

“Dissemination of Education for Knowledge, Science, and Culture”

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DEPARTMENT OF BOTANY

REPORT OF

E-FLORA

**(The Botanical Information of the Standing Trees
In P.D.V.P. College, Tasgaon Campus)**

2019 - 2020

INTRODUCTION

Diversity in the plants plays an important role in social places. The diversity in the social places like college gives multiple advantages like aesthetic view, recreation, study value, pollution free environment etc. Developing a well grown garden in a college takes many years' pains and labor. The Garden of P.D.V.P. College has composed of well diversified plants which are consisting some of the common and uncommon plants. Some of the plants are full grown and reached up to several feet height. These plants are now giving the shade and recreational places to the students. The present attempt is the enumeration and scientific study of the standing dominant trees of the P.D.V.P. College campus. These plants are also serving as a source of Carbon sequestration for the campus. Till date Twenty Nine different species of trees are recorded during the study. The plant specimens are collected and brought in the laboratory and referred with available literature. Present report gives an idea of present tree flora of P.D.V.P. College campus.

Courtesy: 1. "WIKIPEDIA" a free encyclopedia and 2. Flora of Bombay Presidency by T. Cooke (1901). The data is only for academic purpose and not for any commercial purpose.

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Acacia auriculiformis

Name of the Plant	<i>Acacia auriculiformis</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Fabales
Family:	Fabaceae
Clade:	Mimosoideae
Genus:	<i>Acacia</i>
Species:	<i>A. auriculiformis</i>
Binomial name	<i>Acacia auriculiformis</i> A.Cunn. ex Benth.

Acacia auriculiformis (Australia wattle) is another species which is planted in the garden for its attractive shape, foliage and shade. It is a dwarf tree and produce typically spiral legume shaped fruits. *A. cyanophylla* commonly called as Golden acacia, is another handsome species which bears golden flowers. It is also dwarf but possess brittle branches.



Acacia auriculiformis Flowers



Acacia auriculiformis Fruits

Albizia lebbbeck

Name of the Plant	<i>Albizia lebbbeck</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Fabales
Family:	Fabaceae
Clade:	Mimosoideae
Genus:	<i>Albizia</i>
Species:	<i>A. lebbbeck</i>
Binomial name	<i>Albizia lebbbeck</i> (L.) Benth.

This is native of Indo-Malaya region and is large quick growing tree. Trunk is tall and colour is greenish yellow white. Leaves are bi-pinnate of light green colour. Tree produces profuse flowers in July-August. Flowers are small heads of yellowish white in colour. It is good tree for roadside plantation and for big parks. It can also be easily propagated by seeds.



Flowers and Fruits of Albizia lebbbeck

Bauhinia variegata

Name of the Plant	<i>Bauhinia variegata</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Fabales
Family:	Fabaceae
Clade:	Mimosoideae
Genus:	<i>Bauhinia</i>
Species:	<i>B. variegata</i>
Binomial name	<i>Bauhinia variegata</i> (L.) Benth.

This is a tall tree producing flowers of rose colored variegated with red and yellow which appear in mid of March. Most ideally suited for planting as specimen or in groups in gardens and big parks and as avenue tree alongside the road.



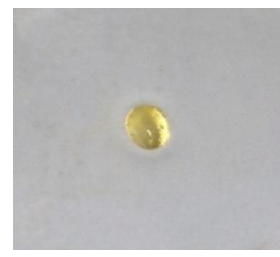
*Bauhinia
variegata*
Flowers



*Bauhinia
variegata*
Leaves



*Bauhinia
variegata*
Fruits



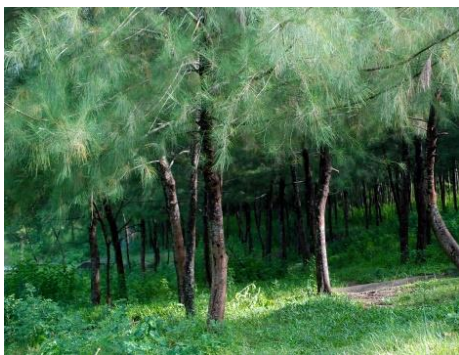
*Bauhinia
variegata*
Pollens

Casuