|
| 1. Bracts connate                   | <i>P. galaeatum</i>     |
| 1. Bracts free :                    |                         |
| 2. Leaves crisped hairy beneath     | <i>P. hymenophyllum</i> |
| 2. Leaves nearly glabrous beneath : |                         |
| 3. Male spikes ca. 15 cm long       | <i>P. trijcum</i>       |

3. Male spikes less than 12 cm long:

- |                           |                  |
|---------------------------|------------------|
| 4. Leaves cordate at base | <i>P. longum</i> |
| 4. Leaves rounded at base | <i>P. nigrum</i> |

**Piper galeatum** (Miq.) C. DC., Prodr. 16: 242. 1869; FBI 5: 80; Rao 338; Gamble 843, *Muldera galeata* Miq. in London J. Bot. 5: 557. 1846 p.p. *M. wightiana* Miq. in London J. Bot. 5: 557. 1846; Wight, Icon. t. 1943. (right hand figure only) 1853.

Leaves 10-16 x 3.5-7 cm, elliptic-ovate or lanceolate, acuminate at apex, cordate or rounded at base. Flowers in stalked receptacles.

Rare in evergreen forests of Ponmudi. Fl. & Fr.: Dec.-Mar.

**Piper hymenophyllum** Miq. in London J. Bot. 5: 554. 1846; Wight, Icon. t. 1942. 1853; Rao 338; FBI 5: 93; Gamble 845.

Leaves 3.5-12 x 3-7 cm, ovate or cordate at base. Male spikes 6-7.5 cm long; female 12-16 cm long; bracts adnate to rachis.

Fairy common in evergreen forests of Ponmudi. Fl. & Fr.: Dec.-Mar.

**Piper longum** L. Sp. Pl. 28. 1753; FBI 5: 90; Rao 336; Gamble 845.

Leaves 8-12 x 3-6 cm, ovate-elliptic, acuminate at apex, 5-9-nerved. Male spikes 3 cm long; female 2.5-7.5 cm long. Berries red, globose.

Frequent in evergreen forests. Berries and stems used in Auyrvedic medicines. Fl. & Fr.: Jul.-Sept. 'Thipali'

**Piper nigrum** L. Sp. Pl. 28. 1753; FBI 5: 90; Rao 337; Gamble 845.

Leaves 11-16 x 5-8 cm, elliptic or ovate, acute or acuminate at apex, 5-9-ribbed. Flowers greenish in pendulous spikes. Berries red, globose.

Often cultivated for the fruits. Fl. & Fr.: Nov.-Jan. 'Kurumulaku'.

**Piper trioicum** Roxb. Fl. Ind. 1: 151. 1820; Subramanyam &

Henry in Bull. Bot. Surv. India 12: 4, 1972 *P. attenuatum* Ham. ex Miq. Syst. Pip. 306. 1843; FBI 5: 92; Gamble 845. *P. sylvestre*. sensu Wight, Icon. t. 1937. 1853, non Lam. 1791; Rao 338.

Climbing shrubs. Leaves 7-12 x 3.2-7cm, glabrous above, sparsely puberulous along the nerves beneath, broadly elliptic, acuminate at apex, rounded at base, Spikes up to 15 cm long.

Frequent in subtropical hill forests. of Ponmudi Fl. & Fr.: Oct.-Dec.

### CHLORANTHACEAE R.Br. ex Sm.

*Sarcandra* Gardn.

*Sarcandra chloranthoides* Gard. in Calcutta J. Nat. Hist. 6: 348. 1846; Wight, Icon. t. 1946. 1853; Verde. in Kew. Bull. 39: 66. 1983. *Chloranthus brachystachya* sensu Hook.f. Fl. Brit. India 5: 100. 1886 p.p. non Blume 1829; Gamble 848. *Sarcandra irvingbaileyi* Swamy in Proc. Natl. Inst. Sci. India, Pt. B, Biol. Sci. 19: 303. 1953. *S. grandifolia* (Miq.) Subram. & Henry in Bull. Bot. Surv. India 12: 5. 1970 (1972). *Chloranthus grandifolius* Miq. Fl. Ind. Bat. 1(1): 802. 1856.

Shrubs 2-3 m tall. Leaves 8-20 x 3-8.5 cm, glabrous, spinous-serrate, elliptic-ovate or oblanceolate, acuminate at apex, cuneate at base. Flowers greenish in terminal paniculate spikes. Berries purplish-black.

Frequent in subtropical hill forests in Ponmudi. Fl. & Fr.: Apr.-Oct.

### MYRISTICACEAE Griseb.

- |  |                    |
|--|--------------------|
| 1. Arillus laciniate at the apex only; anthers stellately attached | <i>Knema</i>       |
| 1. Arillus laciniate almost to the base; anthers not as above :    |                    |
| 2. Androecium sessile  | <i>Gymnanthera</i> |
| 2. Androecium stalked  | <i>Myristica</i>   |

*Gymnanthera* Warb.

*Gymnanthera fraquhariana* (Wall. ex Hook.f. & Thoms.) Warb.

in Nov. Actorum Acad. Caes. Leop. Carol. Nat. Cur. 68: 354, 1897; Sinclair in Gard. Bull. Straits Settlem. 17(1): 96, 1958. *Myristica fraguifolia* Wall. ex Hook.f. & Thoms. Fl. Ind. 161, 1855; FBI 5: 849; Rao 340. *Gymnacranthera canarica* (Bedd. ex King) Warb. in Nov. Actorum Acad. Caes. Leop. Carol. Nat. Cur. 68: 368, 1897; Gamble 848. *Myristica canarica* Bedd. ex King in Ann. Roy. Bot. Gard. Calcutta 3(3): 306, 1891; Bourd. 294.

Trees 4-7 m tall. Leaves 18-23 x 4.5-6.5 cm, shining above, glaucous beneath, oblong, acuminate at apex, rounded at base. Male flowers yellow in axillary, brown tomentose fascicles; female in racemes up to 9 cm long. Fruits globose.

Rare in swamps of Kottur Reserve Forests. Fl. & Fr.: Mar.-Aug. 'Udaipami'.

#### *Knema* Lour.

*Knema attenuata* (Hook.f. & Thoms.) Warb. in Nov. Actorum Acad. Caes. Leop. Carol. Nat. Cur. 68: 590, 1897; Gamble 851; de Wilde in Blumea 25: 439, 1979. *Myristica attenuata* Wall. ex Hook.f. & Thoms. Fl. Ind. 151, 1855; FBI 5: 157, 1855; King in Ann. Roy. Bot. Gard. 3: 316, t. 152, 1891; Bourd. 295; Rao 340. *M. coticosa* auct. non (Lam.) Hook.f. & Thoms 1855; Bedd. Fl. Sylv. t. 271, 1872.

Trees 6-10 m tall; young branches tomentose. Leaves 12-21 x 4-7 cm, glabrous above, brown pubescent along the nerves beneath, glaucous in between, oblong-lanceolate, acuminate at apex, rounded at base. Flowers brown tomentose in axillary fascicles. Fruits up to 4 x 2 cm, brown tomentose, arillus crimson.

Frequent in evergreen and semievergreen forests at lower elevations adjacent to streams or river in Kallar and Boneccord. Wood used for match boxes and splints. Fl.: Feb.-Mar. Fr.: Apr.-Mar. 'Chorapam'

#### *Myristica* L.

- |                             |                                       |
|-----------------------------|---------------------------------------|
| 1. Leaves tomentose beneath | <i>M. fatua</i> var. <i>magnifica</i> |
| 1. Leaves glaucous beneath: |                                       |
| 2. Leaves acuminate at apex | <i>M. fragrans</i> *                  |
| 2. Leaves acute at apex;    |                                       |

- |  |                       |
|--|-----------------------|
| 3. Male flowers in thick woody tubercles | <i>M. dactyloides</i> |
| 3. Male flowers in panicled cymes        | <i>M. malabarica</i>  |

*Myristica dactyloides* Gaertn. Fruct. 1: 195. t. 41, f.2a-d. 1788; Sinclair in Gard. Bull. Straits Settlem. 23: 445. 1968. *Myristica laurifolia* Hook.f. & Thoms. Fl. Ind. 1: 163. 1855 non Spruce 1856; Bedd. Fl. Sylv. t. 267. 1872; FBI 5: 103, incl. var. *lanceolata*. *M. beddomei* King in Ann. Roy. Bot. Gard. Calcutta 3: 291. 1891; Gamble 850.

Trees 15-25 m tall. Leaves 10-25 x 6-10 cm, coriaceous, glaucous beneath, oblong-lanceolate, acute at apex, acute or rounded at base. Flowers brown tomentose in axillary umbels. Fruits ca. 6 x 3 cm, arils red, fleshy.

Frequent in swampy areas throughout the ghats. Fl. & Fr.: Dec.-Oct.

**Note:** There is much confusion over the identity and nomenclature of this plant. Trimen (Fl. Handb. Ceylon 3: 434, 1895) was the first to doubt the conspecificity of *M. dactyloides* Gaertn. and *M. laurifolia* Hook.f. & Thoms. This was followed by Sinclair I.c. (450-454.), who has given a lengthy discussion.

*Myristica fatua* Houtt. var. *magnifica* (Bedd.) Sinclair in Gard. Bull. Straits Settlem. 23: 282. 1968. *M. magnifica* Bedd. Fl. Sylv. t.268. 1872; FBI 5: 104; Bourd. 293; Rao 339; Gamble 850.

Buttressed trees 20-30 m tall. Leaves 25-55 x 10-15 cm, densely tomentose beneath, oblong acute at apex, rounded at base. Male flowers rusty tomentose, 10-20 together from woody tubercles; female axillary. Fruits oblong, ovoid, tomentose; aril orange-red.

Occasional in swamps of Kottur. Fl.: Dec.-Feb. Fr.: Oct.-Dec. 'Kottapanu'.

**Note:** Sinclair I.c. reduces *Myristica magnifica* Bedd. to a variety of *M. fatua* Houtt. on the basis of "Striking similarity of leaves". But he doubts that the status of this species cannot be settled by alpha taxonomy, and recommends chromosome studies.

*Myristica malabarica* Lam. Mem. Acad. Sci. Paris 162. 1788; FBI 5: 103; Bourd. 294; Rao 339; Gamble 850; Sinclair in Gard. Bull. Straits Settlem. 23: 168. 1968.

Trees 7-12 m tall. Leaves 8-18 x 2.5-5 cm, glabrous above, more or less glaucous beneath, elliptic or oblong-lanceolate, obtusely acute at apex, narrowed at base. Male flowers white, in slender axillary pedunculate cymes. Fruits up to 7 x 2.5 cm, cylindrical, brown tomentose; aril yellow.

Occasional in swamps of Kottur and Klamala R.F. in Neyyar Wild Life Sanctuary. Fl.: Feb.-Mar. Fr.: Dec.-Jan. '*Ponnampu*'.

*Note*: This plant is represented in MH only by old collections from Kulathupuzha, Kollam. No fruiting material was collected earlier.

\**Myristica fragrans* Houtt., the Nut-meg, is found in cultivation.

#### LAURACEAE Juss.

- 1. Flowers unisexual:

  - 2. Perianth lobes 4 *Neolitsea*
  - 2. Perianth lobes if present 6 or 0:
    - 3. Leaf buds with perculate scales; bracts imbricate *Actinodaphne*
    - 3. Leaf buds without perculate scales; bracts not imbricate *Litsea*

- 1. Flowers bisexual:
  - 4. Anthers 2-loculed *Cryptocarya*
  - 4. Anthers 4-loculed:
    - 5. Leaf buds with perculate scales; perianth lobes persistent *Persea*
    - 5. Leaf buds without perculate scales; perianth lobes deciduous *Cinnamomum*

#### *Actinodaphne* Nees

- 1. Leaves 10-23 cm long, acuminate at apex:

  - 2. Mature leaves completely glabrous *A. malabarica*
  - 2. Mature leaves tomentose above atleast along the nerves *A. bourdillonii*

1. Leaves less than 5.5 cm long, obtuse  
at apex

*A. campanulata* var.  
*obtusa*

*Actinodaphne bourdillonii* Gamble in Bull. Misc. Inform. 129, 1925 & in Fl. Pres. Madras 862, 1957 (repr. ed.).

Trees 6-9 m tall. Leaves 15-22.5 x 2-4.5 cm, tomentose along the nerves above and glabrous in between, tomentose beneath, oblong-lanceolate, acuminate at apex, acute at base. Flowers brownish in umbels.

Occasional in evergreen forests of Kallar and Merchiston. Fl.: Apr.-May. Fr.: Dec.-Mar.

*Actinodaphne campanulata* Hook.f. var. *obtusa* Gamble, Fl. Pres. Madras 7: 1230, 1925 & 2: 861, 1957 (repr. ed.); Mohanan, Henry & Nair in Bull. Bot. Surv. India 22: 106, 1980.

Trees 6-9 m tall. Leaves 4.5-5.5 x 1-1.5 cm, glaucous beneath, elliptic-oblong, obtuse at apex, acute at base. Flowers white in short peduncled, axillary clusters.

Very rare in subtropical hill forests of Chemungi. Fl. & Fr.: Feb.-May.

*Note:* A very rare endemic variety represented so far in MH & CAL only by syntypes.

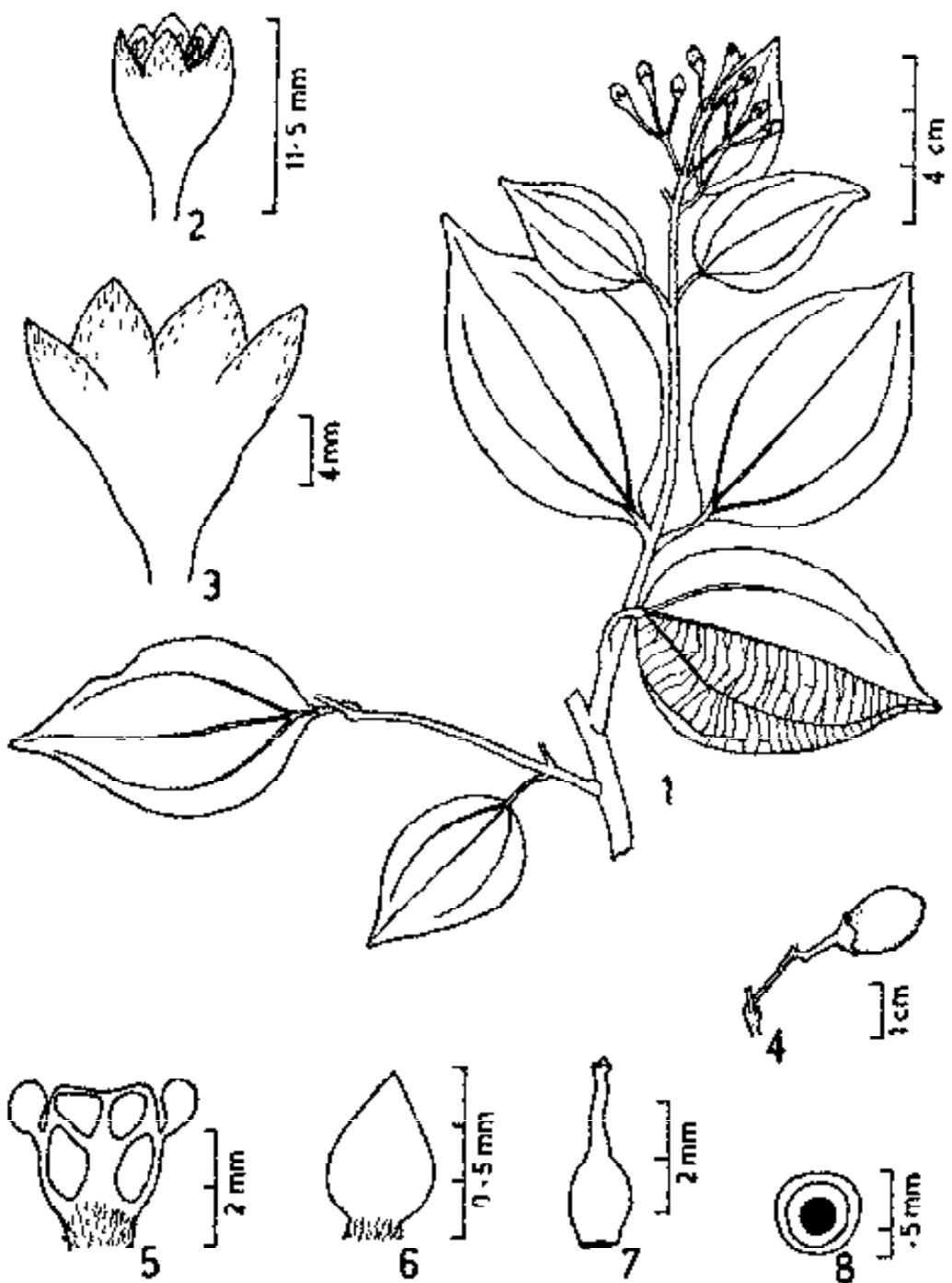
*Actinodaphne malabarica* Balak. in J. Bombay Nat. Hist. Soc. 63: 329, 1967. *A. hirsuta* Hook.f. Fl. Brit. India 5: 152, 1886, non Blume 1851; Bourd. 304; Rao 345.

Trees 10-15 cm tall; branchlets tomentose. Leaves 10-21 x 3-6.5 cm, whorled, tomentose above when young, turning glabrous and shining on maturity, elliptic-lanceolate, acuminate at apex, cuneate at base. Flowers yellow in axillary racemiform umbellules.

Frequent in evergreen forests of Kallar, Benecord and Peppara. Fl.: Mar.-Aug. Fr.: Sept.-Dec.

#### *Cinnamomum Schaeffer nom. cons.*

1. Leaves hairy at least when young:
2. Leaves densely tomentose beneath:



*Cinnamomum chemungianum* Mohsan & Henry

- 1. Twig 2. Flowers 3. Perianth split open 4. Fruit 5. Stamen
- 6. Staminode 7. Pistil 8. T.S. of ovary

- 3. Leaves rounded at base *C. malabatrum*
- 3. Leaves acute at base *C. travancoricum*
- 2. Leaves glabrous or minutely pilose beneath:
  - 4. Leaves oblong, acute at base *C. sulphuratum*
  - 4. Leaves ovate, rounded at base *C. chemungianum*
- 1. Leaves completely glabrous:
  - 5. Leaves ca. 9.5 cm broad *C. verum*
  - 5. Leaves less than 7 cm broad:
    - 6. Panicles up to 30 cm long *C. macrocarpum*
    - 6. Panicles less than 6 cm long:
      - 7. Straggling shrubs; flowers in axillary peduncles *C. filipedicellatum*
      - 7. Trees; flowers not as above *C. camphora\**

***Cinnamomum chemungianum* Mohanan & Henry in J. Bombay Nat. Hist. Soc. 88(1) 97. 1991.**

Shrubs 3-4 m tall. Leaves 3-7 x 2-4 cm, sparsely appressed hairy beneath, ovate, caudate-acuminate at apex, rounded at base. Flowers ca. 11.5 mm long; perianth lobes ca. 1.5 mm long, red, ovate, acute at apex; tube ca. 3 mm long, stamens many in 3 rows, ca. 1.5 mm long, anthers truncate, glandular, 4-loculed; filaments villous; staminodes ca. 0.5 mm long, ovate, acute. Ovary ca. 2 x 1.5 mm, globular, 1-ovuled; styles ca. 1 mm long; stigma faintly 3-lobed. Berries ca. 1.4 x 1 cm, ellipsoid.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Dec.-Mar.

***Cinnamomum filipedicellatum* Kosterm. in Bull. Bot. Surv. India 25: 92. 1983. *C. gracile* auct. non Miq. 1864; Hook.f. Fl. Brit. India 5: 133. 1886; Bourd. 302; Rao 342; Gamble 857.**

Straggling shrubs. Leaves 5-13 x 1.5-4.5 cm, ovate or lanceolate, obtusely acuminate at apex, narrowed at base. Flowers pale yellow in axillary peduncles to 7 cm long. Berries ca. 7 x 5 cm, ellipsoid.

Very rare in evergreen forests of Chemungi. Fl. & Fr.: Dec.-Feb.

**Cinnamomum macrocarpum** Hook.f. Fl. Brit. India 5: 133. 1886; Gamble 857, *C. ineris* auct. non Blume 1825; FBI 5: 130; Wight, Icon. t. 122 & 130. 1839; Gamble 857.

Trees 7-12 m tall. Leaves 20-40 x 7-12 cm, elliptic-oblong or oblong-lanceolate, acute or acuminate at apex, narrowed at base. Flowers pale yellow in axillary and terminal, tomentose panicles

Fairly common throughout low elevations. Fl. & Fr.: Dec.-Mar.

**Cinnamomum malabatum** (Burm.f.) Blume, Rumphia 1: 38, t. 13, f. 3. & 4. 1836; Kosterm. in Bull. Bot. Surv. India 25: 102. 1983 & in Manilal, Bot. Hist. Hort. Malab. 163. 1980. *Laurus malabatum* Burm.f. Fl. Ind. 92. 1768.

Trees 10-13 m tall. Leaves 11-21 x 3-6 cm, coriaceous, shining above, tomentose beneath elliptic-lanceolate, acute at apex; rounded at base. Flowers greenish-grey in panicles. Berries globose.

Fairly common in moist deciduous forests of Kottur. Fl. & Fr.: Dec.-Jul.

Note: Kostermans *l.c.* gives a detailed discussion on the identity and nomenclature of this species.

**Cinnamomum sulphuratum** Ness in Wall, Pl. Asiat. Rar. 2: 74. 1831; FBI 5: 132; Gamble 857.

Trees 7-9 m tall. Leaves 4-9 x 1.3-3 cm, glabrous above, glaucous beneath, obtuse at apex, acute at base. Flowers greenish-yellow in panicles. Berries ellipsoid.

Fairly common in evergreen forests at low elevations. Fl. & Fr.: Dec.-Apr.

**Cinnamomum travancoricum** Gamble in Bull. Misc. Inform. 128. 1925 & Fl. Pres. Madras 857. 1957 (repr. ed.)

Trees 4-6 m tall. Leaves 5-10 x 2.5-3.5 cm, densely fulvous-tomentose, ovate-lanceolate, acuminate at apex, acute at base. Flowers pale yellow in terminal panicles. Berries purplish.

Very rare in Chemungi. Fl. & Fr.: Nov.-Mar.

**Cinnamomum verum** Presl. Rostl. 2: 36. 1825. *C. zeylanicum* Garc. ex Blume, Bijdr. 568. 1825; FBI 5: 131. 1886; Wight, Icon. t. 123. 1839; Bourd. 301; Rao 341; Gamble 167.

Trees 15-20m tall. Leaves 7.5-25 x 3-10 cm, glabrous, ovate or oblong, shortly acuminate at apex, obtuse, rounded or narrowed at base. Flowers pale yellow in terminal and axillary panicles. Berries blue, ovoid.

Fairly common in evergreen forests at low elevations. Bark used for flavouring 'curries' ,*Vazhana* 'Karuva'.

\* *C. comphora* Nees is found in cultivation.

**Cryptocarya R. Br.**

*Cryptocarya anamalayanum* Gamble in Bull. Misc. Inform. 126. 1925 & Fl. Pres. Madras 853, 1957 (repr. ed.).

Trees 6-9 m tall. Leaves 10-18 x 5-10 cm, fulvous-tomentose beneath, elliptic-obovate at apex, narrowed at base. Flowers fulvous-tomentose in axillary paniculate cymes; bracts and bracteoles persistent.

Occasional in evergreen forests of Merchiston. Fl. & Fr.: Nov.-Jun.

**Litsea Lam. nom. cons.**

1. Leaves glabrous on both surfaces:
2. Stamens in female flowers reduced to glands *L. stocksii*
2. Stamens not as above:
  3. Perianth lobes incomplete or 0 *L. ligustrina*
  3. Perianth lobes complete:
    4. Male umbels solitary *L. venulosa*
    4. Male umbels in racemes:
      5. Leaves rounded at base *L. oleoides*
      5. Leaves narrowed at base *L. glabrata*
  1. Leaves hairy:
    6. Leaves only sparsely puberulous beneath *L. coriacea*
    6. Leaves densely fulvous-pubescent beneath:

7. Leaves opposite at the ends of branches                   *L. travancorica*
7. Leaves all alternate:
8. Umbellules in sessile axillary clusters                   *L. bourdillonii*
8. Umbellules in pedunculate racemes, umbels or corymbs:
9. Umbellules in racemes   *L. floribunda*
9. Umbellules in umbels or corymbs                           *L. glutinosa*

*Litsea bourdillonii* Gamble in Bull. Misc. Inform. 131. 1925 & Fl. Pres. Madras 866. 1957 (repr. ed.).

Trees 7-12 m tall. Leaves 9-21 x 4-7.5 cm, coriaceous, obovate or obovate-oblong, acute at apex, acute or rounded at base. Flowers in sessile or subsessile axillary clusters. Berries oblong.

Occasional in evergreen forests of Ponmudi. Fl. & Fr.: Jan.-Mar.

*Litsea coriacea* (Heyne ex Meisn.) Hook.f. Fl. Brit. India 5: 166. 1886; Bourd. 306; Rao 345; Gamble 865. *Tetranthera coriacea* Heyne ex Meisn. in DC. Prodr. 15: 186. 1864.

Trees 6-9 m tall. Leaves 6.5-15 x 2.5-5 cm, elliptic-obovate, glabrous above, brownish-puberulous beneath, acute at both ends. Flowers white in axillary sessile umbels. Berries greenish-white, ovoid.

Rare in subtropical hill forests of Ponmudi. Fl. & Fr.: Sept.-May. 'Maravettithai'.

*Litsea floribunda* (Blume) Gamble, Fl. Pres. Madras 1238. 1925 & 867. 1957 (repr. ed.). *Cylcodaphne floribunda* Blume, Mus. Bot. 1: 387. 1857. *Tetranthera wightiana* sensu Bedd. Fl. Sylv. t.293. 1873, not as to basionym. *Litsea wightiana* sensu Hook.f. Fl. Brit. India 5: 177. 1886, not as to basionym.

Trees 6-9 m tall. Leaves 6-14 x 4.5-7 cm, sparsely pubescent above, densely pubescent beneath, ovate-oblong, obtuse at apex, rounded at base. Flowers yellowish-white. Berries oblong.

Fairly common in subtropical hill forests of Ponmudi. Fl.: May. Nov. Fr.: Sept.-Jan.

**Litsea glabra** Hook.f. Fl. Brit. India 5: 178. 1886; Bourd. 307; Rao 345; Gamble 866.

Trees 15-20 m tall. Leaves 10-17 x 3-5 cm, lanceolate, acuminate at apex, tapering to base. Flowers white in axillary racemiform umbels up to 12 cm long. Berries red, depressed globose.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Sept.-May.

**Litsea glutinosa** (Lour.) Robinson in Phillip. J. Sci. Bot. 6: 321. 1911. *Sebifera glutinosa* Lour. Fl. Cychinch. 638. 1790. *Litsea chinensis* Lam. Encycl. 3: 574. 1792; Gamble 864. *L. sebifera* Pers. Syn. 2: 4. 1806; FBI 5: 157; Bourd. 305; Rao 344.

Trees 7-12 m tall; branchlets tomentose. Leaves 7-21 x 3-10 cm, glabrous above, pubescent beneath, ovate-oblong, obtuse at apex, acute at base. Flowers greenish-yellow in subsessile axillary umbels. Berries purple, globose.

Occasional in deciduous forests of Klamala. Fl. & Fr.: Jan.-Sept.

**Litsea ligustrina** (Nees) Hook.f. Fl. Brit. India 5: 158. 1886; Rao 345; Gamble 864. *Tetranthera ligustrina* Nees in Wall. Pl. Asiat. Rar. 2: 65. 1831; Wight, Icon. t.1835. 1852.

Trees 6-9 m tall. Leaves 7-13 x 2.5-5.5 cm, elliptic-oblong or obovate, obtuse or acute at apex, narrowed at base. Flowers greenish-yellow in solitary umbellules. Berries globose.

Fairly common in evergreen forests of Kottur. Fl. & Fr.: Oct.-Mar.

**Litsea oleoides** (Meisn.) Hook.f. Fl. Brit. India 5: 175. 1886; Gamble 865. *Tetranthera oleoides* Meisn. in DC. Prodr. 15(1): 195. 1864.

Trees 15-20 m tall. Leaves 6.5-13.5 x 2.5-5.5 cm, reddish-brown beneath, elliptic-oblong or lanceolate, obtuse or acute at apex, narrowed or rounded at base. Flowers greenish-white in racemiform umbels up to 5 cm long. Berries depressed, globose.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Nov.-Apr.

**Litsea stocksii** (Meisn.) Hook.f. Fl. Brit. India 5: 176. 1886; Bourd. 307; Rao 345; Gamble 865. *Tetranthera oblonga* Nees var.

*stocksii* Meisn. in DC. Prodr. 15(1): 201. 1864.

Trees 4-6 m tall. Leaves 2.5-7.4 x 1.5-2 cm, glaucous beneath, lanceolate, acuminate at apex, tapering at base. Flowers yellowish white in axillary racemiform umbels. Berries green, ovoid.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Apr.-Jun.

*Litsea travancorica* Gamble in Bull. Misc. Inform. 132. 1925 & Fl. Pres. Madras 2: 866. 1957 (repr. ed.).

Trees 7-9 m tall. Leaves 8-18 x 2.5-5.5 cm, tomentose beneath, oblong or obovate, acuminate at apex, narrowed at base. Flowers yellowish in axillary umbels. Berries globose.

Rare in evergreen forests of Ponmudi. Fl. & Fr.: Apr.-Jun.

*Litsea venulosa* (Meisn.) Hook.f. Fl. Brit. India 5: 161. 1886; Rao 345; Gamble 865. *Tetranthera venulosa* Meissn. in DC. Prodr. 15(1): 187. 1862.

Erect shrubs 3-5 m tall. Leaves 8-13 x 2.5-5.5 cm, glabrous, elliptic-oblong, caudate-acuminnt at apex, acute at base. Flowers white; male in peduncled umbellules; female in racemes.

Occasional in evergreen forests of Bonecord. Fl. & Fr.: Oct.-Mar.

#### *Neolitsea* Merr.

Petioles *ca.* 6 cm long *N. scorbiculata*

Petioles less than 2.5 cm long *N. cassia*

*Neolitsea cassia* (L.) Kosterm. in J. Sci. Res. Indonesia 1: 85. 1952. *Laurus cassia* L. Sp. Pl. 369. 1753. *Neolitsea zeylanica* (Nees) Merr. in Phillip. J. Sci. 1 (Suppl.): 57. 1906; Gamble 868. *Litsea zeylanica* Nees in Amoen. Bot. Bonn. Fasc. 1: 58. t.5. 1823; FBI 5: 178 p.p.; Wight, Icon. t.1845. 1852; Bourd. 308; Rao 346.

Trees 8-12 m tall. Leaves 7-11 x 2.5-4.5 cm, subcoriaceous, glabrous above, glaucous beneath, elliptic-lanceolate, obtusely acute at apex, acute at base. Flowers pale yellow in racemiform umbels. Berries 1.3 x 0.8 cm, ovoid or ellipsoid.

Frequent in subtropical hill forests of Ponmudi and Chemungi. Fl. & Fr.: Apr.-Jul.

**Neolitsea scorbiculata** (Meisn.) Gamble, Fl. Pres. Madras 1240. 1925 & 868. 1957 (repr. ed.), *Litsea scorbiculata* Meisn. in DC. Prodr. 15(4): 223. 1864.

Trees 12-15 m tall. Leaves 7-12 x 2.5-7.5 cm, glaucous beneath, elliptic-ovate, acute at apex, narrowed at base. Flowers pale yellow in racemiform axillary umbels.

Very rare in deciduous forests. Fl. & Fr.: Mar.-Jun.

#### **Persea** Miller

**Persea macrantha** (Nees) Kosterm. in Reinwardtia 6: 193. 1962. *Machilus macrantha* Nees in Wall. Pl. Asiat. Rar. 2: 70. 1831; Wight, Icon. t. 1824. 1852; FBI 5: 140; Gamble 859.

Trees 12-25 m tall. Leaves 11-16 x 4-7 cm, glabrous above, glaucous beneath, elliptic, obtuse at apex, rounded at base. Flowers pale yellow in terminal panicles. Berries black, globose.

Common in evergreen forests throughout the ghats. Fl. & Fr.: Dec.-May. '*Uravu*'.

#### **CASSYTHACEAE** Bartl. ex Lindl.

##### **Cassytha** L.

**Cassytha filiformis** L. Sp. Pl. 35. 1753; Wight, Icon. t. 1874. 1852; FBI 5: 188; Rao 346; Gamble 868; Smith in J. Arnold Arbor. 32: 51. 1951.

Pubescent, twining herbs. Flowers white in lax spikes up to 4 cm long. Drupes globose, smooth.

Common along the coast of Veli and Kovalam. Fl. & Fr.: Aug.-Dec. '*Moodillathai*'.

#### **PROTEACEAE** Juss.

##### **Helicia** Lour.

**Helicia nilagirica** Bedd. in Madras J. Lit. Sci. Ser. 3, 1: 56. 1864; FBI 5: 190; Bourd. 309; Rao 347; Gamble 870.

Trees 4-6 m tall. Leaves 3-7.5 x 1.5-2.5 cm, dentate, ovate or lanceolate, acute at apex, narrowed at base. Flowers purple in axillary racemes.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Mar.-Jun.

**Grevillea robusta** L. Cunn. ex R.Br. is cultivated in Tea Plantations for shade.

### THYMELAEACEAE Juss.

#### *Gyrinops* Gaertn.

**Gyrinops walla** Gaertn. Fruct. 2: 276, t.140, 1791; Wight, Icon. t.1850, 1852; Bedd. Fl. Sylv. t.303, 1873; FBI 5: 199; Gamble 871.

Trees 3-6 m tall. Leaves 5-10 x 1.5-2.5 cm, oblong, obtusely acuminate at apex, cuneate at base. Flowers yellow in axillary umbels.

Very rare in evergreen forests of Bonecord. Fl. & Fr.: Sept.-Nov.

### ELAEAGNACEAE Juss.

#### *Elaeagnus* L.

**Elaeagnus conferta** Roxb. Fl. Ind. 1: 440, 1820; Gamble 1246, *E. latifolia* auct. non L. 1753; FBI 5: 220; Bourd. 311; Rao 347.

Straggling shrubs. Leaves 6-9 x 3-4.5 cm, glabrous above, silky tomentose beneath, elliptic-ovate, acute or obtuse at apex, obtuse at base. Flowers white in axillary fascicles. Drupes oblong.

Frequent in edges of evergreen forests of Ponmudi. Fruits edible. Fl. & Fr.: Oct.-Jun. '*Kattumunnthiranga*'.

### LORANTHACEAE Juss.

- |                                 |                     |
|---------------------------------|---------------------|
| 1. Flowers unisexual            | <i>Viscum</i>       |
| 1. Flowers bisexual :           |                     |
| 2. Each flower with one bract : |                     |
| 3. Petals free                  | <i>Helixanthera</i> |
| 3. Petals united :              |                     |
| 4. Flowers regular              | <i>Dendrophthoe</i> |
| 4. Flowers irregular :          |                     |

|                                |                   |
|--------------------------------|-------------------|
| 5. Leaves opposite             | <i>Scurrula</i>   |
| 5. Leaves alternate            | <i>Taxillus</i>   |
| 2. Each flower with 2-3 bracts | <i>Macrosolen</i> |

**Dendrophthoe Mart.**

Flowers in racemes *D. falcata*

Flowers in umbellate cymes *D. memecylifolia*

**Dendrophthoe falcata** (L.f.) Etting. Denkschr. Kaiserl. Akad. Wiss. Math. Naturwiss. Kl. 32; 52-53, 58, t.13. f.14. 1872I; Danser in Bull. Jard. Bot. Buitenzorg. ser. 3. 16: 30. 1938; Wiens in Abeywickrama, Fl. Ceylon 1: 68. 1973. *Loranthus falcatus* L.f., Suppl. Pl. 211. 1781. *L. longiflorus* Desr. in Lam, Encycl. 3: 598. 1798; Wight, Icon. t.302. 1840; FBI 5; 214; Gamble 877.

Shrubs with greyish brown branches. Leaves 15-18 x 6-7.5 cm ovate-oblong, obtuse at both ends. Flowers bright red in axillary racemes.

Occasional in moist deciduous forests at low elevations on *Mangifera indica* L., *Terminalia paniculata* Roth etc. Fl. & Fr.; Oct-Mar.

**Dendrophthoe memecylifolia** (Wight & Arn.) Danser in Bull. Jard. Bot. Buitenzorg. ser.3. 10: 1929. *Loranthus memecylifolius* Wight & Arn. Prodr. 383. 1834; FBI 5; 217; Rao 349; Gamble 878.

Shrubs. Leaves 2.5-6 x 1.5-2.8 cm, coriaceous, oblong-lanceolate, obtuse at apex, narrowed at base. Flowers scarlet in axillary umbellate cymes.

**Helixanthera Lour.**

Leaves narrowed at base *H. wallichiana*

Leaves rounded or cordate at base *H. intermedia*

**Helixanthera intermedia** (Wight ex Hook.f.) Danser in Bull. Jard. Bot. Buitenzorg. ser.3. 10: 317. 1929. *Loranthus intermedius* Wight ex Hook.f. Fl. Brit. India 5: 205. 1886; Gamble 876.

Shrubs. Leaves 4-11 x 1.5-4 cm, coriaceous, ovate-lanceolate, glabrous, obtusely acute at apex, cuneate at base. Flowers reddish in axillary racemes,

Fairly common in moist deciduous forests near Ponmudi and Bonecord. Fl. & Fr.: Apr.-Jul.

*Helixanthera wallichiana* (Schult.) Danser in Bull. Jard. Bot. Buitenzorg. ser. 3: 10: 371, 1929. *Loranthus wallichianus* Schult Syst. 7: 100. 1820; Wight, Icon. t.143. 1839; FBI 5: 205; Gamble 876.

Shrubs. Leaves 4-10 x 2-5 cm, glabrous, chartaceous, sessile, ovate, obtuse at apex, cuneate at base. Flowers red in racemes up to 4 cm long.

Occasional in upper ghats in Bonecord and Ponmudi on *Memecylon* spp. Fl. & Fr.: Apr.-Jul.

#### *Scurrula* L.

*Scurrula parasitica* L. Sp. Pl. 110. 1753; Wiens in Abeywickrama, Fl. Ceylon 1: 73, 1973; Danser in Bull. Jard. Bot. Buitenzorg. ser. 3, 10(3): 352, 1929 & 16(1): 34, 1938. *Loranthus buddleioides* Desr. in Lam. Encycl. 3: 600, 1792; Gamble 876; Rickett & Stafleu in Taxon 8: 265, 1959. *L. parasiticus* (L.) Merr. in Phillip. J. Sci. 15: 232, 1919, non Druce 1914. *L. scurrula* L. Sp. Pl. ed. 2. 472. 1762, nom. illeg.; FBI 5: 208 p.p.

Shrubs. Leaves 3-5 x 2-3 cm, tomentose beneath, elliptic-ob lanceolate, rounded at apex, cuneate at base. Flowers red in axillary racemes.

Fairly common in moist deciduous and evergreen forests on *Symplocos* spp. Fl. & Fr.: Oct.-Mar.

#### *Taxillus* van Tieghen

|                   |                      |
|-------------------|----------------------|
| Flowers glabrous  | <i>T. cuneatus</i>   |
| Flowers tomentose | <i>T. tomentosus</i> |

*Taxillus cuneatus* (Heyne ex Roth) Danser in Bull. Jard. Bot. Buitenzorg. ser. 3, 10: 354, 1929. *Loranthus cuneatus* Heyne ex Roth, Nov. Pl. Sp. 193, 1821; FBI 5: 214; Gamble 877.

Shrubs. Leaves 1.5-2 x 0.5-1 cm, sessile, obovate, obtuse at apex, cuneate at base. Flowers red in axillary umbels.

Occasional in coastal zone at Veli on *Mangifera indica* L. Fl. & Fr.: Nov.-May.

***Texillus tomentosus*** (Roth) van Tieghen in Bull. Soc. Bot. France 42: 256, 1895, *Loranthus tomentosus* Roth, Nov. Pl. Sp. 191, 1821; FBI 5: 212; Gamble 876.

Shrubs; young branches brown tomentose. Leaves 2.5-6.5 x 2-3.5 cm, glabrous above, tomentose beneath, obovate, obtuse at apex, cuneate at base. Flowers brown in axillary umbels.

Occasional in moist deciduous and evergreen forests of Bonecord and Ponmudi on *Ficus* spp. Fl. & Fr.; Nov.-May.

#### **Viscum L.**

***Viscum orientale*** Willd. Sp. Pl. 4(2): 737, 1805; FBI 5: 13; Gamble 880; Rao 349; Danser in Bull. Jard. Bot. Buitenzorg. ser.3, 16(1): 54, 1938.

Branchlets terete, nodes thickened. Leaves 4-7 x 1-3.5 cm, subsessile, elliptic-lanceolate, acute or rounded at apex, attenuate at base. Flowers in cymes from the axils. Fruits ca. 7 x 3 mm, obovate, truncate.

Occasional in moist deciduous forests of Kottur on *Terminalia* spp. Fl. & Fr.; Feb.-Apr.

*Note:* Highly polymorphous as stated by Danser *f.c.*, this species was often confused with *V. orientale* Blume (Bijdr. 13: 666, 1825) the correct name of which is *V. ovalifolium* DC. The Indian plant can be easily distinguished by the presence of 3 fruits in the bracteal cup as against only one in *V. ovalifolium* DC.

#### **SANTALACEAE R.Br.**

|                                    |                    |
|------------------------------------|--------------------|
| Armed trees with alternate leaves  | <i>Scleropyrum</i> |
| Unarmed trees with opposite leaves | <i>Santalum</i>    |

#### ***Santalum* L.**

***Santalum album*** L. Sp. Pl. 497, 1753; FBI 5: 231; Bourd. 312; Rao 350; Gamble 883.

Leaves 5-7 x 1.3-2.2 cm, glabrous, elliptic, acute at both ends. Flowers reddish in trichotomous paniculate cymes. Drupes subglobose.

Rare in deciduous forests. Fl. & Fr.: Mar.-Dec.

**Scleropyrum Arn.**

**Scleropyrum pentandrum** (Dennst.) Mabberley in Taxon 26: 533. 1977. *Pothos pentandrus* Dennst. Schlussel 16, 24, 33. 1811 & in Forts. Allg. Deutsch. Gaertn. Mag. 3: 34, 42, 82. 1818. *Scleropyrum wallichianum* (Wight & Arn.) Arn. Mag. Zool. Bot. 2: 550. 1858; FBI 5: 234; Bourd. 315; Rao 350; Gamble 884. *Sphaerocarya wallichiana* Wight & Arn. in Edinburgh New Philos. J. 15: 180. 1832.

Leaves 6-10 x 2.5-6 cm, coriaceous, ovate-elliptic or elliptic oblong, obtuse or subacute at apex, rounded or acute at base, Flowers red in catkin-like spikes. Fruit reddish.

Fairly common in subtropical hill forests of Ponmudi. Fl. & Fr.: Nov.-May.

**BALANOPHORACEAE L.C. & A. Rich**

**Balanophora J.R. & G. Forst.**

**Balanophora fungosa** J. & G. Forst. subsp. *indica* (Arn.) Hansen in Dansk. Botanisk. Arkiv 28: 100. 1972. *Langsdorffia indica* Arn. in Ann. Nat. Hist. 2: 37. 1838. *Balanophora indica* (Arn.) Wall. ex Griffith, in Trans. Linn. Soc. London 20: 95. 1846; FBI 5: 237; Rao 351; Gamble 885.

Parasitic herbs with reddish-brown, crowded tubers. Scales spirally arranged. Male flowers in elongated heads; female in globose heads.

Common in shaded forest floor in Bonecord. Fl. & Fr.: Nov.-Jan.

**EUPHORBIACEAE Juss.**

1. Petals present :

2. Filaments of stamens arising from the gynophore :

3. Fruit a capsule

*Cleistanthus*

3. Fruit a drupe

*Bridelia*

2. Filaments of stamens not arising from the gynophore :
4. Filaments connate in a column:
- 5. Calyx enlarged in fruit *Dimorphocalyx*
  - 5. Calyx not as above :
    - 6. Ovules 2 in each locule *Actephila*
    - 6. Ovule 1 in each locule *Jatropha*
4. Filaments free:
- 7. Styles 2-4 cleft :
    - 8. Receptacle villous *Croton*
    - 8. Receptacle glabrous :
      - 9. Whole plant glabrous *Blachia*
      - 9. Whole plant stellate-pubescent *Aleurites*
- 7. Styles simple *Agrostistachys*
1. Petals absent (in male flowers in *Manihot*)
- 10. Leaves palmately lobed *Manihot*
  - 10. Leaves not as above :
    - 11. Filaments jointed *Euphorbia*
    - 11. Filaments not jointed :
      - 12. Filaments of stamens repeatedly branching *Homonola*
      - 12. Filaments of stamens not as above :
        - 13. Filaments of all anthers free :
          - 14. Fruit a drupe *Drypetes*
          - 14. Fruit a capsule :
            - 15. Leaves glandular beneath :
              - 16. Anthers 4-loculed or 4-valved *Macaranga*
              - 16. Anthers 2-loculed, not 4-valved :
                - 17. Styles papillose *Mallotus*
                - 17. Styles not papillose *Suregada*

15. Leaves eglandular beneath:
18. Sepals in 2-series *Glochidion*
18. Sepals in 1-series:
19. Ovules 2 in each locule:
20. Stigmas 2-fid *Aporusa*
20. Stigmas entire *Baccaurea*
19. Ovule 1 in each locule:
21. Seeds carunculate *Sebastiana*
21. Seeds not as above:
22. Styles connate *Epiprinus*
22. Styles free:
23. Stamens alternating with glands or ciliate scale *Micrococca*
23. Stamens not as above:
24. Anthers sessile *Claoxylon*
24. Anthers not sessile:
25. Stamens 3 *Excoecaria*
25. Stamens many *Acalypha*
13. Filaments of anthers connate:
26. Stamens many *Ricinus*
26. Stamens 1-4:
27. Ovule 1 in each locule *Tragia*
27. Ovules 2 in each locule:
28. Calyx of female flowers accrescent in fruit:
29. Stigmas sunk in the apex of ovary *Breynia*
29. Stigmas not as above *Sauropolis*
28. Calyx not accrescent in fruit:
30. Disc 6-lobed in male flowers, absent in female flowers *Synostemon*
30. Disc not as above *Phyllanthus*

*Acalypha* L.

- |  |                      |
|--|----------------------|
| 1. Leaves acute at both ends                   | <i>A. indica</i>     |
| 1. Leaves acuminate at apex, rounded at base : |                      |
| 2. Capsules glabrous                           | <i>A. ciliata</i>    |
| 2. Capsules hispid                             | <i>A. lanceolata</i> |

*Acalypha ciliata* Forsk. Fl. Aegypt. Arab. 162. 1775; FBI 5: 417; Rao 369; Gamble 930.

Erect herbs 30-35 cm tall; stems angular, pubescent. Leaves 3-8.5 x 1-2.5 cm, pubescent, serrate, ovate-lanceolate. Flowers greenish in axillary spikes.

Fairly common in the undergrowth of moist deciduous forests. Fl. & Fr.: Jun.-Jul.

*Acalypha indica* L. Sp. Pl. 1003. 1753; FBI 5: 416; Rao 369; Gamble 930; Airy Shaw in Kew Bull. 26: 206. 1972.

Erect herbs up to 1.5 m tall. Stems angular, pubescent. Leaves 2-5 x 1.5-4 cm, pubescent along the nerves, scabrous in between, rhomboid, serrate; petioles up to 6 cm long. Flowers white in axillary spikes; bracts foliaceous. Capsules hispid.

Common across the plains. Fl. & Fr.: Jul.-Dec. '*Kuppameni*'.

*Acalypha lanceolata* Willd. Sp. Pl. 4: 524. 1805; Airy Shaw in Kew Bull. 26: 206. 1971; Radcliffe-Smith in Kew Bull. 28: 527 1974; Gamble 931. *A. fallax* Muell.-Arg. in Linnaea 34: 43. 1865; FBI 5: 416; Rao 369.

Erect herbs 20-25 cm tall. Leaves 3-10 x 1.5-3 cm, glabrous above, pubescent beneath, crenate-serrate, ovate-lanceolate. Flowers in axillary or terminal spikes. Fruits green, hispid.

Fairly common in wastelands in plains. Fl. & Fr.: Jun.-Jul.

*Actephila* Blume

*Actephila excelsa* (Daltz.) Muell.-Arg. in Linnaea 32: 78. 1863; Wight, Icon. t. 1910. 1852; FBI 5: 282; Gamble 898; Airy Shaw in Kew Bull. 26: 209. 1972. *Anomospermum excelsum* Daltz. in

Hooker's J. Bot. Kew Gard. Misc. 3: 228. 1851. *A. neilgherrensis*  
Wight, Icon. t 1910. 1852.

Shrubs 4-5 m tall. Leaves 7.5-20 x 2.5-6.5 cm, coriaceous, glabrous, elliptic-lanceolate or oblanceolate, subacute or acuminate at apex, acute at base. Flowers yellowish in axillary clusters; petals bifid. Capsules ca. 2.5 cm in diam., glabrous, globose.

Rare along the boundary of moist mixed deciduous forests.  
Fl. & Fr.; Aug.-Dec.

#### *Agrostistachys* Dalz.

|                |                      |
|----------------|----------------------|
| Leaves entire  | <i>A. borneensis</i> |
| Leaves serrate | <i>A. indica</i>     |

***Agrostistachys borneensis*** Becc. Nelle For. Borneo 331. 1902;  
Mathew & Rani in Mathew, Fl. Tamilnadu carnatic 3: 1409. 1983.  
*A. longifolia* (Wight) Benth. ex Hook. f. Fl. Brit. India 5: 407.  
1887 p.p. *Sarcochinium longifolium* Wight, Icon. tt. 1887 & 1888.  
1852 p.p. *Agrostistachys meeboldii* Pax ex Hoffm. in Engler,  
Pflanzenreich 57: 100. 1912; Gamble 922.

Trees 4-6 m tall. Leaves 20-30 x 3-6 cm, coriaceous, oblanceolate, or spatulate-lanceolate, obtusely acuminate at apex, narrowed at base. Flowers pale yellow in spiciform racemes.

Rare in evergreen forests of Ponmudi. Fl. & Fr.; Aug.-Dec.

***Agrostistachys indica*** Dalz. in Hooker's J. Bot. Kew Gard. Misc. 2:  
41. 1850; FBI 5: 406; Bedd. Icon. t. 241. 1874; Gamble 929;  
Balak. in J. Bombay Nat. Hist. Soc. 67: 301. 1970.

Shrubs 4-6 m tall. Leaves 12-19 x 3-5.5 cm, coriaceous, elliptic-oblong to oblong-lanceolate, acuminate at apex, narrowed towards base. Male flowers in axillary clusters of catkins; females white, axillary, solitary.

Occasional in wet situations of evergreen forests of Kottur and Bonecord. Fl. & Fr.; Apr.-Jul.

#### *Aleurites* J.R. & G.Forst.

***Aleurites moluccana*** (L.) Willd. Sp. Pl. 4: 590. 1805; Bedd. Fl.  
Sylv. t.276. 1872; FBI 5: 384; Bourd. 316; Rao 365; Gamble

922; Airy Shaw in Kew Bull. 26: 213. 1972. *Jatropha moluccana* L. Sp. Pl. 1006. 1753.

Trees 12-15 m tall; branchlets stellately pubescent. Leaves 17-31 x 7-15 cm, deltoid or rhomboid, entire or 3-7-lobed. Flowers white in tomentose cymes. Drupes ovoid, fleshy.

Cultivated near Tea plantations in Bonecord. Fl.: Dec.-Jan.  
Fr.: Feb.-Mar.

#### *Aporusa* Blume

|  |                      |
|--|----------------------|
| Leaves obtuse at base; capsules glabrous | <i>A. lindleyana</i> |
| Leaves rounded at base; capsules villous | <i>A. acuminata</i>  |

*Aporusa acuminata* Thw. Enum. 4: 288. 1861; FBI 5: 348; Bourd. 323; Rao 361; Gamble 916.

Trees 6-8 m tall. Leaves 6-14 x 1.5-5 cm, glabrous, chartaceous, elliptic-oblong, acuminate at apex, cuneate at base. Flowers green in axillary spikes. Capsules ellipsoid.

Frequent in evergreen forests. Fl. & Fr.: Jan.-Jun. 'Nirvetti'.

*Aporusa lindleyana* (Wight) Baill. Etudes Gen. Euph. 645. 1858; Bedd. Fl. Sylv. t.286. 1872; FBI 5: 349; Bourd. 323; Rao 361; Gamble 916. *Scepa lindleyana* Wight, Icon. t.361. 1840.

Trees 5-8 m tall. Leaves 9-22 x 4-9.5 cm, glabrous, elliptic-oblong, acuminate at apex, obtuse at base. Flowers pale yellow in axillary spikes. Capsules ca.2 x 1 cm, green.

Frequent in moist deciduous, semievergreen and evergreen forests. Fl. & Fr.: Mar.-Jun.

#### *Baccaurea* Lour.

*Baccaurea courtallensis* (Wight) Muell.-Arg. in DC. Prodr. 15(2): 459. 1866; FBI 5: 367; Bourd. 328; Rao 363; Gamble 916. *Pierardia courtallensis* Wight, Icon. t.1912. 1852 (Plate erroneously named as *P. macrostachys*).

Trees 6-9 m tall. Leaves 8-17 x 3.5-5.5 cm, crowded at the ends of branches, sparsely puberulous when young, turning

glabrous later, oblanceolate, shortly acuminate at apex, cuneate at base. Flowers dark crimson from the old wood. Fruits crimson, subglobose, 3-ridged.

Occasional in evergreen forests. Fl. & Fr.: Feb.-Apr.

**Blachia Baill.**

**Blachia calycina** Benth. in J. Linn. Soc. Bot. 17: 226. 1880; FBI 5: 402; Rao 367; Gamble 936. *Croton umbellatum* auct. non Willd. 1805; Wight. Icon. t.1874. 1852; Bourd. 340; Rao 367.

Shrubs. Leaves 5-12 x 2.5-5cm, lanceolate to elliptic-rhomboïd, acuminate at apex, cuneate at base. Male flowers in racemes; females solitary. Capsules shallowly lobed.

Rare in evergreen forests of Ponmudi. Fl. & Fr.: Jan.-Mar.

**Breynia J. R. & G. Forst. nom. cons.**

Leaves 1.5-3.5 cm long *B. vitis-idaea*

Leaves less than 1.5 cm long *B. retusa*

**Breynia retusa** (Dennst.) Alston Ann. Roy. Bot. Gard. (Peradeniya) 11: 204. 1929. *Phyllanthus retusus* Dennst. Schluess. Hort. Malab. 24. 1818. *P. patens* Roxb. Fl. Ind. 3: 667. 1832. *Melanthesa retusa* (Dennst.) Kostel. Allg. Med.-Pharm. Flora 5: 1771. 1835. *Breynia patens* (Roxb.) Rolfe in J. Bot. 11: 359. 1882; FBI 5: 329; Rao 359; Gamble 912. *Melanthesa turbinata* Wight. Icon. t.1897. 1852.

Erect shrubs 3-4 m tall. Leaves 1-1.5 x 0.6-1.8 cm, glabrous, black when dry, ovate, obtuse at both ends. Flowers pale yellow, solitary, axillary. Fruits ca. 0.8 cm in diam., globose, yellow.

Fairly common in plains and moist deciduous forests at low elevations, Fl. & Fr.: Mar.-Jun. 'Pavalapula'.

**Breynia vitis-idaea** (Burm.f.) Fisch. in Bull. Misc. Inform. 65. 1932; Airy Shaw in Kew Bull. 26: 227. 1972. *Rhamnus vitis-idaea* Burm. f. Fl. Ind. 61. 1768. *Breynia rhamnoides* (Retz.) Muell.-Arg. in DC. Prodr. 15(2): 440. 1866; FBI 5: 330; Bourd. 330; Rao 359; Gamble 912. *Phyllanthus rhamnoides* Retz. Obs. Bot. 5: 30. 1789. *Melanthesa rhamnoides* (Retz.) Blume, Bijdr. 591. 1825; Wight. Icon. t.1898. f.1. 1852.

Shrubs 2-4 m tall. Leaves 0.5-2.4 cm wide, distichous, glabrous, elliptic-ovate, rounded or obtuse at apex, rounded at base. Flowers yellow; male in fascicles, females solitary. Fruits globose.

Fairly common in moist deciduous forests. Fl. & Fr.: Mar.-May.

*Bridelia* Willd.

|                   |                    |
|-------------------|--------------------|
| Straggling shrubs | <i>B. scandens</i> |
| Trees             | <i>B. retusa</i>   |

*Bridelia retusa* (L.) Spreng. Syst. Veg. 3: 48, 1826; FBI 5: 268; Bourd. 320; Rao 353; Gamble 896; Airy Shaw in Kew Bull. 26: 230, 1972. *Clutia retusa* L. Sp. Pl. 1042, 1753.

Trees 6-8 m tall. Leaves 8.5-19 x 3.5-8.5 cm, coriaceous, glabrous above, rusty tomentose beneath, oblong or obovate, obtuse at apex, rounded at base. Flowers brown in axillary racemes up to 10 cm long; peduncles tomentose. Fruits globose, fleshy.

Fairly common in moist deciduous forests. Fl. & Fr.: Aug.-Oct.  
'Mukkayini'

*Bridelia scandens* (Roxb.) Willd. Sp. Pl. 4: 979, 1806; Sant. in J. Bombay Nat. Hist. Soc. 50: 307, 1952; Gamble 896. *Clutia scandens* Roxb. Pl. Cor. t.173, 1802. *Bridelia stipularis* sensu Hook.f. Fl. Brit. India 5: 270 p. p. non (L.) Blume 1825; Rao 354.

Leaves 3-7 x 1.4-5 cm, glabrous, tomentose beneath, elliptic-oblong or obovate, obtuse at apex, narrowed at base. Flowers greenish in spikes interrupted by floral leaves.

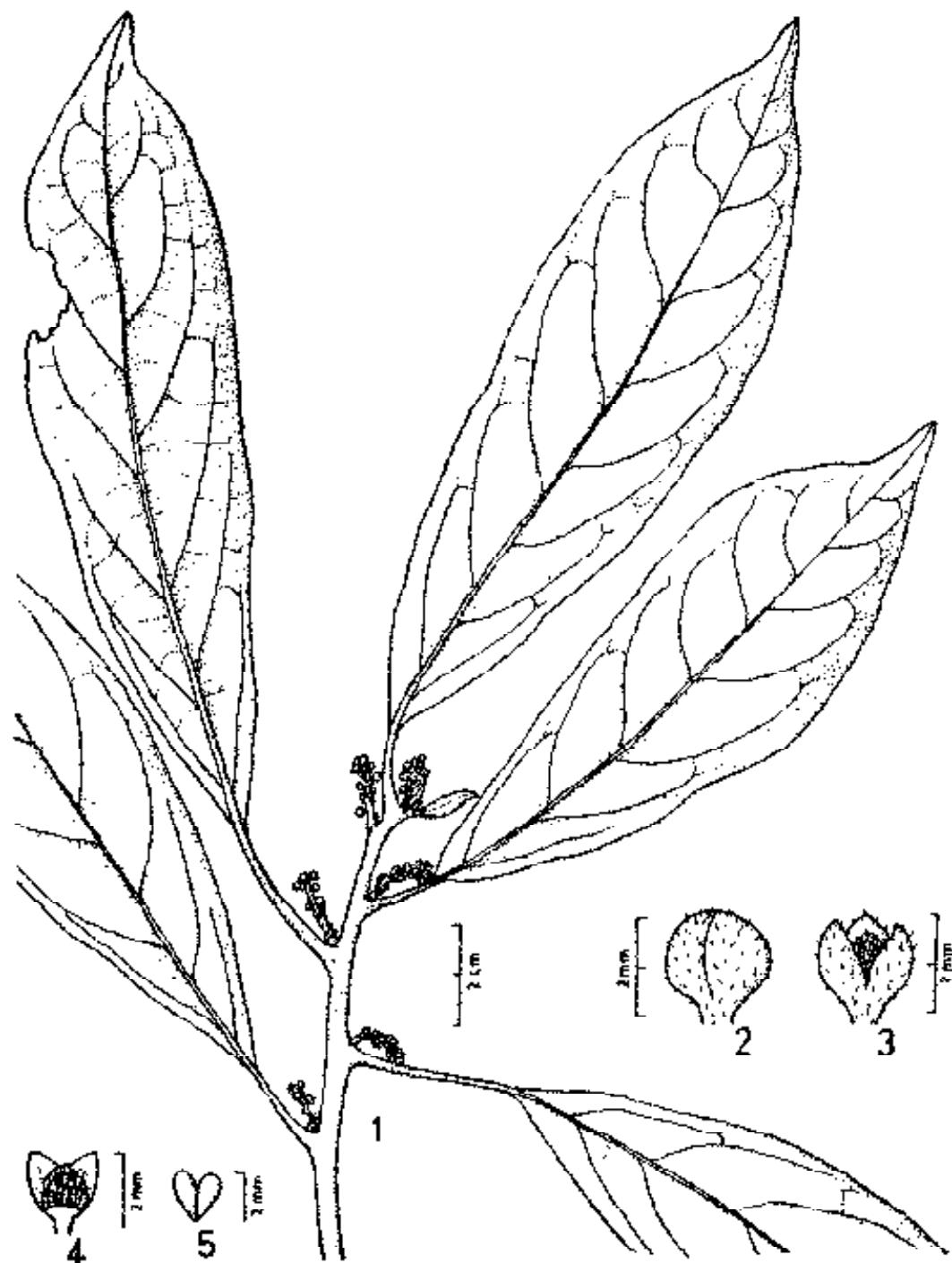
Fairly common in moist deciduous forests. Fl. & Fr.: Feb.-Oct.  
'Cherukepanachi'.

*Claoxylon* A.Juss.

*Claoxylon anomalum* Hook.f. Fl. Brit. India 5: 412, 1887; Rao 368; Gamble 928.

Shrubs 3-4 m tall. Leaves 15-18 x 3.5-5 cm, scabrous, entire or distantly crenate-serrate, oblanceolate, acuminate at apex, cuneate at base. Male flowers ca. 2 x 2cm, globose, tomentose in axillary dense racemes up to 1.5 cm long. Ovary tomentose. Capsules pubescent.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Jan.-Mar.



*Claoxylon anomulum* Hook.f. (Euphorbiaceae). 1. Twig 2. Flower  
3. & 4. Flowers split open to show stamens 5. Stamen.

*Note* : Hooker J. c. described this species based only on one male and one female specimen. No specimens could be collected so far. Our specimen was referred to Airy Shaw who confirmed the identity.

**Cleistanthus** Hook.f. ex Planch.

**Cleistanthus travancorensis** Jablonzky in Engler, Pflanzenreich. 4, 147(8): 21. 1915; Gamble 898.

Trees 3-6 m tall. Leaves 7-12 x 2.5-3.3 cm, lanceolate, acuminate at apex, cuneate at base. Flowers pilose in axillary clusters; ovary, villous. Capsules 1.5 cm in diam.

Very rare in evergreen forests of Bonecord. Fl. & Fr.: Jan.-Apr.

**Croton** L.

- |                                   |                         |
|-----------------------------------|-------------------------|
| 1. Capsules ca. 3.5 cm long       | <i>C. malabaricus</i>   |
| 1. Capsules less than 8 mm long : |                         |
| 2. Leaves serrate                 | <i>C. bonplandianum</i> |
| 2. Leaves entire :                |                         |
| 3. Inflorescence scaly            | <i>C. zeylanicus</i>    |
| 3. Inflorescence glabrous         | <i>C. klotzschianus</i> |

**Croton bonplandianum** Baill. in Adansonia 4: 339, 1846; Maheswari, Fl. Delhi 315. 1963. *C. sparsiflorus* Morong. in Ann. New York Acad. Sci. 7: 221. 1893; Gamble 920.

Erect shrubs 30-35 cm tall; branches stellate-pubescent. Leaves 2-4 x 0.5-2 cm, glabrous above, stellate beneath, serrate, lanceolate, acute at apex, cuneate at base. Flowers white in slender axillary cymes up to 11 cm long.

Abundant along the boundary of paddy fields. Fl. & Fr.: Apr.-Aug.

**Croton klotzschianus** Wight, Icon. t.1914, 1853; FBI 5: 392; Bourd. 336; Rao 366; Gamble 919.

Erect shrubs up to 2 m tall. Leaves 8-17 x 2.5-6 cm, glabrous

above, sparsely pubescent along the nerves beneath, lanceolate, acuminate at apex, obtuse or acute at base, Flowers white in axillary racemes up to 15 cm long.

Fairly common in evergreen forests of Bonecord at low elevations. Fl. & Fr.; Apr.-Aug. 'Nanchu'.

**Croton malabaricus** Bedd. Icon. t.181. 1874; FBI 5: 388; Bourd. 336; Rao 365; Gamble 919.

Erect shrubs 2-3 m tall. Leaves 8-18 x 3-8 cm, glabrous above, white silky pubescent beneath, elliptic or rhomboid, caudate-acuminate at apex, acute at base; petiole up to 7 cm long. Flowers white in racemes. Fruits 3.5 x 1.5 cm, long-stalked (ca. 3 cm).

Fairly common in open forests at low elevations. Fl. & Fr.; Apr.-Dec. 'Pambaram'

**Croton zeylanicus** Muell.-Arg. in Linnaea 34: 107. 1865 & in DC. Prodr. 15(2): 581. 1866; Alston in Trimen, Handb. Fl. Ceylon 6(Suppl.): 264. 1931. *C. reticulatus* Heyne ex Muell.-Arg. in DC. Prodr. 15(2): 580. 1866, non Thunb. 1825; FBI 5: 386; Rao 365; Gamble 919.

Erect shrubs 2-3 m tall. Leaves 3.5-13.5 x 1-4 cm, glabrous above, silvery-white scaly beneath, lanceolate, acuminate at apex, rounded or acute at base. Flowers white in axillary racemes.

Occasional in evergreen forests of Chemungi. Fl. & Fr.; May.-Sept.

#### Dimorphocalyx Thw.

**Dimorphocalyx beddomei** (Benth.) Airy Shaw in Kew Bull. 23: 124. 1969 & 27: 92. 1972, emend. Henry et al. in Ind. J. For. 5: 249 1982. *Tritaxis beddomei* Benth. in J. Linn. Soc. Bot. 17: 221. 1880; FBI 5: 384; Gamble 938 non sensu Sunderaraj in J. Bombay Nat. Hist. Soc. 53: 525. 1956 quae est *Jatropha maheshwarii* Subr. & Nayar. *Trigonostemon beddomei* (Benth.) Balak. In Bull. Bot. Surv. India 10: 245. 1969.

Trees or shrubs 2-4 m tall. Leaves 7-17 x 2-6.5 cm, subcoriaceous, glabrous, elliptic-oblong or oblong-lanceolate, obtusely acuminate at apex, cuneate or obtuse at base. Male flowers white, clustered in axillary or pseudo-axillary cymes; stamens 8 in 2 series, outer 5 free above, connate below, inner 3 united into a central

column. Female flowers in terminal or subterminal cymes. Capsules 1-3 x 1.8 cm, globose.

Rare in evergreen forests of Agastyarkudum. Fl. & Fr.: May.-Oct.

*Note*: This species has been placed in different genera by the earlier workers. After a close examination of the plants in the field and the type specimen at Kew Henry et.al. I. c. have followed Airy Shaw's I. c. placement of this species in *Dimorphocalyx*.

#### Drypetes Vahl

|                                  |                      |
|----------------------------------|----------------------|
| Flowers golden tomentose without | <i>D. malabarica</i> |
| Flowers glabrous without         | <i>D. elata</i>      |

*Drypetes elata* (Bedd.) Pax & Hoffm. in Engler, Pflanzenreich. 15: 268. 1922. *Hemicyclea elata* Bedd., Fl. Sylv. t.279. 1872; FBI 5: 339; Bourd. 328; Rao 360; Gamble 909.

Trees 15-20 m tall. Leaves 10-12.5x3-5.5 cm, lanceolate, acuminate at apex, cuneate at base. Flowers greenish-yellow, males in clusters, females solitary. Drupes ovoid.

Very rare in evergreen forests of Ponmudi. Fl. & Fr.: Feb.-Jul.

*Drypetes malabarica* (Bedd.) Airy Shaw in Kew Bull. 23: 56. 1969. *Cyclostemon malabaricus* Bedd. For. Man. 189. 1872; FBI 5: 341; Bourd. 330; Rao 361; Gamble 909.

Trees 12-15 m tall. Leaves 10-23 x 3-5.5 cm, glabrous above, pilose beneath, distantly serrate, oblong, abruptly acuminate at apex, rounded at base. Flowers reddish-yellow in tomentose axillary pedicels. Drupes bilobed.

Very rare in dense evergreen forests along streams and rivers in Boneccord. Fl. & Fr.: Dec.-Jun.

#### Epiprinus Griff.

*Epiprinus malletiformis* (Muell.-Arg.) Croizat in J. 23: 52. 1942. Arnold Arbor. *Sympyilia malletiformis* Muell. in Linnaea 34: 156. 1865; Gamble 925. *Cephalocrotton indicum* Bedd. Fl. Sylv. t.261. 1872. *Adenochlaena indica* (Bedd.) Hook.f. Fl. Brit. India 5: 418. 1887; Bourd. 344; Rao 370.

Trees 8-12 m tall. Leaves 7.5-17.5 x 1.3-6.5 cm, coriaceous, ovate-oblong, obtuse at apex, rounded at base. Flowers pale green in terminal racemes. Capsules subglobose, scabrous.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Dec.-May.

**Euphorbia L.**

1. Trees or shrubs :

2. Plants unarmed *E. tirucalli*

2. Plants armed :

3. Stems 5-9-winged *E. santapaui*

3. Stems 3-4-winged *E. antiquorum*

1. Herbs :

4. Plants glabrous or sparsely hairy :

5. Cymes capitate *E. hirta*

5. Cymes not capitate :

6. Cacci keeled *E. rosea*

6. Cacci not keeled *E. indica*

4. Plants hispid :

7. Prostrate herbs *E. thymifolia*

7. Erect herbs *E. heterophylla*

**Euphorbia antiquorum** L. Sp. Pl. 450. 1753; Wight, Icon. t.992. 1844-1845; Rao 352; Gamble 894.

Succulent shrubs with 3-4-angled, spinescent stems.

Planted in hedges of gardens.

**Euphorbia heterophylla** L. Sp. Pl. 453. 1753; Smith in Kew Bull. 26: 264. 1972. *E. geniculata* Ort. Hort. Matr. Dec. 18. 1797.

Erect herbs 20-25 cm tall. Leaves 1.5-5 x 0.5-2.5 cm, puberulous above, sericeous beneath, oblanceolate, acute at apex cuneate at base. Flowers greenish.

Abundant in wastelands in plains. Fl. & Fr.: Jun.-Aug.

*Euphorbia hirta* L. Sp. Pl. 454. 1753; Merr. in Phillip. J. Sci 29: 387. 1926; Gamble 892; Smith in Kew Bull. 26: 264. 1972. *E. pilulifera* L. Sp. Pl. 454, 1753; FBI 5: 250; Rao 351.

Erect herbs 30-35 cm tall. Leaves 1.5-2 x 0.4-1 cm, sparsely hairy, serrate, ovate, acute at apex, narrowed at base, shortly petioled. Flowers greenish, axillary.

Abundant in cultivated fields and wastelands. Fl. & Fr.: Jun.-Aug.

*Euphorbia indica* Lam. Encycl. 2: 423. 1786; Raju & Rao in Indian J. Bot. 2: 205. 1979. *E. hypericifolia* auct. non L. 1753; FBI 5: 249; Rao 351; Gamble 892.

Decumbents herb. Leaves 0.5-1.8 x 0.3-1 cm, glabrous, obovate or oblong, obtuse at both ends. Flowers greenish in cymes. Capsules sparsely hispid, seeds smooth.

Fairly common in the undergrowth of evergreen forests. Fl. & Fr. Jun.-Aug.

*Note*: After a close examination of fresh specimens, Raju & Rao /c. have shown that the Indian plant is only *E. indica* Lam. and *E. hypericifolia* L. does not occur in India.

*Euphorbia rosea* Retz. Obs. 4: 26. 1786; FBI 5: 251; Rao 351; Gamble 892.

Prostrate herbs with long stout roots. Leaves 0.3-1.8 x 0.2-0.3 cm, glabrous, oblong or triangular, obtuse at apex, truncate at base. Flowers red in sessile axillary cymes. Cacci keeled; seeds rugose.

Rare in wastelands of the plains. Fl. & Fr.: Jun.-Aug.

*Euphorbia santapauli* Henry in Bull. Bot. Surv. India 6: 329. 1964. (1965).

Shrubs or trees 2-8 m tall; stems fleshy, glabrous with milky juice, 5-9-winged; wings spinescent. Leaves 3-4 mm long, as broad as long, deciduous, glabrous, subsessile ovate or suborbicular, apiculate at apex, obtuse at base. Cyathia greenish yellow above the axils. Bracts triangular, pinkish. Male flowers many in fascicles. Female flowers shortly pedicellate with 3 perianth lobes.

Frequent at the ridges of Agasthyarkudum. Fl. & Fr.: May-Sept.

**Note:** This species is allied to *E. antiquorum* L. but differs from it by the more winged branches, characteristic single cyathia with 5-8 lobes, and the stamens enveloped in the bracteoles.

*Euphorbia thymifolia* L., Sp. Pl. 454. 1753; FBI 5: 252; Rao 351; Smith in Kew Bull. 26: 267. 1972.

Trailing herbs. Leaves 0.2-0.5 x 0.3-0.5 cm, shortis petioled, glabrous, oblong, obtuse at apex, obliquely truncate at base. Flowers white in axillary clusters.

Fairly common in wastelands of plains. Fl. & Fr.: Jun.-Oct.

*Euphorbia tirucalli* L., Sp. Pl. 452. 1753; Rao 352; Gamble 893.

Much branched succulents; stems terete. Leaves scaly.

Planted in gardens. Fl.: Jun.-Aug. "Thirukall"

#### *Excoecaria* L.

*Excoecaria agallocha* L., Syst. ed.10, 2: 1288. 1759; Bourd. 334; Rao 374; Gamble 941; FBI 5: 472; Airy Shaw in Kew Bull. 26: 268. 1972.

Trees 6-9 m tall. Leaves 6-8 x 2-4 cm, chartaceous, glabrous, broadly elliptic, abruptly acuminate at apex, obtuse at base. Flowers yellow in axillary catkins.

Frequent along tidal mangroves of Chirayankil and Anjengu areas. Fl. & Fr.: Apr.-Jul.

#### *Glochidion* J.R. & G. Forst. *nom. cons.*

- |                                   |                        |
|-----------------------------------|------------------------|
| 1. Stamens more than 3            | <i>G. zeylanicum</i>   |
| 1. Stamens always 3;              |                        |
| 2. Branchlets crispate-pubescent  | <i>G. arboreum</i>     |
| 2. Branchlets glabrous:           |                        |
| 3. Capsules 1-1.3 cm broad        | <i>G. ellipticum</i>   |
| 3. Capsules less than 1 cm broad: |                        |
| 4. Styles columnar                | <i>G. bourdillonii</i> |
| 4. Styles not as above            | <i>G. fagifolium</i>   |

*Glochidion arboreum* Wight, Icon. t.1907, f.1. 1852; FBI 5: 316; Bourd. 335; Rao 358; Gamble 914.

Trees 12-16 m tall. Leaves 5-7 x 2.5-3.5 cm, sparsely pubescent along the midrib, chartaceous, ovate, shortly acuminate at apex, cuneate at base. Flowers pale yellow, axillary.

Occasional in valleys of Agastyarkudum up to 1500 m. Fl. & Fr.: Jan.-May.

**Glochidion bourdillonii** Gamble in Bull. Misc. Inform. 330, 1925 & Fl. Pres. Madras 1308, 1921 & 915, 1957. (repr. ed.). *G. rigidum* sensu Bourd. For. Trees Travancore 334, 1908, non Muell.-Arg. 1863; Rao 359.

Trees 4-6 m tall. Leaves 5-10 x 2-3.5 cm, lanceolate, acute at both ends. Flowers greenish-yellow in slender pedunculate axillary clusters. Capsules glabrous, depressed.

Rare in evergreen forests of Chemungi. Fl. & Fr.: Mar.-May.

**Glochidion ellipticum** Wight, Icon. t. 1906, 1852; FBI 5: 321; Bourd. 335; Rao 358; Gamble 915.

Trees 10-12 m tall. Leaves 8-14 x 1.5-5 cm, glabrous, elliptic or elliptic-oblong, acuminate at apex, obliquely cuneate at base. Flowers greenish-yellow in axillary clusters.

Frequent in evergreen forests at low elevations. Fl. & Fr.: Nov.-Mar.

**Glochidion fagifolium** Bedd. For. Man. Bot. 193, 1873; FBI 5: 312; Rao 359; Gamble 915.

Trees 7-9 m tall. Leaves 3.5-11 x 1.5-3 cm, glabrous, oblong, acuminate at apex, obliquely cuneate at base. Flowers pale yellow, axillary.

Very rare in evergreen forests of Ponmudi and Bonecord. Fl. & Fr.: Mar.-May.

**Glochidion zeylanicum** (Gaertn.) A.Juss. Tent. Euph. 107, t.3. 1824; FBI 5: 310; Gamble 914. *Bridelia zeylanica* Gaertn. Fruct. 2: 128. t.109, 1790.

Trees 6-9 m tall. Leaves 8-18 x 4-6.5 cm, glabrous, lanceolate, or ovate-oblong, gradually acuminate at apex, obtuse at base. Flowers pale yellow in axillary clusters.

Fairly common along streams and rivers in evergreen forests of Kottur. Fl. & Fr.: Feb.-May. "Nirvett".

*Hemonoia* Lour.

*Hemonoia riparia* Lour. Fl. Cochinch. 637. 1790; FBI 5: 455; Rao 372; Gamble 932; Airy Shaw in Kew Bull. 26: 282. 1972. *Adelia indica* Roth, Nov. Pl. Sp. 375. 1821; Wight, Icon. t. 1868. 1852.

Shrubs ca. 2 m tall. Leaves 12-16.5 x 1-1.3 cm, entire or serrulate, glandular scaly beneath, linear-oblong, acute at apex, narrowed at base. Flowers in axillary spikes.

Fairly common along river beds. Fl. & Fr.: Dec.-Feb. 'Kallo-orvanchi'

*Jatropha* L.

|                                  |                        |
|----------------------------------|------------------------|
| Stems and leaves glandular hairy | <i>J. gossypifolia</i> |
|----------------------------------|------------------------|

|                           |                  |
|---------------------------|------------------|
| Stems and leaves glabrous | <i>J. curcas</i> |
|---------------------------|------------------|

*Jatropha curcas* L. Sp. Pl. 1006. 1753; FBI 5: 383; Rao 354; Gamble 437; Airy Shaw in Kew Bull. 26: 283. 1971.

Shrubs with acrid latex. Leaves 10-15 cm in diam., 3-5-lobed, orbicular, cordate at base; lobes serrate, acuminate at apex. Flowers greenish-yellow in axillary cymes. Capsules ellipsoid.

Often planted along fences. Fl. & Fr.: May-Aug. 'Kadalavanaku'

*Jatropha gossypifolia* L. Sp. Pl. 1006. 1753; FBI 5: 283; Rao 365; Gamble 927; Airy Shaw in Kew Bull. 26: 283. 1971.

Erect shrubs 2 m tall. Young branches glandular-hairy. Leaves 9.5-13 x 7-19 cm, trilobed, glandular, ciliate, cordate at base; lobes elliptic, acuminate at apex; petioles up to 7 cm long. Flowers red in axillary racemes up to 6 cm long.

Frequent in wastelands towards coast. Fl. & Fr.: Apr.-Jul. 'Chuvannakadalavanakkku'.

*Macaranga* Du Petit Thouars

*Macaranga peltata* (Roxb.) Muell.-Arg. in DC. Prodr. 15(2): 1010. 1866; Gamble 928. *Osyris peltata* Roxb. Fl. Ind. 3: 855. 1832. *Mapa peltata* (Roxb.) Wight, Icon. t. 817. 1844. *Macaranga roxburghii* Wight, Icon. t. 1949. 1853; FBI 5: 448; Bourd. 349; Rao 372.

Trees 8-12 m tall. Leaves 10-20 x 8-14 cm, peltate, glabrous above, pubescent beneath, acuminate at apex. Flowers brownish in panicles. Fruits globose densely golden tomentose.

Fairly common in plain and in lower ghats. Wood used for match boxes and splints and for paper pulp. Fl. & Fr.: Jan.-Mar. 'Vattathamara'.

*Mallotus* Lour.

- |   |                        |
|---|------------------------|
| 1. Leaves 10-15 cm broad  | <i>M. tetracoccus</i>  |
| 1. Leaves 3-9 cm broad :  |                        |
| 2. Leaves unequal in size, smaller sessile. <i>M. aureo-punctatus</i> |                        |
| 2. Leaves equal in size, petiolate :                                  |                        |
| 3. Flowers in panicles  | <i>M. repandus</i>     |
| 3. Flowers not as above :   |                        |
| 4. Leaves attenuate at base :   |                        |
| 5. Leaves crenate   | <i>M. beddomei</i>     |
| 5. Leaves sinuate   | <i>M. resinosus</i>    |
| 4. Leaves obtuse at base :  |                        |
| 6. Capsules glandular   | <i>M. philippensis</i> |
| 6. Capsules eglandular  | <i>M. rhamnifolius</i> |

*Mallotus aureo-punctatus* (Dalz.) Muell.-Arg. in DC. Prodr. 15(2): 973. 1866; Gamble 925. *Rottlera aureo-punctata* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 3: 122. 1851. *Mallotus lawii* Muell.-Arg. in Linnaea 34: 192. 1865; FBI 5: 438 p.p.

Shrubs 2-3 m tall. Leaves 5.5-13.5 x 1.2-4.5 cm, glabrous, dentate, elliptic or rhomboid, acuminate at apex, cuneate at base. Flowers pale yellow in axillary racemes up to 7.5 cm long. Capsules spinulose, pubescent.

Occasional in evergreen forests of Bonecord. Fl. & Fr. May-Oct.

*Mallotus beddomei* Hook.f. in Fl. Brit. India 5: 438. 1887; Gamble 925.

Shrubs 2-4 m tall. Leaves 12-22 x 3-9 cm, elliptic-ovate,

obtusely caudate-acuminate at apex, rounded at base; stipules pubescent. Flowers white on lax racemes. Capsules stellately pubescent, spinulose.

Rare in evergreen forests of Bonecord. Fl. & Fr.: Mar.-May.

**Mallotus philippensis** (Lam.) Muell.-Arg. *Linnaea* 34: 196. 1865;  
Bedd. *Fl. Sylv.* t.289. 1873; FBI 5: 442; Bourd. 347; Rao 371;  
Gamble 924, 'philippensis'; Airy Shaw in *Kew Bull.* 21: 392,  
1968 & 26: 300, 1972. *Croton philippense* Lam. *Encycl.* 2: 206.  
1786

Trees 12-15 m tall. Leaves 7-18 x 3-9 cm, glandular beneath sinuates-serrate, ovate or elliptic, acute or acuminate at apex, cuneate at base. Flowers brick-red in axillary racemes. Capsules powdery on surfaces, globose.

Fairly common in most deciduous forests of Bonnecord along the boundary. Fl. & Fr.: Aug.-Mar., 'Manjana'

**Mallotus repandus** (Willd.) Muell.-Arg. in *Linnaea* 34: 197. 1805;  
FBI 5: 442; Bourd. 348; Rao 371; Gamble 924; Airy Shaw in *Kew Bull.* 37: 29. 1982. *Croton repandus* Willd. in *Neue Schrift. Freunde Berlin.* 4: 206. 1803.

Leaves 5-7.5 x 5-7 cm, densely golden glandular beneath, deltoid-ovate, stellate-pubescent beneath. Flowers yellow in terminal branched, tomentose inflorescence. Capsules blackish-brown, fulvous-tomentose.

Occasional in evergreen forests. Fl.: Aug.-Jan. Fr.: Mar.-May.  
'Thavatti'

**Mallotus resinosa** (Blanco) Merrill, Sp. *Blancoanae* 222. 1918;  
Airy Shaw in *Kew Bull.* 26: 294. 1972. *Adelia resinosa* Blanco,  
Fl. Filip. ed.2. 562. 1845. *Claoxylon muricatum* Wight, *Icon.* t.  
1886. 1852. *Mallotus muricatus* (Wight) Muell.-Arg. in *Linnaea*  
34: 191. 1865; FBI 5: 436; Bourd. 346; Rao 370; Gamble 925.

Shrubs 2-3 m tall. Leaves 6-20 x 3-6 cm, sinuate, elliptic-rhomboïd, acute or rounded at apex, cuneate at base. Flowers yellow, males in spikes, females in racemes. Capsules echinate, stellately hairy inside.

Rare in evergreen forests of Bonecord. Fl. & Fr.: Jan.-Mar.

*Mallotus rhombifolius* Muell.-Arg. in Linnaea 34: 196. 1865 & in DC. Prodr. 15(2): 979. 1866; FBI 5: 440; Bourd. 346; Rao 371; Gamble 924.

Erect shrubs 1.5-3 m tall. Leaves 7-32 x 3-7 cm, glabrous above, glandular pubescent beneath, elliptic-oblong, acuminate at apex, obtuse at base. Flowers greenish in axillary pairs. Capsules globose, pubescent.

Fairly common in evergreen forests of Chemungi. Fl. & Fr.: Jan.-Apr.

*Mallotus tetracoccus* (Roxb.) Kurz in J. Asiat. Soc. Bengal 16: 245. 1873; Croizat in J. Arnold Arbor. 21: 503. 1940; Airy Shaw in Kew Bull. 26: 298. 1972. *Rottlera tetracocca* Roxb. Fl. Ind. 3: 827. 1832. *Mallotus atbus* var. *occidentalis* Hook.f. Fl. Brit. India 5: 429. 1887; Gamble 924. *Rottlera peltata* Wight, Icon. t. 1873. 1852.

Trees 12-15 m tall; young branches tomentose. Leaves 10-22 x 10-15 cm, glabrous above, pubescent beneath, deltate-ovate, acute apex, rounded or truncate at base; petioles up to 13 cm long. Flowers brown in axillary and terminal panicles. Capsules globose, woolly, spinescent.

Fairly common in the boundary of moist deciduous forests. Fl. & Fr.: Avg.-Nov. 'Vattakumbil'.

*Note:* Merrill (J. Arnold Arbor. 33: 243. 1952) included this species in *M. macrostachyus* (Miq.) Muell.-Arg. But as pointed out by Croizat and Airy Shaw *i.c.* this Roxburghian plant is distinct with long acuminate and rhomboid or 3-lobed leaves which are uncommon in *M. macrostachyus*.

#### *Manihot* Mill.

Leaves obtuse at apex *M. glaziovii*

Leaves acuminate at apex *M. esculenta*

*Manihot esculenta* Crantz, Inst. Rei. Herb. 1: 167- 1766; Airy Shaw in Kew Bull. 26: 308. 1972. *Jatropha manihot* L. Sp. Pl. 1007. 1753. *Manihot utilissima* Pohl. Pl. Pl. Bras. Icon. 1: 32. 1827; FBI 5: 239; Rao 375; Gamble 942.

Shrubs with tuberous roots; stems with prominent leaf scars

Leaves digitately 5-7-lobed, lobes lanceolate. Flowers pale yellow in axillary panicles.

Extensively cultivated throughout the plains for the edible tubers. Fl. & Fr.: Feb.-Mar. 'Maracheeni'

*Manihot glaziovii* Muell.-Arg. in Mart. Fl. Brass. 11(2): 446. 1837; Rao 375; Gamble 942; Webster in J. Arnold Arbor. 48: 347. 1967.

Trees. Leaves digitately 3-5-lobed. Flowers greenish-yellow in axillary panicles.

#### *Micrococca* Benth.

Perennial undershrubs; racemes 8-10 cm long *M. beddomei*

Annual herbs; racemes 5-7.5 cm long *M. mercurialis*

*Micrococca beddomei* (Hook.f.) Prain in Ann. Bot. 25: 630. 1911; Gamble 929. *Claoxylon beddomei* Hook.f. Fl. Brit. India 5: 413. 1887; Rao 368.

Leaves 10-18 x 2-4.5 cm, glabrous on both sides, obscurely serrate, elliptic-oblong, shortly acuminate at apex, cuneate at base. Flowers white in slender axillary racemes up to 6 cm long.

Rare in shaded evergreen forests of Chemungi and Agastyarkudum. Fl. & Fr.: May.-Sept.

*Micrococca mercurialis* (L.) Benth. in Hook. Niger. Pl. 503. 1849; Gamble 929. *Tragia mercurialis* L. Sp. Pl. 680. 1753. *Claoxylon mercurialis* (L.) Thw. Enum. 271. 1861; FBI 5: 413; Rao 368.

Herbs 25-35 cm tall. Leaves 2-5 x 1-1.5 cm, serrate, glabrous, ovate, shortly acuminate at apex, cuneate at base. Flowers greenish in fascicles of axillary peduncles.

Frequent in the plains. Fl. & Fr.: Jun.-Dec.

#### *Phyllanthus* L.

*Note:* The generic delimits of *Phyllanthus* complex has been a matter of dispute. The genus was first established by Linnaeus (1753). Several allied genera like *Cicca* L., *Kirganelia* A. Juss., *Embla* Gaertn., *Eriococcus* Hassk. etc. were added into the *Phyll-*

thus complex due to their vague delimitation. The following treatment is after Webster (J. Arnold Arbor. 38: 76-325, 1957) who united them under a combined genus *Phyllanthus* L.

|                                    |                           |
|------------------------------------|---------------------------|
| 1. Ovary 5-12-loculed              | <i>P. reticulatus</i>     |
| 1. Ovary 3-loculed:                |                           |
| 2. Ovule 1- in each locule:        |                           |
| 3. Calyx lobes dentate or lacerate | <i>P. beddomei</i>        |
| 3. Calyx lobes entire              | <i>P. gageana</i>         |
| 2. Ovules 2- in each locule        | <i>P. emblica</i>         |
| 4. Capsules verrucose              | <i>P. urinaria</i>        |
| 4. Capsules smooth:                |                           |
| 5. Stamens free                    | <i>P. gardnerianus</i>    |
| 5. Stamens connate:                |                           |
| 6. Stipules lanceolate             | <i>P. amarus</i>          |
| 6. Stipules peltate:               |                           |
| 7. Leaves obovate                  | <i>P. maderaspatensis</i> |
| 7. Leaves oblong                   | <i>P. virgatus</i>        |

*Phyllanthus amarus* Schum. Kongl. Danske Vidensk. Selskr. 4: 195, 1829; Airy Shaw, Eophorb, Borneo 182, 1975. *P. niruri* auct. non L. 1753; FBI 5: 298; Rao 356; Gamble 903; Wight, Icon. t.1894, 1852.

Herbs 20-35 cm tall. Leaves 0.4-0.8 x 0.2-0.3 cm, glabrous, oblong or obovate, obtuse at both ends. Flowers greenish-white, solitary.

Frequent throughout the plains. Whole plant used in the treatment of jaundice. Fl. & Fr.: Jul.-Nov. 'Kizhanalli'

*Phyllanthus beddomei* (Gamble) Mohanan in J. Econ. Tax. Bot. 6: 480, 1985, *Reidia beddomei* Gamble in Bull. Misc. Inform. 337, 1925 & in Fl. Pres. Madras 1293, 1925,

Undershrubs up to 1.5 m tall. Leaves 2.5-5 x 2-3 cm, ovate, acute at apex, obtuse at base. Flowers pale yellow, axillary.

Rare in evergreen forests towards the boundary. Fl. & Fr. May-Sept.

**Phyllanthus emblica** L. Sp. Pl. 982. 1753; FBI 5: 288; Rao 355; Webster in J. Arnold Arbor. 38: 76. 1957; Airy Shaw in Kew Bull. 37: 32. 1982. *Emblica officinalis* Gaertn. Fruct. 2: 122. t. 108. 1790; Wight, Icon. t. 1896. 1852; Gamble 906.

Trees 15-20 m tall. Leaves 0.7-1.3 x 0.2-0.3 cm, linear-oblong, subacute at apex, rounded at base. Flowers greenish-yellow. Fruits globose, yellowish-green.

Frequent in deciduous forests throughout. Fl. & Fr.: Feb.-Mar. 'Nelli'

**Phyllanthus gageanus** (Gamble) Mohanan in J. Econ. Tax. Bot. 6: 480. 1985. *Reidia gageana* Gamble in Bull. Misc. Inform. 331. 1925 & in Fl. Pres. Madras 1292. 1925.

Erect undershrubs 30-50 cm tall. Leaves 2.5-6 x 1.5-2.5 cm, glabrous above, glaucous beneath, ovate-lanceolate, acute at apex unequal at base. Flowers yellow in axillary clusters.

Rare in evergreen forests on the way to Agastyarkudum. Fl. & Fr.: Jan.-Mar.

**Phyllanthus gardnerianus** (Wight) Baillon, Etudes Gen. Euphorb. 628. 1858; Gamble 902. *Macraea gardneriana* Wight, Icon. t. 1902. f. 3. 1852. *Phyllanthus simplex* Retz. var. *gardneriana* (Wight) Muell.-Arg. in Linnaea 32: 32. 1863; FBI 5: 295.

Herbs 20-40 cm tall. Leaves 0.8-2 x 0.3-0.5 cm, elliptic-oblong, glabrous, acute at both ends. Flowers pale yellow, solitary or fascicled.

Frequent in wastelands and cultivated fields of the plains. Fl. & Fr.: Jun.-Sept.

**Phyllanthus maderaspatensis** L. Sp. Pl. 982. 1753; Wight, Icon. t. 1895. f. 3. 1852; FBI 5: 292; Gamble 902.

Herbs 30-50 cm tall. Leaves 1-1.5 x 0.2-0.4 cm, elliptic-oblong, obtuse-mucronate at apex, cuneate at base. Male flowers in fascicles, females solitary.

Frequent in moist deciduous forests. Fl. & Fr.: May.-Oct.

**Phyllanthus reticulatus** Poir. in Lam. Encycl. 5: 298. 1804; FBI 5: 288; Rao 355; Airy Shaw in Kew Bull. 26: 322. 1972. *Kirganelia reticulata* (Poir.) Baill. Etud. Gen. Euphorb. 613. 1858; Gamble 905.

Leaves 3-4 x 1.5-2.5 cm, ovate-oblong, acute at apex, cuneate at base. Flowers in axillary clusters. Fruits globose, bluish.

Common in the plains, Fl. & Fr.: Nov.-May.

*Phyllanthus urinaria* L. Sp. Pl. 982, 1753; FBI 5: 293; Rao 356; Gamble 902; Webster & Airy Shaw in Kew Bull. 26: 91, 1971; Airy Shaw in Kew Bull. 26: 325, 1972.

Herbs 25-45 cm tall. Leaves 0.5-2 x 0.2-0.9 cm, oblong (lower rarely obovate), mucronate at apex, obtuse at base. Flowers pale yellow; male pedicellate in fascicles; females solitary, sessile.

Frequent throughout the district at low elevations, Fl. & Fr.; May.-Oct.

*Phyllanthus virgatus* Forst.f. Fl. Ins. Austr. Prod. 65, 1786; Airy Shaw in Kew Bull. 26: 325, 1972. *P. simplex* Retz. Obs. 5: 29, 1788; FBI 5: 195; Rao 356; Gamble 902.

Herbs. Leaves 2-3 x 0.5-1 cm, oblong-elliptic, obtuse at both ends. Flowers greenish-yellow. Capsules 3 mm across, brown.

Common in lower elevations, Fl. & Fr.: Jun.-Sept.

#### *Ricinus* L.

*Ricinus communis* L. Sp. Pl. 1007, 1753; FBI 5: 457; Gamble 933; Airy Shaw in Kew Bull. 26: 328, 1972.

Shrubs. Leaves 6-16 x 7-15 cm, palmately 7-fid; petioles glandular. Flowers pale yellow in terminal panicles. Capsules spinous.

Occasionally found as escapes in wastelands of the plains Fl. & Fr.: Dec.-Feb.

#### *Sauropolis* Blume

*Sauropolis androgynus* (L.) Merr. in Philipp. Bur. For. Bull. 1: 30, 1903; Gamble 911; Airy Shaw in Kew Bull. 26: 333, 1972. *Clutia androgyna* L. Mant. Pl. 128, 1767. *Sauropolis albicans* Blume, Bijdr. 596, 1825; FBI 5: 332; Rao 339. *S. indicus* Wight, Icon. t. 1952, f. 2, 1853.

Erect shrubs 1-2 m tall. Leaves 2.5-8.5 x 1-4.2 cm, sessile, glabrous on both surfaces, ovate-lanceolate, acuminate at apex, rounded at base. Flowers white, solitary, axillary. Capsules inflated, whitish, crustaceous.

Fairly common in moist forest cuttings. Fl. & Fr.: Apr.-May.

**Sebastiania Spreng.**

**Sebastiania chamaelea** (L.) Muell.-Arg. in DC. Prodr. 5(2): 1175. 1866; FBI 5: 475; Rao 375; Gamble 940. *Tregia chamaelea* L. Sp. Pl. 1391. 1753.

Erect herbs; stems woody at base. Leaves 1.5-4.5 x 0.3-1 cm, glabrous, linear-oblong, obtuse at apex, narrowed at base. Flowers greenish, axillary. Capsules warted, red.

A fairly common weed in cultivated lands. Fl. & Fr.: Aug.-Dec.

**Suregada Roxb. ex Rottl.**

**Suregada angustifolia** (Muell.-Arg.) Airy Shaw in Kew Bull. 23: 128. 1969. *Gelonium angustifolium* Muell.-Arg. in DC. Prodr. 15(2): 1128. 1866. *G. lanceolatum* sensu Thw. Enum. 274. 1861, non Willd. 1806; FBI 5: 459; Bourd. 342; Rao 373; Gamble 940 p. p.

Trees 6-9 m tall. Leaves 6-12 x 2.5-5 cm, serrate, oblong-lanceolate, obtuse or acute at apex, acute at base. Flowers pale yellow in axillary racemes.

Rare in evergreen forests. Wood used in constructions. Fl. & Fr.: Sept.-Feb.

**Synostemon F.v. Mueller**

**Synostemon bacciforme** (L.) Webster in Taxon 9: 26. 1960. *Phyllanthus bacciformis* L. Syst. Nat. ed.13, 707. 1774. *Agyneia bacciformis* (L.) Juss. Tent. Euph. 24. 1812; Wight, Icon. t.1893. 1852; FBI 5: 285; Gamble 899.

Prostrate herbs with angular stems. Leaves 0.5-2 x 0.3-0.5 cm, glabrous, oblong, acute at both ends. Flowers greenish-white, axillary, solitary. Capsules ellipsoid, green.

Abundant in sandy areas of Kovalam. Fl. & Fr.: Aug.-Sept.

*Note* : Gamble *I. c.* records this species only in East Coast. The present collection is probably the first from West Coast.

**Tragia L.**

**Tragia involucrata L.** Sp. Pl. 980. 1753; FBI 5: 465; Rao 373; Gamble 931.

Straggling herbs with hispid stinging hairs. Leaves 3-7 x 1-4 cm, crenate-serrate, ovate, acuminate at apex, acute at base. Flowers greenish.

Frequent in wastlands and cultivated fields throughout the plains.  
Fl. & Fr.: Sept.-Mar. 'Choriyanam'

**STILAGINACEAE C.A. Agardh**

*Note* : On the basis of the characteristic fruits with similarity towards family Icacinaceae, Airy Shaw (Willis, A Dictionary of Flowering Plants and Ferns ed.7. 1076, 1966), reinstated the family Stilaginaceae for the Genus *Antidesma* L. (*Stilago* L.). He also pointed out that this family is a connecting link between Icacinaceae and Euphorbiaceae.

**Antidesma L.**

- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Leaves 14-24 cm long             | <i>A. menas</i>      |
| 1. Leaves less than 14 cm long:     |                      |
| 2. Disc lobed; flowers red or brown | <i>A. bunius</i>     |
| 2. Disc not lobed; flowers yellow:  |                      |
| 3. Stamens 2                        | <i>A. acidum</i>     |
| 3. Stamens 3-5                      | <i>A. alexiteria</i> |

*Antidesma acidum* Retz. Obs. Bot. 5: 30, 1789; Fisoh. in Bull. Misc. Inform. 65. 1932; Airy Shaw in Kew Bull. 26: 352, 1972, *A. diandrum* (Roxb.) Roth, Nov. Pl. Sp. 369, 1821; FBI 5: 455 p.p.; Bourd. 362; Rao 363; Gamble 932. *Stilago diandra* Roxb. Pl. Cor. t.166. 1802. *Antidesma lanceolarium* Wall. ex Wight, Icon. t.766. 1844.

Erect shrubs 2-3 m tall; branches rusty pubescent. Leaves

3-8.5 x 2-3 cm, glabrous, ovate, elliptic or oblanceolate, acute or acuminate at apex, cuneate at base. Flowers pale yellow in axillary and terminal racemes up to 4 cm long.

Fairly common in open forests of Bonecord. Fl. & Fr. : Jun.-Aug.

*Antidesma alexiteria* L. Sp. Pl. 1027. 1753 p.p.; FBI 5: 359; Rao 363, *A. zeylanicum* Lam. Encycl. 1: 207. 1783; Bourd. 362; Gamble 908.

Trees 3-4 m tall. Leaves 3.5-9.5 x 1.5-3.5 cm, coriaceous, ovate, elliptic or elliptic-oblong, obtusely acuminate at apex, acute at base. Flowers pale yellow in axillary racemes. Drupes red.

Rare in evergreen forests at low elevations. Fl. & Fr. : Mar.-Jul.

*Antidesma bunius* (L.) Spreng. Syst. Veg. 1: 826. 1825; Wight, Icon. t. 819. 1844-1845; FBI 5: 358; Bourd. 325; Rao 362; Gamble 908. *Stilago bunius* L. Mant. Pl. 122. 1767.

Erect shrubs 3-4 m tall. Leaves 5.5-13.5 x 3.5-5 cm, elliptic acuminate at apex, acute at base. Flowers greenish-yellow, in dense terminal racemes. Fruits reddish when young, turning black later, in slender pendulous peduncles up to 7 cm long.

Occasional in shaded evergreen forests of Chemungi. Fl. & Fr. : Mar.-Aug. *Airyaporiyan*

*Antidesma menasu* (Tul.) Miq. ex. Muell. Arg. in DC. Prodr. 15 (2): 257. 1866; FBI 5: 364 p.p.; Gamble 908; Mandal & Panigrahi in J. Econ. Tax. Bot. 4: 254. 1983. *A. pubescens* Roxb. var. *menasu* Tul. in Ann. Sci. Nat. Bot. ser. 3. 15: 215. 1851.

Trees 8-9 m tall. Leaves 2-8 cm wide, chartaceous, elliptic-oblong, caudate-acuminate at apex, acute at base. Flowers pale yellow in slender spikes up to 6 cm long. Drupes red.

Common in evergreen and moist deciduous forests. Fruits edible. Fl. & Fr. : May-Sept. '*Putharaval*'.

## DAPHNIPHYLACEAE Muell.-Arg.

## Daphniphyllum Hassk.

*Daphniphyllum neilgherrense* (Wight) Rosenth. in Engler, Pflanzenreich. 68: 7, 1919; Gamble 917, *Gouchia neilgherrensis* Wight, Icon. t. 1878 & 1879, 1852, *Daphniphyllum glaucescens* Muell.-Arg. in DC. Prodr. 16(1): 3, 1866; FBI 5: 353; Bourd. 327; Rao 362.

Trees 10-15 m tall. Leaves 5-11 x 1.7-4.5 cm, glabrous, black when dry, obovate-oblong, obtuse at apex, cuneate or rounded at base. Flowers yellowish-green in axillary racemes. Fruits ovoid.

Fairly common in evergreen forests of Ponmudi and Agasthyarkudum above 1500 m. Fl. & Fr.; Jan.-Jun.

## ULMACEAE Mirbel

Perianth lobes imbricate *Celtis*

Perianth lobes in duplicate-valvate *Trema*

*Celtis* L.

*Celtis philippensis* Blanco var. *wightii* (Planch.) Soep in Steenis, Fl. Malesiana 1, 8: 62, 1977. *C. wightii* Planch. Ann. Sci. Nat. Bot. Ser. 4, 10: 307, 1148; FBI 5: 483; Fisch. 944.

Trees 4-6 m tall. Leaves 3.5-8x 1.8-3.3 cm, oblong-lanceolate to elliptic-lanceolate, chartaceous, minutely pubescent on nerves and nervules, acuminate at apex, unequally cuneate at base. Flowers grey, pubescent in axillary cymes.

Occasional in western slopes of Agasthyarkudum. Fl. & Fr.; Apr.-Sept.

*Trema* Lour.

*Trema orientalis* (L.) Blume in Ann. Mus. Bot. Lugduno Batavum 2: 62, 1856; FBI 5: 484; Fisch. 945; Polhill in Kew Bull. 19: 143, 1964, *Celtis orientalis* L, Sp. Pl. 1044, 1753, *Sponia wightii* Planch. in Ann. Sci. Nat. Bot. ser.3. 10: 322, 1848; Wight, Icon. t. 1971, 1853.

Trees 7-14 m tall. Leaves 5-11 x 2.5-6 cm, hirsute, serrate,

ovate-lanceolate, acuminate at apex, obliquely rounded at base. Flowers pale green in axillary cymes.

Frequent in moist deciduous forests of Kallar and Bonecord. Fl.: Mar.-Nov.

### MORACEAE Link

|                                  |                   |
|----------------------------------|-------------------|
| 1. Herbs                         | <i>Dorstenia</i>  |
| 1. Trees or shrubs:              |                   |
| 2. Receptacles hollow            | <i>Ficus</i>      |
| 2. Receptacles not hollow:       |                   |
| 3. Receptacles disciform         | <i>Antiaris</i>   |
| 3. Receptacles oblong to globose | <i>Artocarpus</i> |

#### *Antiaris* Lesch. *nom. cons.*

*Antiaris toxicaria* (Pers.) Lesch. in Ann. Mus. Natl. Hist. Nat. 16: 748. t.22. 1810; FBI 5: 537; Bourd. 372; Rao 385; Fisch. 975; Corner in Abeywickrama, Rev. Handb. Fl. Ceylon 1(2): 162. 1977. *Ipo toxicaria* Pers. Syn. 2: 566. 1807.

Trees 35-40 m tall with buttressed trunk. Leaves 4-19 x 2-10 cm, scabrous, entire or serrulate, ovate-oblong, acuminate at apex, rounded or cordate at base. Male flowers crowded in axillary receptacles surrounded by bracts. Female flowers solitary. Drupes brown-velutinous, ellipsoid.

Occasional in semievergreen forests. Fl. & Fr.: Sept.-May. 'Arangili'.

#### *Artocarpus* J.R. & G. Forst. *nom. cons.*

|                                    |                         |
|------------------------------------|-------------------------|
| Young branches and leaves hirsute  | <i>A. hirsutus</i>      |
| Young branches and leaves glabrous | <i>A. heterophyllus</i> |

*Artocarpus heterophyllus* Lam. Encycl. 3: 210. 1789; Corner in Gard. Bull. Straits Settlem. 10: 56. 1939 & in Abeywickrama, Rev. Handb. Fl. Ceylon 1(2): 113. 1977. *A. integrifolius* sensu Fisch. in Gamble, Fl. Pres. Madras 1369. 1928 & 957. 1957 (repr. ed.) non L.f. 1781; FBI 5: 541; Bourd. 370; Rao 385.

Leaves 7-12 x 5-7.5 cm, elliptic-oblong, subobtuse at apex, acute at base. Flowers greyish black, crowded in globose or oblong, fleshy receptacles. Syncarps oblong, echinate.

Occasional in evergreen forests at low elevations; extensively cultivated in plains for the edible fruits and valuable wood. Fl. & Fr.: Dec.-Apr. 'Pilavu'

*Artocarpus hirsutus* Lam. Encycl. 3: 210, 1789; Wight, Icon. t.1957. 1853; FBI 5: 541; Bourd. 368; Rao 386; Fisch. 957.

Trees ca. 12 m tall. Leaves 12-20 x 5.5-10.5 cm, sparsely puberulous above, densely pubescent beneath, elliptic, shortly acuminate at apex, acute at base. Flowers brownish in oblong receptacles 7-11 cm long; peduncles pubescent,

Frequent along the margins of rivers and streams in semievergreen and evergreen forests. Fruits and seeds edible. Wood used for furniture and house construction. Fl. & Fr.: Dec.-Apr. 'Angili'

#### **Dorstenia L.**

*Dorstenia indica* Wight, Icon. t.1964. 1853; FBI 5: 494; Rao 379; Fisch. 958.

Stems puberulous. Leaves 3.5-13 x 1.5-2.5 cm, glabrous above, sparsely pubescent beneath, crenate, elliptic-lanceolate, acuminate at apex, cuneate at base. Flowers greenish, crowded in obconic receptacle.

Frequent in shady undergrowth of evergreen forests of Chemungu Fl. & Fr.: Jan.-May.

#### **Ficus L.**

1. Leaves glabrous:

2. Figs peduncled:

3. Peduncles ca. 2 cm long

*F. beddomei*

3. Peduncles ca. 0.5 cm long

*F.tinctoria* subsp.  
*gibbosa* var. *cuspidifera*

2. Figs sessile or subsessile:

- 4. Figs tomentose when young, in axillary pairs *F. religiosa*
- 4. Figs glabrous when young, clustered :
  - 5. Leaves broadly ovate *F. arnottiana*
  - 5. Leaves oblong-lanceolate *F. tsjakela*
- 1. Leaves hairy :
  - 6. Figs axillary *F. exasperata*
  - 6. Figs in tubercle from old wood or in separate leafless branches *F. hispida*

**Ficus arnottiana** (Miq.) in Ann. Mus. Bot. Lugduno Batavum 3: 287. 1867; King in Ann. Roy. Bot. Gard. Calcutta 1: 56. t.68. & 84V, 1887-1888; FBI 5: 513; Bourd. 364; Rao 382; Fisch. 953; Corner in Gard. Bull. Straits Settlem. 21: 11. 1965. *Urostigma-arnottiana* Miq. in London J. Bot. 6: 564. 1847.

Trees 5-6 m tall. Leaves 10-16 x 4-8.5 cm, acuminate at apex, truncate or cordate at base; petioles ca. 12.5 cm long. Figs ca. 0.6 x 1 cm, yellowish, globose, glabrous.

Frequent in drier rocky localities from the sea level to low elevations of ghats. Fl. & Fr. Feb.-Apr.

**Ficus beddomei** King in Ann. Roy. Bot. Gard. Calcutta 1: 29. t. 24 & 81. 1887-1888; FBI 5: 502; Bourd. 360; Rao 380; Fisch. 954.

Trees 6-9 m tall. Leaves 9-25 x 4-11 cm, lanceolate, shortly acuminate at apex, rounded at base; margins undulate; nerves 10-14, close. Figs ca. 2 x 1.8 cm, yellow, globose; peduncle up to 2 cm long.

Occasional in evergreen forests of Ponmudi and Bonecord, Fl. & Fr.; Feb.-Apr. *Thavatta-al'*.

**Ficus exasperata** Vahl, Enum. 2: 197. 1806; Corner in Gard. Bull. Straits Settlem. 21: 74. 1965. *F. asperimus* Roxb. Fl. Ind. 3: 554. 1832; Wight, Icon. t.633. 1843; FBI 5: 522; Bourd. 360; Rao 383; Fisch. 955.

Trees 3-5 m tall. Leaves 6-18 x 2-6 cm, floccose above, hirsute beneath, serrate, ovate-lanceolate, acuminate at apex,

rounded at base. Figs yellowish-red, globose, axillary.

Frequent in drier parts of plains and in low elevations of ghats. Fl. & Fr.: Feb.-Mar. 'Theragam'

*Ficus hispida* L. f. Suppl. Pl. 442. 1781; King in Ann. Roy. Bot. Gard. Calcutta 1: 116. t.154. 1887-1888; FBI 5: 522; Fisch. 956; Corner in Gard. Bull. Straits Settlem. 21: 89. 1965 & in Abeywickrama, Rev. Handb. Fl. Ceylon 1(2): 154. 1977. *Ficus oppositifolius* Roxb. Pl. Cor. t.124. 1798; Wight, Icon. t.638. 1843.

Trees 3-6 m tall; branches brown hispid. Leaves 9.5-17 x 4.5-9 cm, hispid, serrate, broadly elliptic, abruptly acuminate at apex, rounded at base. Figs ca. 2.5 cm across, green when young, yellowish-red later, pubescent.

Frequent near rivers and streams in the plains as well as in semievergreen forests. Fl. & Fr.: Dec.-May. 'Theragam'

*Ficus religiosa* L. Sp. Pl. 1059. 1753; Bedd. Fl. Sylv. t.313. 1873; King in Ann. Roy. Bot. Gard. Calcutta 1: 55, t.67A & 84U. 1887-1888; FBI 5: 513; Bourd. 382; Fisch. 953; Corner in Gard. Bull. Straits Settlem. 21: 6. 1965. *Urostegia religiosum* (L.) Gasp. Ric. Caprif. 82. t.7. f.1-5. 1845; Wight Icon. t.1967. 183.

Trees 10-12 m tall. Leaves 6.5-13.5 x 4-9.5 cm, coriaceous, broadly ovate, caudate-acuminate at apex, narrowed at base, margins wavy; petioles up to 8.5 cm long. Figs brown, sessile.

Frequent in the plains; cultivated along roadsides and near temples. Fl. & Fr.: Feb.-Apr. 'Araya'

*Ficus tinctoria* Forst.f. subsp. *gibbosa* (Blume) Corner var. *cuspidifera* (Miq.) Chithra in Henry et. al. Fl. Tamilnadu ser. 1. 2: 255. 1987. *F.cuspidifera* Miq. in Hook. London J. Bot. 7: 434. 1848. FBI 5: 497. *F. gibbosa* Blume var. *cuspidifera* (Miq.) King in Ann. Roy. Bot. Gard. Calcutta 1: 6. t. 2a, 1887; Bourd. 357; Rao 379; Fisch. 955.

Trees 3-4 m tall. Leaves 3.5-4 x 1.5-2.3 cm, glabrous, oblong, acuminate at apex, cuneate at base. Figs green in axillary pairs; peduncles 0.5 cm long.

Occaional in moist deciduous forests at low elevations. Fl. & Fr.: Feb.-Apr.

*Ficus tsjahela* Burm.f. Fl. Ind. 227. 1768, 'F. tsjahela auct.' King in Ann. Roy. Bot. Gard. Calcutta 1: 57. t.70 & 84X. 1887-1888; FBI 5: 513; Bourd. 364; Rao 382; Fisch. 953; Corner in Gard. Bull. Straits Settlem. 21: 7. 1965 & in Abeywickrama, Rev. Handb. Fl. Ceylon 1(2): 128. 1977.

Trees 8-12 m tall. Leaves 12-21 x 3-8.5 cm, coriaceous, oblong-lanceolate, caudate-acuminate at apex, truncate, rounded or cordate at base; petioles 3.5-13 cm long. Figs ca. 0.7 cm across, greenish-yellow, sessile.

Common in moist deciduous and evergreen forests. Fl. & Fr.: Feb.-May. 'Kar-a'

Note : This species is often confused with *F. virens* Aiton but the smaller, sessile figs and absence of internal bristles are distinguishing characteristics of this species.

### URTICACEAE Juss.

1. Plants with stinging hairs :

|                 |                    |
|-----------------|--------------------|
| 2. Annual herbs | <i>Laportea</i>    |
| 2. Trees        | <i>Dendrocnide</i> |

1. Plants without stinging hairs :

3. Herbs :

|  |                   |
|--|-------------------|
| 4. Flowers aggregated in fleshy receptacle | <i>Elatostema</i> |
| 4. Flowers not as above :                  |                   |

|                        |                  |
|------------------------|------------------|
| 5. Flowers in clusters | <i>Pouzolzia</i> |
|------------------------|------------------|

|                       |  |
|-----------------------|--|
| 5. Flowers in cymes : |  |
|-----------------------|--|

|                   |              |
|-------------------|--------------|
| 6. Leaves serrate | <i>Pilea</i> |
|-------------------|--------------|

|                  |                  |
|------------------|------------------|
| 6. Leaves entire | <i>Pellionia</i> |
|------------------|------------------|

3. Shrubs or trees :

|                                  |                  |
|----------------------------------|------------------|
| 7. Flowers in spiciform clusters | <i>Boehmeria</i> |
|----------------------------------|------------------|

|                                 |  |
|---------------------------------|--|
| 7. Flowers in cymose clusters : |  |
|---------------------------------|--|

|                                   |                    |
|-----------------------------------|--------------------|
| 8. Leaves white tomentose beneath | <i>Debregeasia</i> |
|-----------------------------------|--------------------|

|                        |                  |
|------------------------|------------------|
| 8. Leaves not as above | <i>Oreocnide</i> |
|------------------------|------------------|

*Boehmeria* Jacq.

*Boehmeria macrophylla* Hornem. Hort. Bot. Hafn. 2: 890. 1815.  
*B. platyphyllo* Buch.-Ham. ex D.Don. var. *longissima* Hook.f. Fl. Brit. India 5: 579. 1888; Fisch. 970. *Splitgerbera macrostachya* Wight, Icon. t. 1971. 1853.

Shrubs 2-3 m tall. Leaves 9-11 x 2.5-3 cm, pilose, finely serrate, acuminate at apex, obtuse at base. Flowers greenish-yellow in interrupted pubescent spikes up to 22 cm long.

Fairly common in evergreen forests. Fl. & Fr.: May.-Sept.

Note: Friis and Maraisa (in Kew Bull. 36: 163-164. 1982) have shown that *B. macrophylla* Hornem. (1815) and *B. platyphyllo* Buch.-Ham. ex D.Don (1825) are conspecific.

*Debregeasia* Gaud.

|                  |                      |
|------------------|----------------------|
| Leaves entire    | <i>D. ceylanica</i>  |
| Leaves serrulate | <i>D. longifolia</i> |

*Debregeasia ceylanica* Hook.f. Fl. Brit. India 5: 592. 1882; Fisch. 972.

Trees 4-6 m tall; stems woolly. Leaves 9-18 x 5-12 cm, puberulous above, white-velvety pubescent beneath, broadly ovate, acuminate at apex, rounded or cordate at base. Flowers red in axillary cymes.

Very rare in evergreen forests of Ponmudi. Fl. & Fr.: Nov.-Mar.

*Debregeasia longifolia* (Burm.f.) Wedd. in DC. Prodr. 16(1): 235. 1869. *Urtica longifolia* Burm.f. Fl. Ind. 197. 1768. *Debregeasia velutina* Gaud. Bot. Voy. Bonite t. 90. 1844-1846; FBI 5: 590; Rao 389; Fisch. 971. *Conocephalus niveus* Wight, Icon. t. 1959. 1853.

Shrubs or trees 2-4 m tall; branchlets pilose. Leaves 8.4-16 x 1.8-2.8 cm, oblong-lanceolate, acerbid above, acuminate at apex, rounded at base. Flowers greenish in dichotomous pubescent cymes.

Frequent in evergreen forests of Agasthyarkudum. Fl. & Fr. Sept.-Feb. 'Kattunochi'

**Dendrocnide Miq.**

**Dendrocnide sinuata** (Blume) Chew in Gard. Bull. Straits Settlem. 21: 206, 1965. *Urtica sinuata* Blume, Bijdr. 505, 1825. *Laportea crenulata* (Roxb.) Wedd in Arch. Mus. Hist. Nat. 9: 133, 1856; FBI 5: 550; Rao 387; Fisch. 961. *Urtica crenulata* Roxb. Fl. Ind. 3: 591, 1832.

Trees with stinging hairs. Leaves 10-30 x 5-13 cm, crenulate, narrow-lanceolate or elliptic, acuminate at apex, narrowed at base. Flowers unisexual in axillary cymes.

Occasional in evergreen forests of Ponmudi. Fl. & Fr.: Dec.-Apr. 'Anaveratty.'

**Elatostema Gaud. nom. cons.**

**Elatostema lineolatum** Wight, Icon. t.1984, 1853; FBI 5: 563; Rao 388; Fisch. 963; Wedd. in DC. Prodr. 16(1): 181, 1869; Schroter in Feddes Repert. 83(1); 30, 1935.

Erect herbs 30-75 cm tall; branches hairy. Leaves 7.5-15.5 x 1.5-3 cm, serrate, elliptic-lanceolate, caudate-acuminate at apex, cuneate at base. Flowers white in sessile capitate axillary receptacles.

Abundant in moist shady undergrowth of evergreen forests especially on cuttings and steep slopes. Fl. & Fr.: Jun.-Sep.

**Laportea Gaud. nom. cons.**

**Laportea interrupta** (L.) Chew in Gard. Bull. Straits Settlem. 21: 200, 1965. *Urtica interrupta* L. Sp. Pl. 983, 1753. *Fleurya interrupta* (L.) Gaud. in Freyc. Voy. Bot. 497. t.8, 1826; Wight, Icon. t. 1975, 1853; FBI 5: 548; Rao 367; Fisch. 959.

Herbs 20-40 cm tall. Leaves 5-14 x 3.5-5 cm, hispid, crenate-serrate, acuminate at apex, truncate at base. Flowers greenish in long axillary peduncles up to 12 cm long.

Fairly common in lower elevations of ghats and cultivated fields in plains. Fl. & Fr.: Aug.-Oct. 'Choryanam'.

**Oreocnide Miq.**

**Oreocnide integrifolia** (Gaud. ex Wedd.) Miq. in Ann. Mus. Bot.

Lugduno Batavum 4: 306. 1869. *Villebrunea integrifolia* Gaud. ex Wedd. in Ann. Sci. Nat. Bot. ser.4, 1: 195. 1854 & in Arch. Mus. Hist. Nat. Paris 9: 452. 1857; FBI 5: 589; Rao 389; Fisch. 971.

Shrubs 3-6 m tall. Leaves 10-20 x 2.5-5.5 cm, scabrous above, sericeous beneath along the veins only, oblong or obovate-oblong, acuminate at apex, acute at base. Flowers pale yellow in dichotomous hispid axillary cymes.

Very rare in evergreen forests in the western slopes of Agasthyarkudum. Fl. & Fr.: Mar.-Jul.

*Note:* Guadichaud (Bot. Voy. Bonite tt. 91, 92. 1844-1846 exact date not known) was the first to publish this species in a new genus - *Villebrunea*, but he did not describe the new genus. Weddell (Ann. Sci. Nat. Bot. ser.4, 1: 195. 1854) validated the genus by rendering a generic description. Meanwhile, Miquel (Fl. Jungh. 1: 39, 1851) published a new genus *Oreocnide* which proved to be congeneric with *Villebrunea*. Miquel, therefore, reduced *Villebrunea* Gaud. ex Wedd. into the synonymy of *Oreocnide* in his subsequent publications. *Oreocnide* Miq. is the legitimate genus name as correctly pointed out by Sprague (Bull. Misc. Inform. 395-397. 1928).

#### *Pellonia* Gaud. *nom. cons.*

*Pellonia heyneana* Wedd. in Arch. Mus. Hist. Nat. Paris 9: 287. t.5. 1856 & in DC. Prodr. 16(1): 169. 1869; FBI 5: 561; Rao 388; Fisch. 965.

Erect or decumbent herbs. Leaves 8-17 x 3-5.5 cm, appressed hairy, obliquely elliptic-oblong, acuminate at apex, cuneate at base. Flowers yellowish-white in long peduncled axillary cymes. Achenes ovate.

Frequent in evergreen forests near water courses. Fl. & Fr.: Mar.-May. 'Nilampatti'.

#### *Pilea* Lindl. *nom. cons.*

Leaves 1-5 mm long

*P. microphylla*

Leaves more than 2 cm long

*P. melastomoides*

*Pilea melastomoides* (Poir.) Wedd. in Ann. Sci. Nat. Bot. ser.14,

- 1: 186, 1854. *Urtica melastomoides* Poir. in Lam. Encycl. Suppl.  
 4: 223, 1816. *Pilea trinervia* Wight, Icon. t.1973, 1853; FBI 5:  
 557; Rao 387; Gamble 964.

Succulent herbs up to 1 m tall. Leaves 6-20 x 1-9 cm, serrate,  
 lanceolate or ovate, acuminate at apex, narrowed at base. Flowers  
 reddish in peduncled cymes. Achenes granular.

Occasional in evergreen forests of Boneccord. Fl. & Fr.:  
 May-Jun.

*Pilea microphylla* (L.) Liebm. in Kongel Dansk. Vedensk. Selsk.-  
 Skr. 5(2): 296, 1861; Fisch, 965. *Parietaria microphylla* L. Syst.  
 ed.10; 1308, 1759.

Prostrate herbs. Leaves 1-5 x 0.5-2 mm, pilose, oblanceolate,  
 acute at apex, cuneate at base. Flowers reddish in axillary cymes.

Abundant on wet walls and cuttings throughout the plains and  
 ghats. Fl. & Fr.: Jul.-Dec.

#### *Pouzolzia* Gaud.

- |                                    |                      |
|------------------------------------|----------------------|
| 1. Buds rounded or acute at apex : |                      |
| 2. Leaves 4-7.5 cm long            | <i>P. auriculata</i> |
| 2. Leaves less than 3.5 cm long    | <i>P. zeylanica</i>  |
| 1. Buds truncate at apex           | <i>P. wightii</i>    |

*Pouzolzia auriculata* Wight, Icon. t.1980, f.2. 1853; FBI 5: 582;  
 Rao 388; Gamble 967.

Leaves pubescent, ovate-lanceolate, acute or acuminate  
 at apex, narrowed or rounded at base. Flowers reddish in sessile  
 clusters. Achenes strigose.

Common in moist areas of Boneccord. Fl. & Fr.: May-Oct.

*Pouzolzia wightii* Benn. Pl. Jav. Rar. 66, 1838.

- |                                  |                        |
|----------------------------------|------------------------|
| 1. Stems pubescent or puberulous | var. <i>wightii</i>    |
| 1. Stems glabrous :              |                        |
| 2. Cauline leaves petiolate      | var. <i>lawsoniana</i> |
| 2. Cauline leaves sessile        | var. <i>caudata</i>    |

*Pouzolzia wightii* Benn. Pl. Jav. Rar. 66. 1838, var. *wightii*; Wight, Icon. t.2093. f.8. 1853; FBI 5: 584; Rao 388; Fisch. 967.

Leaves 6-12 x 1-2.5 cm, scabrid above, lanceolate, upper ones reduced to floral bracts. Flowers reddish in sessile clusters.

Occasional along streams in evergreen forests of Bonecord. Fl. & Fr.: Jun.-Oct.

*Pouzolzia wightii* Benn. var. *caudata* (Benn.) Fisch. in Gamble, Fl. Pres. Madras 1384. 1928 & 968. 1957 (repr. ed.). *P. caudata* Benn. Pl. Jav. Rar. 66. 1848; Wight, Icon. t.2097. f.27. 1853; FBI 5: 585. *P. courtoisii* Wight, Icon. t.2093. f.10. 1853.

Herbs up to 1.5 m tall. Leaves 2.5-12 x 1-3 cm, glabrous, linear-lanceolate, gradually acuminate at apex, rounded at base. Flowers yellow in terminal racemes up to 35 cm long.

Fairly common along banks of streams on the slopes of Agastyarkudum. Fl. & Fr.: Jun.-Oct.

*Pouzolzia wightii* Benn. var. *lawsoniana* Fisch. in Gamble, Fl. Pres. Madras 1384. 1928 & 968. 1957 (repr. ed.).

Erect herbs up to 1 m tall. Leaves 5-14 x 2.5-5 cm, elliptic-lanceolate, acuminate at apex, truncate or narrowed at base. Flowers pink in axillary clusters.

Rare, near water courses and streams in slopes of Agastyarkudum. Fl. & Fr.: Jun.-Sept.

*Pouzolzia zeylanica* (L.) Benn. Fl. Jav. Rar. 67. 1838; Merr. in Amer. Phil. Soc. n.s. 24(2): 140. 1935; Santapau in Rec. Bot. Surv. India 16: ed.3, 255. 1967. *Parietaria zeylanica* L. Sp. Pl. 1052. 1753. *Pouzolzia indica* (L.) Gaud. Freyc. Voy. Bot. 503. 1826; Wight, Icon. t.1980. f.1. 1853; FBI 5: 581; Fisch. 967. *Parietaria indica* L. Mant. Pl. 128. 1767.

Erect herbs. Leaves 1-3.5 x 0.5-1.5 cm, hirsute, ovate-lanceolate, acute at apex, rounded at base. Flowers pale red in axillary clusters.

Fairly common in moist places in grassy slopes of ghats. Fl. & Fr.: Jun.-Sept.

## CASUARINACEAE Br.

*Casuarina* Adanson

*Casuarina equisetifolia* L. Amoen. Acad. 4: 143. 1759; FBI 5: 598; Fisch. 972; Friis in Taxon 29: 495. 1980.

Trees 15-20 m tall; branchlets arising from the axils of scales. Leaves 0.5-1 mm long, scaly. Male flowers in terminal spikes of 3-6 x 0.3 cm; tepals 2, lanceolate, ciliate; stamen 1. Female spikes shortly stalked; bracts and bracteoles persistent. Nutlets compressed.

Cultivated in sea shore. Fl. & Fr.: Aug.-Sept.

## CYCADACEAE Pers.

*Cycas* L.

*Cycas circinalis* L. Sp. Pl. 1188. 1753; FBI 5: 656; Bourd. 383; Rao 391; Fisch. 975.

Trees 9-12 m tall. Leaves 7-22 cm long; leaflets 80-100 pairs, each 20-30 x 0.7-1 cm, linear-acuminate. Male cones 2.5-5 cm long, cylindric-ovoid. Seeds ovoid, orange.

Frequent from sea-level to deciduous forests. Fr.: Dec.-Feb.

## PODOCARPACEAE Endl.

*Nageia* Gaertn.

*Nageia wallichianus* (Presl) Kuntze, Rev. Gen. Pl. 2: 800. 1891; Laubef. in Blumea 32: 210. 1987. *Podocarpus wallichianus* Presl, Bot. Bemerk. 110. 1844; Fisch. 974. *P. latifolia* Wall. Pl. Asiat. Rar. 1: 26, t. 30. 1830, non (Thunb.) R. Br. 1825; FBI 5: 649. *Decussocarpus wallichianus* (Presl) Laubef. in J. Arnold Arbor. 50: 349. 1969.

Trees 15-25 m tall. Leaves 7.5-13 x 1.8-3.8 cm, elliptic or elliptic-lanceolate, acute or acuminate at apex, narrowed at base. Seeds 1.5-1.8 cm across, solitary, globular, seated on a fleshy receptacle.

Rare in Agastyarkudum. Fr.: Apr.-May.

## GNETACEAE Lindl.

*Gnetum* L.

*Gnetum ulm* Brongn in Duperrey, Voy. Coquille 12. 1829; Markgraf in Bull. Jard. Bot. Buitenzorg. ser.3, 10: 469. t.6. f.4. 1930. *G. scandens* sensu Brandis, For. Fl. 602. 1874, non Roxb. 1832; FBI 642 p.p.; Rao 390; Fisch. 1304.

Lianas. Leaves 7-16 x 4-6.5 cm, glabrous, chartaceous, elliptic, acuminate at apex, obtuse at base. Fruits 3.5 x 1.4 cm, yellow, oblong.

Fairly common in evergreen forests. Fr. : Mar.-Jul. 'Karutha-odal'

## HYDROCHARITACEAE Juss.

Plants with branched stems *Hydrilla*

Plants stemless *Blyxa*

*Blyxa Noronha.*

Flowers bisexual *B. aubertii*

Flowers unisexual *B. octandra*

*Blyxa aubertii* Rich. in Mem. Cl. Sci. Math. Phys. Inst. France 1811(2): 19-23, 77. t.4. 1814; Cook & Luoud in Aquatic Bot. 15: 11. 1983. *B. zeylanica* Hook.f. Fl. Brit. India 5: 661. 1888; Fisch. 978.

Submerged aquatic herbs. Leaves 5-50 x 0.2-1.2 cm, linear, acuminate at apex, narrowed at base. Spathes greenish-yellow, sessile or peduncled. Flowers sessile, solitary or paired. Capsules cylindrical; seeds ridged.

Frequent in pools and canals. Fl. & Fr.: Aug.-Dec.

Note: Cock & Luoud l.c reduced *B. echinosperma* to a variety of *B. aubertii* based on the echinate and tailed nature of seeds. Intermediate forms were observed and hence we prefer to treat our specimen in *B. aubertii* sensu lato.

*Blyxa octandra* (Roxb.) Planch. ex Thw. Enum. 332. 1864; Cook & Luoud in Aquatic Bot. 15: 27. 1983; FBI 5: 661. *Vallisneria octandra* Roxb. Pl. Cor. 2: 34. t. 165. 1802. *Blyxa roxburghii* Rich. in Mem. Cl. Sci. Math. Phys. Inst. France 1811(2): 71. 1814 nom. illeg; Rao 392.

Submerged aquatic herbs. Leaves 6-40 x 0.25-0.8 cm, linear-lanceolate, attenuate at apex, narrowed at base. Female flowers sessile. Seeds ellipsoidal, ridged.

Occasional in stagnant pools in the midland zone. Fl. & Fr.: Aug.-Dec.

#### *Hydrilla* L. C. Rich.

*Hydrilla verticillata* (L.f.) Royle, Ill. Bot. Himal. t. 376. 1839; FBI 5: 659; Gamble 977. *Serpula verticillata* L.f. Suppl. Pl. 416. 1781.

Submerged herbs with branched stems. Leaves linear, whorled. Flowers solitary, unisexual.

Fairly common in fresh water ponds. Fl. & Fr.: Oct.-Jan.

#### BURMANNIACEAE Blume

##### *Burmannia* L.

*Burmannia coelestis* D. Don, Prodr. Fl. Nepal 44. 1825; FBI 5: 665; Fisch. 979. *B. pusilla* (Miers) Thw. Enum. Pl. 325. 1864. *Gonyanthes pusilla* Miers in Trans. Linn. Soc. London 18: 537. t. 38. f. 3. 1841. *Burmannia coelestis* var. *pusilla* (Miers) Trimen, Hand. Fl. Ceylon 4: 131. 1898.

Slender erect herbs with filiform stems 10-15 cm tall. Leaves reduced to scales. Flowers purple.

Fairly common in marshes. Fl. & Fr.: Aug.-Dec.

#### ORCHIDACEAE Juss.

1. Plants climbing *Vanilla*
1. Plants not climbing:

  2. Plants epiphytic or lithophytic:

3. Leaves equitant :
4. Lip with a basal appendage *Podochilus*
4. Lip without a basal appendage *Oberonia*
3. Leaves not equitant :
5. Lip without spur, rarely succinate at base :
6. Stems nodose, internodes pseudobulbous *Dendrobium*
6. Stems not as above :
7. Pseudobulbs elongate, stem like or globose *Eria*
7. Pseudobulbs not as above :
8. Flowers subsessile *Porpax*
8. Flowers stalked :
9. Lip entire :
10. Rhizomes creeping :
11. Anthers with a horn *Trias*
11. Anthers without a horn *Bulbophyllum*
10. Rhizomes not creeping *Liparis*
9. Lip 3-lobed :
12. Lip 2-auricled *Chrysoglossum*
12. Lip not auricled :
13. Lobes of the lip with awned plates *Phaelenopsis*
13. Lobes of the lip not as above :
14. Rhizomes creeping *Coelogyne*
14. Rhizomes not creeping :
15. Leaves distichous; lip not papillose :
16. Inflorescence pendulous, lateral *Cymbidium*
16. Inflorescence erect, terminal *Polystachya*
15. Leaves radical; lip papillose *Sirhaokera*
5. Lip spurred :

17. Stems leafless when flowering *Chilochista*
17. Stems leafy always :
18. Spur with a 2-lobed projection at its back *Robiquitia*
18. Spur without any projection at its back :
19. Petals and sepals equal and similar :
20. Foot long, distinct *Aerides*
20. Foot 0, or indistinct *Gastrochilus*
19. Petals and sepals unequal or dissimilar :
21. Lateral sepals adnate to the spur *Acampe*
21. Lateral sepals free *Vanda*
2. Plants terrestrial :
22. Plants leafless :
23. Disc 2-3-ridged *Epipogium*
23. Disc not ridged *Aphyllorchis*
22. Plants leafy :
24. Column with appendages :
25. Flowers resupinate; lip superior :
26. Sides of the lip produced upwards beyond the column *Malaxis*
26. Sides of the lip not as above *Liparis*
25. Flowers not as above; lip inferior :
27. Stems subterranean, creeping :
28. Lip without a claw :
29. Leaves less than 20 cm long :
30. Side lobes of lip divided into tentacles *Pecteilis*
30. Side lobes of lip not as above *Goodyera*
29. Leaves more than 30 cm long *Phais*
28. Lip with a claw :

|   |                        |
|---|------------------------|
| 31. Claw of the lip pectinate                                     | <i>Anoectochilus</i>   |
| 31. Claw of the lip entire  | <i>Zeuxine</i>         |
| 27. Stems not subterranean, not creeping :                        |                        |
| 32. Leaves narrow-linear, grass-like                              | <i>Arundina</i>        |
| 32. Leaves not as above :   |                        |
| 33. Stems nodose  | <i>Pachystoma</i>      |
| 33. Stems not nodose :  |                        |
| 34. Pseudobulbs 1-leaved  | <i>Chrysoglossum</i>   |
| 34. Pseudobulbs more than 1-leaved :                              |                        |
| 35. Disc with serrated lamella                                    | <i>Ipsea</i>           |
| 35. Disc without lamella  | <i>Cheirostylis</i>    |
| 24. Column without appendages :                                   |                        |
| 36. Leaves appearing after flowering                              | <i>Nervilia</i>        |
| 36. Leaves always present :                                       |                        |
| 37. Pseudobulbs 1-leaved  | <i>Tainia</i>          |
| 37. Pseudobulbs more than 1-leaved :                              |                        |
| 38. Disc keeled, tubercled, lamellate or<br>with a basal callus : |                        |
| 39. Lip entire  | <i>Geodorum</i>        |
| 39. Lip 3-lobed :   |                        |
| 40. Midlobes of lip bifid   | <i>Calanthe</i>        |
| 40. Midlobes of lip entire  | <i>Acanthephippium</i> |
| 38. Disc not as above :   |                        |
| 41. Flowers solitary  | <i>Paphiopedilum</i>   |
| 41. Flowers in racemes or spikes :                                |                        |
| 42. Lip 3-spurred   | <i>Satyrium</i>        |
| 42. Lip with one spur only :                                      |                        |
| 43. Scapes lateral  | <i>Eulophia</i>        |
| 43. Scapes terminal :   |                        |
| 44. Lateral sepals arched;  |                        |

|                          |                       |
|--------------------------|-----------------------|
| 45. Stigma lobed         | <i>Habenaria</i>      |
| 45. Stigma not lobed     | <i>Brachycorythis</i> |
| 44. Lateral sepals erect | <i>Peristylus</i>     |

**Acampe Lindl.**

*Acampe praemorsa* (Roxb.) Blatt. & McCann. in J. Bombay Nat. Hist. Soc. 35: 1495. 1932; Abraham & Vatsala, Intr. Orch. South India 450, f.135. 1981. *Epidendrum praemorsum* Roxb. Pl. Corom. 34. 1795. *Vanda wightiana* Lindl. ex Wight, Icon. t.1670. 1851. *Saccolabium wightianum* (Lindl. ex Willd.) Hook.f. Fl. Brit. India 6: 62. 1890; Rao 397. *Acampe wightiana* (Lindl. ex Wight) Lindl. Fol. Orch. 2: 95. 1853; Fisch. 1011.

Epiphytes 20-30 cm tall. Leaves 9-20 x 2-3 cm, ovate, unequally 2-lobed at apex, lobes rounded. Flowers yellow with red bars, in leaf opposed, spiciform racemes.

Fairly common in the coastal and midland zones. Fl. & Fr.: Oct.-Nov.

**Acanthephippium Blume ex Lindl.**

*Acanthephippium bicolor* Lindl. Bot. Reg. t. 1730. 1835; FBI 5: 815; Fisch., 997; Abraham & Vatsala 272. f.53.

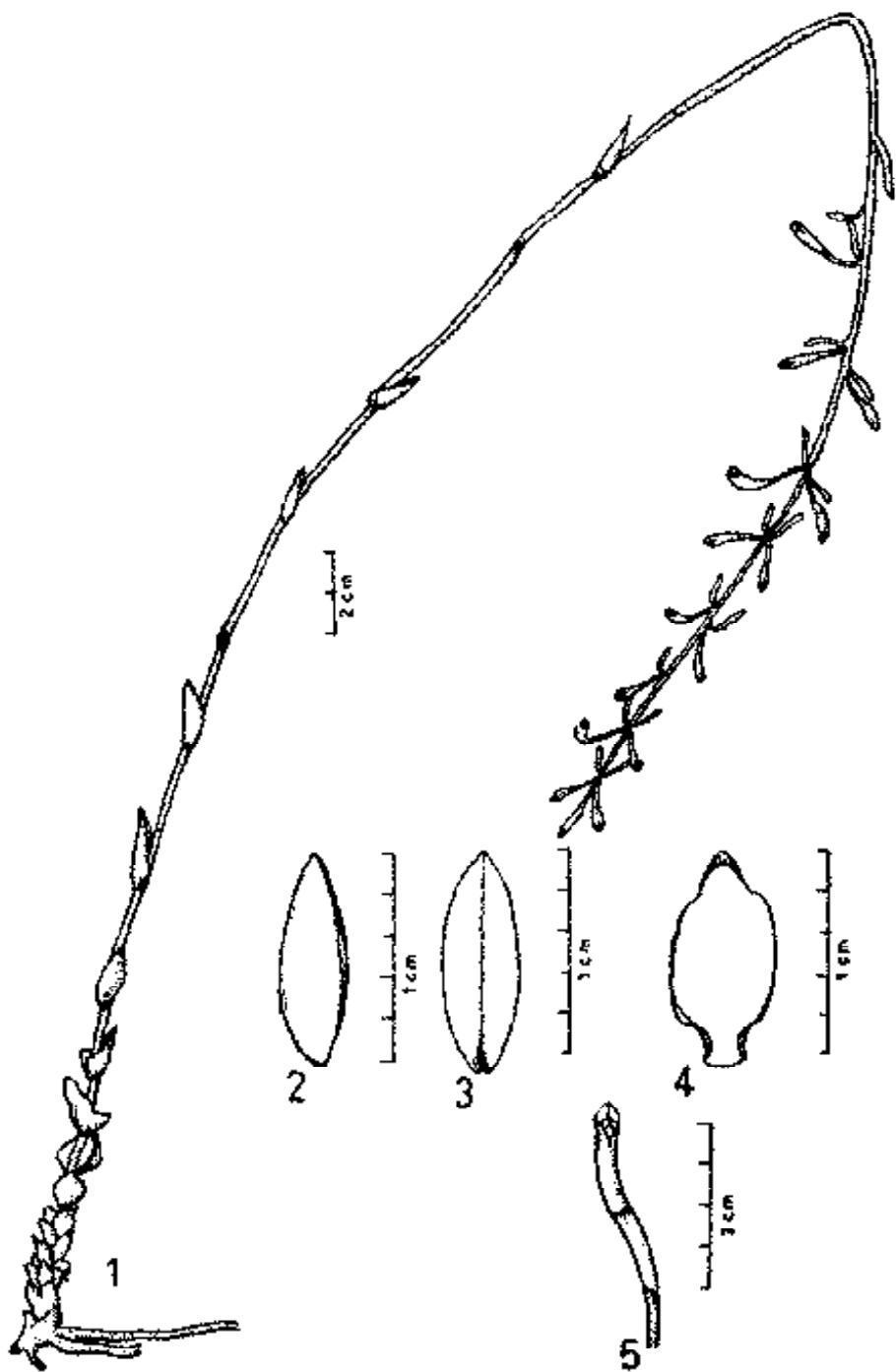
Terrestrial herbs. Leaves 15-40 x 3-12.5 cm, ovate-lanceolate, acuminate or acute at apex, tapering to a sheathing petiole at base. Flowers yellow with purplish tips, in racemes.

**Aerides Lour.**

*Aerides ringens* (Lindl.) Fisch. in Bull. Misc. Inform. 284. 1928; Fl. Pres. Madras 1442. 1928 & 1008. 1957 (repr. ed.); Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 205. 1981; Abraham & Vatsala, 446, f.134. *Saccolabium ringens* Lindl. Gen. Sp. Orch. 221. 1833; Wight, Icon. t. 917. 1844-1845, non Dalz. & Gibbs. 1861. *Aerides lineare* Hook.f. Fl. Brit. India 6: 47. 1890; Rao 396.

Epiphytes; stems 5-15 cm long. Leaves 16-20 x 1.5-2 cm, coriaceous, unequally 2-lobed at apex, tapering and sheathing at base. Flowers pale pink in axillary racemes.

Rare in evergreen forests. Fl. & Fr.: May-Jul.



*Aphyllorchis montana* (Thw.) Reichb.f. (Orihidaeae). 1. Habit 2. Sepal  
3. Petal 4. Lip 5. Column.

*Note* : Three different types of plants were noticed: 1. with branched inflorescence and white flowers. 2. with unbranched inflorescence and pink flowers. 3. with shortly branched inflorescence and pinkish white flowers. No other floral difference were noticed.

*Anoectochilus* Blume *nom. cons.*

*Anoectochilus elatus* Lindl. in J. Linn. Soc. Bot. 1: 178. 1877; FBI 6: 95; Fisch. 1016; Abraham & Vatsala 196, f.18.

Herbs. Leaves 3-5 x 2.5-3.5 cm, reddish with silvery veins, ovate, elliptic, acute at apex, tapering at base. Flowers pale pink.

Occasional in shady moist evergreen forests of Bonecord. Fl. & Fr.: Dec.-Jan.

*Aphyllorchis* Blume

*Aphyllorchis montana* (Thw.) Reichb.f. in Linnaea 41: 57. 1877; FBI 6: 116; Fisch. 1019; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 340, f.150. 1981; Mohanan, Henry & Nair in J. Bombay Nat. Hist. Soc. 79: 243. 1982. *Apaturia montana* Thw. Enum. Pl. Zeyl. 301. 1861.

Leafless saprophytic herbs 50-60 cm tall with fleshy roots. Stems sheathed. Basal sheaths 1 cm long; upper 1.5 cm long. Flowers straw-coloured. Lip 1 x 0.5 cm, 3-lobed, clawed. Column 9 mm long.

Very rare in moist shady undergrowth of evergreen forests. Fl. & Fr.: Apr.-Jun.

*Note*: New record for Kerala. New representation to MH. Allied to *A. prainii* Hook.f. but can be distinguished by the absence of ovate, acute wing-like auricles at the claw of the lip.

*Arundina* Blume

*Arundina graminifolia* (D. Don) Hochr. in Bull. New York Bot. Gard. 6: 270. 1910; Fisch. 1002; Seidenf & Smit, Orch. Thailand 184. 1959; Abraham & Vatsala 497, f.159. *Bletia graminifolia* D. Don, Prod. Fl. Nepal. 29. 1825. *Arundina bambosifolia* Lindl. Gen. Sp. Orch. 125. 1830; Wight, Icon. t.1661. 1852; FBI 5: 857; Rao 385.

Herbs 1-2 m tall. Leaves 14-28 x 1.3-2 cm, linear-lanceolate, acuminate at apex, narrowed at base. Flowers pink in terminal racemes. Lip dark purple, crenulate at margins.

Rare along streams and rivers at Ponmudi. Fl. & Fr.: Feb.-Apr.

**Brachycorythis Lindl.**

|                  |                     |
|------------------|---------------------|
| Lip obovate      | <i>B. iantha</i>    |
| Lip flabelliform | <i>B. splendida</i> |

**Brachycorythis iantha** (Wight) Summerhayes in Kew Bull. 1955: 238, 1955; Rao 399; Abraham & Vatsala 254, f.44. *Platanthera iantha* Wight, Icon. t.1692, 1851. *P. affinis* Wight, Icon. t.1693, 1851. *Habenaria galeandra* Benth. Fl. Hongk. 263, 1861; FBI 6: 163. *Phyllocephalum obcordata* Schltr. Feddes Repert 16: 119, 1919; Fisch. 1031.

Herbs 30-35 cm tall. Leaves 3-6 x 1-2 cm, ovate-lanceolate, acute at apex, narrowed at base. Flowers pale pink.

Rare amidst grasses in Ponmudi. Fl. & Fr.: Jul.-Aug.

**Brachycorythis splendida** Summerhayes in Kew Bull. 1955: 240, 1955; Radhak. in Bull. Bot. Surv. India 13: 2, 1971; Abraham & Vatsala 256, f.45. *Habenaria iantha* Hook.f. Fl. Brit. India 6: 164, 1891 descr. tantum, partim, excl. syn. *Phyllocephalum obcordata* Schltr. var. *iantha* (Hook.f.) Fisch. in Gamble, Fl. Pres. Madras 1476, 1928.

Herbs ca. 15 cm tall. Leaves 2.5-6 x 1-2 cm, ovate, acute at apex, narrowed at base. Flowers purple in terminal racemes.

Common amidst grasses in Ponmudi. Fl. & Fr.: Jul.-Sept.

**Bulbophyllum Thou. nom. cons.**

|                                       |                    |
|---------------------------------------|--------------------|
| 1. Leaves bifid at apex               | <i>B. rheedii</i>  |
| 1. Leaves not bifid:                  |                    |
| 2. Lateral sepals glandular pubescent | <i>B. fischeri</i> |
| 2. Lateral sepals glabrous            | <i>B. tremulum</i> |

**Bulbophyllum fischeri** Seidenf. in Dansk. Bot. Ark. 29: 202, 1973;

Abraham & Vatsals 341, f.78. *Cirrhopetalum gamblei*, Hook.f., Fl. Brit. India 5: 778. 1888 & Icon. 6: 190, 1890; Rao 395; Fisch. 993. *Bulbophyllum gamblei* (Hook.f.) J.J. Smith in Bull. Jard. Bot. Buitenzorg ser. 2, 8: 24. 1912, non Hook.f. in Hooker's Icon. t. 2058. 1891. *Cirrhopetalum macraei* auct. non Lindl. 1820; Wight, Icon. t.1652. 1851.

Pseudobulbs globose, grooved or ridged. Leaves 1.5-2 x 0.5-0.75 cm, oblong, obtuse at apex, cuneate at base. Flowers pale yellow, in racemes.

Occasional near open moist rocky slopes. Fl. & Fr.: Oct.-Jan.

**Bulbophyllum rheedii** Manilal & Sathish. in Rheedia 1(1&2): 55. 1991.

Pseudobulbous herbs. Leaves 8-20 x 5-8 mm, oblong-ovate or elliptic, bifid at apex, narrowed at base into a small petiole. Flowers 1-2, creamy-white with violet spots in ca. 8 mm long scapes from the base of the pseudobulbs.

Rare in riverine vegetation at Pallode. Fl. & Fr.: May.-Sept.

**Bulbophyllum tremulum** Wight, Icon. t.1749. 1851; FBI 5: 763; Rao 394; Fisch. 992; Abraham & Vatsala 331, f.72.

Epiphytic herbs. Leaves 2.4-4 x 0.5-1 cm, oblong, acute at apex, narrowed at base. Flowers pale yellow.

Occasional in moist rocks along slopes of Ponmudi. Fl. & Fr.: Oct.-Nov.

#### Calanthe R.Br. *nom. cons.*

**Calanthe masuca** (D.Don) Lindl. Gen. Sp. Orch. 249. 1833; FBI 5: 850; Fisch. 1001; Seidenf. & Smitin. Orch. Thailand 337. 1961; Abraham & Vatsala 265, f.50. *Bletia masuca* D.Don, Prodr. Fl. Nepal. 30. 1825.

Herbs 30-35 m tall. Leaves 25-30 x 12-13.5 cm, pubescent, elliptic, acuminate at apex, narrowed at base. Flowers white with pink striations on the lip.

Occasional in evergreen forests. Fl. & Fr.: Feb.-Apr.

**Cheirostylis Blume**

**Cheirostylis flabellata** (A.Rich.) Wight, Icon. t.1727. 1851; FBI 6: 105; Fisch. 1017; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 300, f.133, 1981; Abraham & Vatsala 194, f.17. **Monochilus flabellatus** Wight, Icon. t.172. 1851. **Goodyera flabellata** A.Rch. in Ann. Sci. Nat. Ser. 2, 15: 79, t.12, 1841.

Herbs. Leaves 0.5-1.5 x 0.2-1 cm, ovate, acute at apex, obtuse at base. Flowers white in racemes.

Rare in grassy slopes of Ponmudi. Fl. & Fr.: Feb.-Apr.

**Chiloschista Lindl.**

**Chiloschista pusilla** (Retz.) Schltr. Feedes Répert Spec. Nov. Regni Veg. 4: 275. 1919; Fisch. 1007; Abraham & Vatsala 495, f.157; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 188, f.84, 1981. **Epidendrum pusillum** Retz, Obs. Bot. 6: 49. 1791. **Chiloschista usneoides** Wight, Icon. t.1741. 1851. **Sarcocillus wightii** Hook.f. Fl. Brit. India 6: 37. 1890.

Epiphytes with fleshy green roots; stemless and leafless when flowering. Flowers greenish-yellow in spiciform racemes.

Very rare in evergreen forests of Ponmudi. Fl. & Fr.: Oct.-Nov.

**Chrysoglossum Blume**

**Chrysoglossum maculatum** (Thw.) Hook.f. Fl. Brit. India 5: 784. 1890; Fisch. 994; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 126, f.58, 1981; Abraham & Vatsala 292. **Ania maculata** Thw. Enum. 301. 1861.

Herbs 30-35 cm tall. Leaves 15-25 x 4-9 cm, ovate-elliptic, acuminate at apex, narrowed at base. Flowers greenish-yellow.

Rare on the shady forest of Bonecord. Fl. & Fr.: Jun.-Jan.

**Coelogyne Lindl.**

**Coelogyne nervosa** A.Rich. in Ann. Sci. Nat. Bot. ser.2, 15: 16. 1841; Fisch. 1000; Abraham & Vatsala 285, f.61. **Coelogyne corrugata** Wight, Icon. t.1639. 1851; FBI 6: 836.

Lithophytic or epiphytic herbs. Leaves 13-17 x 2.5-3.5 cm, ovate-oblong, acute at apex, narrowed at base. Flowers white in racemes.

Rare on open rocky slopes. Fl. & Fr.: Sept.-Oct.

**Cymbidium Sw.**

*Cymbidium aloifolium* (L.) Sw. in Nov. Act. Regiae Soc. Sci. Upsal 6: 73. 1799; FBI 5: 10 p.p.; Rao 395; Fisch. 1004; Abraham & Vatsala 305, f.69. *Epidendrum aloifolium* L. Sp. Pl. 1350. 1753.

Leaves 18-28 x 1.5-2 cm, linear-oblong, obtuse at apex, narrowed at base. Flowers 3-3.5 cm across, purplish yellow.

Frequent in moist deciduous forests of Kottur. Fl. & Fr.: Mar.-Apr.

**Dendrobium Sw. nom. cons.**

- |  |                         |
|--|-------------------------|
| 1. Flowers in leaf-opposed racemes                 | <i>D. nutans</i>        |
| 1. Flowers in terminal or axillary inflorescence : |                         |
| 2. Flowers in terminal racemes :                   |                         |
| 3. Stems straight; midlobe of the lip crenate      | <i>D. wightii</i>       |
| 3. Stems pendulous; midlobe of the lip entire :    | <i>D. herbaceum</i>     |
| 2. Flowers in axillary racemes :                   |                         |
| 4. Flowers less than 1.2 cm long                   | <i>D. heyneanum</i>     |
| 4. Flowers more than 2.5 cm long :                 |                         |
| 5. Lip pubescent                                   | <i>D. macrostachyum</i> |
| 5. Lip glabrous                                    | <i>D. heterocarpum</i>  |

*Dendrobium herbaceum* Lindl. Bot. Misc. 69. 1840; FBI 5: 719; Rao 394; Fischer 990; Sant. & Kap. Orch. Bombay 82. 1966. *D. ramosissimum* Wight, Icon. t.1648. 1852.

Pendulous lithophytes; stems leafless when flowering. Leaves 1.5-3.5 x 2-2.5 cm, linear-lanceolate, acute at apex, narrowed at base. Flowers white.

Fairly common in Agastyarkudum. Fl. & Fr.: Feb.-Mar.

*Dendrobium heterocarpum* Wall. ex Lindl. Gen. Sp. Pl. Orch. 78. 1830; FBI 5: 737; Rao 394; Fisch. 991.

Epiphytes 15-40 cm tall; leafless when flowering. Leaves

6.5-9 x 1-2 cm, oblong-lanceolate, emarginate at apex, narrowed at base. Flowers yellow with a brown blotch at the lip.

Common in Agastyarkudum. Fl. & Fr.: Jan.-Feb.

**Dendrobium heyneanum** Lindl. Gen. Sp. Orch. 90. 1830; Wight, Icon. t.809. 1844; FBI 5: 718; Rao 394; Fisch. 991; Abraham & Vatsala 360, f.88.

Lithophytic herbs 10-15 cm tall. Leaves 7-12 x 0.5-0.8 cm, linear-lanceolate, shortly acuminate at apex, narrowed at base. Flowers reddish white in axillary racemes.

Common along water courses. Fl. & Fr.: May.-Jun.

**Dendrobium macrostachyum** Lindl. Gen. Sp. Orch. 78. 1830; Wight, Icon.t. 1674, 1851; FBI 5: 735; Rao 394; Fisch. 990; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 90. 1981.

Pendulous epiphytes 30-60 cm long. Leaves 6-7.5 x 1-2 cm, puberulous, ovate-lanceolate, acute at apex, narrowed at base. Flowers pale yellow in lateral peduncles.

Occasional in moist deciduous forests. Fl. & Fr.: May--Aug.

**Dendrobium nutans** Lindl. Gen. Sp. Orch. 90. 1830; FBI 5: 734; Rao 394; Fisch. 990; Hunt in Kew Bull. 24: 90. 1970; 734; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 82. 1981. *D. jerdonianum* Wight, Icon. t.1644. 1851; FBI 5; Rao 394.

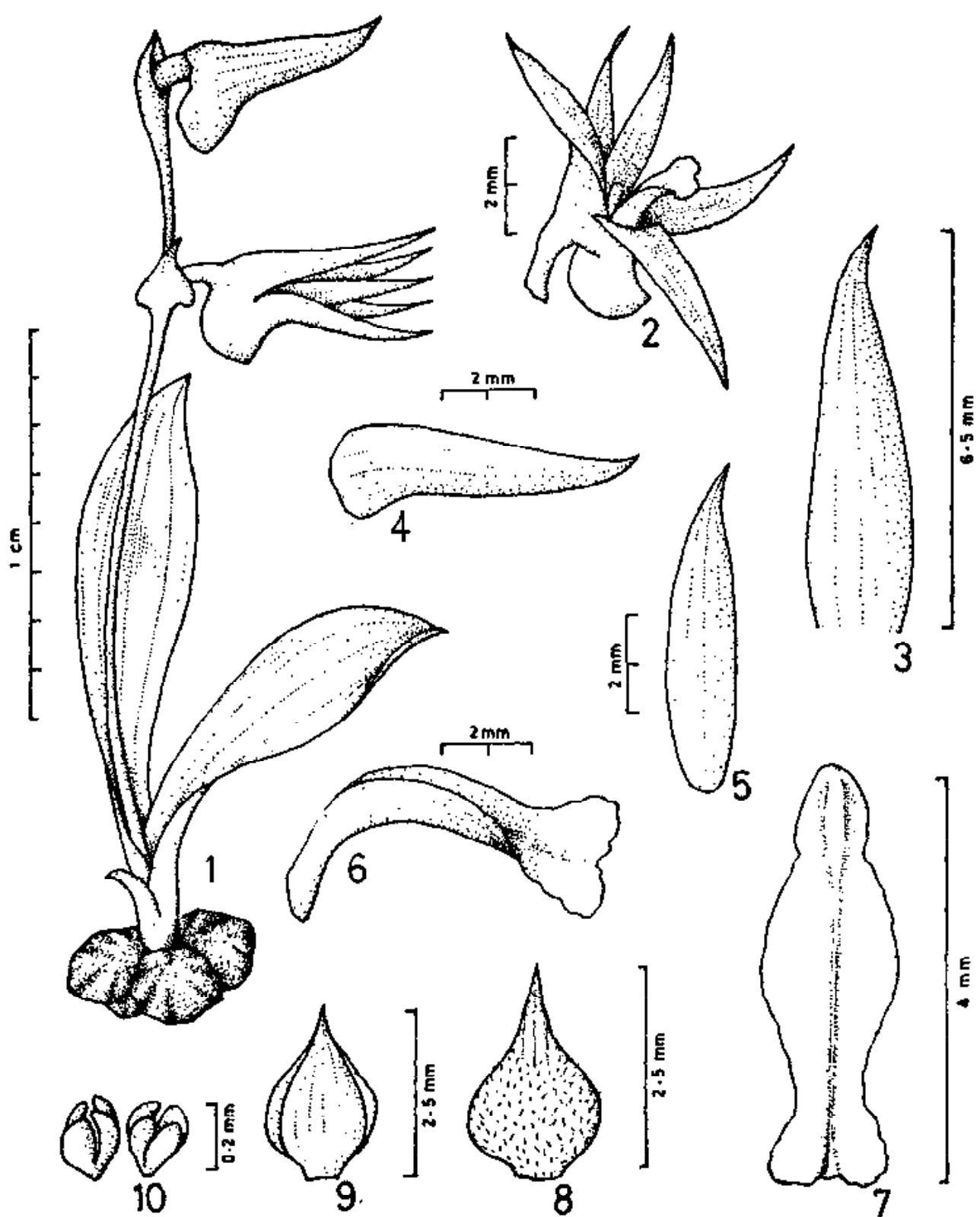
Epiphytes 25-30 cm long. Leaves 2.5-5.5 x 0.8-1 cm, puberulous, lanceolate, notched at the apex. Flowers 2-4, pink or yellowish.

Common in the evergreen forests. Fl. & Fr.: May-Jun.

**Dendrobium wightii** Balak. in J. Bombay Nat. Hist. Soc. 67: 66. 1970. *D. graminifolium* Wight, Icon. t.1649. 1851, non Willd. 1805; FBI 5: 718; Rao 394; Fisch. 990.

Lithophytes 20-25 cm long. Leaves 2.5-8 x 0.3-0.6 cm, linear-lanceolate, acuminate at apex, narrowed at base. Flowers pink in axillary racemes.

Occasional on moist rocks along Kavir. Fl. & Fr.: Jun.-Aug.



*Eria muscicola* var. *ponmudiana* Mohanan & Henry (Orchidaceae)

- 1. Habit    2. Flower    3. Dorsal sepal    4. Lateral sepal    5. Petel
- 6. & 7. Lip    8. & 9. Bracts upper and lower sides    10. Pollinia.

*Epipogium R.Br.*

*Epipogium roseum* (D.Don) Lindl. in J. Linn. Soc. Bot. 1: 177. 1857; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 1: 336. f.148. 1981. *Limodorum roseum* D.Don Prodr. Fl. Ceylon 30. 1825. *Epipogium nutans* Lindl. in J. Linn. Soc. Bot. 1: 177. 1857; FBI 6: 124; Rao 397; Fisch. 1021.

Terrestrial leafless saprophytes with tuberous rootstock bearing scales leaves. Flowers reddish-white in racemes up to 10 cm long.

Common in rocky slopes. Fl. & Fr.: Feb.-May.

*Eria Lindl. nom. cons.*

- |   |   |
|---|---|
| 1. Flowers always solitary; lip obscurely 3-lobed | <i>E. reticosa</i>                              |
| 1. Flowers racemed; lip entire:                   |   |
| 2. Pedicels densely hairy                         | <i>E. polystachya</i>                           |
| 2. Pedicels glabrous or scabrous:                 |   |
| 3. Leaves ovate, sessile                          | <i>E. muscicola</i><br>var. <i>brevilinguis</i> |
| 3. Leaves oblanceolate, shortly petioled          | <i>E. muscicola</i><br>var. <i>ponmudiana</i>   |

*Eria muscicola* (Lindl.) Lindl. var. *brevilinguis* Joseph & Chandras. in Bull. Bot. Surv. India 15: 267. 1973.

Epiphytes ca. 3.2 cm tall. Leaves 5-15 x 3-8 cm, ovate, cuspidate at apex, narrowed at base. Flowers greenish-yellow.

Rare in evergreen forests. Fl. & Fr.: Oct.-Nov.

*Eria muscicola* (Lindl.) Lindl. var. *ponmudiana* Mohanan Henry in J. Econ. Tax. Bot. 8(2): 425. 1986.

Tiny epiphytic herbs 2.2-2.8 cm tall; pseudobulbs 2-3 mm in diam., crowded, ovoid, compressed with many ridges. Leaves 7-15 x 2-3 mm, usually 2 with one or more sheaths beneath, elliptic or oblanceolate, scabrous, acute at apex, with a mucro, narrowed to a short sheathing petiole; midrib prominent beneath. Racemes 1.5-2.6 cm long, erect, mostly 2-flowered (rarely-1); scapes filiform. Flowers up to 7 mm long, white, subsessile; bracts ca. 2.5 mm long, ovate, acuminate. Dorsal sepals 5-6.5 x 1.5-1.8 mm, narrowly

lanceolate, acuminate; laterals as long as the dorsal, broader at base. Petals 5.6 x 1-1.5 mm, lanceolate, acuminate. Lip 3-4 x 1-1.1 mm, sessile or shortly clawed, attached to the foot, dilated in the middle, puberulous beneath, retuse at apex with a median callus. Column short, up to 1 mm long, foot ca. 2.5 mm long; mentum saccate. Pollinia 8 in 2 groups of 4 each.

Rare in moist rocks and tree trunks at Ponmudi. Fl. & Fr.: Jun.-Sept.

*Eria reticosa* Wight, Icon. t.1637. 1851; FBI 5; 787; Rao 394; Abraham & Vatsala 374. f. 94. *E. braccata* Dalz. & Gibbs, Bombay Fl. 262. 1861, non Lindl. 1859; Fisch. 996.

Leaves 2, each 3-4 x 0.7-1 cm, elliptic-lanceolate, acute at apex, narrowed at base. Scapes 1-flowered. Flowers white.

Rare in evergreen forests. Fl. & Fr.: Jul.-Sept.

*Eria polystachya* A.Rich. in Ann. Sci. Nat. Bot. ser.2, 11: 20. t.9. 1841; FBI 5; 792; Rao 394; Fisch. 996; Abraham & Vatsala 382, f.99.

Leaves 8.5-20 x 1.5-3 cm, linear-lanceolate, acute at apex, narrowed at base. Flowers pale yellow in racemes up to 12 cm long.

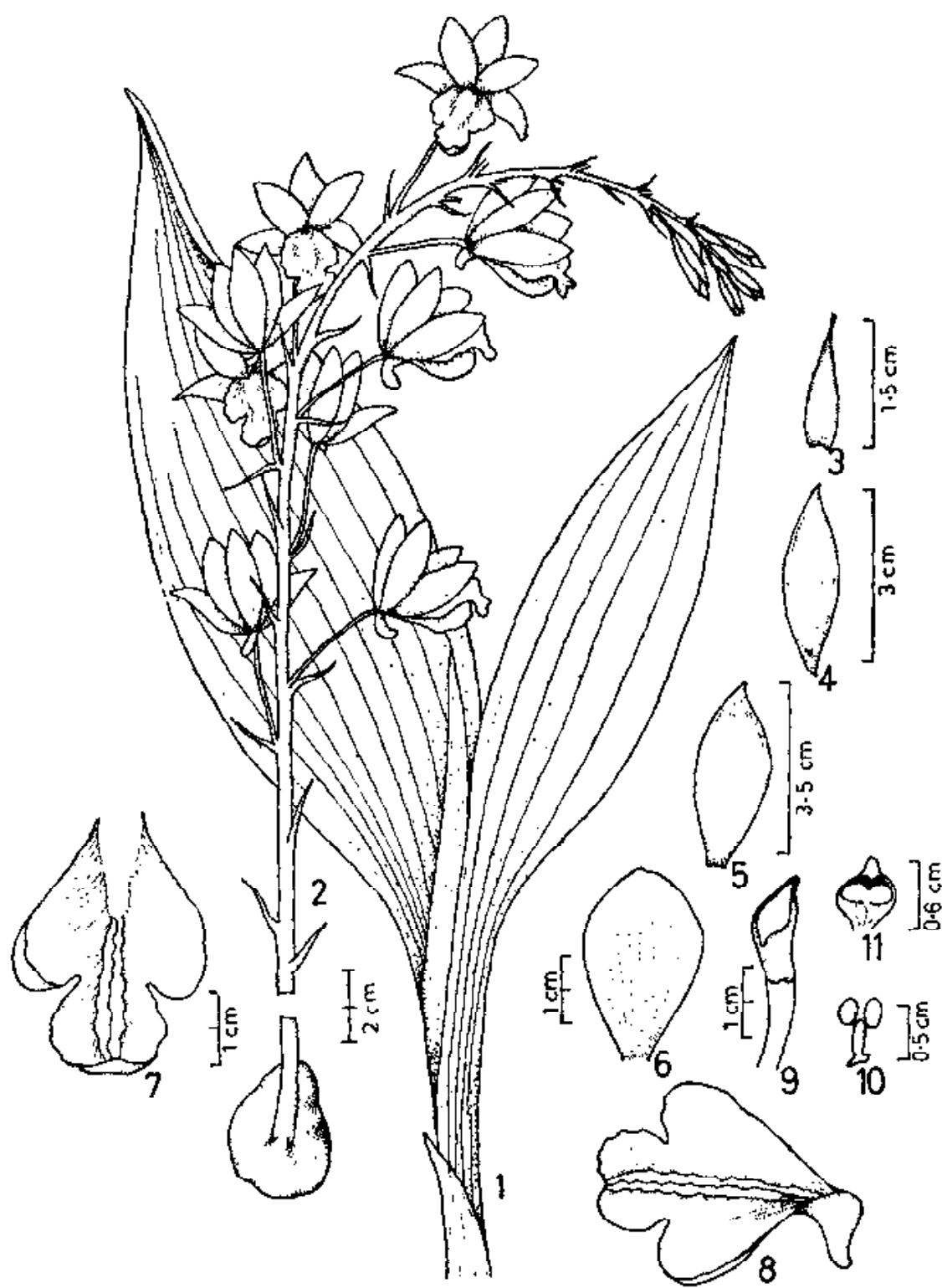
Rare in slopes of Agastyarkudum. Fl. & Fr.: Jun.-Oct.

*Eulophia* R.Br. ex Lindl. *nom. cons.*

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| 1. Scapes branched                 | <i>E. epidendrea</i>                |
| 1. Scapes not branched:            |                                     |
| 2. Disc with tubercled crests      | <i>E. cullenii</i>                  |
| 2. Disc with only tubercled nerves | <i>E. nuda</i> var. <i>purpurea</i> |

***Eulophia cullenii* (Wight) Blume, Orch. Archip. Ind. 182. 1858 in Obs.; Abraham & Vatsala 298, f.66; Mohanan, Henry & Nair in J. Bombay Nat. Hist. Soc. 79: 235. 1982, *Cyrtopera cullenii* Wight, Icon. t.1754. 1861; Rao 399. *Eulophia flava* (Lindl.) Hook.f. Fl. Brit. India 6: 7. 1890 p.p. *E. cullenii* (Wight) Fisch. in Gamble, Fl. Pres. Madras 1435. 1928.**

Herbs up to 0.5 m tall; rhizomes tuberous. Leaves up to 27



*Eulophia cullenii* (Wight) Blume (Orchidaceae). 1. Habit 2. Inflorescence  
 3. Bract 4. Dorsal sepal 5. Lateral sepal 6. Petal 7. Lip (Front View)  
 8. Lip (Side View) 9. Column 10. Pollinia 11. Tip of the Column (Front View).

x 6 cm, oblong-lanceolate, acute. Flowers ca. 5.5 cm long, bright yellow.

Rare on the way to Agastyarkudum from Kottur. Fl. & Fr.: Mar.-Apr.

**Note:** This species was often misidentified as *E. flava* (Lindl.) Hook.f. *E. cullenii* is differentiated by the large size of the leaves and the absence of pyriform basal calli in the disc. A very beautiful ornamental plant which can be commercially exploited in Horticulture. The valid publication of *E. cullenii* dates from Blume (1858) and the combination made afresh by Fischer (1928) is superfluous.

***Eulophia epidendrea* (Koen.) Schtr.** Orchideen 346, 1915. Fisch. in Gamble, Fl. Pres. Madras 1434, 1928 & 1003, 1957 (repr. ed.); Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 168, 1981; Abraham & Vatsala 294, f.64. *Serapias epidendrea* Koen. in Retz. Obs. Bot. 6: 65. 1791. *Eulophia virens* Spreng. Syst. Veg. 3: 720. 1826; Wight, Icon. t.913. 1844-1845; FBI 6: 1; Rao 395.

Leaves 17-50 x 0.5-1.2 cm, linear, acute at apex, narrowed at base. Flowers 3 x 3 cm, greenish-yellow on lateral scapes up to 76 cm long.

Fairly common in the coastal and midland zones. Fl. & Fr.: Nov.-Feb.

***Eulophia nuda* Lindl. var. *purpurea* Sant. & Kap.** in Orch. Bombay 115. 1966.

Herbs 50-70 cm tall. Leaves (appearing after flowering) 40-50 x 6-9 cm, elliptic, acute at apex, narrowed at base. Flowers greenish-white.

Rare in grassy slopes. Fl. & Fr.: Jan.-Mar.

#### **Gastrochilus D.Don**

***Gastrochilus pulchellus* (Wight)** Schltr. Feddes Report 12: 315, 1913. *Vanda pulchella* Wight, Icon. t.1671. 1851. *Saccolabium pulchellum* (Wight) Fisch. in Gamble, Fl. Pres. Madras 1446. 1928 & 1011. 1957 (repr. ed.). Abraham & Vatsala 467, f.142.

Leaves 2.5-7 x 1-2 cm, oblong, unequal, 2-lobed at apex, narrowed at base. Flowers white with red spots.

Common in evergreen forests. Fl.: Jan.-May. Fr.: Sept.-Nov.

#### **Geodorum Jacks.**

**Geodorum densiflorum** (Lam.) Schltr., Report Spec. Nov. Regni. Veg. Beigh 4: 269. 1919; Fisch. 10004; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2:t. f.81. 1981; Abraham & Vatsala 327, f.71. *Liiodorum densiflorum* Lam. Encycl. 3: 516. 1792. *Geodorum purpureum* R.Br. in Ait. Hort. Kew ed.2. 5: 207. 1813; FBI 6: 16; Rao 395; Seidenf. & Smitin. Orch. Thailand 472. 1967.

Leaves 13-29.5 x 6-9.5 cm, oblong-lanceolate, acuminate at apex, narrowed at base. Flowers white with pink lips in lateral racemes.

Occasional in evergreen forests. Fl. & Fr.: Jun.-Sept.

#### **Goodyera R.Br.**

**Goodyera procera** (Ker Gawl.) Hook. Exot. Fl. t.39. 1823. Wight, Icon. t.1729. 1851; FBI 6: 111; Rao 396; Fisch. 1018; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 308. f. 136. 1981; Abraham & Vatsala 199, f.20. *Neottia procera* Ker-Gawl. in Bot. Reg. 8: t.639. 1822.

Leaves 6-9 x 3.5-4 cm, lanceolate, acuminate at apex, tapering at base. Flowers greenish white, fragrant.

Very rare in moist rocky slopes and along water courses. Fl. & Fr.: Apr.-Jun.

#### **Habenaria Willd.**

1. Midlobe of lip bilobed with tails *B. crinifera*
1. Midlobe of lip entire, not tailed :
  2. Lip puberulous *H. longicorniculata*
  2. Lip glabrous :
    3. Leaves amplexicaul *H. perrottetiana*

3. Leaves not as above :

4. Lip equal or shorter than lateral sepals      *H. longicornu*  
 4. Lip longer than lateral sepals      *H. plantaginea*

**Habenaria crinifera** Lindl. Gen. et Sp. Orch. 323. 1835; Wight, Icon. t.926. 1843-1845; FBI 6: 142; Rao 398; Fisch. 1028; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 3: 357. 1981.

Herbs 20-25 cm tall. Leaves 4-18 x 1-3 cm, linear-elliptic, acute at apex, narrowed at base. Flowers white in terminal racemes.

Rare in edges of low level evergreen forests. Fl. & Fr.: Dec.

**Habenaria longicorniculata** Graham, Cat. Pl. Bombay 202. 1839. *H. longicalcarata* A.Rich. Ann. Sci. Nat. Bot. Ser.2. 15: 71, t. 314. 1841; FBI 6: 141; Rao 398; Fisch. 1027; Abraham & Vatsala 238, f.35.

Herbs 30-90 cm tall. Leaves 4-14 x 1.6-2.6 cm, subradical, elliptic-lanceolate, acuminate at apex, narrowed at base. Flowers white.

Rare in grassy slopes. Fl. & Fr.: Sept.-Nov.

**Habenaria longicornu** Lindl. Gen. Sp. Orch. 322. 1839; FBI 6: 139; Rao 398; Fisch. 1027; Abraham & Vatsala 229, f.30. *H. decipiens* Wight, Icon. t.927. 1844.

Herbs 30-40 cm tall. Leaves 5-13.5 x 1.5-5 cm, oblong-lanceolate, acuminate at apex, rounded at base. Flowers white in racemes.

Rare amidst grasses. Fl. & Fr.: Aug.-Sept.

**Habenaria perrottetiana** A.Rich. in Ann. Sci. Nat. Bot. ser.2. 15: 74. t.48. 1841; FBI 6: 164; Rao 339; Fisch. 1028.

Herbs 30-60 cm tall. Leaves 3.5-5.5 x 1-8 cm, lanceolate, acute to acuminate at apex, narrowed at base. Flowers yellowish-green.

Rare in grassy slopes of evergreen forests. Fl. & Fr.: Aug.-Dec.

**Habenaria plantaginea** Lindl. Gen. Sp. Orch. 323. 1835; Wight, Icon. t.1710. 1851; FBI 6: 141; Rao 398; Fisch. 1027.

Leaves 5-9 x 2.5-3 cm, membranous, radical, oblong-lanceolate, acute at apex, narrowed at base. Flowers white in racemes.

Rare in grassy slopes of Ponmudi. Fl. & Fr.: Aug.-Dec.

*Ipsea* Lindl.

*Ipsea malabarica* (Reichb.f.) Hook.f. Fl. Brit. India 5: 812. 1888; Rao 394; Abraham & Vatsala 268, f.51. *Pachystoma malabaricum* Reichb.f. Walp. Ann. 6: 462. 1862.

Tuberous herbs. Leaves 7-9 cm long, narrow-linear, acuminate at apex, narrowed at base. Flowers yellow, 4-6 in racemes.

Rare in grassy slopes of Ponmudi. Fl. & Fr.: Jun.-Jul.

*Liparis* L.C. Rich. *nom. cons.*

|                  |                       |
|------------------|-----------------------|
| 1. Lip trilobed  | <i>L. elliptica</i>   |
| 1. Lip entire:   |                       |
| 2. Lip orbicular | <i>L. wightiana</i>   |
| 2. Lip ovate     | <i>L. viridiflora</i> |

*Liparis elliptica* Wight, Icon. t.1735. 1852; Abraham & Vatsala 412, f.115. *L. viridiflora* sensu Hook.f. in Fl. Brit. India 5: 704. 1890, non (Blume) Lindl. 1830; Fisch. 987.

Lithophytic or epiphytic herbs. Leaves 4.5-9 x 1.5-2 cm, ovate-oblong, acuminate at apex, narrowed at base. Flowers greenish-yellow.

Rare in evergreen forests Fl. & Fr.: Sept.-Nov.

*Liparis viridiflora* (Blume) Lindl. Gen. Sp. Orch. 31. 1830; Siedent. & Smitin. Orch. Thailand 178. 1959; Abraham & Vatsala 410, f.114. *Malaxis viridiflora* Blume, Bijdr. 392, t.54. 1825. *Liparis longipes* Lindl. in Wall. Pl. Asiat. Rar. 1: 31. t.35. 1830; FBI 5: 703; Rao 394; Fisch. 986.

Lithophytic herbs. Leaves 18-20 x 22-5 cm, linear-oblong, acute at apex, narrowed at base. Flowers greenish-yellow.

Occasional in evergreen forests. Fl. & Fr.: Aug.-Oct.

*Liparis wightiana* Thw. Enum. 295. 1861; FBI 5: 695; Rao 392;

Fisch. 986. *L. atropurpurea* Wight, Icon. t.904. 1844-1845, non Lindl. 1830.

Terrestrial herbs 5-10 cm tall. Leaves 3.5-7x2-4.5 cm, ovate-lanceolate, acute at apex, narrowed at base. Flowers yellowish-brown in purplish peduncles.

Common in rocky slopes. Fl. & Fr.: Aug.-Oct.

*Malaxis* Soland. ex Sw.

|   |                     |
|---|---------------------|
| Lip distinctly 3-lobed, lobes entire      | <i>M. latifolia</i> |
| Lip without distinct lobes; apex lacerate | <i>M. rheedii</i>   |

*Malaxis latifolia* Sm. in Rees, Cycl. 22: no.3. 1819; Holttum in Rev. Fl. Malaya 1: 195. 1972 (repr. ed.); Seidenf. & Smitin. in Orch. Thailand 2(1): 146. 1959; Mohanan, Henry & Nair in J. Bombay Nat. Hist. Soc. 79: 236. 1982. *Microstylis latifolia* (Sm.) J.J.Sm. Fl. Buit. 6: 248. f.185. 1905. *M. congesta* Reichb.f. Walp. Ann. t.206. 1861; FBI 5: 680.

Leaves 14-27 x 7-8 cm, ovate-elliptic, acuminate at apex, narrowed at base. Flowers yellowish-green.

Rare in evergreen forests. Fl. & Fr.: Mar.-Aug.

*Note* : An addition to Gamble's Fl. Pres. Madras. Hooker f.c. recorded it from Deccan Peninsula. No earlier collection of this plant is available in MH.

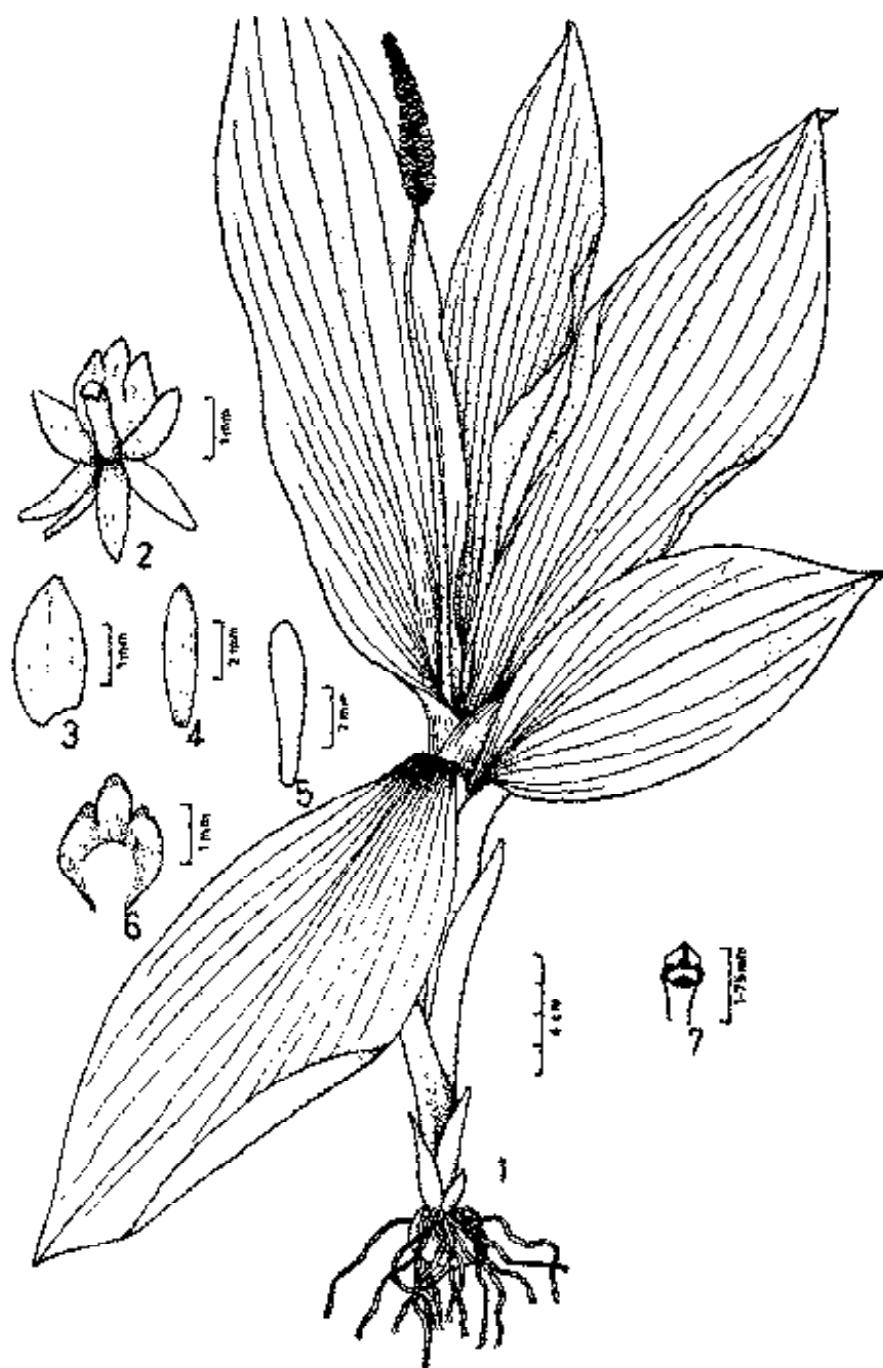
*Malaxis rheedii* Sw. in Kongl. Vetensk. Acad. Nyat. Handl. 21: 235. 1800; Wight, Icon. t.902. 1845; FBI 5: 690; Rao 392; Seidenf. Bot. Tidsskr. 73: 97. 1978. *Microstylis versicolor* Lindl. Gen. Sp. Orch. 21. 1830; Fisch. 985.

Leaves 8-11 x 2.5-4.5 cm, puberulous beneath, ovate, acuminate at apex, narrowed at base. Flowers greenish-yellow.

Common in evergreen forests. Fl. & Fr.: May-Jun.

*Nervilia* Comm. ex Gaud. *nom. cons.*

*Nervilia plicata* (Andr.) Schltr. in Bot. Jahrb. Syst. 45: 403. 1911; Fisch. 1020. *Arethusa plicata* Andr. Bot. Rep. t.321. 1802. *Nervilia juliana* (Roxb.) Schltr. Bot. Jahrb. Syst. 45: 402. 1911; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 343. f.151.



*Melaxis latifolia* Sm. (Orchidaceae). 1. Habit 2. Flower  
3. Lateral sepal 4. Dorsal sepal 5. Petal 6. Lip 7. Column.

1981. *Epipactis juliana* Roxb. Fl. Ind. 3: 453. 1832. *Pogonia plicata* (Andr.) Lindl. Gen. Sp. Pl. Orch. 415. 1835; FBI 6: 119.

Leaves 5 cm across, cordate, appearing after flowering. Flowers pale pink with reddish lips.

Rare in evergreen forests. Fl. & Fr.: Jun.-Nov.

**Oberonia Lindl. nom. cons.**

- 1. Lip truncate or bilobed at apex *O. proudlockii*
- 1. Lip distinctly 3-lobed:
  - 2. Lateral lobes of lip smaller than midlobes:
    - 3. Lip puberulous with 2 basal calli *O. ensiformis*
    - 3. Lip glabrous, without basal calli *O. verticillata*
  - 2. Lateral lobes of lip larger than the midlobe:
    - 4. Two lobules of midlobe long-acute *O. wightiana*
    - 4. Two lobules of lip wing-like:
      - 5. Lateral lobes of lip wing-like:
        - 6. Disc present *O. platycaulon*
        - 6. Disc absent *O. seidenfadeniana*
      - 5. Lateral lobes of lip long-narrow:
        - 7. Lip orbicular, midlobe of minute lobules *O. brunoniana*
        - 7. Lip quadrangular or conical, midlobes distinct *O. santapaui*

**Oberonia brunoniana** Wight, Icon. t.1622. 1852; FBI 5: 681; Rao 392; Fisch. 984; Seidenf. Dansk. Bot. Ark. 25(3): 50. 1968; Abraham & Vatsala 422, f.121; Ansari et al. in J. Econ. Tax. Bot. 3: 115. 1982.

Epiphytes 10-12 cm long. Leaves 6-7 x 0.5-1 cm, succulent, oblong, acute at apex. Flowers brownish in spikes up to 12 cm long.

Frequent in deciduous forests. Fl. & Fr.: Aug.-Oct.

**Oberonia ensiformis** (Sm. ex Rees) Lindl. Fol. Orch. 4: 1852; FBI 5: 679; Fisch. 984; Seidenf. & Smitin. Orch. Thailand 159

1959; Abraham & Vatsala 419, f.118; Ansari et al. in J. Econ. Tax. Bot. 3: 115. 1982. *Malaxis ensiformis* Sm. in Rees, Cylop. 22: 14. 1812.

Leaves 4.5-21 x 1-1.4 cm, curved, oblong, coriaceous, acute. Flowers yellow with pubescent lips, in scapes shorter than leaves.

Frequent in evergreen forests. Fl. & Fr.: Aug.-Oct.

**Oberonia platycaulon** Wight, Icon. t.1623. 1852; FBI 5: 628; Rao 392; Fisch. 984; Seidenf. Dansk. Bot. Ark. 25(3): 61. 1968; Abraham & Vatsala 425, f.123. Ansari et al. in J. Econ. Tax. Bot. 3: 115. 1982.

Leaves 2.5-6 x 0.5-1 cm, pointed, dull green, oblong, acute. Flowers greenish-yellow on recurved spikes.

Rare in evergreen forests. Fl. & Fr.: Aug.-Oct.

**Oberonia proudlockii** King & Prantl. in J. Asiatic. Soc. Bengal 66: 580. 1896; Fisch. 983; Seidenf. Dansk. Bot. Ark. 25(3): 22. 1968; Abraham & Vatsala 422, f.120; Ansari et al. in J. Econ. Tax. Bot. 3: 115. 1982.

Leaves 2-5.5 x 0.7-1 cm, brownish-green, oblong, obtuse. Flowers brown on decurved spikes.

Rare in evergreen forests of Ponmudi. Fl. & Fr.: Sept.-Oct.

**Oberonia santapauli** Kapadia in J. Bombay Nat. Hist. Soc. 57: 265. 1960. Seidenf. Dansk. Bot. Ark. 25(3): 50. 1968; Abraham & Vatsala 429, f.124; Ansari et al. in J. Econ. Tax. Bot. 3: 116. 1982; *O. lindleyana* Wight, Icon. t.1624. 1852, non Brongn. ex Duperre, 1834; FBI 5: 681; Fisch. 984.

Leaves 3-5x1-1.5 cm, jointed, fleshy, ovate-acute at apex. Flowers reddish; scapes up to 5 cm long.

Rare in evergreen forests. Fl. & Fr.: Aug.-Oct.

**Oberonia seidenfadeniana** Joseph & Vair. in Bull. Bot. Surv. India 13: 344. 1971; Ansari et al. in J. Econ. Tax. Bot. 3: 117. 1982.

Leaves 5-13 x 0.6-1 cm, linear-oblong, acute at apex. Flowers greenish in leafy scapes up to 11 cm long.

Occasional in evergreen forests. Fl. & Fr.: Mar.-Apr.

*Oberonia verticillata* Wight, Icon. t.1626, 1852; FBI 5: 677; Rao 392; Fisch. 984; Seidenf. in Dansk. Bot. Ark. 25(3): 30 1968; Abraham & Vatsala 419, f.119; Ansari et al. in J. Econ. Tax. Bot. 3: 117. 1982.

Leaves 4-14 x 0.5-0.8 cm, linear-oblong, acute at apex. Flowers yellowish, spirally arranged in scapes up to 20 cm long.

Frequent in deciduous forests. Fl. & Fr.: Aug.-Oct.

*Oberonia wightiana* Lindl. in Bot. Reg. 25: 14, Misc. 9. 1839; Wight, Icon. t.1627. 1852; FBI 5: 683; Rao 392; Fisch. 984; Ansari et al. in J. Econ. Tax. Bot. 3: 118. 1982.

Leaves 3-8 x 0.3-1 cm, fleshy, oblong, acute. Flowers greenish, distantly arranged on slender, recurved racemes up to 10 cm long.

Common in evergreen forests. Fl.: Aug.-Oct.

#### *Paphiopedilum* Pfitz. nom. cons.

*Paphiopedilum druryi* (Bedd.) Pfitz. Morph. Stud. Orch. 2: 41. 1886; Fisch. 1033; Abraham & Vatsala 192, f.16. *Cypripedium druryi* Bedd. Icon. t.112. 1851, 'druryi'; FBI 6: 172; Rao 399; Mammen & Mammen in Orch. Dig. 31-36. Jan.-Feb. 1974; Pempahishy in Amer. Orch. Soc. Bull. 45: 431-433, 1976.

Non-pseudobulbous herbs. Leaves 12-18 x 2.5-3 cm, oblong, obtuse, subacute or notched at apex, narrowed at base. Flowers 5.5 cm across, solitary, terminal.

Very rare in western slopes of Agastyarkudum. Fl.: Feb.

*Note*, Only a single plant could be collected after repeated search in the type locality.

#### *Pachystoma* Blume

*Pachystoma senile* (Lindl.) Reichb.f. Bonplandia 3: 251. 1858; FBI 5: 812; Fisch. 997; Seidenf. & Smitin. Orch. Thailand 346. 1961; Abraham & Vatsala 270, f. 52. *Apathuria senilis* Lindl. Gen. Sp. Orch. 130. 1831. *A. jindleyana* Wight, Icon. t.1662. 1851.

Leaves 7.28 x 0.5-1 cm. appearing after flowering, linear-lanceolate, acuminate at apex, narrowed at base. Flowers pinkish-green.

Rare in rocky slopes of Ponmudi. Fl. & Fr.: Feb.-Apr.

**Pecteilis Rafin.**

*Pecteilis gigantea* (J. E. Sm.) Rafin. Fl. Tell. 2: 38. 1837; Seidenf. & Smitin. Orch. Thailand 1: 52. 1969. *Orchis gigantea* J.E.Sm. Exot. Bot. 2: 79. t.100. 1805. *Platanthera susannae* auct. non (L.) Lindl. 1835; Wight, Icon. t.920. 1844; Fisch. 1031. *Habenaria susannae* auct. non (L.) R. Br. ex Spr. 1826; FBI 6: 137; Rao 398.

Herbs up to 1 m tall. Leaves 7-14 x 3.5-4.5 cm, ovate, acuminate at apex, sheathing at base. Flowers white, fragrant, in terminal racemes.

Occasional in grassy slopes. Fl. & Fr.: Aug.-Sept.

*Note* : This plant was hitherto misidentified as *Platanthera susannae* (L.) Rafin. which is confined to Eastern Asia. Seidenfaden (Dansk. Bot. Ark. 31(3): 22 & 23. t.8. 1977) has shown that the correct name of the Indian plant is only *Pecteilis gigantea* (J.E.Sm.) Rafin, characterised by the deep laciniate lip and large lateral sepals.

**Peristylus Blume**

- |                            |                        |
|----------------------------|------------------------|
| 1. Lip longer than sepals  | <i>P. aristatus</i>    |
| 1. Lip as long as sepals : |                        |
| 2. Leaves 2-4              | <i>P. goodyeroides</i> |
| 2. Leaves 6-12             | <i>P. densus</i>       |

*Peristylus aristatus* Lindl. Gen. Sp. Pl. Orch. 300. 1835; Fisch. 1030; Abraham & Vatsala 246, f.40. *Habenaria aristata* Hook.f. Fl. Brit. India 6: 158. 1890; Rao 399.

Terrestrial herbs. Leaves 2-4.5 x 0.6-2.1 cm, ovate-lanceolate, acuminate at apex, sheathing at base. Flowers greenish.

Occasional in grassy slopes. Fl. & Fr.: Aug.-Oct.

**Peristylus densus** (Lindl.) Sant. & Kapad. Orch. Bombay 46, 1966; Abraham & Vatsala 243, f.37. *Coeloglossum densus* Lindl. Gen. Sp. Orch. 302, 1835. *Habenaria peristyloides* Wight, Icon. t.1702, 1851. *H. stenostachya* Benth. Fl. Hongk. 362, 1861; FBI 6: 156. *Peristylus stenostachyus* (Lindl.) Kranz. Orchid. Gen. Sp. 1: 502, 1898; Rao 399; Fisch. 1030. *Platanthera stenostachya* Lindl. in Hooker's J. Bot. Kew Gard. Misc. 7: 37. 1855.

Leaves 3.5-5.5 x 1-1.5 cm, coriaceous, ovate-lanceolate, acute or acuminate at apex, sheathing at base. Flowers greenish-yellow densely arranged in spikes.

Occasional in grassy slopes. Fl. & Fr.: Aug.-Sept.

**Peristylus goodyeroides** (D.Don) Lindl. Gen. Sp. Orch. 299, 1835; Fisch. 1030; Abraham & Vatsala 249. *Habenaria goodyeroides* D.Don Prodr. Fl. Nepal. 25, 1825; FBI 6: 161.

Leaves 10-15 x 3-4.5 cm, elliptic-oblong, acute at apex, narrowed at base. Flowers pale yellow in scapes up to 22 cm long.

Frequent almost throughout the hilly tracts of the district. Fl. & Fr.: Aug.-Oct.

#### Phalaenopsis Blume

**Phalaenopsis decumbens** (Griff.) Holttum in Gard. Bull. Straits Settlement. 11: 286, 1947; Abraham & Vatsala 464, f.141. *Aerides decumbens* Griff. Notul. Pl. As. 3: 265, 1851. *Phalaenopsis wightii* Reichb.f. Bot. Zeit. 214, 1862. *Doritis wightii* (Reichb.f.) Benth. Gen. Pl. 3: 574, 1883; FBI 6: 32. *Kingiella decumbens* (Griff.) Rolfe, Orch. Rev. 25: 197, 1917; Fisch. 1006.

Pendulous herbs. Leaves 4-5.5 x 2.5-3.5 cm, oblanceolate, acute at apex, narrowed at base. Flowers purple.

Rare in Ponmudi. Fl. & Fr.: Jun.-Jul.

#### Phaius Lour.

**Phaius liridus** Thw. Enum. Pl. Zeyl. 300, 1861; Joseph & Chandras. in Bull. Bot. Surv. India 16: 147, 1974; Abraham & Vatsala 260, f.47; FBI 5: 817.

Herbs 60-70 cm tall. Leaves 15-25 x 8-12 cm, elliptic-lanceolate, acuminate at apex, narrowed at base. Flowers greenish-yellow.

Rare in evergreen forests. Fl. & Fr.: Feb.-Mar.

#### **Podochilus Blume**

**Podochilus malabaricus** Wight, Icon.t. 1748. 1851; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 88. 1981; *P. falcatus* sensu Hook.f. Fl. Brit. India 6: 80. 1890, non Lindl. 1833; Fisch. 1014; Abraham & Vatsala 390, f.103.

Tufted epiphytes. Leaves 0.2-0.7 x 0.2-0.5 cm, ovate-subulate, acute or subacute. Flowers pale violet.

Rare in Ponmudi. Fl. & Fr.: Dec.-Jan.

#### **Polystachya Hook. nom. cons.**

**Polystachya concerta** (Jacq.) Garay & H. R. Sweet, Revista Soc. Colomb. Orquideol. 9(3): 206. 1974; Jayaw. in Dassanayake, Rev. Handb. Fl. Ceylon 2: 271. 1981. *Epidendrum concetum* Jacq. Enum. Pl. Carib. 30. 1760. *Polystachya flavescens* (Blume) J.J. Smith. Fl. Buitenz. 6: 284, f. 218. 1905; Abraham & Vatsala 392, f.104. *Onichyum flavescens* Blume, Bijdr. 325. 1825. *Polystachya wightii* Reichb.f. Walp. Ann. 6: 640. 1861; FBI 6: 621; Rao 395. *P. purpurea* Wight, Icon. t.1679. 1852; FBI 6: 1005.

Leaves 3.5-10 x 2.5-3 cm, linear-oblong, acute at apex, narrowed at base. Flowers greenish-yellow.

Occasional in evergreen forests. Fl. & Fr.: Feb.-Apt.

#### **Porpax Lindl.**

**Porpax jerdoniana** (Wight) Rolfe in Orch. Rev. 16: 18. 1908; Fisch. 995; Abraham & Vatsala 387, f.102. *Lichenora jerdoniana* Wight, Icon. t.1748. 1851. *Eria lichenora* Lindl. in J. Linn. Soc. Bot. 3: 46. 1858; FBI 6: 787.

Pseudobulbs discoid. Leaves 1.5-2 x 0.7-1 cm, ovate or orbicular, pubescent, obtuse at apex, rounded at base. Flowers reddish-purple,

Rare in moist shady areas. Fl. & Fr.: Apr.-May.

**Robiquetia Gaud.**

***Robiquetia rosea* (Lindl.) Garay in Bot. Mus. Leafl. 23(4): 197. 1972; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 257. f.114. 1981. *Saccolabium roseum* Lindl. Gen. Sp. Orch. 215. 1833; FBI 6: 58. *Sarcanthus walkerianus* Wight, Icon. t.1686. 1851. *Malleola rosea* (Lindl.) Schltr. Report. Spec. Nov. Regni. Veg. 1: 979. 1813; Abraham & Vatsala 494, f.156.**

Non-pseudobulbous epiphytes. Leaves 2-7 x 0.2-0.5 cm, linear-oblong, recurved, unequally 2-lobed at apex, sheathing at base. Flowers purple on axillary racemes.

Rare in subtropical hill forests of Ponmudi. Fl. & Fr.: Aug.-Sept.

**Satyrium Sw.**

***Satyrium nepalense* D.Don, Prodr. Fl. Nepal. 26. 1825; FBI 5: 168; Rao 399; Fisch. 1032; Abraham & Vatsala 210, f.25.**

Tuberous herbs. Leaves 10-15 x 4-7 cm, elliptic-lanceolate, acute at apex, sheathing at base. Flowers white.

Rare in grassy slopes. Fl. & Fr.: Aug.-Oct.

**Sirhookera O. Kuntze**

|                        |                      |
|------------------------|----------------------|
| Midlobe of lip rounded | <i>S. lanceolata</i> |
| Midlobe of lip ovate   | <i>S. latifolia</i>  |

***Sirhookera lanceolata* (Wight) O. Kuntze, Rev. Gen. Pl. 2: 681. 1891; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 266. f.118. 1981. *Josephia lanceolata* Wight, Icon. t.1742. 1851; FBI 5: 823; Rao 394; Fisch. 999.**

Leaves 4-10 x 1.5-3 cm, oblanceolate, obtuse at apex, narrowed at base. Flowers purple on branched racemes up to 20 cm long

Rare in evergreen forests. Fl. & Fr.: Jan.-Mar.

***Sirhookera latifolia* (Wight) O. Kuntze, Rev. Gen. Pl. 2: 681. 1891; Jayaweera in Dassanayake, Rev. Handb. Fl. Ceylon 2: 268. f.119. 1981. *Josephia latifolia* Wight, Icon. t.1743. 1851; FBI 5: 823; Rao 395; Fisc. 999.**

Leaves 4-7 x 1-3.5 cm, broadly ovate or elliptic, acute at apex, sheathing at base. Flowers pale yellow in panicles.

Rare in subtropical hill forests. Fl. & Fr.: Jan.-Feb.

#### Tainia Blume

*Tainia bicornis* (Lindl.) Reichb.f. in Bonplandia 5: 54. 1857; Seidenf. & Smitin. Orch. Thailand 104. 1959; Abraham & Vatsala 291, f.63; Fisch. 998. *Ainia bicornis* Lindl. Bot. Reg. Misc. 37. 1842. *Ainia latifolia* Wight, Icon. t.914. 1843; FBI 5: 820; Rao 394.

Rhizomes creeping; pseudobulbs fusiform each bearing one leaf. Leaves 20-23 x 8-10 cm, ovate-oblong, acute or acuminate at apex, narrowed at base. Flowers purplish-green.

Occasional in evergreen forests. Fl. & Fr.: Jan.-Feb.

#### Trias Lindl.

*Trias bonaccordensis* Sathish in Blumea 34(1): 105. 1989. *T. stocksii* auct. non Benth. ex Hook.f.; Abraham & Vatsala 346, f.60.

Leaves 2.5-3.5 x 2-2.5 cm, single, oblanceolate, acute at apex, narrowed at base. Flowers purple, solitary.

Very rare in subtropical hill forests. Fl. & Fr.: Nov.-Jan.

#### Vanda R.Br.

*Vanda spathulata* Spreng. Syst. Veg. 3: 719. 1828; Wight, Icon. t.915. 1844-1845; FBI 6: 50; Rao 396; Fisch. 1010; Abraham & Vatsala 438.

Scrambling epiphytes. Leaves 4.5-7.5 x 1-1.5 cm, oblong lanceolate, acute at apex, sheathing at base. Flowers purple.

Rare in rocky slopes. Fl. & Fr.: Oct.-Nov.

#### Vanilla Mill.

*Vanilla wightiana* Lindl. ex Hook.f. Fl. Brit. India 6: 90. 1890; Rao 396; Fisch. 1015; Henry et al. in J. Bombay Nat. Hist. Soc. 75: 696. 1978(1979); Mohanan & Henry in Bull. Bot. Surv. India

22: 237. 1980. *V. aphylla* sensu Wight, Icon. t.931. 1845 non Blume 1825.

Leafless, branched, climbing shrubs; internodes rooting. Flowers 4 cm long in axillary racemes; sepals greenish-yellow; petals yellow; lip 1.5 cm long, 3-lobed with a median hirsute line, side lobes rounded; midlobe ovate, thickly clothed by yellow hairs towards the apex and 6 retrorsely barbate brown crests towards the base.

Rare in moist deciduous forests of Kottur. Fl. & Fr.: Jan.-Mar.

**Zeuxine Lindl.**

**Zeuxine longilabris** (Lindl.) Benth. ex Hook.f. Fl. Brit. India 6: 107. 1890; Rao 396; Fisch. 1018; Abraham & Vatsala 202, f.21. *Moncohlus longilabre* Lindl. Gen. Sp. Orch. 487. 1840. *M. affine* Wight. Icon. t.1728. 1851, non Lindl. 1840.

Saprophytes with creeping rhizomes. Leaves 2-4 x 2-2.5 cm, ovate, acute at apex, sheathing at base, Flowers white, pubescent.

Rare in moist shady areas in sholas of Ponmudi. Fl.: Feb.-Dec.

**ZINGIBERACEAE Lindl.**

- |  |                    |
|--|--------------------|
| 1. Stigmas 2-lobed                                       | <i>Curcuma</i>     |
| 1. Stigmas entire:                                       |                    |
| 2. Lip auricled or ligulate at base                      | <i>Alpinia*</i>    |
| 2. Lip without any appendages at base:                   |                    |
| 3. Stigma funnel shaped, ciliate                         | <i>Elettaria</i>   |
| 3. Stigma not as above:                                  |                    |
| 4. Filaments 2-appendaged                                | <i>Globba</i>      |
| 4. Filaments not appendaged:                             |                    |
| 5. Lateral staminodes absent or if present inconspicuous | <i>Zingiber</i>    |
| 5. Lateral staminodes broad, petaloid:                   |                    |
| 6. Stems leafy   | <i>Hedychium</i>   |
| 6. Stems wanting or very short                           | <i>Kaempferia*</i> |

*Alpinia Roxb. nom. cons.*

**Alpinia abundiflora** Burtt & Smith in Notes Roy. Bot. Gard. Edinburgh 34: 179, t. 5. 1975. *Amomum Involucratum* sensu Fischer in Gamble, Fl. Pres. Madras 1487. 1928, non (Thw.) Benth. ex Trimen 1885.

Herbs. Leaves 60-80 x 7-12 cm, oblong-lanceolate, acuminate at apex, narrowed at base. Flowers bluish-white.

Occasional in the rocky slopes of Agastyarkudum. Fl. & Fr.: Aug.-Sept.

*Curcuma L. nom. cons.*

**Curcuma aromatica** Salisb. Parad. t.96. 1807; FBI 6: 210; Rao 400; Fisch. 1035; Burtt & Smith in Dassanayake, Rev. Handb. Fl. Ceylon 4: 503. 1983.

Herbs. Leaves 30-60 x 10-20 cm, pubescent beneath, oblong, acuminate at apex, deltoid at base. Flowers pinkish-white; lip yellow deflexed.

Common in deciduous forests. Fl. & Fr.: Jun.-Jul. 'Channa'.

**Elettaria Maton**

**Elettaria cardamomum** (Roxb.) Maton in Trans. Linn. Soc. London 10: 254. 1811; FBI 6: 251; Rao 403; Fisch. 1041. *Alpinia cardamomum* Roxb. in Asiat. Res. 11: 355. 1810 & Pl. Corom. 3: t.266. 1820.

Herbs 2-3 m tall. Leaves 30-65x 5-10 cm, pubescent beneath, elliptic-lanceolate, acuminate at apex, obtuse at base. Flowers white.

Frequent in evergreen forests. Fl. & Fr.: May-Nov. 'Elam.'

**Globba L.**

**Globba ophioglossa** Wight, Icon. t.2002. 1853; FBI 6: 202; Rao 400; Fisch. 1035.

Herbs 30-40 cm tall. Leaves 16-25 x 3-5 cm, pubescent, elliptic or lanceolate, acuminate at apex, narrowed at base. Flowers yellow.

Common in evergreen forests. Fl. & Fr.: Jun.-Sept. 'Kolachanna'

**Hedychium Koen.**

|                                 |                        |
|---------------------------------|------------------------|
| Flowers yellow; leaves glabrous | <i>H. flavescentes</i> |
| Flowers white; leaves pubescent | <i>H. venustum</i>     |

**Hedychium flavescentes** Carey ex Roscoe, Monandr. t.50. 1825; Burtt & Smith in Dassanayake, Rev. Handb. Fl. Ceylon 4: 507. 1983; Wight, Icon. t.2008 & 2009. 1853; Fisch. 1038. *H. coronarium* Koen. var. *flavescentes* (Lodd.) Baker in Hook.f. Fl. Brit. India 6: 266. 1892.

Herbs 1-2.5 m tall. Leaves 20-35 x 5-7 cm, oblong-lanceolate, caudate-acuminate at apex, narrowed at base. Flowers yellow, fragrant in terminal spikes.

Common in rocky slopes. Fl. & Fr.: Aug.-Dec.

**Hedychium venustum** Wight, Icon. t.2012. 1853; FBI 6: 226; Rao 402; Fisch. 1038.

Herbs 1-2 m tall. Rhizomes erect. Leaves 21-30 x 5-9 cm, oblong-lanceolate, acuminate at apex, narrowed at base.

Occasional in rocky slopes. Fl. & Fr.: Oct.-Dec.

**Zingiber Boehm. nom. cons.**

|                          |                    |
|--------------------------|--------------------|
| Leaves glabrous beneath  | <i>Z. zerumbet</i> |
| Leaves pubescent beneath | <i>Z. neesanum</i> |

**Zingiber neesanum** (Grah.) Ramamoorthy in Sald. & Nicols. Fl. Hassan Dist. 769. 1976. *Alpinia neesana* Grah. Cat. Pl. Bomb. 207. 1839. *Zingiber macrostachyum* Dalz. in Hooker's J. Bot. Kew. Gard. Misc. 4: 342. 1852; FBI 6: 247; Rao 403; Fisch. 1041.

Herbs 40-60 cm tall with horizontal rhizomes. Leaves 15-18 x 1.5-3.5 cm, oblong-lanceolate, acuminate at apex, narrowed at base. Flowers white.

Fairly common in exposed rocky slopes of Ponmudi. Fl. & Fr.: Oct.-Dec. 'Kattukolinchi'.

**Zingiber zerumbet** (L.) J.E. Sm. Exot. Bot. 2: 105. t.112. 1804; FBI 6: 247; Rao 402; Fisch. 1040. *Amomum zerumbet* L. Sp. Pl. 1. 1753; Burtt & Smith in Dassanayake, Rev. Handb. Fl. Ceylon 4: 495. 1983.

Herbs with tuberous rootstocks. Leaves 20-30 x 6-7 cm, oblong or oblong-lanceolate, acuminate at apex, narrowed at base. Corolla white; lip yellow. Capsules oblong.

Fairly common in moist deciduous forests of Kottur. Fl. & Fr.: Aug.-Sep. 'Kolinchiri'

*Alpinia glanga* Sw., *Hedychium coronarium* Koen. and *Kaempferia galanga* L. are commonly cultivated in gardens.

### COSTACEAE (Schum.) Nak.

#### *Costus* L.

*Costus speciosus* (Koen.) J. E. Smith in Trans. Linn. Soc. London 1: 249, 1791; Wight, Icon. t.214. 1853; FBI 6: 249; Rao 403; Fisch. 1041; Burtt & Smith in Dassanayake, Rev. Handb. Fl. Ceylon 4: 491. 1983. *Banksea speciosa* Koen. in Retz, Obs. Bot. 3: 75. 1783.

Tuberous herbs. Leaves 10-19 x 3-6.5 cm, pubescent beneath, elliptic-oblong, acuminate at apex, cuneate at base. Flowers red; lip hairy at base, white outside, yellow at centre.

Abundant in low level evergreen and semievergreen forests. Fl. & Fr.: Jun.-Sept.

### MARANTACEAE Petersen

#### *Schumannianthus* Gagnep.

*Schumannianthus virgatus* (Roxb.) Rolfe in J. Bot. 45: 244. 1907; Fisch. 1043. *Phrynum virgatum* Roxb. in Asiat. Res. 11: 324. 1810. *Clinogyne virgata* (Roxb.) Benth. ex Baker in Hook.f. Fl. Brit. India 6: 258. 1892. *Maranta virgata* (Roxb.) Wight, Icon. t.2015. 1853.

Erect herbs 1.5-3 m tall with tuberous rootstock. Leaves 17-30 x 3.5-10 cm glabrous, oblong, acuminate at apex, narrowed at base; petioles hairy. Flowers white in terminal panicles.

Abundant in moist deciduous and evergreen forests. Fl. & Fr.: Mar.-Aug.

*Maranta arundinacea* L. is cultivated for its tubers (Underground stems). *Canna indica* L. (Cannaceae Juss.), *Musa paradisiaca* L. (Musaceae Juss.) and *Ananas comosus* (L.) Merr. (Bromiliaceae Juss.) are also cultivated extensively.

## HAEMODORACEAE R. Br.

*Peliosanthes* Andrews

*Peliosanthes tecta* Andrews subsp. *humilis* (Andr.) Jessopp in Blumea 23: 155. 1976. *P. humilis* Andr. Bot. Rep. 634. 1811. *P. neilgherrensis* Wight, Icon. t.2052. 1853; FBI 6: 226; Rao 406; Fisch. 1047. *P. courtallensis* Wight, Icon. t.2051. 1853; FBI 6: 226; Fisch. 1047.

Erect herbs. Leaves radical, 17-20 x 4-5 cm, elliptic-oblong, acuminate at apex, narrowed at base. Flowers pale yellow in slender racemes.

Fairly common in shaded, moist areas of evergreen forests. Fl. & Fr.: Mar.-May.

Note : Kranze (Pflanzenfam. ed.2. 16a: 377. 1930) accommodated the genera *Ophiopogon* Ker.-Gawl. and *Peliosanthes* Andr. in the family Haemodoraceae. This is followed by Hutchinson (Fam. Fl. Pl. ed.2. 2: 599 & 604. 1959).

## HYPOXIDACEAE R.Br.

|  |                  |
|--|------------------|
| Perianth tube produced above ovary     | <i>Curculigo</i> |
| Perianth tube not produced above ovary | <i>Molineria</i> |

*Curculigo* Gaertn.

*Curculigo orchoides* Gaertn. Fruct. 1: 63. t.13. 1788; FBI 6: 279; Rao 406; Fisch. 1050.

Herbs with tuberous roots. Leaves 9-17 x 1.5-2 cm, linear-lanceolate, acute at apex, narrowed at base. Flowers yellow in axillary racemes hidden in the bases of leaves.

Fairly common throughout the plains. Fl. & Fr.: May-Jul. 'Nilampana'

*Molineria* Colla

*Molineria trichocarpa* (Wight) Balak. in J. Bombay Nat. Hist. Soc. 63: 330. 1967. *Hypoxis trichocarpa* Wight, Icon. t.2045. (sinistra fig. tant.) 1853. *H. leptostachya* Wight, Icon. t.2045 (dextra fig. tant.) 1853. *H. brachystachya* Wight, Icon. t. 2046. 1853. *Molineria finlaysoniana* Baker in J. Linn. Soc. Bot. 17: 121. 1878;

Fisch. 1049. *Curculigo finlaysoniana* (Baker) Hook.f. Fl. Brit. India 6: 279. 1892; Rao 406. *C. trichocarpa* (Wight) Bennet & Raizada in Indian J. For. 4: 68. 1981.

Scapigerous herbs with tuberous roots. Leaves 20-33 x 2-3 cm, sparsely pubescent beneath, linear-oblong, acuminate at apex, attenuate at base. Flowers yellow, pilose in racemes.

Fairly common in evergreen forests. Fl. & Fr.: Mar.-Sept.

Note: Geerinck (Bull. Jard. Bot. Nat. Belgique 39: 72. 1969) prefers to treat this genus only as a section of the genus *Curculigo* Gaertn. following Bentham (Benth. & Hook.f. Gen. Pl. 3: 718. 1883).

#### A G A V A C E A E Endl.

- |                                     |                     |
|-------------------------------------|---------------------|
| 1. Leaves with a terminal thorn     | <i>Agave*</i>       |
| 1. Leaves without a terminal thorn: |                     |
| 2. Leaves sessile                   | <i>Sansevieria*</i> |
| 2. Leaves petiolate                 | <i>Dracaena</i>     |

#### Dracaena Vend. ex L.

*Dracaena terniflora* Roxb. Fl. Ind. 2: 159. 1832; FBI 6: 328; Rao 413; Fisch. 1062. *D. terminalis* Wight, Icon. t. 2054. 1853.

Shrubs 1.5-2 m tall. Leaves 22-28 x 3-5.5cm, oblong-lanceolate, acuminate at apex, cuneate at base. Flowers yellow in terminal racemes. Berries red.

Frequent in shady areas of dense evergreen forests. Fl. & Fr.: Mar.-Sep.

\**Agave americana* L., *A. sisalana* Perrine ex Engelm. and *Sansevieria roxburghiana* J. & J. Schult. are introduced plants cultivated as hedges.

#### A M A R Y L L I D A C E A E Jaume St. Hill

- |                                 |                   |
|---------------------------------|-------------------|
| Flowers with staminal corona    | <i>Pancratium</i> |
| Flowers without staminal corona | <i>Crinum</i>     |

***Crinum L.***

***Crinum defixum*** Ker.-Gawl. in J. Sci. Arts London 3: 105, 1817; FBI 6: 289; Rao 407; Fisch. 1051.

Bulbous herbs 20-50 cm tall. Leaves 70-90 x 2-2.5 cm, linear-oblong, acute at apex, narrowed at base. Flowers white,

Frequent along banks of streams and rivers. Fl. & Fr.: Oct.-Dec. 'Veluthapola/athai.'

***Pancratium L.***

***Pancratium triflorum*** Roxb. Fl. Ind. 2: 126, 1824; FBI 6: 285; Rao 407; Fisch. 1051.

Erect bulbous herbs. Leaves 20-30 x 1.5-2 cm, linear to oblong-lanceolate. Flowers white in umbels.

Occasional in moist deciduous forests of Kottur. Fl. & Fr.: Mar.-May.

**DIOSCOREACEAE R. Br.**

Climbing shrubs

*Dioscorea*

Erect herbs

*Trichopus*

***Dioscorea L.***

1. Leaves simple :

2. Stems prickly :

3. Petioles as long as lamina

*D. esculenta*

3. Petioles shorter than lamina

*D. wallichii*

2. Stems not prickly :

4. Leaves acute or rounded at base

*D. oppositifolia*

4. Leaves cordate at base

*D. bulbifera*

1. Leaves compound :

5. Stems glabrous

*D. pentaphylla*

5. Stems tomentose

*D. tomentosa*

*Dioscorea bulbifera* L. Sp. Pl. 1033. 1753; Wight, Icon. t.878; Rao 410; Fisch. 1055; Burkill in Steenis, Fl. Malesiana ser.1, 4: 311. 1951. *D. sativa* Thunb. Fl. Jap. 151. 1784, non L. 1753; FBI 6: 295; Rao 410.

Climbing shrubs. Leaves 17-19 x 8-11.5 cm, ovate-lanceolate, acuminate at apex, cordate at base. Flowers brownish in axillary branched racemes.

Frequent in deciduous forests. Often cultivated for its edible tubers. Fl. & Fr.: Oct.-Jan. 'Kattukachil'

*Dioscorea oppositifolia* L. Sp. Pl. 1033. 1753; Wight, Icon. t.813. 1844; FBI 5: 292; Rao 409; Fisch. 1056.

Stems twining to right. Leaves 11-20 x 3-7 cm, elliptic, shortly acuminate at apex, obtuse at base. Flowers greenish-brown.

Fairly common in margins of forests. Fl. & Fr.: Jul.-Feb.

*Dioscorea pentaphylla* L. Sp. Pl. 1032. 1753; Wight, Icon. t.814. 1844; FBI 6: 289; Rao 408; Fisch. 1056; Prain & Burkill in Ann. Roy. Bot. Gard. Calcutta 14(1): 160. 1936.

Stems twining to left. Leaves 3-5-foliate; leaflets 5-10 x 2.5-4 cm, elliptic-lanceolate, acuminate at apex, narrowed at base. Flowers in spiciform panicles.

Fairly common in the boundary of evergreen forests. Fl. & Fr.: Jul.-Feb. 'Nuranchaav.'

*Dioscorea tomentosa* Spreng. Pugill. 2: 92. 1815; FBI 6: 289; Rao 408; Fisch. 1055.

Stems twining to right. Leaves trifoliate (rarely simple); leaflets 8-11 x 4.5-8 cm, tomentose beneath, obliquely ovate, obtuse at apex, obtuse at base. Flowers pubescent in axillary panicles.

Occasional in the boundary of evergreen forests. Fl. & Fr.: Jul.-Feb. 'Inthikachil'.

*Dioscorea wallichii* Hook.f. Fl. Brit. India 6: 295. 1892; Rao 409; Fisch. 1056.

Prickly climbers. Leaves 6-13.5 x 6-12 cm, suborbicular, acuminate-cuspidate at apex, cordate at base. Flowers grey.

Occasional in edges of evergreen forests. Fl. & Fr.: Dec.-Apr.  
*'Kattukilangu'*

*Trichopus* Gaertn.

*Trichopus zeylanicus* Gaertn. subsp. *travancoricus* (Bedd.) Burkitt in Steenis, Fl. Malesiana ser.1, 4: 299, 1951. *Trichopodium travancoricum* Bedd. Icon. t.68. 1868-1874. *Trichopus zeylanicus* Gaertn. Fruct. 1: 44, t.14. 1788; FBI 6: 297 p.p.; Rao 411; Fisch. 1057.

Stems 2.5-12 cm long. Leaves 5-13.5 x 3-7.5 cm, ovate-lanceolate, Flowers brownish.

Occasional in evergreen forests. Fl. & Fr.: Nov.-Mar.

LILIACEAE Juss.

- |  |                     |
|--|---------------------|
| 1. Flowers solitary  | <i>Gloriosa</i>     |
| 1. Flowers collected into various types of inflorescence : |                     |
| 2. Leaves modified into scales; cladodes present           | <i>Asparagus</i>    |
| 2. Leaves well developed; cladodes absent:                 |                     |
| 3. Leaves spinous-dentate                                  | <i>Aloe*</i>        |
| 3. Leaves not as above :                                   |                     |
| 4. Anthers basifix, reflexed                               | <i>Dianella</i>     |
| 4. Anthers not as above :                                  |                     |
| 5. Perianth lobes spurred at base                          | <i>Disporum</i>     |
| 5. Perianth lobes not spurred                              | <i>Chlorophytum</i> |

*Asparagus* L.

- |                    |                      |
|--------------------|----------------------|
| Cladodes flat      | <i>A. gonoclados</i> |
| Cladodes subterete | <i>A. racemosus</i>  |

*Asparagus gonoclados* Baker in J. Linn. Soc. Bot. 14: 627, 1875; FBI 6: 318; Rao 412; Fisch. 1060.

Cladodes 1-2.5 cm long, ensiform, 2-6-nate, acute or acuminate. Flowers white in fascicles of racemes.

Common in evergreen forests. Fl. & Fr.: Aug.-Dec.

*Asparagus racemosus* Willd. Sp. Pl. 2: 152. 1799; Wight, Icon. t. 2056. 1853; Rao 412; Fisch. 1060.

Cladodes 9-12 cm long, triquetrous, 2-6-nate. Flowers white in fascicles of racemes.

Common in Ponmudi. Fl. & Fr.: Aug.-Dec.

*Chlorophytum* Ker.-Gawl.

|  |                      |
|--|----------------------|
| Scapes 50-70 cm long                           | <i>C. attenuatum</i> |
| Scapes 5-15 cm long (rarely up to 25 cm long). | <i>C. laxum</i>      |

*Chlorophytum attenuatum* (Wight) Becker in J. Linn. Soc. Bot. 15: 332. 1876; FBI 6: 335; Rao 413; Fisch. 1066. *Phalangium attenuatum* Wight, Icon. t. 2037. 1853.

Leaves 20-45 x 1-3 cm, linear-oblong, acuminate at apex, narrowed at base. Flowers white.

Occasional in upper Ponmudi. Fl. & Fr.: Jun.-Sept.

*Chlorophytum laxum* R.Br. Prodr. 277. 1810; FBI 6: 336; Rao 413; Fisch. 1066.

Herbs. Leaves 6-14 x 0.5-0.8 cm, linear-oblong, acute at apex, narrowed at base. Flowers greenish-white.

Common in the coast. Fl. & Fr.: May-Oct.

*Dianella* Lam.

*Dianella ensifolia* (L.) DC. in Redoute, Liliac. 1, t. 1. 1802; FBI 6: 337; Fisch. 1063. *Dracaena ensifolia* L. Mant. Pl. 63. 1767. *Dianella ensata* (Thunb.) Henderson in Taxon 26: 136. 1977. *Dracaena ensata* Thunb. Diss. Bot. Drac. 4. 1808.

Stoloniferous herbs. Leaves 50-60 x 1-2 cm, linear-ensiform, acuminate at apex, narrowed at base. Flowers bluish-white.

Frequent in evergreen forests. Fl. & Fr.: Jun.-Sept.

*Disporum* Salisb.

*Disporum leschenaultianum* D.Don in Trans. Linn. Soc. London 18: 518. 1839, var. *leschenaultianum*; Wight, Icon. t.2049. 1853; FBI 6: 360; Rao 415; Fisch. 1063.

Herbs. Leaves 4-8.5 x 1.8-5.8 cm, ovate or ovate-oblong. Flowers white.

Rare in Chemungi. Fl.: Jun.-Jul.

*Gloriosa* L.

*Gloriosa superba* L. Sp. Pl. 305. 1753; Wight, Icon. t.2047. 1853; FBI 6: 358; Rao 415; Fisch. 1061.

Climbing herbs. Leaves 5-13 x 1-2.5 cm, lanceolate, apex modified into tendril. Flowers red.

Occasional in cultivated fields. Fl. & Fr.: Aug.-Sept.

## SMILACACEAE Vent.

*Smilax* L.

*Smilax zeylanica* L. Sp. Pl. 1029. 1753; FBI 6: 306; Rao 411; Fisch. 1061; Koyama in Advan. Front. Pl. Sci. 4: 50. 1966.

Prickly climbers with tendrils. Leaves 7.5-15 x 2.5-7.5 cm, elliptic or elliptic-lanceolate. Flowers green.

Frequent in deciduous forests. Fl. & Fr.: Nov.-Apr.

## PONTEDERIACEAE Kunth

Flowers sessile

*Eichhornia*

Flowers distinctly pedicelled

*Monochoria*

*Eichhornia* Kunth nom. cons.

*Eichhornia crassipes* (Mart.) Solms. in A.DC. Monog. Phan. 4: 527. 1883; Fisch. 1069; Baker in Steenis, Fl.: Malesiana ser.1, 4: 259. 1951. *Pontedera crassipes* Mart. Nov. Gen. Sp. 9. t.4. 1823.

Floating herbs. Leaves 7-20 x 5-10 cm, ovate, acute at apex, truncate or cordate at base. Flowers purple.

Abundant in stagnnat pools. Fl. & Fr.: Throughout the year.

**Monochoria Presl**

*Monochoria vaginalis* (Burm.f.) Presl ex Kunth, Enum. 4: 134. 1843; FBI 6: 363; Rao 415; Fisch. 1068; Backer in Steenis, Fl. Malesiana ser.1. 4: 256. 1951. *Pontederia vaginalis* Burm.f. Fl. Ind. 80. 1768.

Aquatic herbs. Leaves 3-10 x 2-6 cm, sagittate or ovate-acuminate. Flowers blue.

Abundant in ditches, canals and pools. Fl. & Fr.: Jul.-Dec.  
'Kolachempu'

**X Y R I D A C E A E Agardh.**

**Xyris Gronov. ex L.**

Scapes 90-100 cm tall; edges scabrid *X. complanata*

Scapes 15-50 cm tall; edges not scabrid *X. indica*

*Xyris complanata* R.Br. Prodr. 256. 1810. *X. anceps* sensu Hook.f. Fl. Brit. India 6: 364. 1892, non Lam. 1792; Rao 416; Fisch. 1070.

Aquatic herbs. Leaves 12-45 x 0.2-0.5 cm, twisted, ridged. Heads ellipsoid; bracts brown, orbicular.

Common in marshy areas. Fl. & Fr.: Aug.-Dec.

*Xyris indica* L. Sp. Pl. 42. 1753; FBI 6: 364; Fisch. 1070; Royen in Steenis, Fl. Malesiana ser.1. 4: 373. 1953.

Aquatic herbs. Leaves 15-45 x 0.3-1 cm, linear-ensiform. Heads ovoid; bracts obovate, papillate; petals yellow.

Common in coastal zone. Fl. & Fr.: Aug.-Dec.

**C O M M E L I N A C E A E R. Br.**

1. Fertile stamens 2-3:

- 2. Ovary glabrous *Commelina*
- 2. Ovary pubescent:

|                              |                        |
|------------------------------|------------------------|
| 3. Flowers zygomorphic       | <i>Murdannia</i>       |
| 3. Flowers actinomorphic     | <i>Dictyospermum</i>   |
| 1. Fertile stamens 6;        |                        |
| 4. Stems viviparous at nodes | <i>Belosynapsis</i>    |
| 4. Stems not as above:       |                        |
| 5. Ovary 2-loculed           | <i>Floscopia</i>       |
| 5. Ovary 3-loculed:          |                        |
| 6. Leaf sheaths inflated     | <i>Amischophacelus</i> |
| 6. Leaf sheaths not inflated | <i>Cyanotis</i>        |

***Amischophacelus* Rolla Rao & Kammathy**

***Amischophacelus axillaris* (L.) Rao & Kammathy** in J. Linn. Soc. Bot. 59: 306, 1966. *Commelina axillaris* L. Sp. Pl. 42, 1753. *Cyanotis axillaris* (L.) D.Don, Prodr. Fl. Nepal. 46, 1825; FBI 6: 388; Rao 418; Fisch. 1082.

Leaves 3-6 x 0.4-0.6 cm, puberulous above, oblong-lanceolate, acuminate at apex. Flowers pink in axillary cymes.

Frequent in the upper ghats. Fl. & Fr.: Jun.-May.

*Note*: Based on cytological investigations Sharma (Genetica 27: 353, 1955) and Kammathy & Rao (Bull. Bot. Surv. India 3: 394, 1961) suggested the separation of this species from *Cyanotis* D.Don. Kammathy & Rao, subsequently placed this in *Zygomanes* Salisb. which is a nomen nudum and a superfluous substitute for *Cyanotis* D.Don. Hence, Rao and Kammathy *J.c.* erected a new genus to accommodate this aberrant species.

***Dictyospermum* Wight**

|                       |                       |
|-----------------------|-----------------------|
| 1. Capsules pubescent | <i>D. scaberrimum</i> |
| 1. Capsules glabrous: |                       |
| 2. Fertile stamens 3  | <i>D. montana</i>     |
| 2. Fertile stamens 2  | <i>D. ovalifolia</i>  |

***Dictyospermum montanum* Wight**, Icon. t.2069, 1853; Morton in J. Linn. Soc. Bot. 59: 431-478, 1966. *Aneilema montanum* (Wight)

Clarke in A. & C. DC. Monogr. Phan. 3: 217. 1881; FBI 4: 381; Fisch. 1079.

Leaves 5-25 x 1.5-3.5 cm, oblong-lanceolate, acuminate. Flowers white in axillary or terminal panicles.

Frequent in evergreen forests. Fl. & Fr.: Sept.-Dec.

*Dictyospernum scaberrimum* (Blume) Morton in J. Linn. Soc. Bot. 59: 431. 1966. *Commelina scaberrima* Blume, Enum. 1: 4. 1827. *Aneilema scaberrimum* (Blume) Kunth, Enum. 1: 4. 1827; FBI 4: 382; Rao 418; Fisch. 1079.

Leaves 6-11 x 2.5-4 cm, hispid above, ovate-lanceolate, acuminate. Flowers blue in umbelliform panicles.

Common in evergreen forests. Fl. & Fr.: Nov.-Mar.

*Belosynapsis* Hassk.

*Belosynapsis vivipara* (Dalz.) Sprague & Fisch. in Bull. Misc. Inform. 252. 1928 & Fl. Pres. Madras 1551. 1931 & 1082. 1967 (repr. ed.); Rolla Rao in Notes Roy. Bot. Gard. Edinburgh 25(2): 189. 1965. *Cyanotis vivipara* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 226. 1851; FBI 5: 388.

Lithophytic herbs. Flowers red in umbels.

Rare in rocky slopes. Fl. & Fr.: Dec.-Mar.

*Commelina* L.

- |                                       |                     |
|---------------------------------------|---------------------|
| 1. Spathes rounded or cordate at base | <i>C. clavata</i>   |
| 1. Spathes not as above;              |                     |
| 2. Leaves acuminate at apex           | <i>C. paleata</i>   |
| 2. Leaves acute or subobtuse at apex  | <i>C. ensifolia</i> |

*Commelina clavata* Clarke, Comm. & Cyrt. Bengal t.6. 1874; FBI 4: 371; Rao 417; Fisch. 1074.

Leaves 3.5-11 x 0.7-1.5 cm, linear-lanceolate. Spathes hairy along margins. Flowers blue.

Common in lower ghats. Fl. & Fr.: Jun.-Sep.

*Commelina ensifolia* R.Br. Prodri. 269. 1810; Rolla Rao in Blumea 14: 352. 1966; FBI 6: 374; Rao 417; Fisch. 1076.

Leaves 2.5-10 x 0.5-1 cm, linear-lanceolate. Spathes ovate, sparsely hairy. Flowers blue.

Common in the ghats. Fl. & Fr.: Jun.-Oct.

*Commelinia paleata* Hassk. in Miq. Pl. Jungh. 139, 1852; FBI 6: 372; Rao 417; Fisch. 1075.

Leaves 5-13 x 0.5-2.5 cm, lanceolate or elliptic. Spathes pubescent. Flowers blue.

Occasional in lower ghats. Fl. & Fr.: Mar.-Sep.

*Cyanotis* D.Don *nom. cons.*

|                                 |                    |
|---------------------------------|--------------------|
| 1. Leaves radical and caudine   | <i>C. pilosa</i>   |
| 1. Leaves all caudine:          |                    |
| 2. Bracts equalling the cymes   | <i>C. villosa</i>  |
| 2. Bracts longer than the cymes | <i>C. cristata</i> |

*Cyanotis cristata* (L.) D.Don, Prodr. Fl. Nepal. 46, 1825; Wight, Icon. t.2082, 1853; FBI 6: 385; Rao 418; Fisch. 1081. *Commelinia cristata* L. Sp. Pl. 42, 1753.

Leaves 1.5-3 x 0.5-1 cm, ovate-oblong. Flowers purple in axillary and terminal scorpioid cymes.

Common in open forests. Fl. & Fr.: Jul.-Nov.

*Cyanotis pilosa* Schultes & Schult.f. Syst. 7: 1155, 1830; FBI 6: 387; Rao 418; Fisch. 1081.

Leaves 3-5 x 1-1.5 cm, hairy, lanceolate. Flowers blue, axillary.

Frequent in evergreen forests. Fl. & Fr.: Jul.-Nov.

*Cyanotis villosa* (Spreng.) Schultes & Schult.f. Syst. Veg. 7: 1155, 1830; FBI 6: 387; Fisch. 1081. *Tradescantia villosa* Spreng. Syst. Veg. 2: 116, 1825.

Leaves 3-4.5 x 1-3 cm, silky villous, lanceolate. Flowers blue.

Common in moist areas. Fl. & Fr.: Jun.-Oct.

*Floscopia Lour.*

*Floscopia scandens* Lour. Fl. Cochinch. 193, 1790; FBI 6: 390; Rao 419; Fisch. 1083.

Subscandent herbs. Leaves 2-7.5 x 0.7-2 cm, oblong, acute at apex, narrowed at base. Flowers pinkish in terminal panicles.

Occasional in swamps and margins of ghats. Fl. & Fr.: Oct.-Mar.

*Murdannia Royle nom. cons.*

Note : *Murdannia* Royle differs from *Aneilema* R.Br. by the stamens in the inner whorl fertile; the outer whorl with trilobed stamens and trilocular capsules.

- |                                  |                      |
|----------------------------------|----------------------|
| 1. Leaves mostly radical;        |                      |
| 2. Roots tuberous                | <i>M. simplex</i>    |
| 2. Roots fibrous                 | <i>M. glauca</i>     |
| 1. Leaves caudine:               |                      |
| 3. Leaves amplexicaul            | <i>M. spiratum</i>   |
| 3. Leaves not as above:          |                      |
| 4. Mouth of the sheath oblique   | <i>M. dimorpha</i>   |
| 4. Mouth of the sheath straight: |                      |
| 5. Filaments glabrous            | <i>M. pauciflora</i> |
| 5. Filaments bearded:            |                      |
| 6. Flowers in panicles           | <i>M. gigantea</i>   |
| 6. Flowers in cymes:             |                      |
| 7. Leaves 12-17 cm long          | <i>M. terminale</i>  |
| 7. Leaves less than 11 cm long   | <i>M. nudiflora</i>  |

*Murdannia dimorpha* (Dalz.) Brueckner in Engler & Prantl, Pflanzenfam. ed.2. 15a; 173. 1930. *Aneilema dimorphum* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 3: 138. 1851; FBI 6: 377; Fisch. 1078.

Leaves 2.7 x 0.5-1.3 cm. ovate-lanceolate. Flowers purple.

Frequent at low elevations. Fl. & Fr.: Aug.-Jan.

*Murdannia gigantea* (Vahl.) Brueckner in Engler & Prantl, Pflanzenfam. ed.2, 15a: 173, 1930. *Commelina gigantea* Vahl, Enum. Pl. 2: 177, 1805. *Aneilema gigantcum* Vahl. R.Br. Prodr. 271, 1810; FBI, 6: 379; Fisch. 1079.

Leaves 40-50 x 0.8-1.2 cm, linear-oblong, acuminate. Flowers pale red in lax panicles.

Frequent in deciduous forests. Fl. & Fr.; Jul.-Nov.

*Murdannia glauca* (Thw. ex Clarke) Brueckner in Engler & Prantl, Pflanzenfam. ed.2, 15a: 173, 1930; Raizada in Indian Forester 84: 498, 1958. *Aneilema glaucum* Thw. ex Clarke in DC. Monogr. Phan. 3: 200, 1881; FBI 6: 375; Fisch. 1078.

Leaves 7-15 x 2-3 cm, broadly ensiform, acuminate. Flowers blue.

Frequent in wet areas of Ponmudi. Fl. & Fr.; Jun.-Oct.

*Murdannia nudiflora* (L.) Brenan in Kew Bull. 7: 189, 1952; Rolla Rao in Bull. Bot. Surv. India 3: 393, 1961. *Commelina nudiflora* L. Sp. Pl. 41, 1753. *Aneilema nudiflorum* (L.) R.Br. Prodr. 271, 1810; FBI 6: 378; Fisch. 1078. *Murdannia malabarica* (L.) Brueckner in Engler & Prantl, Pflanzenfam. ed.2, 15a: 173, 1930; Raizada in Indian Forester 92: 317, 1966. *Tredecantia malabarica* L. Sp. Pl. ed.2, 412, 1762.

Prostrate herbs. Leaves 2-16 x 0.3-0.8 cm, hairy, oblong-lanceolate. Flowers purple in cymes.

Frequent in wet areas. Fl. & Fr.; Sep.-Nov.

*Murdannia pauciflora* Brueckner in Engler & Prantl, Pflanzenfam. ed.2, 15a: 173, 1930; Nicolson in Taxon 27: 366, 1978. *Aneilema pauciflorum* Wight, Icon. t.2077, 1853, 'pauciflora' non Dalzell 1851; FBI 6: 378; Fisch. 1078. *M. wightii* Rolla Rao & Kammathy in Notes Roy. Bot. Gard. Edinburgh 25: 184, 1964.

Leaves 1.2-2 x 0.5-1 cm, ovate. Flowers yellow in axillary and terminal cymes.

Frequent in swampy areas. Fl. & Fr.; Aug.-Nov.

*Murdannia simplex* (Vahl) Brenan in Kew Bull. 7: 186, 1952. *Commelina simplex* Vahl, Enum. 2: 177, 1805. *Aneilema sinicum* Lindl. in Bot. Reg. t.654, 1822; FBI 6: 379; Fisch. 1078.

Leaves linear-lanceolate. Flowers purple in terminal panicles.

Frequent in marshy areas. Fl. & Fr.: Jun.-Nov.

*Murdannia spirata* (L.) Brueckner in Engler & Prantl, Pflanzenfam. ed.2, 15a; 173, 1930. *Commelina spirata* L. Mant. Alt. 176, 1771. *Aneilema spiratum* (L.) R.Br. Prodr. 271, 1810; FBI 6: 377; Fisch. 1078.

Leaves 1-2 x 0.5-0.7 cm, ovate to oblong. Flowers blue.

Occasional in marshy areas of the midland zone. Fl. & Fr.: Sept.-Dec.

*Murdannia terminale* (Blume) Raizada in Indian Forester 84: 499, 1958. *Tradescantia terminale* Blume, Enum. 1: 6, 1827. *Aneilema terminale* (Blume) Boldinh, Zakfl. Landbouwstr. Java 47, 1916; Haines, Bot. Bihar & Orissa 6: 1080, 1924; Wight, Icon. t.2076, 1853. *Aneilema nudiflorum* (L.) R.Br. var. *terminale* Clarke in Fl. Brit. India 6: 379, 1892; Fisch. 1078.

Leaves 12-17 x 1-2 cm, oblong-lanceolate. Flowers purple in terminal cymes.

Frequent in lower ghats. Fl. & Fr.: Oct.-Nov.

#### FLAGELLARIACEAE Dumort.

*Flagellaria* L.

*Flagellaria indica* L. Sp. Pl. 333, 1753; FBI 6: 391, incl. var. *minor* (Blume) Koord.; Rao 419; Backer in Steenis, Fl. Malesiana ser.1, 4: 246, 1951.

Climbing shrubs. Leaves 10-50 x 3-6 cm, ovate-lanceolate, acuminate with the acumen spirally curling. Flowers white.

Common in tidal mangroves. Fl. & Fr.: Dec.-Mar.

#### ARECACEAE Schutlz.

- |  |                |
|--|----------------|
| 1. Shrubs, climbing or straggling by hooks | <i>Calamus</i> |
| 1. Erect trees or shrubs :                 |                |
| 2. Plants dioecious                        | <i>Phoenix</i> |
| 2. Plants monoecious :                     |                |

|  |                   |
|--|-------------------|
| 3. Spadices terminal   | <i>Corypha</i>    |
| 3. Spadices axillary :   |                   |
| 4. Leaves simple   | <i>Borassus</i>   |
| 4. Leaves compound :   |                   |
| 5. Leaves bipinnate  | <i>Caryota</i>    |
| 5. Leaves pinnate :  |                   |
| 6. Spathe solitary   | <i>Pinanga</i>    |
| 6. Spathes 2 or more :   |                   |
| 7. Spadices from the upper leaf axils and successively downwards :           |                   |
| 8. Fruits 2-3-seeded   | <i>Arenga</i>     |
| 8. Fruits 1-seeded   | <i>Cocos</i>      |
| 7. Spadices from the axils of lower fallen leaves :                          |                   |
| 9. Bracts 2-lipped, male and female flowers mixed at lower parts of spadices | <i>Bentinckia</i> |
| 9. Bracts not as above; male and female flowers not mixed                    | <i>Areca</i>      |

*Areca* L.

*Areca catechu* L. Sp. Pl. 1189. 1753; FBI 6: 405; Rao 419; Fisch. 1058.

Cultivated for its nuts which is a masticatory and used in medicine, 'Kavungu'.

*Arenga* Labill.

*Arenga wightii* Griff. in Calcutta J. Nat. Hist. 5: 475. 1845; FBI 6: 422; Rao 420; Fisch. 1087.

Stems 6-8 m long, 25-30 cm in diam., smooth. Leaves 5-8 m long; leaflets 50-80 x 3-5 cm, linear-ensiform, attenuate at apex, unequally 2 auricled at base. Spadix 1-1.2 cm long. Fruits 2.5x3 cm.

Common in the valleys of Ponmudi. Toddy is tapped by tribals. Fl. & Fr.: Throughout the year, 'Malanthengu'.

Bentinckia Berry

**Bentinckia condapanna** Berry ex Roxb. Fl. Ind. 3: 621. 1832;  
FBI 6: 418; Rao 420; Fisch. 1085. 'coddapanna'

Stems 10-20 m tall, annulate, greyish. Leaves 1-1.5 m long; leaflets 30-70 x 2-4 cm, linear, acuminate. Spadices 60 x 90 cm, purple. Flowers pinkish-red.

Frequent at rocky ridges of Agastyarkudum and Chemungi. Terminal buds and juvenile leaves are eaten by hillmen. Fl. & Fr.: Apr.-Jul.

*Note:* Endemic to Southern Western Ghats and is declared as endangered due to its isolated habitats which are under severe threat of destruction.

Rorasseus I

*Borassus flabellifer* L. Sp. Pl. 1187. 1753; FBI 6: 482; Rao 422; Fisch. 1090. *B. flabelliformis* Roxb. Pl. Cor. t. 71 & 72. 1798.

Stems 25-35 m long. Leaves 60-150 cm in diam., palmately fan-shaped, margins split into 60-80 segments with acuminate apex and spinulate margins. Male spadices branched, female simple.

Common in plains. Fl. & Fr : Mar - Jun

### **Calamus L.**

1. Leaflets fascicled or subfascicled atleast in the middle :
  2. Spines on the petioles flat and black      *C. thwaitesii*  
var. *canaranus*
  2. Spines on the petioles not flat and black      *C. travancoricus*
  1. Leaflets not fascicled :
  3. Lower primary spathes 2-keeled or acutely 2-edged :
  4. Fruits sessile      *D. pseudotenuis*
  4. Fruits pedicelled      *C. huegelianus*
  3. Lower primary spathes not keeled or acutely 2-edged      *C. gamblei*

**Calamus gamblei** Becc. ex Becc. & Hook.f. Fl. Brit. India 6: 453. 1893; Rao 422; Fisch. 1093.

Rachis trigonous towards apex; subterete towards base. Leaflets 60-70 x 0.5-0.9 cm long, lanceolate. Fruits turbinate, globose.

Frequent in evergreen forests. Fl. & Fr.: Dec.-Jun.

**Calamus huegelianus** Mart. Hist. Nat. Palm. 3: 338. 1850; Becc in Rec. Bot. Surv. India 2: 207. 1903 & Ann. Roy. Bot. Gard. Calcutta 11(1): 314. Pl. 122. 1908; FBI 6: 452; Fisch. 1094.

Leaflets 30-50 x 2-2.5 cm, ensiform, bristly on the ribs and margins. Spathes tubular. Fruits spherical.

Frequent in evergreen forests. Fl. & Fr.: Jun.-Aug.

**Calamus pseudotenuis** Becc. ex Becc. & Hook.f. in Hook.f. Fl. Brit. India 6: 445. 1892; Becc. in Ann. Roy. Bot. Gard. Calcutta 11: 223. t. 69. 1908; Fisch. 1093.

Leaflets 18-50 x 0.9-2.5 cm, pubescent, linear, penicellate. Fruits brown, globular.

Common in evergreen forests. Fl. & Fr.: Mar.-Aug.

**Calamus thwaitesii** Becc. var. **canaranus** Becc. in Ann. Roy. Bot. Gard. Calcutta 11: 138. t. 12. 1908; FBI 6: 541; Fisch. 1093.

Leaves flabelliferous; spines deflexed, black; leaflets 40-60 x 3-6 cm, ensiform. Primary spathes spinescent. Fruits brownish.

Common at low elevations. Fl. & Fr.: Mar.-Aug.

**Calamus travancoricus** Bedd. ex Becc. & Hook.f. Fl. Brit. India 6: 452. 1893; Rao 422; Fisch. 1093.

Leaflets in groups of 3-5, each 10-15 x 0.5-1.5 cm, sparsely hairy, oblanceolate. Spadix flabelliferous; spikes distichous.

Rare in evergreen forests. Fl. & Fr.: Feb.-Mar.

#### **Caryota L.**

**Caryota urens** L. Sp. Pl. 1189. 1753; FBI 6: 422; Fisch. 1089.

Stems 15-20 m tall, smooth. Leaves 4-6 m long; leaflets 20-30 x

5-10 cm, obliquely truncate and serrate at apex, cuneate at base. Spadix 3-3.5 m, long; spathes 40-45 cm long.

Occasional at low elevations. Fl. & Fr.: Throughout the year.

#### *Corypha* L.

*Corypha umbraculifera* L. Sp. Pl. ed.2, 1657. 1762; FBI 6: 422; Rao 421; Fisch. 1089.

Stems 8-15 m tall, 60-90 cm in diam., Leaves 2.5-4.5 m in diam., lobes 80-100, linear-lanceolate. Spadix 3-6 m long. Fruits globose.

Cultivated in private fields for its leaves for making country type of umbrellas, baskets etc. 'Kutapana'.

#### *Cocos* L.

*Cocos nucifera* L. Sp. Pl. 1188. 1753; FBI 6: 482; Rao 423; Fisch. 1086.

Extensively cultivated in coastal and midland zones. 'Thengu'

#### *Phoenix* L.

*Phoenix loureirii* Kunth, Enum. Pl. 3: 257, 1841. *P. humilis* Royle ex Hook.f. var. *pedunculata* (Griff.) Beccari, Males. 379, 387, t. 44. II. 13-15, 18-21, 25-27, 1877-1890; FBI 6: 427; Fisch. 1088, *P. pedunculata* Griff. Palms. Brit. Ind. 139. 1950.

Leaves 1.2-2.4 m long; leaflets 20-50 x 0.5-1.2 cm, fascicled. Spadix branched. Flowers and fruits orange.

Common in exposed areas of ghats. Fl. & Fr.: Feb.-Mar.

#### *Pinanga* Blume

*Pinanga dicksonii* (Roxb.) Blume in Rumphia 2: 85. 1837-1838; Scheffer in Naturk. Tijdschr. Nederl. Ind. 32: 174, 1871; FBI 6: 409; Fisch. 1086. *Areca dicksonii* Roxb. Fl. Ind. 3: 616. 1832.

Stems 5-9 m tall. Leaflets 50-75 x 2-3.5 cm, sessile, sparsely hairy beneath, broadly linear. Spadix branched. Spathes simple.

Frequent in evergreen forests. Fl. & Fr.: Jul.-Sept.

## PANDANACEAE R.Br.

## Pandanus L.f.

- |                                  |                       |
|----------------------------------|-----------------------|
| 1. Ovary 5-12 loculed            | <i>P. fasciculata</i> |
| 1. Ovary 1-loculed :             |                       |
| 2. Syncarp subtrigonous          | <i>P. furcatus</i>    |
| 2. Syncarp oblong, not trigonous | <i>P. thwaitesii</i>  |

**Pandanus fascicularis** Lam. Encycl. 1: 372. 1783; FBI 6: 485; Rao 424;  
*P. tectorius* auct. non Soland. ex Parkins. 1773; Bourd. 394.  
*P. odoratissimum* L.f. Suppl. Pl. 424. 1781 nom. illeg.; Fisch.  
 1095.

Leaves 90-150 x 5-7.5 cm, linear, caudate-acuminate; margin  
 and midribs spinulose. Male spadices many, cylindric, racemmed.  
 Female solitary.

Common near backwaters. Fl. & Fr.: Mar.-Apr.

**Pandanus furcatus** Roxb. Fl. Ind. 3: 744. 1832; FBI 6: 484; Fisch.  
 1095.

Trees 9-12 m tall. Leaves 15-35 x 7.5-15 cm, strap-shaped,  
 acuminate, margins and keels spinulose. Male spathes golden-yellow.  
 Syncarp orange-red.

Occasional along river banks. Fl. & Fr.: Dec.-Feb.

**Pandanus thwaitesii** Mart. in Bull. Soc. Bot. Hel. 369. 1904 &  
 Webbia 1: 369. 1905 & 4: 35. t.30, f.1-5. 1913; Fisch. 1095.  
*P. humilis* Thw. Enum. 327. 1861, non Lour. 1793; FBI 6: 486.

Shrubs. Leaves 150-200 x 2-3.5 cm, narrow, strap-shaped,  
 acuminate; margins and keels spinulose. Syncarps 7-8 cm long.  
 oblong-rotund.

Frequent along streams and rivers. Fl. & Fr.: Mar.-Aug.

## ARACEAE Juss.

- |                    |               |
|--------------------|---------------|
| 1. Climbing shrubs | <i>Pothos</i> |
| 1. Erect herbs :   |               |

2. Floating aquatic herbs *Pistia*
2. Plant not as above :
3. Leaves simple, entire or rarely lobed :
4. Leaves ovate-lanceolate *Lagenandra*
4. Leaves not as above :
5. Flowers bisexual *Acorus*
5. Flowers unisexual :
6. Stamens free *Typhonium*
6. Stamens connate :
7. Plants lithophytic or epiphytic; Stigmas disciform *Remusatia*
7. Plants terrestrial; stigmas usually 3-5-lobed or rayed :
8. Stamens 1-2 *Theriophorum*
8. Stamens 3-6 *Colocasia*
3. Leaves compound :
9. Leaf stalk trisect *Amorphophallus*
9. Leaf stalk not as above :
10. Leaflets pinnate or pedatisect *Anaphyllum*
10. Leaflets radiate *Arisaema*

### *Acorus L.*

*Acorus calamus* L. Sp. Pl. 324. 1753; FBI 6: 555; Rao 428; Fisch, 1577.

Herbs; rootstocks creeping. Leaves 3.5-1-3.5 x 1-2.7 cm, ensiform, equitant. Spathes 15-60 cm long; spadix sessile, free from the spathe.

Often cultivated for its aromatic rootstocks which are medicinal. Fl. & Fr.; Dec.-Feb.

*Amorphophallus* Blume ex Decne nom. cons.

*Amorphophallus paeoniifolius* (Dennst.) Nicolson in Taxon 26:

338, 539. 1977. *Dracontium paeonifolius* Dennst, Schluessl, 13, 21, 38. 1818. *Amorphophallus campanulatus* (Roxb.) Blume ex Decne. Nouv. Ann. Mus. Hist. Nat. 3: 366. 1834; FBI 6: 513; Rao 426; Fisch. 1107. *Arum campanulatum* Roxb. Pl. Cor. t.272. 1820; Wight, Icon. t.782. 1844.

Cultivated for edible corms. 'Chena'.

**Anaphyllum Schott**

**Anaphyllum wightii** Schott, Gen. Aroid. t. 83. 1853 & Prodr. Aroid. 404, 1860; FBI 6: 551; Rao 428; Fisch. 1108.

Herbs 50-100 cm tall. Leaflets 13-22 x 3-7 cm, oblong, acuminate at apex, rounded at base. Spathes brownish; flowers greenish.

Abundant in evergreen forests. Fl. & Fr.: Aug.-Dec.

**Arisaema Mart.**

Spadix appendage longer than spathe *A. tortuosum*

Spadix appendage shorter than the spathe *A. leschenaultii*

*Arisaema leschenaultii* Blume in Rumphia 1: 93. 1835; FBI 6: 504; Rao 425; Fisch. 1105.

Herbs 10-30 cm tall. Leaflets 7.5-23 x 1.5-7.5 cm, pubescent beneath, elliptic-oblong, acuminate at apex, cuneate at base. Spathes green.

Occasional in upper ghats. Fl. & Fr.: May-Jul.

*Arisaema tortuosum* (Wall.) Schott in Schott & Endl. Melet. Bot. 17. 1832; FBI 6: 502; Rao 425; Fisch. 1105. *Arum tortuosum* Wall, Pl. Asiat. Rar. 2: 10. t.111. 1830.

Herbs 30-40 cm tall. Leaflets 5.5-7.5 x 1.2-2.5 cm, pubescent beneath, elliptic-oblong. Spathes greenish purple.

Occasional in upper ghats. Fl. & Fr.: May.-Sep.

**Colocasia Clusius ex Fabricius *nom. cons.***

*Colocasia esculenta* (L.) Schott, Melet. 1: 18. 1832. *Arum esculentum* L. Sp. Pl. 965. 1753. *Colocasia antiquorum* Schott, Melet. 1: 18. 1832; FBI 6: 532; Rao 426; Fisch. 1102.

Herbs. Leaves 10-20 x 6-18 cm, ovate or suborbicular, deeply cordate at base. Spathes pale yellow.

Common in wastelands, ditches and ponds. Fl. & Fr.: Jul.-Dec.

*Lagenandra* Dalz.

- |   |                     |
|---|---------------------|
| 1. Peduncles 10-18 cm long              | <i>L. ovata</i>     |
| 1. Peduncles less than 5 cm long:       |                     |
| 2. Spathes with 5 longitudinal stripes  | <i>L. toxicaria</i> |
| 2. Spathes without longitudinal stripes | <i>L. meeboldii</i> |

*Lagenandra meeboldii* (Engler) Fisch. in Gamble, Fl. Pres. Madras 1575, 1931 & 1099, 1957 (repr. ed.). *Cryptocoryne meeboldii* Engler, Pflanzenreich 7: 234. 1920.

Herbs 20-50 cm tall. Leaves 5-8 x 4-6 cm, broadly ovate, obtuse or subacute at apex, rounded at base. Spathes verruculose.

Occasional in marshy areas. Fl. & Fr.: Oct.-Mar.

*Lagenandra ovata* (L.) Thw, Enum. 334, 1864; Fisch. 1099, *Arum ovatum* L. Sp. Pl. 967, 1753.

Herbs 50-75 cm tall. Leaves 12-35 x 5-10 cm, elliptic-oblong, acute at apex, obtuse at base. Spathes up to 25 cm long.

Common in lower ghats. Fl. & Fr.: Oct.-Mar.

*Lagenandra toxicaria* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 4: 239, 1862; FBI 6: 495; Rao 426; Fisch. 1307.

Herbs 60-75 cm tall. Leaves 20-28 x 5.5-6.5 cm, elliptic-oblong, acuminate at apex, narrowed at base. Spathes cylindric, oblong.

Frequent in swamps. Fl. & Fr.: Nov.-Mar.

*Pistia* L.

*Pistia stratiotes* L. Sp. Pl. 963, 1753; FBI 6: 497; Rao 425; Fisch. 1097.

Leaves 2-7 x 1.5-5 cm, obovate, pubescent, rosulate, obtuse or retuse at apex. Male flowers a ring of connate stamens below the apex of spadix; female solitary.

Frequent in fresh water pools and canals. Fl. & Fr.: Dec.-Mar.

**Pothos L.**

- |                            |                              |
|----------------------------|------------------------------|
| 1. Stems spinulate         | <i>P. armatus</i>            |
| 1. Stems not spinulate:    |                              |
| 2. Petioles winged         | <i>P. scandens</i>           |
| 2. Petioles not winged:    |                              |
| 3. Sheath with ligules     | <i>P. thomsonianus</i>       |
| 3. Sheaths without ligules | <i>P. crassipedunculatus</i> |

**Pothos armatus** Fisch., in Bull. Misc. Inform. 126, 1929 & in Gamble, Fl. Pres. Madras 1592, 1934, & 1110, 1957 (repr. ed.). *P. remotiflorus* Hook. Icon. t.133, 1839; FBI 6: 555.

Leaves 6-12 x 1.5-5 cm, oblong-lanceolate, caudate-acuminate at apex, acute or obtuse at base. Spathes linear-lanceolate; spadix pubescent. Flowers in groupes of 3-4.

Very rare in evergreen forests of Kallar & Ponmudi. Fl. & Fr.: Sep.-Mar.

**Pothos crassipedunculatus** Sivadasan et al., in Pl. Syst. Evol. 168: 221 1989.

Leaves 10-20 x 4-6 cm, elliptic-lanceolate, acuminate at apex, cuneate or cordate at base; petioles 1-2 cm long, sheathing, without ligules. Inflorescence from short lateral shoots. Berries 4-6 angled.

Rare in evergreen forests of Agastyarkudam. Fl. & Fr.: Dec.-May.

**Pothos scandens** L. Sp. Pl. 968, 1753; Wight, Icon. t.776, 1844; FBI 6: 551; Rao 428; Fisch 1110.

Leaves 7.5-13.5 x 1.3-3 cm, lanceolate, acuminate at apex, rounded at base; spathes ca. 0.5 cm long. Spadix white.

Common in low elevations. Fl. & Fr.: Oct.-Mar.

**Pothos thomsonianus** Schott., Aroideae 24. t.51 1856-1857. FBI 6: 555; Fischer 1110.

Leaves 11.5-19 x 3-5 cm, elliptic or oblong-lanceolate, cuspidate-acuminate at apex, narrowed at base. Peduncles extra-axillary. Berries oblong.

Rare in Agastyarkudam. Fl. & Fr.: Jan.-Mar.

**Remusatia Schott**

**Remusatia vivipara** (Roxb.) Schott in Schott & Endl. Melet. Bot. 18. 1832; FBI 6: 521; Fisch. 1104. *Arum viviparum* Roxb. Hort. Beng. 65. 1814, 'Viviparium'

Epiphytic herbs. Leaves 11-15 x 5-9.5 cm, sagittate. Flowers pale yellow in scapes 11-22 cm long.

Occasional in subtropical hill forests. Fl. & Fr.: Oct.-Dec.

**Theriophonum Blume**

**Theriophonum infaustum** N.E. Brown in J. Linn. Soc. Bot. 18: 260. 1881; FBI 6: 513; Rao 426; Fisch. 1102; Sivadasan & Nicolson in Kew Bull. 37: 284. 1982.

Corms 2 x 1.5 cm. Leaves 5-12 x 2.5-5 cm, 3-lobed, hastate-sagittate. Spathes purple. Male flowers dense, pistillate few, sterile subulate, and purplish.

Occasional in the plains. Fl. & Fr.: Jun.-Aug.

**Typhonium Schott**

Lower sterile flowers spatulate

*T. flagelliforme*

Lower sterile flowers subulate

*T. roxburghii*

**Typhonium flagelliforme** (Roxb. ex Lodd.) Blume in Rumphia 1: 12. 1855; Fisch. 1100; Nicolson & Sivadasan in Blumea 27: 489. 1981. *Arum flagelliforme* Roxb. ex Lodd. Bot. Cab. 4: t.396. 1819. *Typhonium cuspidatum* (Blume) Blume in Decaisne, Nov. Ann. Mus. Nat. Hist. Nat. 3: 39. 1834; FBI 6: 511. *Arum cuspidatum* Blume, Cat. 101. 1823.

Herbs with globose corms. Leaves narrowly hastate; terminal lobes 5-30 x 1-4 cm, laterals smaller, elliptic. Spathes narrow, white. Male flowers yellow.

Occasional in midlands. Fl. & Fr.: Apr.-Dec.

**Typhonium roxburghii** Schott, Aroid. 2. t.17. 1855; FBI 6: 510; Nicolson & Sivadasan in Blumea 27: 492. 1981. *T. divaricatum* Blume in Decaisne, Nov. Ann. Mus. Nat. Hist. Nat. 3: 367. 1834

nom. illeg.; Rao 426; Fisch. 1100. *Arum divercatum* auct. non L. 1753; Wight, Icon. t.790. 1844,

Herbs with subglobose corms. Leaves 3-lobed, 6-12 x 1-1.2 cm, hastate. Spathes red to purple within; pistilate flowers pink, sterile yellowish.

Occasional in the plains. Fl. & Fr.: Jun.-Aug.

#### ALISMATACEAE Vent.

##### *Wiesneria* M.Mich.

*Wiesneria triandra* (Dalz.) Micheli in A.DC. Monogr. Phan. 3: 82. 1881; FBI 6: 562; Rao 429; Joseph & Chandras. in J. Bombay Nat. Hist. Soc. 77: 169. 1980. *Sagittaria triandra* Dalz. in Hooker's J. Bot. Kew Gard. Misc. 2: 144. 1850.

Semisubmerged herbs. Leaves up to 14 x 0.7 cm, linear, keeled, obtuse at tip. Flowers white.

Occasional in rice fields. Fl. & Fr.: Nov.-Dec.

#### APONOGETONACEAE J.G. Agardh.

##### *Aponogeton* L.f.

*Aponogeton natans* (L.) Engler & Kranse in Pflanzenreich 24: 11. 1906; Fisch. 1115. *Saururus natans* L. Mant. Pl. 227. 1771. *Aponogeton monostachyon* L.f. Suppl. Pl. 214. 1781; FBI 6: 564; Rao 429.

Leaves 2.5-15 x 2.5-5 cm, oblong to linear-lanceolate. Flowers in spikes up to 15 cm long.

Rare in backwaters. Fl. & Fr.: Aug.-Sept.

#### ERIOCAULACEAE Desv.

##### *Eriocaulon* L.

- |                                 |                       |
|---------------------------------|-----------------------|
| 1. Peduncles solitary           | <i>E. ensiforme</i>   |
| 1. Peduncles many :             |                       |
| 2. Male flowers with 2 sepals : |                       |
| 3. Sepals in female flowers 3   | <i>E. sexangulare</i> |
| 3. Sepals in female flowers 2   | <i>E. truncatum</i>   |

2. Male flowers with 3 sepals :

- 4. Male sepals free *E. thwaitesii*
- 4. Male sepals spathaceous, split into  
3 lobes at apex:

  - 5. Female flowers with 3 sepals *E. collinum*
  - 5. Female flowers with 2 sepals *E. cinereum*

**Eriocaulon cinereum** R.Br. Prodr. 254. 1810; Sant. in Rec. Bot. Surv. India 16: 294. 1967. *E. sieboldianum* Sieb. & Zucc. ex Steud. Syn. Pl. Glum. 2: 272. 1855; FBI 6: 577; Rao 430; Fisch. 1127.

Leaves 5-10 cm long, 3-5-nerved, subulate. Heads many, whitish or purplish. Seeds minute, reddish-brown, smooth.

Rare in moist areas. Fl. & Fr.: Jul.-Sept.

**Eriocaulon collinum** Hook.f. Fl. Brit. India 6: 584. 1893; Fisch. 1128.

Leaves 2.5-7 x 0.3-0.4 cm, narrow-linear, subulate. Heads dark grey, globose or hemispheric, densely villosus.

Occasional in upper ghats. Fl. & Fr.: Aug.-Oct.

**Eriocaulon ensiforme** Fisch. in Bull. Misc. Inform. 159. 1930 & Fl. Pres. Madras 1618. 1931 & 1128. 1957 (repr. ed.).

Leaves 12-22 x 1.5-2 cm, ensiform, papillose, acute at apex. Peduncle ca. 30 cm long. Heads white.

Occasional in evergreen forests. Fl. & Fr.: Apr.-Jun.

**Eriocaulon sexangulare** L. Sp. Pl. 87. 1753; FBI 6: 580; Rao 430; Fisch. 1126.

Leaves 10-30 x 0.4-0.8 cm, flat, linear, acuminate. Heads white globose or hemispheric.

Common in marshy areas. Fl. & Fr.: Jun.-Sept.

**Eriocaulon truncatum** Buch.-Ham. ex Mart. in Wall. Pl. Asiat. Rar. 3: 29. 1831; FBI 6: 578; Rao 430; Fisch. 1127; Moldenke in Phytologia 17: 461. 1968 & 19: 414. 1970.

Leaves 5-8 x 3.3-0.5 cm, linear-ensiform, acute. Peduncles 5-7 ribbed. Heads hemispheric, white.

Common in wetlands. Fl. & Fr.: Jul.-Sept.

*Eriocaulon thwaitesii* Koern. in Linnaea 27: 627. 1854; FBI 6: 583; Rao 430; Fisch. 1128.

Leaves 6-10 x 0.2-0.5 cm, linear-ensiform, acuminate, Heads dark, hemispheric. Seeds papillose.

Common in marshy areas. Fl. & Fr.: Jul.-Sept.

C Y P E R A C E A E Juss.

- 1. Nuts enclosed in utricle *Carex*
- 1. Nuts not enclosed in utricle :
  - 2. Glumes all distichous *Cyperus*
  - 2. Glumes spiral atleast at apex:
    - 3. Hypogynous bristles present:
    - 4. Hypogynous structures hyaline:
      - 5. Hypogynous structures adherent to the nut *Lipocarpha*
      - 5. Hypogynous structures not as above:
        - 6. Empty glumes 3 or more *Rhynchospora*
        - 6. Empty glumes 2 or less:
          - 7. Spikelets bisexual *Hypolytrum*
          - 7. Spikelets unisexual *Scleria*
      - 4. Hypogynous structures not hyaline:
        - 8. Leaves present:
          - 9. All hypogynous structures setaceous *Scripus*
          - 9. All hypogynous structures not setaceous *Fuirena*
        - 8. Leaves absent *Eleocharis*
      - 3. Hypogynous bristles absent:
        - 10. Style base persistent *Fimbristylis*
        - 10. Style base deciduous *Bulbostylis*

*Bulbostylis* Kunth, nom. cons.

- Glumes mucronate at apex *B. barbata*  
 Glumes acute at apex *B. densa*

*Bulbostylis barbata* (Rottb.) Clarke in Fl. Brit. India 6: 651. 1893;  
 Rao 433; Fisch. 1153; Kern in Steenis, Fl. Malesiana Ser. 1. 7:  
 539. 1974. *Scirpus barbatus* Rottb. Progr. 27. 1772.

Tufted annuals 5-35 cm tall; stems slender, glabrous. Leaves  
 glabrous, capillary; sheaths white, pilose. Spikelets brownish-green,  
 sessile, ovate-oblong; glumes lanceolate; keels apiculate.  
 Nuts white, obovoid.

Fairly common in coastal zone. Fl. & Fr.: Nov.-Mar.

*Bulbostylis densa* (Wall.) Hand.-Mazz. in Karslen & Schenk. Vegetationsb. 20, 7: 16. 1930; Hara in Jap. J. Bot. 18: 467. 1942;  
 Kern in Steenis, Fl. Malesiana Ser. 1. 7: 538. 1974. *Scirpus densus* Wall. in Roxb. Fl. Ind. 1: 231. 1820. *Bulbostylis capillaris* var.  
*trifida* Clarke in Fl. Brit. India 6: 652. 1893, Fisch. 1353.

Annual 10-50 cm tall with glabrous stems. Leaves capillary,  
 glabrous; sheaths hairy. Spikelets greenish-yellow, solitary, ovate-  
 oblong; glumes ovate, brown. Nuts obovate, glandular-punctate.

Common in higher elevations. Fl. & Fr.: Sept.-Oct.

*Carex* L.

- |                                  |                    |
|----------------------------------|--------------------|
| 1. Rhizomes creeping             | <i>C. indica</i>   |
| 1. Rhizomes not creeping :       |                    |
| 2. Leaves scabro-papillose above | <i>C. beccans</i>  |
| 2. Leaves glabrous above         | <i>C. filicina</i> |

*Carex beccans* Nees in Wight, Contrib. 122. 1834; FBI 6: 722;  
 Rao 434; Fisch. 1169; Nelmes in Reinwardtia 1: 322. 1951.

Rhizomes short, woody. Stems 70-150 cm tall. Leaves 3-13 mm  
 wide, revolute, attenuate. Spikelets linear in interrupted panicles.  
 Utricles ovoid, brown, beak 2-fid. Nuts dark brown.

Common in deciduous forests of Kottur. Fl. & Fr.: Sep.-Apr.

*Carex filicina* Nees in Wight, Contrib. 123. 1834; FBI 6: 717; Rao 433; Fisch. 1169; Nelmes in Reinwardtia 1: 304. 1951.

Stems 60-150 cm tall, ribbed. Leaves 1-2 mm wide, flat, attenuate. Spikelets linear-oblong in decompound, panicles; glumes reddish-brown, ovate-lanceolate. Utricle ending in a long, bent beak. Nuts ellipsoid.

Fairly common in deciduous forests of Kottur. Fl. & Fr.: Sep.-Apr.

*Carex indica* L. Mant. Pl. 574. 1771; FBI 6: 714; Nelmes in Reinwardtia 1: 271. 1951.

Stems up to 1 m tall. Leaves 1.5-13 mm wide, linear, flat, basal long attenuate at apex. Spikes sessile in interrupted compound panicles. Nuts obovoid, trigonous.

Common along streams in moist deciduous forests. Fl. & Fr.: Oct.-Apr.

#### *Cyperus* L.

Note : There is no unanimity of opinion in the delimitation of the genus *Cyperus* L. The genus was divided into 7 genera by Clarke (J. Linn. Soc. Bot. 30: 299-315. 1894) based on artificial characters like number of division of styles, deciduous or persistent nature of rachilla and winged or wingless glumes. Of the above 7 genera, *Kyllinga*, *Mariscus* and *Pycrus* are involved in the following treatment. Embryological studies (Van Der Veken, Bull. Jard. Bot. Brux. 35: 285-354. 1965) also support the wide conception of genus *Cyperus* L.

1. Nuts trigonous, rarely dorsi-ventrally compressed :
2. Spikelets arranged spicately :
3. Glumes mucronate :
  4. Stems 3 *C. compressus*
  4. Stamen 1 *C. squarrosus*
3. Glumes muticous :
  5. Stems papillose *C. javanicus*
  5. Stems not papillose :

6. Rachilla winged : *C. digitatus*
7. Spikes cylindrical
7. Spikes ovoid :
8. Stolons present :
9. Ventral sides of nuts concave *C. stoloniferous*
9. Nuts not as above :
10. Bases of stems tuberous *C. rotundus*
10. Bases of stems not as above *C. pangorei*
8. Stolons absent :
11. Glumes 3-5-nerved *C. corymbosus*
11. Glumes 7-9-nerved *C. tenuiculmis*
6. Rachilla not winged :
12. Rachis of spikes hispidulous *C. pilosus*
12. Rachis of spikes glabrous :
13. Stolons present *C. paniceus*
13. Stolons absent *C. cyperinus*
2. Spikelets arranged digitately or stellately :
14. Leaves septate-nodulose *C. compactus*
14. Leaves not as above :
15. Glumes truncate or emarginate *C. castaneus*
15. Glumes not as above :
16. Inflorescence capitate :
17. Glumes mucronate :
18. Stamens 1 *C. maderaspatanus*
18. Stamens 3 *C. compressus*
17. Glumes muticous *C. dubius*
16. Inflorescence umbellate :
19. Rachilla hidden by the glumes *C. helpan*
19. Rachilla visible between glumes *C. tenuispica*
1. Nuts with 2-sides, laterally compressed :
20. Inflorescence umbellate :
21. Glumes acute *C. polystachyos*

- 21. Glumes obtuse *C. flavidus*
- 20. Inflorescence capitate :
  - 22. Keel of glumes winged *C. kyllingia*
  - 22. Keel of glumes not winged *C. triceps*

*Cyperus castaneus* Willd. Sp. Pl. 1: 278. 1797; FBI 6: 598; Fisch. 1134; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 630. 1974.

Annuals 3-15 cm tall. Stems tufted. Leaves rigid, scaberulous towards apex, acuminate. Spikelets up to 2 cm long in heads or compound umbels; glumes brown, ovate. Nuts dark-red.

Frequent along the coast. Fl. & Fr.: Aug.-Jan.

Note : Closely allied to *C. cuspidatus* Kunth, but differs by the narrowed, multiflorous spikelets with single stamen.

*Cyperus compactus* Retz. Obs. 5: 10. 1789; FBI 6: 624; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 638. 1974. *Mariscus compactus* Boldinlh, Zakfl. Landb. Java 77, 1916.

Rhizomatous perennials 20-60 cm tall. Leaves rigid, scabrous along margins; sheaths spongy. Spikelets reddish-brown, linear-lanceolate on dense globose compound heads. Nuts brown oblong.

Frequent in swamps and marshes from sea level to lower elevations of ghat. Fl. & Fr.: Feb.-May.

*Cyperus compressus* L. Sp. Pl. 46, 1753; FBI 6: 605; Rao 431; Fisch. 1140; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 617. 1974.

Tufted annuals 15-40 cm tall. Leaves rigid, scabrous, acuminate. Spikelets greenish-yellow, linear-oblong, compressed, 20-60 flowered, digitately arranged in short rachis; glumes ovate, acute with silvery hyaline margins. Nuts obovoid.

Frequent in wastelands in plains. Fl. & Fr.: Jan.-May.

*Cyperus corymbosus* Rottb. Descr. Icon 42. t. 7. f. 4. 1773; Fisch. 1140. *C. tagetiformis* Roxb. ex Kunth, Enum. 2: 56. 1837; FBI 6: 612; Fisch. 1140.

Perennials with creeping rhizomes. Stems spongy, septate. Leaves solitary or absent. Spikelets brown, curved, clustered on compound umbels; glumes ovate-oblong, reddish-brown. Nuts ellipsoid, black.

Occasional in moist areas at low elevations of ghats. Fl. & Fr.: Dec.-May.

*Cyperus cyperinus* (Retz.) Valk. Sur. Gesl. Cyp. Mal. Arch. 154. t. 6. f. 10. 1898. Kern in Steenis, Fl. Malesiana Ser. 1. 7: 641. 1974. *Kyllinga cyperina* Retz. Obs. 6: 21. 1971. *Mariscus cyperinus* (Retz.) Vahl, Enum. 2: 377. 1806; FBI 6: 621; Fisch. 1143.

Tufted perennials 20-50 cm tall; rhizomes short, nodose. Leaves rigid, flat, scabrid along the margins. Spikelets brownish, erect or suberect, 2-4-flowered; glumes elliptic, obtuse or minutely mucronate. Nuts brown, ellipsoid, curved.

Occasional in semi-shaded areas of secondary moist deciduous forests. Fl. & Fr.: Jan.-Mar.

*Cyperus digitatus* Roxb. Fl. Ind. 1: 209. 1820; FBI 6: 618; Fisch. 1141; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 601. 1974.

Tufted perennials 1.5 m tall with short rhizomes. Leaves up to 6 mm wide, flat, coriaceous, scabrous along margins. Spikelets yellow, spirally arranged on horizontally spreading rachis; glumes brown, elliptic-oblong, apiculate. Nuts yellowish-brown, obovoid to oblong.

Occasional in swamps and other wet areas at lower elevations. Fl. & Fr.: Jan.-Apr.

*Cyperus dubius* Rottb. Descr. & Icon. 20. t. 4. f. 5. 1773; Kern in Reinwardtia 6: 65. 1961 & in Steenis, Fl. Malesiana Ser. 1. 7: 643. 1974. *Mariscus dubius* (Rottb.) Kükenthal ex Fisch. in Gamble, Fl. Pres. Madras 164. 1931. *Mariscus dregeanus* Kunth, Enum 2: 120. 1873; FBI 6: 620; Rao 432,

Tufted perennials 15-50 cm tall with short rhizomes. Leaves flat, flaccid. Spikelets white or brownish on dense ovoid heads; glumes pale-brown, ovate, obtuse. Nuts black, ellipsoid.

Frequent in swamps of coastal and midland zones. Fl. & Fr.: Mar.-May.

*Cyperus flavidus* Retz. Obs. 5: 13. 1789; Kern in Steenis, Fl. Malesiana ser. 1. 7: 648. 1974; Rao 431. *Pycreus globosus* Reichb. f. Fl. Germ. Exc. 2: 140. 1830; Fisch. 1132. *P. capitellaris* Nees in Linnaea 9: 283. 1834; FBI 6: 591.

Annuals 10-50 cm tall. Leaves rigid, filiform, scabrid. Spikelets brown, linear, in simple or compound congested spikes; glumes oblong-ovate, obtuse. Nuts biconvex, obovate, black.

Frequent in marshy areas in plains and at low elevations of ghats' Fl. & Fr.: Feb.-Mar.

*Cyperus halpan* L. Sp. Pl. 45, 1753, 'haspan'; FBI 6: 600; Rao 431; Fisch. 1139; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 624. 1974.

Perennial rhizomatous herbs 10-35 cm tall. Leaves flat, scaberulous. Spikelets green, digitate, stellately spreading; glumes oblong-ovate, obtuse. Nuts yellowish ovoid, verruculose.

Common in rice fields and wet lands in plains. Fl. & Fr.: Feb.-May.

*Note*: As pointed out by Kern *i.e.*, Linnaeus misspelt the vernacular name 'halpan', and according to 'Code' this orthographic error must be corrected.

*Cyperus javanicus* Houtt. Nat. Hist. 2: 13, 1782; Merr. in J. Arnold Arbor. 19: 320. 1938; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 653. 1974. *Mariscus albescens* Gaud. in Freyce Voy. Bot. 415, 1826; FBI 6. 623.

Perennials 20-75 m tall with short rhizomes; stems papillose; margins spinulose. Spikelets brownish, oblong-lanceolate in broadly cylindrical, compound or decompound spikes; glumes ovate, acute. Nuts brownish-black, ellipsoid.

Abundant near backwaters. Fl. & Fr.: Feb.-May.

*Cyperus kyllingia* Endl. Cat. Hort. Ac. Vindob. 1: 94, 1842; Blake in J. Arnold Arbor. 28: 225. 1947. *Kyllinga monocephala* Rottb. Descr. & Icon. 13, t. 4. f. 4. 1773 nom. illeg.; FBI 6: 588; Rao 430; Fisch. 1130.

Perennials 10-40 cm tall with horizontally creeping rhizomes. Leaves flaccid, scabrid along margins. Spikelets greenish, ovate-elliptic in terminal ovoid heads; glumes mucronate with winged keels. Nuts yellow, biconvex.

Frequent in cultivated and wastelands in the plains. Fl. & Fr.: Dec.-Mar.

*Cyperus maderaspatanus* Willd. Sp. Pl. 1: 278. 1798. *Mariscus squarrosum* Clarke in Hook.f. Fl. Brit. India 6: 623. 1893 quoad spec., non *Cyperus squarrosum* L. 1756; Fisch. 1143.

Tufted annuals with winged stems. Leaves narrow, short, acuminate. Spikelets greenish in simple spikes or reduced to heads; glumes elliptic-ovate, awned. Nuts greyish-brown, obovoid-oblong or linear.

Frequent in moist areas throughout the plains and at lower elevations of ghats. Fl. & Fr.: Aug.-Jan.

*Cyperus pangorei* Rottb. Descr. Pl. Rar. Programm. 18. 1772 & Icon. 31, t.7. f.3. 1773, non Clarke 1893, *C. tagetum* Roxb. Fl. Ind. 1: 208. 1832; FBI 6: 612; Rao 431; Fisch. 1140.

Perennials with woody creeping rhizomes; stolons 10-20 cm long. Leaves half as long as the stems or less; sheaths brown. Spikelets brown, linear; glumes reddish-brown. Nuts obovoid, brownish-black.

Fairly common along streams and rivers at low elevations of ghats. Used for making mats. Fl. & Fr.: Aug.-Nov.

*Cyperus panicoides* (Rottb.) Boeck. in Linnaea 36: 381. 1870; Kern in Steenis, Fl. Malesiana Ser. 1, 7: 643. 1974. *Kyllinga panicea* Rottb. Descr. & Icon. 15. t.4. f.1. 1773. *Mariscus panicoides* (Rottb.) Vahl, Enum. 2: 373. 1805; FBI 6: 620; Fisch. 1143.

Rhizomes stoloniferous; stems 5-25 cm tall. Leaves narrow. Spikelets reddish, 1-flowered, lanceolate, curved on single sessile spikes; glumes lanceolate, acute. Nuts oblong, pale-brown.

Frequent in wet areas of plains and at low elevations of ghats. Fl. & Fr.: Sept.-Dec.

*Cyperus pilosus* Vahl, Enum. 2: 354. 1806; FBI 6: 609; Rao 431; Fisch. 1140; Kern in Steenis, Fl. Malesiana Ser. 1, 7: 611. 1974.

Perennials 15-75 cm tall; rhizomes with scaly stolons. Leaves half as long as the stems or shorter. Spikelets reddish-brown on compound umbels; rachis pubescent; glumes ovate, reddish-brown, obtuse or minutely apiculate. Nuts obovate, brownish-black.

Common in wet situations from sea level to upper ghats. Fl. & Fr.: Feb.-May.

**Cyperus polystachyos** Rottb. Descr. Pl. Rar. Progr. 21. 1772.

|              |                          |
|--------------|--------------------------|
| Spikes dense | var. <i>polystachyos</i> |
| Spikes lax   | var. <i>laxiflorus</i>   |

**Cyperus polystachyos** Rottb. Descr. Pl. Rar. Progr. 21. 1772 & Icon. 39. t.11. f.1. 1773 var. *polystachyos*: Kern in Reinwardtia 3: 48. 1954 & in Stennis, Fl. Malesiana Ser. 1. 7: 649. 1974. *Pycreus polystachyos* (Rottb.) Beauv. Pl. Oware 4 Beinn. 2: 48. t. 86. f.2. 1807; FBI 6: 592; Rao 430. *P. odoratus* Urb. Symb. Antill 2: 164. 1900; Fisch. 1132, non *Cyperus odoratus* L. 1753.

Tufted annuals 10-50 cm tall. Leaves flat, rigid, scabrid along margins. Spikelets pale-brownish, linear-lanceolate, acute; glumes ovate, obtuse or shortly mucronate. Nuts black, oblong.

Common in moist areas throughout the plains. Fl. & Fr.: Jan.-Apr.

**Cyperus polystachyos** Rottb. var. *laxiflorus* Benth. Fl. Austr. 7: 261. 1878. *C. paniculatus* Rottb. Descr. Pl. Rar. Progr. 22. 1772 & Icon. 40. 1773. *Pycreus polystachyos* var. *laxiflorus* (Benth.) Clarke in Hook. f. Fl. Brit. India 6: 592. 1893.

Perennials with yellowish spikelets in lax spikes. Common in moist areas throughout the plains. Fl. & Fr.: Sep.-Dec.

**Cyperus rotundus** L. Sp. Pl. 45. 1753; FBI 6: 614; Rao 431; Fisch. 1140; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 604. 1974.

Perennials; rhizomes stoloniferous ending in tubers. Leaves flat, flaccid, margins scabrous. Spikelets brownish, linear or lanceolate in simple or compound umbels; glumes pale brown, ovate, plicate. Nuts brown, obovoid, oblong.

Common throughout the plains. Tubers medicinal. Fl. & Fr.: Jan.-Apr.

**Cyperus squarrosum** L. in Torner, Cent. Pl. 2: 6. 1756; Kern in Blumea 10: 642. 1960. *Cyperus aristatus* Rottb. Descr. Pl. Rar. Progr. 22. 1772; Fisch. 1640.

Tufted herbs ca. 15 cm tall. Leaves narrow; sheaths purple. Spikelets oblong, flat, in globose spikes; bracts foliaceous. Nuts dark-brown, ovoid.

Occasional along the banks of streams Fl. & Fr.: Aug.-Sep.

**Cyperus stoloniferous** Retz. Obs. 4: 10. 1786; FBI 6: 615; Rao 432; Fisch. 1141; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 606. 1974.

Perennials 20-60 cm tall; rhizomes elongate, stoloniferous, scaly; stems tuberous at base. Leaves rigid, filiform, scabrid above, glaucous beneath. Spikelets reddish-brown, linear-lanceolate, curved on simple or subcompound umbels; glumes greenish, ovate, plicate. Nuts ovate, brownish-black.

Occasional in coastal zones. Fl. & Fr.: Aug.-Jan.

**Cyperus tenuiculmis** Boeck. in Linnaea 36: 286. 1870; Kern in Reinwardtia 3: 30. 1954 & in Steenis, Fl. Malesiana Ser. 1. 7: 608. 1974. *C. zollingeri* sensu Clarke in Hook.f. Fl. Brit. India 6: 613. 1893, non Steud. 1855; Rao 431; Fisch. 1141.

Perennials 30-80 cm tall; rhizomes creeping. Leaves narrow, rigid. Spikes linear-lanceolate, on ovoid spikes; glumes elliptic, obtuse or mucronate with hyaline margins. Nuts ellipsoid, black.

Occasional in grassy slopes at low elevations in the ghats. Fl. & Fr.: Sep.-Jan.

**Cyperus temniopica** Steud. Syn. Pl. Glum. 2: 11. 1855; Kern in Reinwardtia 2: 116. 1952 & in Steenis, Fl. Malesiana Ser. 1. 7: 625. 1974; Fisch. 1139. *C. flavidus* sensu Clarke in J. Linn. Soc. Bot. 21: 122. t. 3. f. 25. 1884, non Retz, 1789; FBI 6: 600; Rao 431.

Annuals 10-35 cm tall. Leaves flat, scaberulous. Spikelets greenish, linear-oblong, digitate, clustered in decompound spikes; glumes ovate, obtuse or mucronate, margins hyaline. Nuts white, obovoid.

Common in rice fields and along streams and canals across the plains. Fl. & Fr.: Sep.-Feb.

**Cyperus triceps** Endl. Cat. Hort. Ac. Vindob. 1: 94. 1842; Kern in Reinwardtia 3: 61. 1954 & in Steenis, Fl. Malesiana Ser. 1. 7: 639. 1974. *Kyllinga triceps* Rottb. Descr. & Icon. t. 14, 42, f. 6. 1773 nom. illeg.; FBI 6: 587; Fisch. 1130.

Perennials 10-30 cm tall. Leaves flat, conduplicate, acuminate. Spikelets greenish-white on sessile capitate globose heads; glumes ovate-oblong, acuminate, margins hyaline. Nuts biconvex, yellowish.

Common in wet areas of plains. Fl. & Fr.: Dec.-Mar.

*Note:* The name *Cyperus triceps* Endl. is treated as new having priority from 1842 (vide. Art. 72.2 Ex.2 of ICBN 1988).

**Eleocharis R. Br.**

|                               |                       |
|-------------------------------|-----------------------|
| Nuts reticulate; styles 3-fid | <i>E. tetraquetra</i> |
| Nuts smooth; styles 2-fid     | <i>E. geniculata</i>  |

*Eleocharis geniculata* (L.) Roem. & Schult. Syst. Veg. 2: 150. 1817; Svens in Rhodora 41: 50. 1939; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 356. 1974. *Scirpus geniculata* L. Sp. Pl. 48. 1753. *Eleocharis capitata* (L.) R. Br. Prodr. 225. 1850 quoad descr. excl. typus; FBI 6: 627; Fisch. 1145,

Erect tufted annuals; Stems rigid, 10-35 cm tall; sheaths purple. Spikelets purplish-green, many flowered, globose ovoid; glumes ovate or suborbicular. Nuts obovate, biconvex.

Frequent near backwaters along the coast. Fl. & Fr.: Nov.-Jan.

*Eleocharis tetraquetra* Nees in Wight, Contrib. 113. 1834; FBI 6: 630; Rao 432; Fisch. 1145; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 531. 1974.

Stoloniferous perennials 30-60 cm tall. Stems 4-angular, ribbed; sheaths purplish or brownish, truncate, mucronate. Spikelets brown, many flowered; glumes ovate, obtuse, reddish-brown along margin, yellow along the midrib. Nuts trigonous, obovoid, constricted below apex.

Occasional near backwaters along the coast. Fl. & Fr.: Nov.-Jan.

**Fimbristylis Vahl nom. cons.**

1. Nuts smooth :
2. Margins of glumes hyaline *F. consanguinea*

- 2. Margins of glumes not as above;

  - 3. Ligule absent *F. aestivalvis*
  - 3. Ligule a tuft of hairs:
    - 4. Glumes ciliolate *F. ferruginea*
    - 4. Glumes glabrous *F. schoenoides*

- 1. Nuts verruculose or trabeculate:
  - 5. Glumes gland-dotted *F. cinnamometorum*
  - 5. Glumes not gland-dotted:
    - 6. Ligule absent *F. miliacea*
    - 6. Ligule a tuft of hairs:
      - 7. Stems quadrangular *F. complanata*
      - 7. Stems trigonous *F. bisumbellata*
      - 8. Glumes ferruginous; margins scarious *F. cymosa*
      - 8. Glumes glabrous; margins not scarious:
        - 9. Inflorescence less than 6 cm long *F. eragrostis*
        - 9. Inflorescence ca. 8 cm long *F. dichotoma*

*Fimbristylis aestivalvis* (Retz.) Vahl, Enum. 2: 288, 1805; FBI 6: 637 p.p.; Rao 432; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 584, 1974. *Scirpus aestivalvis* Retz. Obs. 4: 12. 1786.

Tufted annuals 5-10 cm tall. Leaves filiform; pilose or glabrescent on both surfaces; sheaths pubescent. Spikelets solitary, ovate, 8-12 flowered in compound corymbs; glumes pale brown, ovate, keeled, lower hairy, upper glabrous. Nuts obovate-obtuse.

Common in wet areas throughout the plains. Fl. & Fr.: Dec.-Mer.

*Fimbristylis bisumbellata* (Forsk.) Bubani in Dodec. 30. 1850; Fisch. 1151; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 579, 1974. *Scirpus bisumbellatus* Forsk. Fl. Aegyp.-Arab. 1: 15. 1775. *Fimbristylis dichotoma* auct. non (L.) Vahl 1806; FBI 6: 635.

Annuals 10-20 cm tall. Leaves flat, glabrous or sparsely pubescent beneath; sheaths pubescent. Spikelets ovate-oblong in compound or decompound corymbs up to 6 cm long; glumes keeled, yellowish-brown, spiral ovate, mucronate. Nuts obovoid, trabeculate.

Frequent in moist situations throughout the plains. Fl. & Fr.: Dec.-Mar.

*Note*: Closely allied to *F. dichotoma* (L.) Vahl, but can be distinguished by the sharply keeled glumes and angular spikelets.

**Fimbristylis cinnamometorum** (Vahl) Kunth, Enum. Pl. 2: 229. 1837; Blake in J. Arnold Arbor. 35: 220. 1954; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 565. 1974. *Scirpus cinnamometorum* Vahl, Enum. Pl. 2: 278. 1805. *Fimbristylis cyperoides* R. Br. Prodr. 228. 1810; FBI 6: 650. *F. cyperoides* var. *cinnamometorum* (Vahl) Clarke in Hook.f. Fl. Brit. India 6: 650. 1893; Fisch. 1151.

Perennials with creeping rhizomes; stems 20-50 cm long, smooth. Leaves half as long as the stems or equalling the stem, scabrid. Spikelets brownish, solitary, oblong in decomound corymbs; glumes oblong-lanceolate, hispidulous, gland dotted. Nuts obovoid, trigonous.

Frequent in wet areas of moist deciduous forests. Fl. & Fr.: Oct.-Mar.

**Fimbristylis complanata** (Retz.) Link, Hort. Bot. Berol. Descr. 1: 293. 1827; FBI 6: 646; Rao 432; Fisch. 1151; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 547. 1974. *Scirpus complanatus* Retz. Obs. 5: 14. 1789.

Perennials with horizontal rhizomes; stems 35-65 cm tall, glabrous. Leaves blunt at apex; ligule pubescent. Spikelets solitary, oblong to ovate-lanceolate, acute at apex on compound or decomound corymbs; glumes ovate-oblong, keeled. Nuts white, obovoid, trigonous.

Common in wastelands of plains. Fl. & Fr.; Jan.-Mar.

**Fimbristylis consanguinea** Kunth, Enum. 2: 228. 1837; Kern in Blumea 8: 110. 1955. *F. complanta* var. *kraussiana* Clarke in Hook.f. Fl. Brit. India 6: 646. 1893.

Perennials with short rhizomes; stems, tufted, robust, 4-angular. Leaves 0.5-2 cm long, 2 mm wide; sheaths keeled. Spikelets brown. Nuts obovoid, smooth.

Occasional in swamps at upper ghats. Fl. & Fr.; Nov.-Jan.

**Fimbristylis cymosa** R. Br. Prodr. 228. 1810; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 557. 1974. *F. spathacea* Roth, Nov. Pl. Sp.

24. 1821; FBI 6: 640; Rao 432; Fisch. 1151.

Rhizomes perennial; stems 15-65 cm tall. Leaves much shorter than the stems, flat, coriaceous, scabrid along margins. Spikelets brown, elliptic-oblong, solitary or clustered in compound corymbs; glumes broadly ovate, obtuse, keeled. Nuts brown, obovate, smooth or sparsely verruculose.

Fairly common in sandy loam along the coast. Fl. & Fr.: Dec.-Mar.

*Fimbristylis dichotoma* (L.) Vahl, Enum. Pl. 2: 287. 1805; Rao 432; Fisch. in Bull. Misc. Inform. 1935: 150. 1935; & in Gamble, Fl. Pres. Madras 1151, 1931; Blake in J. Arnold Arbor. 35: 213. 1954; Kern in Steenis, Fl. Malesiana Ser. 1, 7: 575. 1954. *Scirpus dichotomous* L. Sp. Pl. 50. 1753. *Fimbristylis diphylla* (Retz.) Vahl, Enum. Pl. 2: 289. 1805; FBI 6: 636. *Scirpus diphyllus* Retz. Obs. 5: 15. 1789.

Annuals or perennials; stems 30-80 cm tall, angular, pilose or glabrous. Leaves shorter than the stems, glabrous or sparsely pubescent; ligule a tuft of hairs. Spikelets brownish, ovate to elliptic, solitary or in cluster in compound or decompound corymbs; glumes ovate-oblong, acute, mucronate. Nuts brown, obovate, trabeculate.

Fairly common in grassy slopes of upper ghats. Fl. & Fr.: Jan.-May.

*Fimbristylis eragrostis* (Nees & Mey. ex Nees) Hance in J. Linn. Soc. Bot. 13: 132. 1873; Blake in J. Arnold Arbor. 35: 215. 1954; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 567. 1974. *Abildgaardia eragrostis* Nees & Mey. ex Nees in Wight, Contrib. 98. 1834. *Fimbristylis nigrobrunnea* Thw. Enum. 434. 1864; FBI 6: 648; Rao 432; Fisch. 1151.

Perennials with obliquely ascending rhizomes; stems 20-50 cm tall, 1-5 angled. Leaves 2-5 mm broad, glabrous or scabrid, blunt at apex. Spikelets yellowish-brown, solitary, ovoid-oblong in corymbs; glumes brown, ovate. Nuts pale yellow, obovate, trigonous, verrucose.

Fairly common amidst grasses at lower elevations of ghats. Fl. & Fr.: Feb.-Jun.

*Fimbristylis ferruginea* (L.) Vahl, Enum. 2: 291. 1805; FBI 6: 638; Rao 432; Fisch. 1151; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 572. 1974. *Scirpus ferrugineus* L. Sp. Pl. 50. 1753.

Perennials with woody creeping rhizomes; stems 20-75 cm tall, tufted. Leaves linear, triquetrous, scabrid at tip; sheaths ciliolate, ligule a tuft of hairs. Spikelets brown, solitary, ovoid-oblong in subcompound corymbs. Nuts obovate, biconvex, smooth.

Common near backwaters along the coast. Fl. & Fr.: Nov.-Apr.

*Fimbristylis miliacea* (L.) Vahl, Enum. Pl. 2: 287. 1805; FBI 6: 694; Rao 432; Fischer. 1152; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 552. 1974. *Scirpus miliaceus* L. Syst. Veg. ed. 10. 868. 1759.

Annuals or perennials; stems 15-75 cm tall, 4-5-angular. Leaves 2-3 mm wide; sheaths inflated. Spikelets brownish, ellipsoid; glumes pale or dark brown, ovate, mucronate. Nuts pale brown, obovoid, trigonous, densely verruculose.

Frequent in moist situations of plains. Fl. & Fr.: Dec.-Apr.

*Fimbristylis schoenoides* (Retz.) Vahl, Enum. Pl. 2: 286. 1805; FBI 6: 634; Rao 432; Fisch. 1150; Kern in Steenis, Fl. Malesiana Ser. 1. 7: 573. 1974. *Scirpus schoenoides* Retz. Obs. 5: 14. 1789.

Perennials 10-50 cm tall; rhizomes short. Leaves 0.5-1 mm wide, abruptly acuminate, margins spinulose; ligule a tuft of hairs. Spikelets ovoid-oblong, solitary or 2-3 together; glumes ovate or orbicular, mucronate. Nuts brownish, obovoid, biconvex, smooth.

Fairly common in wet areas in moist deciduous forests of Kottur. Fl. & Fr.: Jan.-Apr.

#### *Fuirena* Rottb.

|                                     |                     |
|-------------------------------------|---------------------|
| Perianth uniserial; bristles absent | <i>F. umbellata</i> |
| Perianth biserial; bristles present | <i>F. ciliaris</i>  |

*Fuirena ciliaris* (L.) Roxb. Fl. Ind. 1: 184. 1820; Kern in Steenis Fl. Malesiana Ser. 1. 7: 519. 1974. *Scirpus ciliaris* L. Mant. 2: 182. 1771. *Fuirena glomerata* auct. non Lam. 1791; FBI 6: 666; Rao 433; Fisch. 1158.

Perennials; rhizomes woody, short; stems up to 1 m tall, tufted, angular. Leaves 5-15 cm wide, ciliate. Spikelets brownish-black, ovoid-oblong in terminal dense clusters of 7-13; glumes

obovate-oblong, obtuse, hairy; awns recurved, hairy. Nuts obovoid, triquetrous, beaked, smooth.

Frequent at low elevations of ghats and in midlands. Fl. & Fr.: Nov.-Apr.

*Fuirena umbellata* Rottb. Descr. & Icon. 70. t. 19. 1773; Kern in Steenis, Fl. Malesiana ser. 1, 7: 528. 1974; FBI 6: 666; Rao 433; Fisch. 1158.

Perennial rhizomatous herbs with tufted angular stems up to 1 m tall. Leaves flat, glabrous or ciliate. Spikelets brownish black on dense terminal and axillary clusters; glumes pilose, rounded at apex. Nuts elliptic or obovoid, triquetrous, beaked.

Frequent in marshy areas of midlands and lower elevations of ghats. Fl. & Fr.: Nov.-Apr.

#### Hypolytrum L.C. Rich.

*Hypolytrum nemorum* (Vahl) Spreng. Syst. 1: 233. 1825; Kern in Blumea 9: 218. 1958. *Schoenus nemorum* Vahl, Symb. Bot. 3: 8. 1794. *Hypolytrum latifolium* L.C. Rich, in Pers. Synop. 1: 70. 1805; FBI 6: 678; Rao 4R3; Fisch. 1161.

Perennials 1-1.5 m tall; stems scaberulous; rhizomes purplish, woody. Leaves 50-120 x 0.3-0.6 cm, linear-lanceolate, scaberous. Spikes brown, ellipsoid, or oblong-ovoid on corymbose panicles; glumes obovate or suborbicular. Nuts obovoid to suborbicular, biconvex, brown, beaked, smooth or rugulose.

Frequent at lower ghats. Fl. & Fr.: Nov.-Apr.

#### Lipocarpha R. Br. *nom. cons.*

*Lipocarpha chinensis* (Osbeck) Kern in Blumea suppl. 4: 167. 1958. *Scirpus chinensis* Osbeck, Dagb. Ostind. Resa 220. 1757. *Lipocarpha argentea* (Vahl) R. Br. in Tuckey, Narr. Exp. Congo, 477. 1818; FBI 6: 667; Fisch. 1158. *Hypaelyptum argenteum* Vahl, Enum. Pl. 2: 283. 1805.

Annuals or perennials 30-60 cm tall; stems trigonous. Leaves half or one-third to the stem, flat or involute. Spikelets white, oblong-ovoid on terminal capitate inflorescence; glumes purplish, spatulate. Nuts obovoid-oblong, apiculate, slightly curved.

Common in moist areas of lower ghats. Fl. & Fr.: Nov.-Apr.

**Rhynchospora** Vahl *nom. cons.*

**Rhynchospora corymbosa** (L.) Britt, in Trans. New York Acad. Sci. 11: 84. 1892; Fisch. 1160; Kern in Steenis, Fl. Malesiana Ser. 1, 7: 713. 1974. *Scirpus corymbosus* L. in Torner, Cent. Pl. 2: 7. 1756. *Rhynchospora aurea* Vahl, Enum. Pl. 2: 229. 1805; FBI 6: 670; Rao 433.

Perennials up to 1 m tall; rhizomes short; stems scaberulous, trigonous. Leaves clustered at base, flat, scabrous along margins. Spikelets brown, lanceolate in corymbs. Nuts brown, obovate, sessile, truncate at tip, rugose.

Common in moist deciduous forests. Fl. & Fr.: Nov.-Apr.

**Scirpus** L.

**Scirpus juncoides** Roxb. Fl. Ind. 1: 218. 1820; Kern in Steenis, Fl. Malesiana Ser. 1, 7: 512. 1974. *S. erectus* auct. non Poir. 1805; FBI 6: 656; Rao 433; Fisch. 1156.

Tufted annuals. Stems up to 75 cm tall, ribbed. Leaves reduced to a membranous sheath. Spikelets brownish, sessile, 2-7 in a pseudo-lateral capitate inflorescence; glumes brownish, ovate-suborbicular, mucronate. Nuts black, biconvex, obovate, apiculate.

Common in moist deciduous forests. Fl. & Fr.: Oct.-Dec.

**Scleria** Berg.

|                                    |                       |
|------------------------------------|-----------------------|
| 1. Inflorescence corymbiform       | <i>S. Corymbosa</i>   |
| 1. Inflorescence not as above:     |                       |
| 2. Spikelets in axillary clusters  | <i>S. caricina</i>    |
| 2. Spikelets not as above:         |                       |
| 3. Nuts with 3-basal depressions : |                       |
| 4. Depressions of nuts rugulose    | <i>S. lithosperma</i> |
| 4. Depressions of nuts smooth      | <i>S. levia</i>       |
| 3. Nuts without basal depressions  | <i>S. terrestris</i>  |

**Scleria caricina** (R. Br.) Benth. Fl. Austr. 7: 426. 1878; FBI 6: 688; Kern in Blumea 11: 208. 1961. *Diplacrum caricinum* R. Br. Prodr. 241. 1813; Fisch. 1164; Blake in J. Arnold Arbor. 35: 233. 1954.

Diffuse herbs. Leaves 1-3.5 cm long, 1-1.5 mm wide with wingless sheaths. Male spikelets shortly peduncled, obovate, female

ovoid-oblong; glumes ovate-oblong, falling with nuts, 3-lobed at apex. Nuts white, globose, apiculate, ribbed, glabrous or hispidulous.

Common along the coast. Fl. & Fr.: Sept.-Jan.

*Scleria corymbosa* Roxb. Fl. Ind. 3: 574. 1832; FBI 6: 686; Fisch. 1163; Kern in Blumea 11: 189. 1961.

Perennials 1.5-2 m tall; rhizomes creeping. Leaves 6-20 mm wide, glabrous, scaberulous along margins; sheaths ovate, triangular. Bisexual spikelets ovoid, male spikelets lanceolate. Nuts white: ovoid.

Occasional in moist areas at low elevations of ghats. Fl. & Fr.: Dec.-Mar.

*Scleria levis* Retz. Obs. 4: 13. 1786; Blake in J. Arnold Arbor. 35, 226. 1954; Kern in Blumea 11: 164. 1961. *S. hebecarpa* Nees in Wight, Contrib. 117. 1834; FBI 6: 689; Rao 433; Fisch. 1163.

Perennials 30-100 cm tall; stems scabrid on angles. Leaves 15-35 cm long, 3-8 cm wide, glabrous or villous; sheaths winged, hirsute. Spikelets unisexual, lanceolate in terminal and lateral panicles; glumes pale-brown, ovate, mucronate. Nuts globose, apiculate, hairy.

Common amidst grasses in secondary moist mixed deciduous forests. Fl. & Fr.: Nov.-Apr.

*Scleria lithosperma* (L.) Sw. Prodr. 18: 1788; FBI 6: 685; Fisch. 1163; Kern in Blumea 11: 191. 1961. *Scirpus lithospermus* L. Sp. Pl. 51. 1753.

Slender perennials 40-60 cm tall. Leaves 1-5 mm wide, glabrous or sparsely pubescent; sheaths wingless, pubescent. Spikelets greenish, bisexual, solitary or 2-3 together in terminal panicles. Glumes pale-brown, ovate-lanceolate, mucronate. Nuts oblong-obvoid, ferruginous smooth.

Frequent in open forests at low elevations. Fl. & Fr.: Sept.-Dec.

*Scleria terrestris* (L.) Fassett in Rhodora 26: 159. 1924; Blake in J. Arnold Arbor. 35: 228. 1954; Kern in Blumea 11: 170. 1961. *Zizania terrestris* L. Sp. Pl. 2: 991. 1753. *Scleria elata* Thw. Enum. 353. 1864; FBI 6: 690. *S. cochinchinensis* (Lour.) Druce, Bot. Soc. Exch. Club. Brit. Isles 4: 646. 1917; Fisch. 1163. *Diaphora cochinchinensis* Lour. Fl. Cochinch. 809. 1790.

Perennials; rhizomes elongate, woody, creeping; stems 75-100 cm tall, angles scaberulous. Leaves 2-4 cm wide; sheaths wingless or with a small wing, glabrous or villous. Spikelets brownish, unisexual, linear-lanceolate; glumes ovate, acute, mucronate, ciliolate. Nuts white, ellipsoid, obtusely trigonous, minutely hairy when young.

Frequent in moist deciduous and semievergreen forests.  
Fl. & Fr.: Jul.-Mar.

### P O A C E A E Barnhart

1. Spikelets falling entire at maturity :
2. Spikelets unisexual :
  3. Female spikelets enclosed in leaf sheath *Coix*
  3. Female spikelets not as above *Tripsacum*
2. Spikelets bisexual :
  4. Both glumes as long as the spikelets :
    5. Spikelets solitary *Dimeria*
    5. Spikelets in pairs or in threes :
      6. Spikelets of similar pairs :
        7. Rachis not breaking up *Imperata*
        7. Rachis breaking up :
          8. Lower glumes 2-keeled *Eulalia*
          8. Lower glumes not keeled *Pogonatherum*
      6. Spikelets in each pair dissimilar :
        9. Joints of rachis swollen :
        10. Upper lemma awned :
          11. Racemes 2 *Ischaemum*
          11. Raceme 1 *Apluda*
        10. Upper lemma unawned :
          12. Sessile spikelets globose *Hackelochloa*
          12. Sessile spikelets not globose *Rotboellia*
      9. Joints of rachis not swollen :
        13. Racemes not interrupted by spathes *Chrysopogon*

13. Racemes interrupted by spathes:
14. Upper lemmas of sessile spikelets  
with basal awns *Arthraxon*
14. Upper lemmas of sessile spikelets  
without basal awns (awns at tip):
15. Awns glabrous :
16. Upper lemmas of sessile spikelets  
not cleft :  
*Capillipedium*
17. Pedicels furrowed :  
*Pseudanthistiria*
18. Racemes solitary  
*Bothriochloa*
18. Racemes several  
*Cymbopogon*
16. Upper lemmas of sessile spikelets 2-cleft:  
*Schizachyrium*
19. Plants aromatic  
*Themeda*
19. Plants not aromatic  
*Heteropogon*
15. Awns hairy :
20. Racemes with an involucre  
*Rhynchospora*
20. Racemes without an involucre  
*Trachys*
4. Lower glumes smaller than spikelets :
21. Inflorescence a raceme  
*Rhynchelytrum*
21. Inflorescence a panicle :
22. Spikelets awned  
*Rhynchelytrum*
22. Spikelets unawned :
23. Spikelets falling off without bristles :  
*Panicum*
24. Spikelets arranged in open or spicate  
panicles :  
*Panicum*
25. Spikelets not subtended by bristle-like branches:
26. Spikelets arranged in open panicles :
27. Spikelets not gibbosus :
28. Fertile spikelets without lateral  
appendages or scars  
*Panicum*

28. Fertile spikelets with lateral appendages or scars *Ichnanthus*
27. Spikelets gibbosus *Cyrtococcum*
26. Spikelets in spicate panicles *Sacciolepis*
25. Spikelets subtended by bristle-like branches *Setaria*
24. Spikelets in 1-sided spike-like racemes :
29. Lemmas of upper florets with hyaline margins :
30. Spikelets awned *Alloteropsis*
30. Spikelets unawned *Digitaria*
29. Lemmas of upper florets without hyaline margins :
31. Spikelets adaxial :
32. Lower glumes present *Brachiaria*
32. Lower glumes absent *Axonopus*
31. Spikelets abaxial :
33. Lower glumes absent *Paspalum*
33. Lower glumes present :
34. Spikelets sunken in rachis *Stenotaphrum*
34. Spikelets not sunken :
35. Glumes awned :
36. Culms erect *Echinochloa*
36. Culms creeping *Oplismenus*
35. Glumes unawned *Paspalidium*
23. Spikelets falling off with bristles :
37. Bristles persistent *Setaria*
37. Bristles caducous *Pennisetum*
1. Spikelets breaking up at maturity :
38. Spikelets with 1-fertile floret :

39. Fertile lemma and palea similar :
40. Leaves ovate-acute *Hygroryza*
40. Leaves linear-acuminate *Oryza*
39. Fertile lemma and palea dissimilar :
41. Upper lemma not awned :
42. Glumes caducous *Isachne*
42. Glumes persistent *Coelachne*
41. Upper lemma awned :
43. Lemmas awned at the sinus of notched apex *Chandrasekharania*
43. Lemmas not awned as above :
44. Glumes bearded at base *Garnotia*
44. Glumes glabrous at base :
45. Lemmas 1-3 nerved :
46. Glumes not awned *Zoysia*
46. Glumes awned *Perotis*
45. Lemmas 5-nerved :
47. Lemmas dorsally compressed *Aristida*
47. Lemmas laterally compressed *Sporobolus*
38. Spikelets with 2 or more fertile florets :
48. Lemmas scabrid :
49. Glumes acuminate at apex *Phragmites*
49. Glumes acute at apex *Arundinella*
48. Lemmas glabrous :
50. Glumes equalling the lowest floret *Zenkeria*
50. Glumes shorter than the lowest floret :
51. Lemmas 1-3 nerved :
52. Inflorescence paniculate :
53. Lemmas entire at apex :

|  |                       |
|--|-----------------------|
| 54. Spikelets in panicles                        | <i>Eragrostis</i>     |
| 54. Spikelets solitary or in spiciform racemes : |                       |
| 55. Spikes terminating in a spikelet             | <i>Eleusine</i>       |
| 55. Spikes terminating in a sharp point          | <i>Dactyloctenium</i> |
| 53. Lemmas 3-4 lobed at apex                     | <i>Tripogon</i>       |
| 52. Inflorescence racemose :                     |                       |
| 56. Spikelets with fertile and sterile florets   | <i>Chloris</i>        |
| 56. Spikelets without sterile florets            | <i>Cynodon</i>        |
| 51. Lemmas 5-nerved :                            |                       |
| 57. Lemmas not awned                             | <i>Centotheca</i>     |
| 57. Lemmas awned                                 | <i>Lophatherum</i>    |

*Alloteropsis* J.S. Presl ex C.B. Presl emend. Hitchc.

*Alloteropsis cimicina* (L.) Stapf in Prain, Fl. Trop. Africa 9: 487, 1919; Rajagopal & Panigrahi in Proc. Nat. Sc. Ind. 37: 23, 1967; Fisch. 1223; Bor 276. *Milium cimicinum* L. Mant. Pl. 184. 1771. *Axonopus cimicinus* (L.) P. Beauv. Ess. Agrost. 12. 1812; FBI 7: 64.

Annuals; culms 20-60 cm tall, terete, glabrous or hispid. Leaves 4-7 cm long, hispid, flat, lanceolate, cordate at base. Spikelets elliptic-ovoid, hairy in digitate or whorled racemes. Lower glumes ovate, 3-nerved, upper membranous, 5-nerved, margins purplish-villous; lemmas elliptic-lanceolate, 5-nerved; paleas narrower; stamens 3. Grains ovate, flattened.

Frequent in cultivated fields and wastelands in the midland zone.  
Fl. & Fr.: Jul.-Jan.

*Apluda* L.

*Apluda mutica* L. Sp. Pl. 82. 1753; Fisch. 1212; Bor 93. *A. varia* Hack. subsp. *aristata* Hack. Monogr. Andr. 196. 1899; FBI 7: 150.

Annuals or perennials; culms up to 2 m tall. Leaves 9-40 cm long, flat, linear-lanceolate, petiolate. Racemes solitary, simple; spathes boat shaped, glabrous or hairy. Spikelets linear-lanceolate. Lower glumes 2-toothed at apex; upper acuminate; lemmas linear-lanceolate, 3-nerved; paleas equalling the lemma. Grains oblong.

Common throughout the district along river banks, amidst bushes.  
Fl. & Fr.: Nov.-Mar.

*Aristida* L.

- |  |                        |
|--|------------------------|
| Leaves 50-60 cm long; glumes aristate        | <i>A. setacea</i>      |
| Leaves less than 25 cm long; glumes muticous | <i>A. adscensionis</i> |

*Aristida adscensionis* L. Sp. Pl. 82. 1753; FBI 7: 225; Rao 442.  
*A. depressa* auct. non Retz. 1786; Fisch. 1252; Bor. 409.

Annuals; culms 50-60 cm tall. Leaves 3-25 cm long, convolute, linear, glabrous. Spikelets pale or purple in contracted panicles. Glumes oblong, membranous, aristate; lemmas 3-nerved, scabrid, ending in 3 subequal setae. Paleas oblong, hyaline. Grains brownish, cylindric.

Fairly common in open areas of subtropical hill forests. Fl. & Fr.: Aug.-Jan.

*Aristida setacea* Retz. Obs. 4: 22. 1786; FBI 7: 225; Rao 442; Fisch. 1252; Bor 412.

Annuals; culms 1-1.2 m tall. Leaves 50-60 cm long, involute, scaberulous, sparsely hairy on the upper surface; sheaths keeled; ligules hairy. Spikelets purplish in effuse panicles. Lower glumes membranous, upper similar; callus bearded; lemmas articulated, unequally awned. Grains cylindric, black.

Frequent throughout the plains and lower elevations of ghats.  
Fl. & Fr.: Throughout the year.

*Arthraxon* P. Beauv.

*Arthraxon quartinianus* (A. Rich.) Nash in N. America Fl. 17: 99. 1912; Fisch. 1196; Bor 102; Jain in J. Indian Bot. Soc. 51: 179. 1972. *Alectoridia quartiniana* Rich. Tent. Fl. Abyss. 2: 448, t. 99. 1851. *Arthraxon ciliaris* P. Beauv. Agrost. 3, t. 11, f. 6. 1812; FBI 7: 145; Rao 440.

Annuals; culms 20-40 cm tall; rooting at lower nodes. Leaves 1-4 cm long, flat, ovate-lanceolate, glabrous or hairy, cordate-amplexicaule at base. Spikelets solitary, oblique in slender racemes. Lower glumes lanceolate, 7-9-nerved, 2-keeled; upper glumes boat-shaped, 3-nerved, 1-keeled; upper lemmas 2-cleft with a geniculate awn; paleas absent. Grains linear.

Common in moist deciduous forests. Fl. & Fr.: Aug.-Feb.

**Arundinella Raddi**

- |                                  |                       |
|----------------------------------|-----------------------|
| 1. Upper lemma unawned           | <i>A. leptochloa</i>  |
| 1. Upper lemma awned:            |                       |
| 2. Spikelets less than 5 mm long | <i>A. ciliata</i>     |
| 2. Spikelets 7-10 mm long        | <i>A. tuberculata</i> |

**Arundinella ciliata** (Roxb.) Nees ex Miq. in Verh. Kon. Ned. Inst. Wetensch. 3: 30. Pl. 4. 1851; Bor 421. *Holcus ciliatus* Roxb. Fl. Ind. 1: 321. 1820. *Arundinella holcooides* sensu Fisch. in Gamble, Fl. Pres. Madras 1801. 1931, non Trin. 1836; Sebastine in Bull. Bot. Surv. India 2: 6. 1960. *A. agrostoides* var. *ciliata* Hook.f. Fl. Brit. India 7: 71. 1896.

Annuals; culms 15-40 cm tall, villous. Leaves 2-9.5 cm long, villous, flat; ligules and sheaths hairy. Spikelets setose-lanceolate in contracted panicles. Lower glumes lanceolate, 3-nerved, acuminate; upper glumes 5-nerved, cuspidate at apex; lemmas coriaceous, 3-nerved. Upper florets female. Grains ellipsoid.

Frequent along the rocky slopes of upper ghats. Fl. & Fr.: Nov.-Feb.

**Arundinella leptochloa** (Nees ex Steud.) Hook.f. Fl. Brit. India 7: 76. 1896; Rao 436; Fisch. 1247; Bor 423. *Panicum leptochloa* Nees ex Steud. Syn. Pl. Glum. 1: 62. 1854. *P. zeylanicum* Arn. ex Hook.f. Fl. Brit. India 7: 756. 1896. *Arundinella lawsonii* Hook.f. Fl. Brit. India 7: 76. 1896; Fisch. 1247.

Perennials; culms 60-120 cm long; rootstocks woody. Leaves 15-20 cm long, glabrous or hairy, narrow, linear; sheaths smooth or hairy; ligules obscure. Spikelets 2-seriate, secund in interrupted pyramidal panicles. Glumes ovate-acuminate, 3-nerved; lemmas lanceolate, awned, 5-7-nerved.

Frequent in open forests. Fl. & Fr.: Nov.-Feb.

**Arundinella tuberculata** Munro ex Lisboa in J. Bombay Nat. Hist. Soc. 5: 344. 1891; FBI 7: 693; Bor 425.

Annuals; culms up to 60 cm tall. Leaves 3-10 cm long, flat, linear-lanceolate, hispid. Spikelets ovate, hispid in tax oblong

panicles. Lower lemmas elliptic-oblong, 3-nerved, acute; upper lanceolate, 2-toothed with 2 apical setae and a median geniculate awn; paleas 2-keeled, inflexed. Grains ellipsoid.

Frequent amidst grasses at Upper Ponmudi. Fl. & Fr.: Nov.-Feb.

**Axonopus P. Beauv.**

**Axonopus compressus** (Sw.) P. Beauv. Ess. Agrost. 12: 154, 167. 1812; Bor 278. *Milium compressum* Sw. Prodr. Veg. Ind. Occ. 24, 1788.

Perennials; culms 10-60 cm long, creeping, stoloniferous; nodes bearded. Leaves 2-25 cm long, oblong to linear-lanceolate, acute, margins ciliate; sheaths keeled; ligules membranous, fimbriate. Spikelets oblong-acute, elliptic or elliptic-lanceolate, sessile or shortly pedicelled in digitate racemes. Lower glumes absent; upper glumes ovate-elliptic or elliptic-lanceolate, 5-7-nerved, hairy on dorsal side; lower lemmas elliptic-lanceolate, villous, 5-nerved, epaleate; upper lemmas 3-5-nerved, epaleate; hairy at apex; paleas oblong, infolded. Florets bisexual. Grains oblong.

Abundant along roadsides in upper ghats; used as lawn grass. Fl. & Fr.: Throughout the year.

**Bothriochloa O. Kuntze**

**Bothriochloa pertusa** (L.) A. Camus in Ann. Soc. Linn. Lyon 76: 164. 1931; Bor 109. *Holcus pertusus* L. Mant. Alt. 301. 1771. *Andropogon pertusus* (L.) Willd. Sp. Pl. 4: 922. 1806; FBI 7: 173; Rao 440. *Amphilophis pertusa* (L.) Nash ex Stapf in Agric. News W. Ind. 15: 179, 1916; Fisch. 1200.

Perennials; culms 25-50 cm tall, erect or decumbent; nodes bearded. Leaves 5-15 cm long, filiform, ciliate; ligule membranous. Spikelets purple, elliptic-lanceolate in digitate or subdigitate paniculate racemes. Lower glumes hairy below the middle, 5-9-nerved, ciliate; upper faintly 3-nerved, ciliolate; upper lemmas lanceolate, subobtuse; lower reduced to a geniculate awn. Grains oblong.

Common in open areas of moist deciduous forests. Fl. & Fr.: Sep.-Jan.

## Brachiaria Griseb.

- 1. Racemes 10-20; rhachis flat *B. murica*
- 1. Racemes 2-8, rarely more than 10, but then rhachis triquetrous :
  - 2. Pedicels glabrous :
    - 3. Spikelets 2-3 mm long; peduncles hairy *B. distachya*
    - 3. Spikelets 3.5-4 mm long; peduncles nearly glabrous *B. miliiformis*
  - 2. Pedicels hairy *B. ramosa*

**Brachiaria distachya** (L.) Stapf in Fl. Trop. Afr. 9: 565. 1919; Bor 281; Fisch. 1226. *Paniceum distachyon* L. Mant. Alt. 183. 1771; FBI 7: 37.

Annuals or perennials; culms 15-50 cm long, creeping or decumbent; nodes glabrous or hairy. Leaves 1-4 cm long, elliptic-lanceolate, cordate at base; sheaths softly hairy; ligules a tuft of hairs. Spikelets elliptic, solitary in racemes. Lower glumes broadly obovate, 7-9-nerved; upper glumes ovate, 5-7-nerved. Lower floret empty, upper bisexual; lower lemmas similar to upper glumes, 5-nerved; paleas 2 nerved, hyaline; upper lemmas ovate, 2-5-nerved, rugulose; paleas ovate-oblong, 2-keeled, 2-nerved, rugulose.

Common along backwaters. Fl. & Fr.: Nov.-Mar.

**Brachiaria miliiformis** (J. Presl ex C. Presl) A. Chase in Contrib. U.S. Nat. Herb. 22: 35. 1920; Bor 283; Fisch. 1226. *Panicum miliiforme* J. Presl ex C. Presl, Rel. Haenk, 1: 300. 1830. *Panicum distachy whole Hook.f.* Fl. Brit. India 7: 37. 1896, non L. 1771.

Annuals or perennials; culms 30-100 cm long, creeping. Leaves 2-20 cm long, sparsely tubercled-hairy, linear-lanceolate; sheaths glabrous or hairy; ligules fimbriate. Spikelets elliptic or ovate, apiculate at apex in racemes. Lower glumes ovate or obovate, 9-11-nerved; upper glumes ovate, 7-9-nerved. Lower floret empty; upper bisexual; lower lemmas ovate, 5-7-nerved; upper lemmas elliptic-oblong, faintly 3-5-nerved, rugulose; paleas elliptic-oblong, 2-keeled, 2-nerved. Grains elliptic.

Common in shady areas of the plains. Fl. & Fr.: Almost throughout the year.

**Brachiaria mutica** (Forssk.) Stapf in Prain, Fl. Trop. Africa 9: 526, 1919; Fisch. 1226; Bor 284. *Panicum muticum* Forssk, Fl. Aegypt.-Arab. 20. 1775; FBI 7: 34.

Perennials; culms 1-2 m tall, decumbent, rooting at nodes; pilose. Leaves 1-5.5 cm long, flat, linear-lanceolate, glabrous or pilose; ligules hairy. Spikelets solitary, linear-lanceolate, hairy in narrow racemes. Lower glumes scale-like, 1-nerved; upper linear to elliptic-lanceolate, 5-nerved, hairy; lemmas 3-5-nerved; paleas oblong-lanceolate, 2-keeled. Grains oblong to elliptic.

Common in deciduous forests. Fl. & Fr.; July-Jan.

**Brachiaria ramosa** (L.) Stapf in Prain, Fl. Trop. Afr. 9: 542, 1919; Bor 284; Fisch. 1226. *Panicum ramosum* L. Mant. Pl. 1: 29. 1767; FBI 7: 36.

Annuals or perennials, culms 15-100 cm long, creeping or decumbent; nodes glabrous or softly villous; sheaths slightly keeled; ligules a row of hairs. Spikelets elliptic, glabrous or softly hairy in racemose panicles. Lower glumes ovate or obovate, 7-nerved; upper similar, hairy. Lower florets empty; upper bisexual; lower lemmas ovate, 5-nerved, hairy or glabrous; paleas oblong-lanceolate, 2-keeled 2-nerved; upper lemmas ovate, mucronate, 5-7-nerved; paleas similar, 2-keeled, muricate.

Common in open areas of moist deciduous forests. Fl. & Fr.; Sept.-Jan.

#### **Capillipedium** Stapf

**Capillipedium huegelii** (Hack.) Stapf in Hook. Icon. Pl. Sub. t. 3085, 1922; Fisch. 1199; Bor 111. *Andropogon huegelii* Hack. in DC. Monogr. Phan. 6: 492. 1889. *Capillipedium huegelii* (Hack.) Blatt. & Mc. Cann in J. Bombay Nat Hist. Soc. 32: 420. 1928. *Andropogon schimidii* Hook.f. Fl. Brit. India 7: 180. 1896; Rao 440.

Perennials; culms 8-10 cm long, red; nodes hairy. Leaves 7-16 cm long, glabrous, linear-lanceolate, scabrid along margins; sheaths compressed; ligules membranous, ciliate, laciniate. Spikelets villous, pale-greenish in panicles; callus hairy. Lower glumes ovate, villous, truncate at apex; upper glumes glabrous, apiculate; lower lemmas ovate, glabrous; upper lemmas reduced to an awn ca. 2 cm long. Grains elliptic.

Fairly common along rivers and streams throughout the District.  
Fl. & Fr.: Nov.-Mar.

**Cenchrus L.**

**Cenchrus setigerus** Vahl, Enum. Pl. 2: 395. 1806; Fisch. 1242; Bor 290. *C. biflorus* sensu Hook.f. Fl. Brit. India 7: 89. 1896, non Roxb. 1820.

Annuals; culms 30-50 cm tall, geniculately ascending. Leaves 9-11 cm long, flat or convolute; sheaths pilose; ligule a ciliate rim. Spikelets sessile, ovate in dense, purplish-brown racemes. Glumes ovate, 1-nerved, hyaline; lemmas membranous, ovate-oblong, 5-nerved; paleas hyaline, 2-keeled. Grains oblong.

Common in midlands and at low elevations of ghats. Fl. & Fr.: June.-Dec.

**Centotheca Desv.**

**Centotheca lappacea** (L.) Desv. in Nouv. Bull. Sci. Soc. Philom. Paris 2: 189. 1810; FBI 7: 332; Fisch. 1279; Bor 457. *Cenchrus lappaceus* L. Sp. Pl. ed. 2. 1488. 1763. *Centotheca latifolia* Trin. Fund. Agrost. 141. 1820 nom illeg. (incl. syn. *C. lappaceus* L. 1763).

Perennials; culms 60-90 cm tall, erect from a woody root stock. Leaves 10-20 cm long, glabrous or sparsely hairy; ligules short, lacerate. Spikelets green in lax panicles. Glumes oblong ovate, keeled, 3-5-nerved; lemmas oblong, acute; paleas keeled, keels ciliolate. Grains ovoid.

Frequent along roadsides in moist deciduous forests of Kottur. Fl. & Fr.: June.-Nov.

*Note.* Trinius binomial *Centotheca latifolia* Trin. (1820) is not based on *Holcus latifolius* Osb. (1757). As Clayton (Kew Bull. 27: 449. 1972) points out, when Trinius published the name *Centotheca latifolia* it contained no information other than the synonym *Cenchrus lappaceus* L. making it an illegitimate name.

**Chandrasekharania Nair, Ramach. & Sreek.**

**Chandrasekharania keralensis** Nair, Ramach. & Sreek, in Proc. Indian Acad. Sci. (Plant Sci.) 91(2): 79-82. 1982.

Annuals up to 40 cm tall; culms rooting at lower nodes, glabrous. Leaves 2-4.5 cm long, tubercled hairy, ovate-lanceolate, acute at apex, cordate at base. Spikelets elliptic-oblong in contracted spiciform racemes. Lower glumes ovate, awned, hairy on upper half; upper glumes ovate-lanceolate, scaberulous, ciliate; lemmas elliptic-lanceolate; awns scabrid; paleas hyaline ciliate. Grains ellipsoid, brown.

Rare in grasslands of upper Ponmudi. Fl. & Fr.: Nov.-Feb.

*Note*: Two collections, Ramo Rao 2339 and Vencoba Rao 2147 deposited at UCT were first wrongly identified as *Arundinella avenacea* Munro.

#### *Chloris* Sw.

*Chloris barbata* Sw., Fl. Ind. Occ. 1: 200, 1797; FBI 7: 292; Rao 444; Fisch. 1272; Bor 465.

Perennials; culms 30-90 cm tall. Leaves 5-13 cm long, linear, flat or folded, glabrous; sheaths keeled; ligules narrow. Spikelets subsessile, 2-seriate; lower solitary and perfect; upper 2, imperfect. Lower glumes oblong, 1-nerved, awn short; upper with awn up to 5 cm long. Lemmas purple, 3-nerved, ciliate for 2/3 from base; paleas obtuse-lanceolate. Grain subtriangular.

Frequent throughout the plains. Fl. & Fr.: Aug.-Jan.

#### *Chrysopogon* Trin. *nom. cons.*

|                   |                      |
|-------------------|----------------------|
| Pedicels glabrous | <i>C. aciculatus</i> |
| Pedicels hairy    | <i>C. zeylanicus</i> |

*Chrysopogon aciculatus* (Retz.) Trin. Fund. Agrost. 188, 1820; Fisch. 1205; Bor 115, *Andropogon aciculatum* Retz. Obs. Bot. 5: 22, 1789; FBI 7: 188; Rao 440.

Perennials; culms 12-40 cm tall with creeping root stocks. Leaves 2-12 cm long, linear-lanceolate, cordate at base; sheaths overlapping; ligule a rim of hairs. Spikelets in groups of 3, one sessile, 2 pedicelled in purplish panicles; callus sharp, golden-brown hairy. Lower glume lanceolate, 3-nerved, hirsute at the upper part; upper glumes boat-shaped, aristate, ciliate; lower lemmas 2-nerved; upper lemmas 1-nerved; paleas hyaline. Upper lemma of pedicelled spikelets mucronate.

Common throughout the low elevations of ghats. Fl. & Fr.: Jul.-Nov.

***Chrysopogon zeylanicus*** (Nees ex Steud.) Thw. Enum. 366. 1864; Fisch. 1205; Bor 119. *Andropogon zeylanicus* Nees ex Steud. Syn. Pl. Glum. 1: 397. 1854; Rao 441.

Perennials; culms 20-150 cm tall, tufted. Leaves 5-30 cm long, tubercle based hairy, flat or convolute, linear-lanceolate; ligules imbricate. Panicles pyramidal. Sessile spikelets brown, oblong, bearded. Lower glumes linear-oblong, 3-5-nerved, pectinate; upper glumes oblong, notched, aristate, 3-nerved; lower lemmas elliptic-lanceolate, 2-3-nerved; upper lemmas 3-nerved, awned. Pedicelled spikelets linear-lanceolate, awnless. Glumes ovate-lanceolate, 3-7-nerved, ciliate. Grains linear-oblong.

Occasional along margins of moist deciduous forests. Fl. & Fr.: June.-Oct.

#### Coelachne R. Br.

***Coelachne simpliciuscula*** (Wight & Arn. ex Steud.) Munro ex Benth. in J. Linn. Soc. Bot. 19: 93. 1881; Bor 576. *Panicum simpliciusculum* Wight & Arn. ex Steud. Syn. Pl. Glum. 1: 96. 1854. *Coelachne pulchella* sensu Hook.f. Fl. Brit. India 7: 276. 1896 (incl. var. *simpliciuscula*) non R. Br. 1810; Fisch. 1249.

Annuals; culms 15-35 cm long, decumbent; nodes pubescent. Leaves 0.4-1.5 cm long, flat; sheaths striate; ligules hairy. Spikelets globose or ovoid, sessile or shortly pedicelled in interrupted spiciform panicles. Lower glumes ovate, nerves obscure; upper glumes similar, herbaceous; lower lemmas coriaceous, rounded on back. Grains narrowly elliptic.

Occasional in paddy fields and other similar situations in plains and lower ghats. Fl. & Fr.: Aug.-Nov.

#### Coix L.

***Coix lacryma-jobi*** L. Sp. Pl. 972. 1753; FBI 7: 100; Rao 438; Fisch. 1182; Bor 264.

Annuals or perennials; culms 1-1.5 m tall, spongy. Leaves 10-55 cm long, flat, linear-lanceolate, cordate at base; sheaths glabrous; ligules membranous. Male spikelets terminal, 2-3-nate. Lower glumes papery, many-nerved; margins winged, densely

ciliate upper glumes oblong-lanceolate, 9-nerved. Lemma oblong lanceolate, 5-nerved; paleas hyaline, 2-keeled. Female spikelets ovoid, enclosed in bony involucre, yellowish-white. Lower glumes ovate-oblong, papery; upper glumes thin, similar; lemmas equalling the spikelets. Grains ovoid or globose.

Cultivated in house gardens. Stony bracts used as ornaments.  
Fl. & Fr.: Oct.-Feb.

**Cymbopogon** Spreng.

**Cymbopogon caesius** (Nees ex Hook.f. & Arn.) Stapf in Bull. Misc. Inform. 341, 360. 1906; Fisch. 1217; Bor 125. *Andropogon caesius* Nees ex Hook.f. & Arn. Bot. Beech. Foy. 244. 1838. *A. schoenanthus* L. var. *caesius* (Nees ex Hook.f. & Arn.) Hack. in DC. Monogr. Phan. 6: 610. 1889; FBI 7: 205; Rao 441.

Perennials; culms 30-100 cm tall, tufted. Leaves 5-30 cm long, filiform, glaucous cordate or amplexicaul at base; ligules oblong. Sessile spikelets oblong-elliptic. Lower glumes flat; keels winged, 2-nerved, or nerveless. Upper glumes lanceolate 3-nerved, ciliate; lower lemma oblong-ciliate; upper lemmas 2-fid, narrow; lobes subulate; awns slender. Pedicelled spikelets oblong-lanceolate. Lower glumes glabrous or ciliate; upper glumes ovate, acute, 3-nerved; lemmas 2-nerved.

Frequent in moist deciduous forests throughout the district.  
Fl. & Fr.: Nov.-Feb.

**Cynodon** L.C. Rich. ex Pers. *nom. cons.*

**Cynodon dactylon** (L.) Pers. Syn. Pl. 1: 85. 1805; FBI 7: 288; Rao 443; Fisch. 1270; Bor 469. *Panicum dactylon* L. Sp. Pl. 58. 1753.

Perennials; culms 5-40 cm tall. Leaves 5-15 cm long, flat, linear-lanceolate, glabrous or glaucous; ligule a ciliate rim. Spikelets green or purple, sessile, 1-flowered, oblong. Glumes membranous, oblong, keeled, acute; lemmas boat-shaped, 3-nerved, hispid along margins and keels. Grains 1-1.5 mm long.

Common throughout the district. Fl. & Fr.: Throughout the year. '*Karukappullu*'

**Cyrtococcum** Stapf

1. Spikelets equalling the pedicels :

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|---------------------------|----------------------|
| 2. Panicles c. 5 cm long  | <i>C. trigonum</i>   |
| 2. Panicles c. 20 cm long | <i>C. oxyphyllum</i> |

1. Spikelets shorter than the pedicels :

- |                     |                    |
|---------------------|--------------------|
| 3. Glumes cuspidate | <i>C. longipes</i> |
| 3. Glumes obtuse    | <i>C. patens</i>   |

***Cyrtococcum longipes* (Wight & Arn. ex Hook.f.) A. Camus in Bull. Mus. Hist. Nat. Paris 27: 118. 1921; Fisch. 1237; Bor 291. *Panicum longipes* Wight & Arn. ex Hook.f. Fl. Brit. India 7: 58. 1896.**

Perennials; culms 15-45 cm long, decumbent or creeping at base. Leaves 7-15 cm long, glabrous or with scattered hairs, flat, linear-lanceolate; sheaths ciliate along margins; ligule rounded. Spikelets brown, gibbous, hispid on contracted panicles. Lower glumes ovate, pubescent, 5-nerved, cuspidate; upper glumes helmet-shaped, pubescent, 3-nerved, obtuse; lemmas obovate-oblong, hispid, 5-nerved; paleas minute or absent. Grains ellipsoid.

Common in open areas of deciduous forests. Fl. & Fr. : May-June.

***Cyrtococcum oxyphyllum* (Steud.) Stapf in Hook.f. Icon. Pl. Sub. t. 3096, 1922; Fisch. 1237; Bor 291. *Panicum oxyphyllum* Steud. Syn. Pl. Glum. 1: 65, 1854. *P. pilipes* Nees ex Arn. Buese in Miq. Pl. Junghn. 3: 376, 1854; FBI 7: 57.**

Rambling perennials; culms 20-60 cm tall, ascending. Leaves 4-20 cm long, pubescent, linear-lanceolate; sheaths hairy; ligules truncate. Spikelets brown, obliquely obovate, crowded in contracted panicles. Glumes ovate to elliptic, 3-nerved, obtuse or acute; lemmas broadly elliptic, 3-5-nerved. Grains oblong.

Fairly common in shady areas of wet evergreen forests. Fl. & Fr. : June--Oct.

***Cyrtococcum patens* (L.) A. Camus in Bull. Mus. Hist. Nat. Paris 27: 118. 1921; Fisch. 1237; Sebastine in Bull. Bot. Surv. India 2: 6, 1960; Bor 292. *Panicum patens* L. Sp. Pl. 58. 1753; FBI 7: 57. p.p.**

Perennials; culms 25-30 cm long, rooting at lower nodes. Leaves 2.5-9 cm long, glabrous above, tubercle based hairy beneath, lanceolate; sheaths ciliate. Spikelets greenish, in lax panicles. Lower glumes ovate, cordate, 3-5-nerved; upper glumes helmet-shaped, 3-nerved, ciliate; lower lemmas elliptic, 3-nerved ciliate at apex; paleas short; upper lemmas white, rounded, mucronate, 3-nerved; paleas 2-nerved mucronate.

Common in open areas of plains. Fl. & Fr.: Apr.-Oct.

**Cyrtococcum trigonum** (Retz.) A. Camus in Bull. Mus. Hist. Nat. 27: 118. 1921; Bor 292; Fisch. 1785. *Panicum trigonum* Retz. Obs. Bot. 3: 9. 1783; FBI 7: 56.

Annuals; culms 5-50 cm long, creeping; nodes glabrous or sparsely bearded. Leaves 1-4 cm long, lanceolate, sheaths softly villous; ligules ovate, membranous. Spikelets obovate or oblanceolate, hairy in contracted panicles. Lower glumes ovate, 3-nerved hairy; upper glumes ovate-oblong, 3-nerved, hairy; lower lemmas ovate-oblong, 5-7-nerved; upper lemmas D-shaped; paleas oblong, 2-keeled, 2-nerved,

Occasional along coastal zones in damp shady areas. Fl. & Fr.: Aug.-Sept.

#### Dactyloctenium Willd.

**Dactyloctenium aegyptium** (L.) P. Beauv. Ess. Agrost. Expl. Pl. 15. 1812; Fisch. 1273; Bor 487. *Cynosurus aegyptius* L. Sp. Pl. 72. 1753. *Eleusine aegyptia* (L.) Desf. Fl. Atlant. 1: 85. 1798; FBI 7: 295; Rao 444.

Stoloniferous annuals; culms 50-60 cm tall. Leaves 2.5-25 cm long, flat, linear-lanceolate, glabrous or hispid; ligule ciliate. Spikelets sessile, 3-5-flowered, densely crowded in digitate terminal spikes. Lower glumes ovate, 1-nerved, keels winged; upper cuspidate at apex; lemmas ovate, 1-nerved, keels winged; upper cuspidate at apex; lemmas ovate, membranous, 1-nerved; paleas ovate, 2-keeled, keels hispid, acute or 2-toothed. Grains globose, rough.

Frequent in shaded areas of upper ghats. Fl. & Fr.: Nov.-Mar.

#### Digitaria Haller nom. cons.

- |                                    |                      |
|------------------------------------|----------------------|
| 1. Racemes glabrous or puberulous  | <i>D. setigera</i>   |
| 1. Racemes finely hairy :          |                      |
| 2. Spikelets verrucose hairy       | <i>D. longiflora</i> |
| 2. Spikelets not as above :        |                      |
| 3. Hairs of spikelets clavate      | <i>D. abrudens</i>   |
| 3. Hairs of spikelets not as above | <i>D. ciliaris</i>   |

*Digitaria abludens* (Roem. & Schult.) Veldkamp in Blumea 21: 53, 1973. *Panicum abludens* Roem. & Schult. Syst. Veg. 2: 457, 1817. *Digitaria granularis* (Trin. ex Spreng.) Henr. Monogr. Gen. Digitaria 302, 1950. *Paspalum granulare* Trin. ex Spreng. Neue Entdeck. 2: 47, 1821. *P. pedicellare* Trin. ex Hook.f. Fl. Brit. India 7: 19, 1896; Rao 434. *Digitaria pedicellaris* (Trin. ex Hook.f.) Prain, Bengal Pl. 1182, 1903; Fisch. 1223.

Annuals; culms 20-75 cm tall. Leaves 3-20 cm long, flat, linear-lanceolate, glabrous or pilose; ligule membranous, brownish. Spikelets elliptic-oblong, in pairs or 3s in slender, branched racemes. Lower glumes absent; upper elliptic, membranous, 3-5-nerved, clavate-hairy; lower lemmas 5-7-nerved, elliptic-lanceolate, clavate-hairy; upper lemmas brownish-black. Grains elliptic.

Common in open grasslands of lower ghats and cultivated fields and wastelands of the plains. Fl. & Fr.: Aug.-Jan.

*Digitaria ciliaris* (Rbtz.) Koel. Desr. Gram. 27, 1802; Veldkamp in Blumea 21(1): 32, 1973. *Panicum ciliare* Retz. Obs. Bot. 4: 16, 1786. *Digitaria marginata* Link, Enum. Hort. Berol. 1: 102, 1821; Fisch. 1222; Sebastine in Bull. Bot. Surv. India 2: 6, 1960. *Paspalum sanguinale* sensu Hook.f. Fl. Brit. India 7: 213, 1896, non Lam. 1791, p.p.; Rao 439. *Digitaria adascendens* (H. B. K.) Henr. in Blumea 1: 92, 1934; Bor 298.

Perennials; culms 50-75 cm long, creeping or decumbent rooting at lower nodes. Leaves 15-30 cm long, narrow, lanceolate, flat; ligule truncate. Spikelets paired, one sessile and other pedicelled, lanceolate in digitate racemes. Lower glumes absent; upper membranous, ovate, 3-nerved, ciliate; lower lemmas ovate-elliptic, 5-7-nerved, hairy; upper similar; to lemmas. Grains elliptic-oblong.

Common throughout the plains and at low elevations of ghats. Fl. & Fr.: Nov.-Feb.

*Digitaria longiflora* (Retz.) Pers. Syn. 1: 85, 1865; Fisch. 1223; Bor 302; Veldkamp in Blumea 21: 66, 1973. *Paspalum longiflorum* Retz. Obs. Bot. 4: 15, 1786; FBI 7: 17: p.p.; Rao 434.

Annuals; culms 15-35 cm long, base creeping. Leaves 1-5 cm long, glabrous or densely hairy, flat, linear-lanceolate; sheaths pubescent. Spikelets elliptic-oblong in slender racemes paired or in threes. Upper glumes elliptic, 3-5-nerved; lower lemma empty, elliptic, pubescent; upper lemma shorter than the lower, pale brown; paleas similar.

Common in open forests and in wastelands of the plains.  
Fl. & Fr.: Aug.-Oct.

*Digitaria setigera* Roth ex Roem. & Schult. Syst. Veg. 2: 474. 1817; Veldkamp in Blumea 21: 40. 1973; Cope in Nasir & Ali, Fl. Pakistan 226. 1982. *Digitaria microbachne* (Presl) Henr. in Meded. Rijks. Herb. n. 16, 13. 1930; Bor 303. *Panicum microbachne* J. S. Presl ex C.B. Presl, Rel. Haent. 1: 298. 1830.

Annuals; culms 0.5-1.5 cm tall; leaves 10-30 cm long, glabrous beneath, pubescent above; sheaths loose; ligules membranous. Spikelets elliptic, scabrid along margins in racemes up to 6 cm long. Lower glumes scale-like; upper glumes narrow, 3-nerved, hairy; lemmas elliptic-oblong, margins clasping the paleas. Grains white; elliptic.

Common in open areas of midlands. Fl. & Fr.: Jul.-Sept.

#### Dimeria R. Br.

*Dimeria avenacea* (Retz.) Fisch. in Bull. Misc. Inform. 72. 1932 & in Gamble, Fl. Pres. Madras 1187. 1957 (repr. ed.); Bor 139. *Anthoxanthum avinaceum* Retz. Obs. Bot. 3: 8. 1783. *Dimeria pusilla* Thw. Enum. 369. 1864; Rao 438.

Annuals; culms 7.5-20 cm tall. Leaves 2.5-5 cm long, narrow. Spikelets solitary, secund, bifarious, 2-flowered in terminal spiciform racemes. Glumes coriaceous, keeled, subequal; upper aristate, winged, ciliate; lower lemmas empty, epaleate, margins hyaline; upper lemmas 2-fid, awned from the sinus; paleas small. Grains linear.

Frequent in rice-fields and similar wet habitats. Fl. & Fr.: Sept.-Dec.

#### Echinochloa P. Beauv.

*Echinochloa colona* (L.) Link, Hort. Berol. 2: 209. 1833; Fisch. 1230; Bor 308. *Panicum colonum* L. Syst. Nat. ed. 10. 2: 870. 1759; FBI 7: 32; Rao 435.

Annuals; culms 30-60 cm long, erect or geniculately ascending. Leaves 5-18 cm long, scabrid, linear-lanceolate, flat; ligule absent. Spikelets ovate to elliptic-lanceolate, paired, hispidulous or scabrid, oblique in pyramidal racemes. Lower glumes 3-5-nerved, scaberulous, ovate-orbicular, acute or cuspidate; upper 5-7 nerved, pubescent, lower lemmas 7 nerved, pubescent; paleas hyaline, elliptic; upper lemma yellowish-white, 5-nerved; paleas 2-keeled, margins inflexed.

Frequent in wet situations through the plains. Grains edible  
Fl. & Fr.: Jul.-Dec.

*Eleusine* Gaertn.

*Eleusine indica* (L.) Gaertn. Fruct. 1: 8. 1789; FBI 7: 293; Rao 444; Fisch. 1273; Bor 493. *Cynosurus indicus* L. Sp. Pl. 72. 1753.

Annuals; culms up to 80 cm tall. Leaves 5-7.5 cm long, sparsely hairy, flat or folded. Spikelets ovate-oblong, in 2-rows in digitate spikes. All florets perfect. Lower glumes lanceolate, 1-nerved, upper 3-7-nerved; lower lemmas oblong-lanceolate, 1-nerved; paleas oblong, keeled, obtuse. Grains oblong, rugose.

Common weed in cultivated fields of the plains. Fl. & Fr.: Jul.-Dec.

*Eragrostis* Wolf.

1. Rachilla persistent : *E. tenuifolia*
2. Grains grooved *E. tenuifolia*
2. Grains not grooved :
  3. Grains globose *E. nutans*
  3. Grains oblong or ellipsoidal :
    4. Spikelets closely fascicled :
      5. Annuals *E. gangetica*
      5. Perennials *E. atrovirens*
    4. Spikelets not fascicled :
      6. Lemmas mucronate *E. unioloides*
      6. Lemmas not mucronate *E. cumingii*
  1. Rachilla not persistent *E. tenella*

*Eragrostis atrovirens* (Desf.) Trin. ex Steud. Nom. Bot. ed. 1: 562. 1840; Bor 503. *Poa atrovirens* Desf. Fl. Atlant. 1: 73, t. 14, 1798.

Perennials; culms 10-20 cm tall. Leaves 5-18 cm long, narrow linear; sheaths striate; ligules membranous or absent. Spikelets grey, ovoid in racemose panicles. Lower glumes lanceolate, 1-nerved; upper boat-shaped, acute; lemma 3-nerved, scabrid along mid nerve; paleas equalling lemma, ovate, scabrid. Grains brown, cylindrical.

Fairly common in exposed areas at low elevations. Grains edible. Fl. & Fr.: Nov.-Mar.

*Eragrostis cumingii* Steud. Syn. Pl. Glum. 1: 266. 1854; Bor 507; Hsu in Taiwania 16: 259. 1971 & Fl. Taiwan 5: 481. 1978; Mohanan & Sreek. in J. Econ. Tax. Bot. 3: 447. 1982.

Annuals; culms 10-20 cm tall. Leaves 3-8 cm long, sparsely villous on the upper surface. Linear-lanceolate; sheaths striate, bearded at the mouth with silky hairs; ligules a ring of short silky hairs. Spikelets oblong-lanceolate, 10-20-flowered, greenish with purple tinge in effuse panicles. Lower glumes ovate-lanceolate, 1-nerved; upper glumes similar; lemmas broadly ovate, acute, 3-nerved; paleas oblanceolate, obtuse, 2-keeled, 2-nerved, ciliate along keels, persistent. Grains ovate or orbicular.

Rare in sand strands of Veli. Fl. & Fr.: Jul.-Feb.

Note: A new record for India.

*Eragrostis gangetica* (Roxb.) Steud. Syn. Pl. Glum. 1: 266. 1854; Fisch. 1264; Bor 508. *Poa gangetica* Roxb. Fl. Ind. 1: 341. 1820. *Eragrostis stenophylla* Hochst. ex Miq. Verh. Kon. Ned. Inst. Wetensch. 3, 4: 39. 1851 p.p.; FBI 7: 318; Rao 445.

Annuals; culms 50-75 cm tall. Leaves 2.5-25 x 0.2-0.7 cm, glabrous, narrow-linear, acuminate; sheaths compressed. Spikelets linear-oblong, 8-24-flowered, fascicled in oblong or pyramidal panicles. Lower glumes linear, 1-nerved; upper ovate-oblong, 1-nerved; lemmas ovate, 2-nerved; paleas subequal, persistent, 2-keeled. Grains ellipsoid.

Frequent throughout moist deciduous forests along streams and canals. Fl. & Fr.: Jul.-Mar.

*Eragrostis nutans* (Retz.) Nees ex Steud. Nom. Bot. ed. 2, 563. 1840; Fisch. 1264; Bor 511. *Poa nutans* Retz. Obs. Bot. 4: 19. 1786. *Eragrostis stenophylla* sensu Stapf in Hook.f. Fl. Brit. India 7: 318. 1896, non Hochst. 1851.

Annuals or perennials, culms 30-50 cm tall, tufted. Leaves 5-13 cm long, linear-oblong; sheaths silky hairy at mouth; ligules fringed. Spikelets blue to grey, 6-10-flowered in effuse panicles. Glumes oblong; lemmas ovate-oblong, subacute with smooth keels; paleas linear-oblong, caducous; keels scabrid. Grains reddish-brown, globose or ellipsoid, smooth.

Occasional in moist deciduous forests. Fl. & Fr.: Nov.-Feb.

*Eragrostis tenella* (L.) P. Beauv. ex Roem. & Schult. Syst. 2: 576. 1817; Rao 445; 513; Fosberg in Phytologia 15: 501. 1968. *Poa tenella* L. Sp. Pl. 69. 1753. *Eragrostis plumosa* Link. Hort. Berol. 1: 192. 1827; Fisch. 1264. *E. tenella* var. *plumosa* (Link) Stapf in Hook.f. Fl. Brit. India 7: 315. 1896.

Annuals; culms 10-40 cm tall. Leaves 5-28 cm long, linear, flat; ligule ciliate, sheaths long hairy inside. Spikelets 5-9-flowered, oblong in open contracted panicles. Glumes ovate-oblong, obtuse or slightly acute, 1-nerved; lemmas oblong, obtuse or truncate; paleas similar to lemmas, ciliate along the keels. Grains ovoid.

Occasional in wet areas of lower ghats. Fl. & Fr.: Jul.-Feb.

*Eragrostis tenuifolia* (A. Rich.) Hochst. ex Steud. Syn. Pl. Glum. 1: 268. 1854; FBI 7: 322; Rao 445; Fisch. 1265; Bor 514. *Poa tenuifolia* A. Rich. Tent. Fl. Abyss. 2: 245. 1851.

Perennials; culms 10-70 cm tall. Leaves 5-28 cm long, glabrous, convolute. Spikelets olive-green, linear, 9-13 in lax, flexuous panicles. Lower glumes oblong, 1-nerved, obtuse or truncate at apex; upper glumes oblong-lanceolate, acute at apex; lemmas ovate-elliptic, 3-nerved, acute to mucronate at apex; paleas persistent. Grains ellipsoid, compressed.

Occasional in rocky slopes near water courses in upper ghats. Fl. & Fr.: Jul.-Feb.

*Eragrostis unioloides* (Retz.) Nees ex Steud. Syn. Pl. Glum. 1: 264. 1854; Fisch. 1264; Bor 515. *Poa unioloides* Retz. Obs. Bot. 5: 19. 1788. *Eragrostis amabilis* sensu Stapf in Hook.f. Fl. Brit. India 7: 317. 1896, non L. 1753; Rao 445.

Annuals; culms 10-50 cm tall. Leaves 2.5-17 cm long, ovate-lanceolate; ligules a rim of hairs. Spikelets pale-purple, ovate to ovate-lanceolate, 10-30 flowered in effuse panicles. Glumes oblong, pale-purple, 1-nerved; lemmas membranous, ovate-elliptic, reddish-purple, 2-nerved; paleas hyaline. Grains ellipsoid, laterally compressed.

Abundant in wet situation throughout the District. Fl. & Fr.: Throughout the year.

**Eulalia Kunth**

**Eulalia trispicata** (Schult.) Henr. in Blumea 3: 453, 1940; Bor 157. *Andropogon tripsicatus* Schult. Syst. Veg. 2: Mant. 452. 1824. *Eulalia tristachya* O. Kuntze, Rev. Gen. Pl. 2: 775. 1891; Fisch. 1189. *Pollinia argentea* Trin. in Bull. Acad. Imp. Sci. Saint-Petersbourg 1: 71. 1836; FBI 7: 111.

Perennials. 20-90 cm tall, culms tufted; erect or geniculately ascending. Leaves 15-32 cm long, flat or convolute, glabrous or sparsely hairy; sheaths bearded at mouth; ligules ciliate. Spikelets oblong-lanceolate, hairy, awned, obtuse fascicled in digitate or sub-digitate racemes; lower glumes papery, oblong-lanceolate, densely hairy at base, 2-keeled; upper glumes boat shaped, 1-nerved, ciliate; lemmas linear, hyaline 2-cleft at apex; paleas absent. Grains oblong.

Occasional in moist areas of upper ghats. Fl. & Fr.: Nov.-Jan.

**Garnotia Brongn.**

**Garnotia tenella** (W. Arn. ex Miq.) Janowski in Feddes Report. Spec. Nov. Regni. Veg. 17: 86. 1921; Gould in Kew Bull. 27: 529. 1972. *Berghansia tenella* W. Arn. ex Miq. in Verh. Kon. Ned. Inst. Wetensch. 34. 1851. *Garnotia stricta* auct. non Brong. 1851; Bor 569; FBI 7: 243; Rao 442; Fisch. 1255.

Annuals or perennials; culms 1-1.5 m tall. Leaves 2.5-20 cm long, scabrid, linear-lanceolate, flat or involute, sheaths hirsute, ligules membranous, ciliate. Spikelets scattered in a flaccid panicle. Lower glumes lanceolate, 3-nerved, scabrid; upper glumes similar aristate; lemmas lanceolate, awned; paleas similar to lemma, clasping the grains. Grains terete, 2 mm long.

Occasional in open areas of lower ghats at Ponmudi and Bonecord, Fl. & Fr.: Jul.-Feb.

**Hackelochloa O. Kuntze**

**Hackelochloa granularis** (L.) O. Kuntze, Rev. Gen. Pl. 2: 776. 1891; Fisch. 1218; Bor 159. *Cenchrus granularis* L. Mant. 2: App. 575. 1771. *Manisuris granularis* (L.) L.f. Nov. Gran. Gen. 40. 1779; FBI 7: 159.

Annuals; culms 30-60 cm tall. Leaves 4-15 cm long, linear, flat, hispid, ciliate, cordate at base; ligules and sheath ciliate. Spikelets in spiciform racemes. Sessile spikelets globose.

Lower glumes pitted, tubercled with longitudinal ribs; upper glumes ovate-oblong, 3-nerved; lower lemma empty, ovate, obtuse; palea similar. Pedicelled spikelets oblong-lanceolate, muticous. Lower glumes 3-7-nerved, 2-keeled; one keel winged; upper glumes similar, boat-shaped; lower lemma empty, ovate-lanceolate, 2-nerved upper shorter, 1-nerved; paleas hyaline. Grains suborbicular.

Fairly common throughout the plains and at lower elevations of ghats. Fl. & Fr.: Nov.-Feb.

**Heteropogon Pers.**

*Heteropogon contortus* (L.) P. Beauv. ex Roem. & Schult. Syst. Veg. 2: 836. 1817; Fisch. 1208; Bor 163. *Andropogon contortus* L. Sp. Pl. 1045. 1753; FBI 7: 199; Rao 441.

Annuals; culms 10-100 cm tall. Leaves 5-35 cm long, flat, linear-lanceolate, glabrous or hairy; ligules membranous, ciliate. Spikelets homogamous or heterogamous in racemes, Bisexual spikelets terete, awned. Lower glumes brown, oblong-lanceolate, glabrous or hairy, 7-9-nerved with inflexed margins and obtuse or truncate apex; upper glumes 3-nerved; lower lemmas with a geniculate awn. Pedicelled spikelets linear-lanceolate. Glumes herbaceous, tubercle based hairy, many-nerved, 2-keeled, one keel winged; lemmas ciliate, nerveless. Sessile spikelets similar to pedicelled ones, tubercle based hairy. Grains cylindric.

Fairly common in the plains. Fl. & Fr.: Aug.-Feb.

**Hygroryza Nees**

*Hygroryza aristata* (Retz.) Nees ex Wight & Arn. in Edinburgh New Philos. J. 15: 380. 1833; FBI 7: 95; Rao 437; Fisch. 1277; Bor 597. *Pharus aristatus* Retz. Obs. Bot. 5: 23. 1788.

Aquatic annuals with free-floating fibrous roots; culms 15-35 cm long. Leaves 2.5-7.5 cm long, ovate-oblong, acuminate at apex, cordate at base; ligules truncate; sheaths flat. Spikelets 1-flowered, awned in globose panicles. Glumes reduced; lemmas chartaceous, hispid, 5-nerved; paleas hispid, 3-nerved. Grains lanceolate.

Frequent in stagnant pools in midlands and towards coast. Fl. & Fr.: Jul.-Feb.

**Ichnanthus P. Beauv.**

**Ichnanthus vicinus** (F.M. Bail) Merr. in Enum. Philip. Fl. Pl. 1: 70. 1923; Bor 314. *Panicum vicinum* F.M. Bail. Syn. Queens. Fl. Suppl. 3: 82. 1890. *Ichnanthus pallens* sensu Hook.f. Fl. Brit. India 7: 60. 1896; non Munro 1861.

Perennials; culms 30-60 cm long, creeping or decumbent, pubescent. Leaves 5-12 cm long, scabrous above, appressed hairy beneath, oblong-lanceolate, flat, cordate amplexicaul at base; sheaths pubescent; ligules obscure. Spikelets green, lanceolate, hairy in sub-pyramidal panicles. Lower glumes ovate-oblong, 3-5-nerved, hispid; upper glumes 5-7-nerved, hispid, ciliate along keels; lower lemmas oblong-lanceolate, 5-nerved; paleas oblong, ciliate on keels, 2-nerved; upper lemmas coriaceous smooth; paleas oblong, inflexed along margins. Grains elliptic.

Fairly common in open areas of evergreen forests. Fl. & Fr.: Dec.-Mar.

This grass was earlier reported only from North-East India.

**Imperata Cyr.**

**Imperata cylindrica** (L.) P. Beauv. var. *major* (Nees) C.E. Hubb. ex Hubb. Vaughan, Grass. Maur. 96. 1940; Bor 170. *I. koenigii* var. *major* Nees, Fl. Afr. Aust. 90. 1841. *I. cylindrica* var. *koenigii* Dur. & Schinz, Comp. Fl. 5: 694. 1894; Fisch. 1184. *I. arundinacea* Cyr. Pl. Rar. Neap. 2: 26. 1792; FBI 7: 106. p.p.

Perennials; culms up to 90 cm tall; nodes bearded. Leaves 25-40 cm long, glabrous or sparsely pilose, linear-lanceolate, flat. Spikelets elliptic-lanceolate, silky, awnless in racemose panicles. Lower glumes elliptic-lanceolate, hairy in lower half, 5-7-nerved; lower lemma empty, oblong, ciliate, margins inrolled; paleas hyaline; upper lemmas oblong, nerveless; paleas oblong. Grains oblong.

Abundant in moist deciduous forests. Fl. & Fr.: May-Sept.

**Isachne R. Br.**

1. Culms erect:
2. Glumes ovate-lanceolate *I. walkeri*
2. Glumes suborbicular:

|                        |                    |
|------------------------|--------------------|
| 3. Pedicels glandular  | <i>I. globosa</i>  |
| 3. Pedicels eglandular | <i>I. dispar</i>   |
| 1. Culms prostrate     | <i>I. miliacea</i> |

*Isachne dispar* Trin. Sp. Gram. 1: t. 86. 1820; FBI 7: 26; Fisch. 1244; Bor 580.

Aquatic annuals; stems creeping; flowering shoots 5-15 cm long, erect. Leaves 2.5-6.5 cm long, scaberulous, lanceolate; sheaths glabrous, smooth, ciliate at mouth; ligules ciliate. Spikelets green or purplish obovoid in contracted ovoid panicles. Glumes membranous, faintly many-nerved; lower lemmas ovate-oblong, glabrous; paleas hyaline; upper lemmas coriaceous or chartaceous. Grains obovoid.

Abundant in paddy fields. Fl. & Fr.: Aug.-Dec.

*Isachne globosa* (Thunb.) O. Kuntze, Rev. Gen. Pl. 2: 778. 1891; Bor 580. *Milium globosum* Thunb. Fl. Jab. 49. 1784. *Isachne australis* R. Br. Prodr. 196. 1810; FBI 7: 25. 1896; Rao 434.

Annuals; culms 20-50 cm long, erect or creeping. Leaves 5-10 cm long, glabrous, ciliate along margins, linear-lanceolate; sheaths loose; ligule a tuft of hairs. Spikelets globose, 2-flowered in contracted panicles. Lower glumes green, ovate-obtuse 5-nerved, hairy; upper glumes broader 9-nerved, scabrid; lemmas flat, margins inflexed; paleas similar to lemmas, membranous. Grains pink.

Common in paddy fields. Fl. & Fr.: Sep.-Feb.

*Isachne miliacea* Roth. Nov. Pl. Sp. 58. 1821; FBI 7: 25; Fisch. 1244; Bor 582.

Annuals; culms creeping; erect shoots 20 cm tall. Leaves 2-5 cm long, flat, lanceolate, flaccid, ciliate along margins; sheaths densely ciliate along margins; ligules membranous, ciliate. Spikelets globose in contracted panicles. Glumes orbicular-oblong, 7-nerved, sparsely hairy; lemmas hemispheric; paleas glabrous.

Common in marshy localities of the plains. Fl. & Fr.: Sep.-Feb.

*Isachne walkeri* (Arn. ex Steud.) Wight & Arn. ex Thw. Enum. 361. 1864; Fisch. 1244; Bor 582; FBI 7: 26; Rao 434. *Panicum*

*walkeri* Arn. ex Steud. Syn. Pl. Glum. 1: 97. 1854.

Annuals; culms 30-60 cm tall. Leaves 10-20 cm long, rigid, glabrous above, sparsely hairy beneath; margins and mouth of sheaths hairy. Spikelets oblong, obtuse in lax panicles. Glumes oblong, obtuse, lemma similar, glabrous.

Frequent in slopes of Agastyarkudam. Fl. & Fr.: Throughout the year.

**Ischaemum L.**

- |   |                            |
|---|----------------------------|
| 1. All spikelets awnless                            | <i>I. muticum</i>          |
| 1. Sessile spikelets awned:                         |                            |
| 2. Upper lemmas of both spikelets 2-lobed:          |                            |
| 3. Culms creeping at base:                          |                            |
| 4. Lower glumes obovate-lanceolate                  | <i>I. Indicum</i>          |
| 4. Lower glumes ovate-lanceolate                    | <i>I. agastyamalayanum</i> |
| 3. Culms not creeping at base:                      |                            |
| 5. Lower leaves petiolate                           | <i>I. zeylanicum</i>       |
| 5. Lower leaves sessile                             | <i>I. timorense</i>        |
| 2. Upper lemmas of pedicelled spikelets entire:     |                            |
| 6. Upper lemma of pedicelled spikelets aristate     | <i>I. semisagittatum</i>   |
| 6. Upper lemma of pedicelled spikelets not aristate | <i>I. rangacharianum</i>   |

**Ischaemum agastyamalayanum** Sreekumar et al. in J. Bombay Nat. Hist. Soc. 84(3): 643. 1987.

Perennials; culms 20-80 cm long, stoloniferous. Leaves elliptic-lanceolate, 3-20 x 0.5-1 cm, acuminate at apex, rounded or cordate at base. Spikelets sessile in densely hairy racemes 3-5 cm long.

Rare in grassy slopes at Agastyarkudum. Fl. & Fr.: Oct.-Dec.

**Ischaemum indicum** (Houtt.) Merr. in J. Arnold Arbor. 19: 320. 1938; Bor 180. *Phleum indicum* Houtt. Nat. Hist. II, 13: 198, t. 90, f. 2. 1782. *Ischaemum ciliare* Retz. Obs. Bot. 6: 36. 1791; FBI 7: 133. *I. aristatum* auct. non L. 1753; Fisch. 1193; Rao 439.

Annuals; culms 15-75 cm long, prostrate or decumbent, rooting

at nodes; nodes glabrous or pilose. Leaves 2-4 cm long, hirsute, flat, linear-lanceolate; sheaths spathaceous, pilose; ligule membranous. Racemes 2-3, appressed one to another. Sessile spikelets oblong-lanceolate, reddish. Lower glumes obovate-lanceolate, 5-7-nerved, keels winged; upper glumes papery, boat-shaped, 5-nerved, aristate; lemmas 3-nerved; paleas 2-keeled; upper lemmas 2-cleft with a median awn. Pedicelled spikelets oblong-lanceolate; glumes similar to those of sessile spikelets. Grains oblong.

Frequent in moist deciduous and evergreen forests. Fl. & Fr.: Oct.-Apr.

*Ischaemum muticum* L. Sp. Pl. 1049. 1753; FBI 7: 132; Rao 439; Fisch. 1194; Bor 183.

Perennials; culms branched, creeping; root stock stout. Leaves 2.5-15 cm long, lanceolate, rigid, flat, cordate at base; ligules obscure. Spikes 2. Sessile spikelets glabrous, smooth. Lower glumes oblong, 2-toothed, keels narrowly winged, ciliate above, many nerved, incurved. Upper glumes larger, 5-nerved, glabrous; lower lemmas oblong, obtuse, glabrous; paleas with a hyaline wing; upper lemmas oblong-lanceolate, keels ciliate. Pedicelled spikelets with hairy, inflexed lower glumes.

Common along moist areas of the coast. Fl. & Fr.: Nov.-Jan.

*Ischaemum rangacharianum* Fisch. in Bull. Misc. Inform. 352. 1933 & in Fl. Pres. Madras 1722. 1934. *I. aristatum* sensu Rangachariyar & Tadulingam, Handb. South Ind. Grass. 151. 1921, non L. 1753.

Perennials; culms 30-120 cm tall. Leaves 10-20 cm, glabrous or sparsely hairy above, glaucous beneath; sheaths auricled; ligules membranous. Spikelets glabrous or hairy in racemes. Lower glumes of sessile spikelets linear-oblong, with marginal nodules, 2-toothed at apex; upper glumes lanceolate, 1-nerved, keeled; lower lemmas ovate-lanceolate, membranous, 1-nerved; paleas oblong; upper lemmas 2-cleft; paleas linear-oblong. Pedicelled spikelets densely hairy at base. Lower glumes, orbicular, winged.

Frequent in moist deciduous forests at lower elevations. Fl. & Fr.: Nov.-Jan.

*Ischaemum semisagittatum* Roxb. Fl. Ind. 1: 320. 1832; FBI 7: 130; Rao 439; Fisch. 1194; Bor 185.

Annuals; culms 30-60 cm long, slender prostrate; nodes glabrous or hairy. Leaves 6-12 cm long, glabrous or sparsely

hairy, oblong or linear-lanceolate; ligules ciliate. Spikes 2, villous or glabrescent. Lower glumes lanceolate, acuminate; lower lemmas lanceolate, 1-nerved, paleate; upper lemmas ciliate, 3-nerved, awned; paleas longer than lemmas. Pedicelled spikelets short; lower glumes 7-9-nerved, winged above; upper glumes 2-cleft.

Fairly common in the coastal zone. Fl. & Fr.: Nov.-Jan.

*Ischaemum timorense* Kunth, Rev. Gram. 1: 369, t. 98. 1830; FBI 7: 136; Fisch. 1194; Bor 185.

Perennials; culms 50-75 cm tall; rooting at lower nodas; shortly pubescent. Leaves 2.5-7 cm long, scaberulous, linear-lanceolate, sheaths hairy on the throat; ligules rounded, truncate. Spikelets brown in spiciform racemes. Sessile spikelets ovate-lanceolate, Lower glumes ovate, bicuspidate, margins involute, 5-9-nerved; upper glumes membranous, lanceolate, aristate, 2-toothed, ciliate, 3-5-nerved; lower lemmas lanceolate, 1-nerved; paleas linear-oblong, 2-nerved, margins infolded; upper lemmas ovate-oblong, 2-lobed, ciliate awned. Pedicelled spikelets small, elliptic-lanceolate.

Fairly common from sea level to upper ghats Fl. & Fr.: Oct.-Jan.

*Ischaemum zeylanicum* Bor, Grass, Burma Ceylon India Pakistan 1: 186. 1960. *I. timorense* var. *zeylanicum* Hack. in DC. Monogr. Phan. 6: 230. 1889.

Annuals or perennials; culms 15-60 cm long; nodes glabrous or sparsely bearded. Leaves 2.5-10 cm long, glabrous or sparsely hairy, distinctly petiolate, linear-lanceolate; sheaths hairy at mouth; ligules obscure. Spikelets greenish, sessile and pedicelled in sparingly villous spikes. Lower glumes longer, aristulate, dorsally rounded, 3-5-nerved, 2-toothed at tip; lemmas lanceolate; paleas linear-oblong.

Occasional in moist areas of midlands. Fl. & Fr.: Oct.-Jan.

#### *Lophatherum* Brongn.

*Lophatherum gracile* Brongn. Duper's Voy. Coq. Bot. 50, t. 8. 1831; FBI 7: 331; Fisch. 1278; Bor 460.

Perennials; culms 50-90 cm long, tufted, geniculate at base;

roots fleshy. Leaves 8-20 cm long, glabrous or hairy, lanceolate, flat; sheaths striate, keeled; ligules obscure. Spikelets green in contracted panicles. Lower glumes 5-nerved, minutely hairy at base, pilose along margins; upper glumes similar, 5-7-nerved; glabrous; lemmas emarginate, 7-9-nerved, awned; paleas glabrous, 2-keeled; keels winged. Grains oblong. Lemmas of sterile spikelets with recurved awns.

Frequent in shady moist areas of evergreen forests. Fl. & Fr.: Oct.-Jan.

**Oplismenus P. Beauv.**

|                         |                      |
|-------------------------|----------------------|
| Panicles ca. 30 cm long | <i>O. compositus</i> |
| Panicles ca. 12 cm long | <i>O. burmannii</i>  |

**Oplismenus burmannii** (Retz.) P. Beauv. Ess. Agrost. 54: 168-169. 1812; FBI 7: 68; Fisch. 1231; Bor 317. *Panicum burmannii* Retz. Obs. Bot. 3: 10. 1784.

Annuals; culms 30-60 cm long, creeping; nodes pubescent. Leaves 1.5-5 cm long, elliptic-lanceolate, flat, pubescent; ligules hairy. Spikelets lanceolate, solitary or fascicled in panicles. Lower glumes oblong, 5-nerved, pubescent, awned; upper glumes similar; lower lemmas empty, lanceolate, 7-9-nerved, 2-keeled, keels pubescent, awned; paleas absent; upper lemma chartaceous, oblong, 5-7-nerved; paleas 2-keeled. Grains elliptic-oblong.

Rare in the shady forest floor in evergreen forests. Fl. & Fr.: Oct.-Dec.

**Oplismenus compositus** (L.) P. Beauv. Ess. Agrost. 54: 168. 1812; FBI 7: 66; Rao 436; Fisch. 1232; Bor 317. *Panicum compositum* L. Sp. Pl. 57. 1753.

Perennials; culms 75-100 cm long, decumbent, rooting at lower nodes. Leaves 2-12 cm long, hairy beneath, lanceolate; sheaths striate, ciliate; ligule short, ciliate, truncate. Spikelets purple, lanceolate in racemose panicles. Lower glumes lanceolate-oblong, 5-nerved, long awned; upper glumes similar, 2-9-nerved; lemmas and paleas subcoriaceous. Grains dorsally compressed, oblong.

Frequent in shady areas in evergreen forests. Fl. & Fr.: Jul.-Feb.

*Oryza* L.

*Oryza meyeriana* (Zoll. & Mor. ex Steud.) Baill. subsp. *granulata* (Nees & Arn. ex Watt.) Tateoka in Bot. Mag. Tokyo 75: 460. 1962. *Oryza granulata* Nees & Arn. ex watt. Diet. Econ. Prod. India 5: 500. 1891; FBI 7: 93; Rao 437; Bor 604.

Perennials; culms 60-100 cm long. Leaves 7-15 cm long, scabrid, flat, narrowly lanceolate; sheaths papery, inflated below, hairy on the collar; ligules narrow, membranous. Spikelets green, awnless in simple racemes. Glumes represented by expanded pedicels; lower lemmas empty, minute or absent; upper lemmas granulate, glabrous, cymbiform, awnless, truncate at apex; paleas similar.

Rare in low evergreen forests near streams. Fl. & Fr.: Jul.-Dec.

*Panicum* L.

- |                                   |                       |
|-----------------------------------|-----------------------|
| 1. Culms stoloniferous, nodular   | <i>P. repens</i>      |
| 1. Culms not as above :           |                       |
| 2. Leaves amplexicaul at base     | <i>P. brevifolium</i> |
| 2. Leaves not amplexicaul :       |                       |
| 3. Leaves tubercled hairy         | <i>P. trypheron</i>   |
| 3. Leaves not as above :          |                       |
| 4. Leaves spinulose along margins | <i>P. maximum</i>     |
| 4. Leaves not spinulose :         |                       |
| 5. Culms less than 7.5 cm long    | <i>P. paludosum</i>   |
| 5. Culms more than 7.5 cm long :  |                       |
| 6. Spikelets ca. 2.5 mm long      | <i>P. notatum</i>     |
| 6. Spikelets ca. 4 mm long        | <i>P. gardneri</i>    |

*Panicum brevifolium* L. Sp. P. 59. 1753; Fisch. 1235; Bor 324. *P. ovalifolium* Poir. in Lam. Encycl. 4: 279. 1816; FBI 7: 44.

Annuals; culms 20-50 cm long, decumbent, rooting at lower nodes. Leaves 2.5-9 cm long, ovate-elliptic, acute at apex, cordate, amplexicaul at base; sheaths with long hairs on throat; ligule membranous. Spikelets gibbous, lanceolate or elliptic-oblong, glabrous or hairy in panicles. Lower glumes 3-nerved, hairy, acute; upper glumes boat-shaped, 5-nerved, acute, hairy; lemmas 5-nerved; paleas hyaline. Grains narrowly elliptic.

Common in open places of midlands and at low elevations of ghats. Fl. & Fr.: Almost throughout the year.

*Panicum gardneri* Thw. Enum. 359, 1864; Fisch. 1235; Bor 326.  
*Isachne gardneri* (Thw.) Benth. in Benth. & Hook.f. Gen. Pl. 3: 1100, 1883; FBI 7: 26; Rao 434.

Annuals; culms 30-90 cm tall. Leaves 5-7.5 cm long, glabrous above, sparsely hairy beneath, cordate at base; sheaths ciliate at mouth, Spikelets oblong, distant in spreading panicles. Lower glumes 3-nerved, ovate, glabrous or sparsely setose; upper glumes ovate, oblong, 5-nerved; lemmas elliptic-oblong, smooth.

Occasional in wet areas of deciduous forests. Fl. & Fr.: Jul.-Feb.

*Note*: Closely resembling *P. incisum* Munro ex Clarke, but the glumes and lower lemmas are with silvery hyaline margins.

*Panicum maximum* Jacq. Collect. Bot. 1: 76, 1786; FBI 7: 49; Rao 435; Fisch. 1235; Bor 327.

Robust perennials; rhizomes short; culms 1-2 m tall, glabrous or hairy. Leaves 12-50 cm long, glabrous, scabrid alongmargins linear, acuminate at apex, rounded at base; ligules hairy. Spikelets green, tinged purple, ellipsoid or suborbicular in open compound panicles. Glumes 5-nerved, acute at apex; lemmas transversely rugose, 3-nerved. Grains narrowly elliptic.

Commonly cultivated for fodder. Now naturalized in some areas. Fl. & Fr.: Jul.-Dec.

*Panicum notatum* Retz. Obs. Bot. 4: 18, 1786; Bor 701. *P. montanum* Roxb. Fl. Ind. 1: 315, 1820; FBI 7: 63; Rao 436; Fisch. 1235; Bor 324.

Perennials, culms 1-1.2 m tall, woody at base. Leaves 9-20 cm long, bulbous based hairy, linear-lanceolate, cordate at base; sheaths and ligules hairy. Spikelets ovoid in narrow panicles. Lower glumes ovate-acute, 5-nerved, ciliate along margins; upper glumes similar, glabrous; lemmas 5-nerved, epaleate.

Occasional in plains and at low elevations of ghats. Fl. & Fr.: Jul.-Dec.

*Panicum paludosum* Roxb. Fl. Ind. 1: 310, 1820; Fisch. 1235; Bor 329. *P. proliferum* auct. non Lam. 1794; FBI 7: 50; Rao 436.

Perennials; culms 30-60 cm tall, spongy. Leaves 2.5-20 cm long, flat, scabrid, linear-lanceolate; ligules annular, hairy. Spikelets pale-yellow, purple tinged, elliptic-lanceolate in contracted panicles. Lower glumes ovate to orbicular; upper glumes elliptic-lanceolate, 11-nerved; lower lemmas similar to upper glume, empty; paleas 2-keeled; upper lemmas pale yellow, elliptic-oblong, 5-7-nerved. Grains elliptic-oblong.

Common in low wetlands and rice fields. Fl. & Fr.: Nov.-Mar.

**Panicum repens** L. Sp. Pl. ed. 2. 87. 1762; FBI 7: 49; Rao 436; Fisch. 1235; Bor 335;

Perennials; rhizomes creeping; culms 40-70 cm long. Leaves 6.5-30 cm long, glabrous, rigid, flat or inrolled, linear-lanceolate; ligules annular, hairy. Spikelets pale, elliptic-lanceolate; in lax panicles. Lower glumes ovate-orbicular, 1-5-nerved; upper glumes elliptic-lanceolate, 5-7-nerved; lower lemmas elliptic-oblong, 7-nerved. Grains oblong.

Abundant in wetlands in upper ghats. Fl. & Fr.: Aug.-Feb.

**Panicum trypheron** Schult. Syst. Veg. 2: 244. 1824; FBI 7: 47; Fisch. 1235; Bor 331.

Annuals; culms 15-90 cm long, erect or geniculate; Leaves 3-30 cm long, hirsute, narrow, linear, flat; sheaths glabrous or hairy; ligules fimbriate. Spikelets green, ovoid in effuse panicles. Lower glumes ovate, cuspidate, 5-nerved; upper glumes ovate, recurved, 7-9-nerved; lower lemmas concave, broadly ovate, 7-nerved; paleas white, linear-oblong; upper lemmas coriaceous, oblong, obtuse, white to greenish 3-5-nerved, inflexed; paleas similar.

Fairly common in open areas of plains and lower ghats. Fl. & Fr.: Aug.-Dec.

#### **Paspalidium** Stapf

**Paspalidium flavidum** (Retz.) A. Camus in Lecompte, Fl. Gen. Ind.-Ch. 7: 419. 1922; Fisch. 1229; Bor 333. *Panicum flavidum* Retz. Obs. Bot. 4: 15. 1786; FBI 7: 28; Rao 434.

Annuals; culms 15-50 cm, creeping, spongy. Leaves 7-19 cm long, flat, linear-lanceolate; ligule annular, hairy. Spikelets pale.

green, solitary, ovate-oblong in loose racemes. Lower glumes ovate-oblong, 2-3-nerved; upper glumes ovate, 7-nerved; lower lemmas empty, ovate-oblong, 5-nerved; paleas oblong, hyaline; lemmas white or brownish, ovate, mucronate; paleas similar.

Common weed of cultivated lands in the plains. Fl. & Fr.: Aug.-Dec.

**Paspalum L.**

1. Glumes hairy:

- 2. Racemes ca. 6 cm long *P. distichum*
- 2. Racemes ca. 9 cm long *P. conjugatum*

1. Glumes glabrous:

- 3. Spikelets orbicular *P. scorbiculatum*
- 3. Spikelets ovate-elliptic *P. vaginatum*

**Paspalum conjugatum** Berg. Act. Helv. Phys.-Math. 7: 129. t. 8. 1772; FBI 7: 11; Fisch. 1228; Bor 336.

Annuals or perennials; culms 20-60 cm long, creeping, stoloniferous. Leaves 15-20 cm long, scattered hairy beneath, ciliate along margins, lanceolate, flat; sheaths striate, ciliate; ligule a pubescent ridge. Spikelets 2-seriate, orbicular-ovate, apiculate, pubescent. Lower glumes absent; upper glumes convex, ovate-orbicular white-hairy; lower lemmas similar to upper glumes, flat; upper lemmas ovate, greenish-white, glabrous; paleas oblong with 2-basal flaps. Grains elliptic.

Frequent in exposed areas of plains and lower ghats. A common weed in tea plantations. Fl. & Fr.: Jul.-Jan.

**Paspalum distichum** L. Syst. Nat. ed. 10, 2: 855. 1759; Rao 434; Bor 336; Brummitt in Taxon 32: 281. 1983, *P. paspaloides* (Michx.) Scrib. in Mem. Torr. Bot. Club, 5: 29. 1894; Bor, Appendix II, 1970. Jain & Das in Ind. Forester 99: 575. 1973, *Digitaria paspaloides* Michx. Fl. Bor. Am, 1: 46. 1803.

Perennials with creeping stolons; culms 20-40 cm tall. Leaves 3.5-7.5 cm long, glabrous, flat, linear-lanceolate; sheaths ciliate. Spikelets solitary, elliptic, biserrate in sessile divaricate racemes. Lower glumes absent; upper glumes elliptic, pubescent on back, 5-nerved; lower lemmas similar to upper glumes, epaleate; upper lemmas elliptic-

oblong, 3-nerved; paleas similar, margins inflexed with auricles near base. Grains elliptic-oblong.

Fairly common along water courses near plantations. Fl. & Fr.: Jul.-Jan.

*Paspalum scorbiculatum* L. Mant. 1: 29. 1767; FBI 7: 10; Rao 434; Fisch. 1227; Bor 340.

Annuals; culms 15-20 cm tall. Leaves 8-18 cm long, glabrous, flat, keeled at base; ligule membranous. Spikelets solitary, ovate-orbicular, biseriate in erect, sessile racemes. Lower glumes absent; upper glumes ovate-orbicular, 5-7-nerved; lower lemmas empty, similar to the upper glumes; upper lemmas brown, elliptic, faintly nerved; paleas similar with auricles at base. Grains elliptic.

Common weed of cultivated lands. Fl. & Fr.: Oct.-Feb.

*Paspalum vaginatum* Sw. Prodr. Veg. Ind. Occ. 21. 1788; Fisch. 1227; Bor 341; Brummitt in Taxon 32: 281. 1983. *P. distichum* sensu Bor, Grass. Burma Ceylon India Pakistan Appendix II, 1970 (repr. ed.), non L. 1759.

Aquatic perennials; rhizomes stoloniferous; culms 25-30 cm long, creeping, rooting at nodes. Leaves 2-7 cm long, glabrous, flat or involute; ligule membranous, truncate. Spikelets oblong-lanceolate, solitary or 2-nate in one-sided spikes. Lower glumes absent; upper, ovate-acute, 5-nerved; lower lemma elliptic; upper boat-shaped, hairy at tip. Grains elliptic.

Fairly common along the coast. Fl. & Fr.: Apr.-Aug.

#### *Pennisetum* L. Rich.

|                             |                        |
|-----------------------------|------------------------|
| Spikelets sessile           | <i>P. polystachyon</i> |
| Spikelets mostly pedicelled | <i>P. pedicellatum</i> |

*Pennisetum pedicellatum* Trin. in Mem. Acad. Saint Petersbuorg ser. 6. 3: 184. 1834; FBI 7: 86; Fisch. 1241; Bor 346.

Annuals; culms 50-60 cm tall. Leaves 5-20 cm long, tubercle based hairy towards base, flat, linear-lanceolate; sheaths glabrous or pilose; ligule membranous, fimbriate. Spikelets purplish, solitary or in 2-3 together, oblong-lanceolate in spirally arranged involucres; bristles villous. Lower glumes lanceolate, silky, 1-nerved; upper glumes oblong-lanceolate, silky, 5-nerved, cuspidate; lower lemma

oblong, pubescent, 5-nerved, 3-toothed; tooth ciliolate; paleas lacerate at apex; upper lemmas elliptic, 5-nerved, ciliolate; paleas similar, 2-keeled. Grains oblong-lanceolate.

Frequent along water courses near plantations. Fl. & Fr.: Oct.-Feb.

**Pennisetum polystachyon** (L.) Schult. Syst. Veg. Mant. 2: 146. 1824; Fisch. 1241; Bor 346; *Panicum polystachyon* L. Syst. Nat. ed. 10. 2: 870. 1759.

Perennials; culms 1-2 m tall. Leaves 12-22 cm long, pilose at base, narrowly linear, scabrid along margin; ligules hairy. Spikelets solitary, linear-lanceolate, inside plumose involucre. Lower glumes minute, nerveless; upper glumes 1-3-nerved; lower lemmas 9-11-nerved; upper lemmas 5-nerved. Grains lanceolate.

Abundant in deciduous forests. Fl. & Fr.: Jul.-Dec.

#### Perotis Ait.

**Perotis indica** (L.) O. Kuntze, Rev. Gen. Pl. 2: 787. 1891; Fisch. 1256; Bor 611. *Anthoxanthum indicum* L. Sp. Pl. 28. 1753. *Perotis latifolia* Ait. Hort. Kew 1: 85. 1789; FBI 7: 98; Rao 438.

Tufted annuals; culms 20-40 cm tall. Leaves 2.5-12 cm long, flat, hispid, linear-lanceolate; ligule a rim of hairs. Spikelets greyish-green, linear-lanceolate; in effuse panicles. Lower glumes oblong-lanceolate, 1-nerved; upper broader; lemmas similar to upper glumes, ovate; paleas oblong, 2 nerved, 2-keeled. Grains discoid.

Common weed in cultivated fields. Fl. & Fr.: Jul.-Feb.

#### Phragmites Trin.

**Phragmites karka** (Retz.) Trin. ex Steud. Nom. Bot. ed. 2, 2: 324. 1841; FBI 7: 340; Rao 445; Fisch. 1251; Bor 416. *Arundo karka* Retz. Obs. Bot. 4: 21. 1786.

Robust perennials; rhizomes woody, creeping; culms 3-4 m tall. Leaves 40-50 x 1-3 cm, glabrous, flat, lanceolate. Spikelets linear, 3-5-flowered in decompound, lax panicles. Lower glumes oblong-lanceolate, 1-nerved; upper glumes similar, 3-nerved; lemmas oblong-lanceolate, 3-nerved, caudate-acuminata; paleas oblong, 2-keeled. Grains cylindric.

Abundant along backwaters. Fl. & Fr.: Oct.-Feb.

**Pogonatherum P. Beauv.**

|                    |                    |
|--------------------|--------------------|
| Lower floret male  | <i>P. paniceum</i> |
| Lower floret empty | <i>P. crinitum</i> |

**Pogonatherum crinitum** (Thunb.) Kunth, Enum. 1: 478. 1833; Bor 200. *Andropogon crinitus* Thunb. Fl. Jap. 40. t. 7. 1784.

Annuals; culms 10-40 cm tall, slender. Spikelets sessile, 1-2-flowered, 2-nate, truncate in terminal racemes. Upper glumes longer than the lower, glabrous or sparsely ciliolate; lemmas toothed, awned; paleas similar to lemmas. Lower florets absent.

Occasional in shady localities of ghats up to 1500 m. Fl. & Fr.: Jan.-May.

**Pogonatherum paniceum** (Lam.) Hack. in Allg. Bot. Syst. 12: 178. 1906; Fisch. 118; Bor 202. *Saccharum paniceum* Lam. Encycl. 1: 595. 1785. *Panicum saccharoidum* P. Beauv. Ess. Agrost. 176-177. 1812; FBI 7: 141; Rao 440.

Perennials; culms 10-25 cm tall, tufted. Leaves 2.5-4 cm long, pale green, tubercular-scabrid, linear; ligules fimbriate. Sessile spikelets linear-oblong, 2-flowered in terminal racemes. Lower glumes membranous, convex at back, truncate at apex, 2-3-nerved; upper glumes equalling spikelets, obtuse at apex, hispid, awned; lemmas narrow, nerveless, toothed. Grains linear.

Occasional in open areas at low elevations of ghats. Fl. & Fr.: Dec.-Mar.

**Pseudanthistiria (Hack.) Hook.f.**

**Pseudanthistiria umbellata** (Hack.) Hook.f. Fl. Brit. India 7: 220. 1896; Fisch. 1212; Bor 206. *Andropogon umbellatus* Hack. in DC. Monogr. Phan. 6: 401. 1889; Rao 442.

Annuals; culms prostrate, creeping and rooting at nodes. Leaves 2.5-5 cm long, glabrous, linear-oblong, acute, rounded at base. Spikelets in axillary fascicles; outer spathes ciliate; inner longer, glabrous. Sessile spikelets scaberulous. Lower glumes dorsally concaved, awned; awns basally lanceolate. Pedicelled spikelets glabrous, awned.

Occasional in plains and at low elevations of ghats. Fl. & Fr.: Nov.-Jan.

**Rhynchelytrum Nees**

**Rhynchelytrum repens** (Willd.) Hubb. in Bull. Misc. Inform. 110, 1934; Bor 335; Cope in Nair & Ali, Fl. Pakistan 176-177, 1982. **Saccharum repens** Willd. Sp. Pl. 1: 322, 1798. **Rhynchelytrum villosum** (Parl.) Chiov. in Ann. Ist. Bot. Roma 8: 310, 1908; Bor 355. **Monachyson villosum** Parl. in Hook. Niger Fl. 191, 1849. **Tricholaena tuberculosa** Hack. ex Hook.f. in Fl. Brit. India 7: 65, 1896. **Tricholaena wightii** Arn. et Nees in Linnaea 16: 218, 1842 *nom. nud.*; FBI 7: 65.

Annuals or perennials; culms 15-50 cm tall; nodes pubescent. Leaves 2.5-7 cm long, glabrous or pubescent, flat, linear. Spikelets ovate-oblong, solitary or paired in silvery-white or purple, pyramidal panicles. Lower glumes oblong, densely villous at base, 1-nerved, emarginate; upper glumes ovate-oblong, 5-nerved, silky villous, 2-toothed, awned from the sinus; lower lemmas empty, emarginate, aristate; upper lemmas 3-nerved; paleas 2-keeled. Grains brownish, oblong-ellipsoid.

Common along roadsides in tea plantations. Fl. & Fr.: Aug.-Feb.

**Note :** A polymorphic species with considerable variation in the size, indumentum and colouring of the spikelets. As these variations are overlapping, Cope *f.c.* merged *R. repens* and *R. villosum* into a single species.

**Rottboellia L.f. *nom. cons.***

**Rottboellia cochinchinensis** (Lour.) Clayton in Kew Bull. 36: 817, 1981. **Stegosia cochinchinensis** Lour. Fl. Cochinch. 1: 51, 1790. **Rottboellia exaltata** L.f. Nov. Gram. Gen. 40, t. 1, 1781, non (L) L.f. 1779; FBI 7: 156; Fisch 1219; Bor 206.

Annuals; culms 50-90 cm tall, grooved. Leaves 20-35 cm long, hispid or glabrescent, flat, linear; ligules oblong, truncate. Sessile spikelets pale, linear-lanceolate; lower glumes oblong-lanceolate, 11-13-nerved, 2-keeled; upper glumes boat-shaped, 11-nerved; lower lemmas oblong-lanceolate, 3-nerved, 2-keeled; margins inflexed; paleas 2-keeled; upper lemmas ovate-lanceolate; margins inrolled. Grains ellipsoid. Pedicelled spikelets oblong-lanceolate. Lower glumes elliptic-lanceolate, 7-9-nerved, 2-keeled; keels winged; upper glumes similar 3-nerved; lower lemmas linear-lanceolate, 3-nerved;

paleas similar; upper lemmas nerveless, epaleate.

Frequent in cultivated lands in plains and lower ghats. Fl. & Fr.: Aug.-Nov.

**Sacciolepis Nash**

- |   |                       |
|---|-----------------------|
| 1. Spikelets in interrupted, spiciform panicles | <i>S. interrupta</i>  |
| 1. Spikelets continuous :                       |                       |
| 2. Spikelets curved, hispid                     | <i>S. indica</i>      |
| 2. Spikelets not curved, glabrous               | <i>S. myosuroides</i> |

**Sacciolepis indica** (L.) A. Chase in Proc. Biol. Soc. Washington 21: 8, 1908; Fisch. 1238; Bor 357. *Aira indica* L. Sp. Pl. 1753. *Panicum indicum* L. Mant. Pl. 2: 184. 1771, non Mill. 1768; FBI 7: 41; Rao 435.

Annuals; culms 20-40 cm long, slender. Leaves 3-12 cm long, glabrous, flat to involute; sheaths slightly keeled; ligules membranous. Spikelets glabrous or pilose in spiciform panicles. Lower glumes ovate, 3-7-nerved; upper glumes 7-11-nerved; lower lemmas empty; upper lemmas pale-yellow, ovate-acute. Grains ellipsoidal.

Frequent in wet areas throughout midlands and coastal zones. Fl. & Fr.: Jun.-Dec.

**Sacciolepis interrupta** (Willd.) Stapf in Prain, Fl. Trop. Afr. 9: 757. 1920; Fisch. 1238; Bor 358. *Panicum interruptum* Willd. Sp. Pl. 1: 341. 1798; FBI 7: 40.

Perennials; culms 1-1.2 cm tall, spongy. Leaves 10-25 cm long, glabrous, flat, lanceolate. Spikelets green, elliptic-oblong in spiciform panicles. Lower glumes elliptic-oblong, muticous, 5-nerved; upper glumes ovate, 11-nerved; lower lemmas empty, similar to upper glumes; paleas lanceolate, hyaline; upper lemmas ovate-oblong, 7-nerved; paleas similar; margins involute. Grains elliptic.

Frequent in stagnant pools and other similar situations in midlands and ghats. Fl. & Fr.: Aug.-Feb.

**Sacciolepis myosuroides** (R. Br.) A. Camus in Lecomte, Fl. Gen. de 1, Indo-Chine 7: 460. 1922; Fisch. 1238; Bor 358. *Panicum myosuroides* R. Br. Prodr. 189. 1810; FBI 7: 42; Rao 435.

Annuals; culms 15-55 cm long, slender. Leaves 5-9 cm long, glabrous or sparsely pilose, flat, linear. Spikelets pale-green, elliptic or subglobose in dense, cylindric panicles. Lower glumes ovate, 3-nerved; upper glumes elliptic-oblong, succinate at base, 5-9-nerved; lower lemmas empty, ovate-oblong, 9-11-nerved; paleas 2-keeled; upper lemmas white, 5-nerved; margins involute; paleas similar. Grains elliptic-oblong.

Frequent in damp situations throughout the midlands. Fl. & Fr.: Jul.-Feb.

#### **Schizachyrium Nees**

**Schizachyrium exile** (Hochst.) Stapf in Prain, Fl. Trop. Afr. 9: 191, 1971; Fisch. 1214; Bor 216. *Andropogon exilis* Hochst in Flora 27: 241, 1844; FBI 7: 166.

Annuals; culms 30-50 cm tall. Leaves 5-10 cm, glabrous, narrow-linear; sheaths loose, terete, lower ones keeled; upper spathaceous; ligules membranous, rounded. Spikelets enclosed in reddish, lanceolate spathes, 2-nate in spiciform racemes. Sessile spikelets linear-lanceolate, green or turning red. Glumes convolute-lanceolate, white hairy above, scaberulous along keels; lower lemmas nerveless; upper lemmas bifid; column brown, bristle white. Grains linear. Pedicelled spikelets reduced to glume.

Occasional at low elevations of ghats. Fl. & Fr.: Jun.-Feb.

#### **Setaria P. Beauv. *nom. cons.***

- |                                  |                        |
|----------------------------------|------------------------|
| 1. Panicles cylindric, spiciform | <i>S. pumila</i>       |
| 1. Panicles not as above :       |                        |
| 2. Annuals                       | <i>S. barbata</i>      |
| 2. Perennials :                  |                        |
| 3. Bristles ca. 6 mm long        | <i>S. palmifolia</i>   |
| 3. Bristles ca. 15 cm long       | <i>S. paniculifera</i> |

**Setaria barbata** (Lam.) Kunth, Rev. Gram. 1: 47, 1829; Bor 360, *Panicum barbatum* Lam. Tab. Encycl. Meth. Bot. 1: 171 1791. *P. flavescens* sensu Hook.f. Fl. Brit. India 7: 56, 1896, non Sw. 1788.

Annuals; culms 10-20 cm long, creeping or decumbent. Leaves 10-17 cm long, hairy on both surfaces, plicate, linear-

lanceolate; sheaths hairy along margins; ligules obscure. Spikelets green, subsessile on spreading pubescent panicles. Lower glumes orbicular, 3-nerved; upper glumes 5-7-nerved, apiculate. Lower florets male; upper bisexual. Lower lemmas 5-7-nerved, upper ellipsoid, transversely rugose. Grains oblong.

Rare in edges of sholas in upper ghats of Ponmudi. Fl. & Fr.: Aug.-Dec.

*Note:* An addition to the flora of Presidency Madras.

*Setaria palmifolia* (Koen.) Stapf in J. Linn. Soc. Bot. 42: 186. 1915; Fisch. 1239; Bor 363. *Panicum palmaefolium* Koen. in Naturf. 23: 208. 1786.

Perennials; culms 1-1.5 cm long, decumbent. Leaves 10-50 cm long, sparsely hairy, linear-lanceolate, plicate; sheaths hispid; ligule of long hairs. Spikelets ovoid, green, glabrous in contracted panicles. Lower glumes ovate, obtuse, 5-nerved; upper glumes ovate-oblong, 7-nerved; lower lemmas ovate, 5-nerved, apiculate; paleas when present small, hyaline, ovate; upper lemmas ovate-oblong, transversely striate, pale yellow; margins involute; paleas similar. Grains ellipsoid.

Fairly common in shady areas of evergreen forests. Fl. & Fr.: Aug.-Dec.

*Setaria paniculifara* (Steud.) Fourn. ex Hemsl. Biol. Centr. Amer. Bot. 3: 505. 1885; Bor 363. *Panicum paniculiferum* Steud. Syn. Pl. Glum. 1: 54. 1854.

Perennials; culms up to 2 m tall, densely tufted; nodes sparsely bearded. Leaves 15-40 cm long, elliptic-lanceolate or lanceolate, acuminate, plicate; sheaths tubercled hairy; ligule membranous, fimbriate or a row of hairs. Spikelets elliptic or elliptic-lanceolate in lax panicles; bristles angular, scabrid. Lower glumes ovate or orbicular, 3-nerved; upper glumes ovate or ovate-oblong, 7-nerved, lower floret empty; upper bisexual. Lower lemmas elliptic-lanceolate, 5-nerved; paleas lanceolate; upper lemmas elliptic-lanceolate rugose, 5-nerved; paleas elliptic, rugulose, 2-keeled.

Rare along the margins of sholas. Fl. & Fr.: Jul.-Sept.

*Setaria pumila* (Poir.) Roem. & Schult. Syst. Veg. 2: 891. 1817; Clayton Tutin in et al. Fl. Eur. 5: 263. 1980. *Panicum pumilum* Poir. Encycl. Meth. Bot. Suppl. 4: 273. 1816. *Setaria pallidefusca* (K. Schum.) Stapf ex Hubb. in Bull. Misc. Inform. 259. 1930;

Fisch. 1239; Bor 363. *Panicum pallide-fuscum* K. Schum. Beskr. Guin. Pl. 58. 1827.

Annuals; rhizomes creeping; culms 10-25 cm tall. Leaves 2.5-7 cm long, glabrous or pilose, flat, lanceolate, cordate at base. Spikelets pale-green, oblong-elliptic in cylindric panicles. Lower glumes ovate; 3-nerved; upper glumes ovate, 5-nerved, apiculate; paleas elliptic-oblong, hyaline, 2-keeled; upper lemmas boat-shaped, transversely rugose; paleas similar. Grains elliptic.

Occasional in grassy slopes at upper ghats, Fl. & Fr.: Aug.-Dec.

#### *Sporobolus* R. Br.

*Sporobolus indicus* (L.) R. Br. var. *diander* (Retz.) Jovet & Guedes in Taxon 22: 163. 1973. *Agrostis diandra* Retz. Obs. Bot. 5: 19. 1789. *Sporobolus diander* (Retz.) P. Beauv. Ess. Agrost 26: 1472 & 178. 1812; FBI 7: 247; Fisch. 1258; Bor 629.

Perennials; culms 50-80 cm tall. Leaves 8-20 cm long, glabrous, convolute; ligule a line of hairs; spikelets greyish-green obovoid in effuse, oblong or pyramidal panicles. Lower glumes oblong, nerveless, lacerate at apex; upper glumes ovate, 1-nerved; lemmas ovate, 1-nerved; paleas subequal to lemmas, 2-nerved. Grains oblong.

Frequent among coconut plantations in midlands. Fl. & Fr.: Aug.-Feb.

#### *Stenostaphrum* Trin.

*Stenostaphrum dimidiatum* (L.) Brongn. in Duperre, Bot. Voy. Coq. 127. 1831; Fisch. 1228; Bor 366. *panicum dimidiatum* L. Sp. Pl. 57. 1753. *Stenostaphrum glabrum* Trin. Fund. Agrost. 176. 1820; FBI 7: 90; Rao 437.

Perennials; culms 10-25 cm long, ascending from a creeping base. Leaves 2.5-7 cm long, scabrid, along margins, linear-oblong; sheaths keeled, ciliate; ligule a fringe of hairs. False spikes solitary. Spikelets green in spiciform racemes. Glumes ovate-obtuse, rounded, nerveless, ciliolate, 7-9-nerved; lower lemmas 5-7-nerved, glabrous or ciliate near tip; paleas shorter; upper lemmas and paleas lanceolate, 5-nerved.

Abundant in coastal zone particularly at Kovalam. Fl. & Fr.: Oct.-Feb.

**Themeda Forssk.**

|  |                      |
|--|----------------------|
| Involucral spikelets glabrous          | <i>T. cymbalaria</i> |
| Involucral spikelets tubercled-bristly | <i>T. triandra</i>   |

**Themeda cymbalaria** (Roxb.) Hack. in DC. Monogr. Phan. 6: 668. 1889; Fisch. 1210; Bor 251. *Anthisteria cymbalaria* Roxb. Fl. Ind. 1: 255. 1820, quoad. descr. excl. typus; FBI 7: 215.

Perennials; culms 1-2.5 m tall, puberulous beneath the nodes. Leaves 60-120 cm long, scaberulous above, glaucous beneath, scabrid along margins; sheaths keeled; ligules short. Spikes numerous, fascicled in stout thyrsiform panicles; spathes linear-lanceolate. Involucral spikelets red or bluish with scabrid keels. Bisexual spikelets linear-oblong, solitary, white hairy, awned. Glumes scaberulous above.

Very common in exposed areas of deciduous forest at low elevations. Fl. & Fr.: Mar.-Aug.

**Themeda triandra** Forssk. Fl. Aeg.-Ar. 178. 1775; Fisch. 1209; Bor 254, f. 27. *Anthistiria imberis* Retz. Obs. Bot. 3: 11. 1783; FBI 7: 211.

Annuals; culms 1-1.5 m tall. Leaves 8-20 cm long, glabrous, scabrid along margins, linear, sheaths keeled; ligules membranous. Involucral spikelets greenish, oblong-lanceolate, sessile, fascicled in panicles. Lower glumes oblong-lanceolate, many-nerved, 2-keeled, keels winged, bristly; upper glumes similar, 3-nerved, 2-keeled, keels ciliolate; lemmas lanceolate, 1-nerved, epaleate. Bisexual spikelets, solitary, glumes 3-7-nerves; lemmas 1-nerved, awned. Grains cylindric. Pedicelled spikelets linear-lanceolate.

Common along river banks. Fl. & Fr.: Sept.-Jan.

**Trachys Pers.**

**Trachys muricata** (L.) Pers. ex Trin. in Mem. Acad. Sci. Petersb. ser. 6, 3: 189. 1834; Fisch. 1255; Bor 369. *Cenchrus muricatus* L. Mant. 2: 302. 1771. *Trachys mucronata* Pers. Syn. Pl. 1: 85. 1806; Rao 437.

Annuals; culms 10-60 cm long, creeping, rooting at nodes; nodes bearded. Leaves 1-12 cm long, hispid, linear or elliptic-lanceolate, acuminate, cordate at base; sheaths tubercle-based hairy; ligules ovate-membranous. Spikelets clustered on flat rachis in racemes. Lower glumes lanceolate, 1-nerved; upper glumes lanceolate, 1-3-nerved. Upper florets bisexual; lower lemmas broadly elliptic, 11-many nerved; upper lemmas elliptic-lanceolate or lanceolate, subcoriaceous, hyaline, 2-nerved. Grains oblong.

Occasional in sandy areas along the coast. Fl. & Fr.: Oct.-Dec.

**Tripogon Roem & Schult.**

**Tripogon bromoides** Roem. & Schult. Syst. Veg. 2: 600. 1817; FBI 7: 287; Rao 443; Fisch. 1269; Bor 251.

Perennials; culms 10-50 cm tall, tufted. Leaves 6.5-35 cm long, hairy, convolute; sheaths glabrous or pilose, mouth bearded; ligules obtuse. Spikelets sessile, biseriate in spiciform racemes. Lower glumes oblong, 1-nerved, notched at apex; upper glumes similar; lemmas bearded, ovate-oblong, 3-nerved, 4-lobed at apex with a median awn; paleas oblong, 2-keeled. Grains oblong.

Common in rocky slopes of Agastyarkudam. Fl. & Fr.: Sep.-Feb.

**Tripsacum L.**

**Tripsacum laxum** Nash in N. Amer. Fl. 17: 81. 1909.

Perennials. Leaves 5-9 cm wide. Spikelets in slender flexuous lax racemes.

A native of Mexico, this grass was introduced in Tea Estates of Boneccord as a soil binder.

**Zenkeria Trin.**

**Zenkeria sebastinei** Henry & Chandrab. in Bull. Bot. Surv. India 15: 142. f. 1-9. 1973.

Perennials; culms 30-45 cm long, erect from a decumbent base; nodes hairy. Leaves 5-17 cm long, rigid, narrowly elliptic, tapering at both ends, sparsely hairy towards apex; sheaths glabrous; ligules a tinge of hairs. Spikelets 2-flowered in villous

panicles. Glumes unequal, ovate to ovate-lanceolate, acuminate, 5-6-nerved, hairy below the middle; paleas 2-keeled, hyaline, long ciliate along the keels. Ovary oblong, glabrous.

Common in shady areas in evergreen forests of Agastyamalai  
Fl. & Fr.: Oct.-Mar.

**Zoxyia Willd.**

*Zoxyia matrella* (L.) Merr. in Philip. J. Sci. Bot. 7: 230. 1912;  
Fisch. 1257; Bor 684. *Agrostis matrella* L. Mant. Pl. 2: 185.  
1771. *Zoxyia pungens* Willd. in Ges. Naturf. Freunde Berlin, Neue  
Schriften 3: 441. 1801; FBI 7: 99; Rao 438.

Annuals or perennials with rigid, wiry rootstocks; culms  
13-25 cm tall. Leaves 2.5-8 cm long, coriaceous, subulate, pungent;  
sheaths ciliate at mouth. Spikelets ovoid, sub-imbricate,  
sessile or pedicelled. Lower glumes empty, coriaceous, nerveless,  
connate below, hyaline; upper glumes linear-oblong, obtuse;  
paleas short, nerveless, hyaline. Grains free with the glumes.

Frequent along the coast. Fl. & Fr.: Aug.-Mar.

**B A M B U S A C E A E Nak.**

- |                                    |                      |
|------------------------------------|----------------------|
| 1. Stamens numerous; paleas absent | <i>Ochlandra</i>     |
| 1. Stamens 6; paleas present:      |                      |
| 2. Paleas 5-7-nerved               | <i>Bambusa</i>       |
| 2. Paleas 1-nerved                 | <i>Teinostachyum</i> |

***Bambusa* Schreber nom. cons.**

*Bambusa arundinacea* (Retz.) Roxb. Fl. Cor. t. 79. 1796; FBI 7:  
395; Rao 447; Gamble in Ann. Roy. Bot. Gard. Calcutta 7: 51. t.  
48. 1896; Fisch. 1286; Holtum in Taxon 8: 67. 1956. *Bambos*  
*arundinacea* Retz. Obs. Bot. 5: 24. 1788. *Arundo bambos* L. Sp.  
Pl. 81. 1753, nom. illeg.

Thorny trees 20-30 m tall with hollow internodes. Culms sheaths  
up to 20 x 30 cm, orange-yellow. Leaves 15-20 x 2-2.5 cm, linear-  
lanceolate, acuminate at apex, rounded at base; ligules narrow,  
white, hairy. Spikelets 3-7-flowered in panicles.

Fairly common in moist deciduous forests. Cultivated in the  
plains. Grains edible.

*Ochlandra* Thw.

## 1. Filaments united:

2. Ligules lacerate *O. ebracteata*2. Ligules entire *O. travancorica*

## 1. Filaments free:

3. Lemmas mucronate *O. wightii*3. Lemmas not mucronate *O. scriptoria*

***Ochlandra ebracteata* Raizada & Chatterjee in Indian Forester 89: 362-364. 1963.**

Erect shrubs 60-70 cm tall. Culms sheaths 13-25 x 6-11 cm, longitudinally striated, clothed with chocolate-brown hairs. Leaves 10-50 x 6-11 cm, oblong-lanceolate, acuminate at apex, narrowed at base. Spikelets green, sessile in verticils of flagellate, spicate panicles.

Fairly common in Paruthipally, Kottur R. F., along streams.

Type: Managing agency, Punalur Paper Mills s.n., (Herb. Dehra Dun).

***Ochlandra scriptoria* (Dennst.) Fisch.** in Gamble, Fl. Pres. Madras 1863, 1934 & 1289, 1957 (repr. ed.). *Bambusa scriptoria* Dennst. Schluess. Hort. Malab. 31. 1818. *Beesha rheedii* Kunth, Enum. 1: 434. 1822. *Ochlandra rheedii* (Kunth) Benth. ex Gamble in Ann. Roy. Bot. Gard. Calcutta 7: 121, t. 107. 1896; Rao 448.

Shrubs. Culms up to 4.8 m tall, smooth; internodes 2.5 cm long; sheaths purplish-green, ciliate. Leaves 10-25 x 1-2.6 cm, linear-lanceolate, acuminate at apex, rounded at base. Spikelets cylindric in axillary or terminal spicate panicles.

Abundant in slopes of hills in evergreen forests of Chemungi and Ponmudi, Fl. & Fr.: Feb.-May. (Barber 7190).

***Ochlandra travancorica* (Bedd.) Benth.** ex Gamble in Ann. Roy. Bot. Gard. Calcutta 7: 125. t. 111. 1896; FBI 7: 420; Rao 448; Fisch. 1289. *Beesha travancorica* Bedd. Fl. Syl. t. 324. 1873.

Erect woody shrubs; stems 2-6 m tall, hollow-cylindric. Leaves 12-35 x 5-10 cm, oblong-lanceolate, scabrous, acuminate at apex, unequally rounded at base. Spikelets 7-10 cm long; glumes mucronate; filaments jointed.

Abundant in slopes of hills throughout evergreen and semi-evergreen forests. Fl.: Mar.

*Ochlandra wightii* (Munro) Fisch. in Gamble, Fl. Pres. Madras 1864, 1934 & 1290, 1957 (repr. ed.). *Bambusa wightii* Munro in Trans. Linn. Soc. London 26: 111, 1866. *Ochlandra brandisii* Gamble in Ann. Roy. Bot. Gard. Calcutta 7: 126, t. 113, 1896; Rao 448.

Shrubs. Leaves 25-45 x 3-7 cm, oblong-lanceolate, acuminate at apex, attenuate at base; sheaths with few deciduous bristles at mouth. Spikelets many in terminal verticillate spikes; rachis thick. Glumes long cuspidate at apex; lemmas mucronate.

Fairly common along streams and rivers in low evergreen forests of Kottur and adjacent areas.

#### *Teinostachyum* Munro

*Teinostachyum beddomei* Fisch. in Gamble, Fl. Pres. Madras 1860, 1934 & 1287, 1957 (repr. ed.). *T. wightii* sensu Bedd. Fl. Sylv. t. 323, 1874 non *Bambusa wightii* Munro; Gamble, Ann. Roy. Bot. Gard. Calcutta 7: 99, t. 87, 1896; Rao 448,

Trees 25-30 m tall; culms brownish-yellow; sheaths 25-30 x 7-10 cm, numerous, papery, truncate at apex, appressed hairy. Leaves 15-25 x 2.5-5 cm, sparsely hairy beneath, oblong-lanceolate, acuminate at apex; ligules narrow, toothed. Spikelets 2-3-flowered in drooping panicles.

Frequent along streams and rivers in evergreen forests.

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| 85   | 31   | <i>mascurroides</i>  | <i>maccurroides</i>   |
| 92   | 4    | <i>bartamia</i>      | <i>bartramia</i>      |
| 97   | 4    | Shrubs               | Herbs                 |
| 118  | 32   | Obovoied             | Ovoid                 |
| 135  | 12   | Alysicarpts          | Alysicarpus           |
| 136  | 21   | <i>Pasviflora</i>    | <i>Parviflora</i>     |
| 137  | 16   | Peducles             | Peduncles             |

|     |         |                                      |  |
|-----|---------|--------------------------------------|--|
| 146 | 23      | <i>gangeticum</i>                    | <i>ganganicum</i>                                      |
| 160 | 25      | <i>leafoliolates</i>                 | <i>leaflets</i>  |
| 160 | 30      | <i>climbaer</i>                      | <i>climber</i>   |
| 219 | 7       | <i>Catunaregam</i>                   | <i>Oxyceros</i>  |
| 227 | 29      | <i>H. umbellata</i>                  | <i>H. puberula</i>                                     |
| 246 | 21      | <i>Rodeletia</i>                     | <i>Rondeletia</i>                                      |
| 258 | 23      | <i>Grierson</i>                      | <i>Grierson</i>  |
| 268 | 25      | <i>hightly</i>                       | <i>highly</i>  |
| 290 | 12      | <i>Ophioyton</i>                     | <i>Ophioxylon</i>                                      |
| 296 | 1       | <i>Tevitia</i>                       | <i>Thevetia</i>  |
| 300 | 16      | Leaves up to 2.5<br>— 4.5            | Leaves 2.5-4.5..                                       |
| 308 | 27      | <i>Limnanthemum</i><br>(L.) Griseb.  | <i>Limnanthemum</i><br><i>indianum</i><br>(L.) Griseb. |
| 312 | 30      | <i>Agyeia</i>                        | <i>Argyreia</i>  |
| 323 | 22      | <i>Lodon</i>                         | <i>London</i>  |
| 325 | 27      | <i>Moniea</i>                        | <i>Moniera</i>   |
| 330 | 10      | Java 1916                            | Java 165, 1916,  |
| 371 | 17      | <i>D. auricularia</i><br>(L.) Hassk. | <i>D. auricularia</i><br>(L.) Blume                    |
| 393 | 12      | elliptic-obovate<br>at apex          | elliptic-obovate,<br>acuminate<br>at apex              |
| 313 | 30 & 31 | J. 23 ; 52. 1942.                    | J. Arnold Arbor.<br>23; 52. 1942                       |
| 436 | 24      | <i>interupta</i>                     | <i>interrupta</i>                                      |
| 475 | 6       | <i>glanga</i>                        | <i>galanga</i>   |
| 487 | 27      | <i>D. montana</i>                    | <i>D. montanum</i>                                     |
| ..  | 28      | <i>D. ovalifolia</i>                 | <i>D. ovalifolium</i>                                  |
| 494 | 3       | <i>fascicularis</i>                  | <i>fascicularia</i>                                    |

203 delete para 5

## ADDENDA

Page 48 Add after *Popowia*

### *Uvaria* L.

Ripe fruitlets subsessile; stalks 1-2 mm long                   *U. zeylanica*

Ripe fruitlets stipitate; stalks 5-8 cm long                   *U. narum*

*Uvaria narum* (Dun.) Wall, ex Wight & Arn. Prodr. 9, 1834; FBI 1; 50; Rao 7; Dunn 12. *Unona narum* Dun. Monog. Anno. 99, 1817.

Climbing shrubs; branchlets stellately tomentose when young. Leaves 8-15 x 3-6 cm, oblong-lanceolate, subobtuse to cuneate at base, acuminate at apex. Flowers solitary, extra-axillary, leaf-opposed or terminal, flesh-coloured. Fruitlets scarlet.

Frequent along banks of rivers and streams throughout. Fl.: Feb.-Apr.; Fr.: Nov.-Dec. '*Narum pannal*'

*Uvaria zeylanica* L. Sp. Pl. 536, 1753; FBI 1; 51; Rao 4; Dunn, 13

Slender climbing shrubs; young branches tomentose. Leaves 5-9.5 x 2-3 cm, elliptic or oblong-lanceolate, acute or acuminate at apex, cuneate at base. Flowers solitary or rarely paired, terminal or leaf-opposed, dull purple. Fruitlets ovoid, brownish-red.

Occasional near backwaters along the coast. Fl.: Oct.-Dec.; Fr.: July-Aug.

Page 400 Add before *scurrula* L.:

### *Macrosolen* (Blume) Reichb.

*Macrosolen parasiticus* (L.) Danser in Blumea 3: 36, 1936. *Lonicera parasitica* L. sp. Pl. 1753. *Elytranthe loniceroides* (L.) G. Don, Gen. Syst. 3: 427, 1834; Gamble 879. *Loranthus loniceroides* L. Sp. Pl. ed.2, 473, 1762; Wight, Icon. t. 203, 1839; FBI 5: 221

Shrubs. Leaves ovate-oblong or lanceolate, acuminate at apex. Flowers scarlet with greenish lobes in cymes. Berries green

Common in deciduous forests. Fl. & Fr.: July.-Oct.

Page 480: After line 2 add.

**Dioscorea esculenta** is cultivated extensively.

Page 485: After line 5, add:

**Dictyospermum ovalifolium** Wight, Icon. t. 2070. 1853. *Aneilema ovalifolium* (Wight) Hook.f. ex Clarke in A & C. DC. Monogr. Phan. 3: 218. 1881; FBI; 6: 382; Fisch. 1546.

Herbs 50-75 cm tall. Leaves 10-14 x 2-3.5 cm, elliptic-lanceolate, acuminate at apex, narrowed at base. Flowers blue.

Occasional in the undergrowth in evergreen forests. Fl. & Fr.: Nov.-Dec.



**Backwaters of Veli:** Thick formations of  
*Acrostichum aureum L.* are seen



Strand Vegetation of Kovalam



Moist deciduous forest at Kallar



Semi Evergreen forests at Bonecord



Sub-tropical montane forest  
along the ridges of Ponmudi



*Syzygium travancoricum* Gamble,  
a rare tree Chenungi



*Debregeasia ceylanica* Hook F.,  
a rare tree at Ponmudi

*Bombax Ceiba L.* in  
Semi ever green forest at Kallar



Tropical ever green  
forests at Kallar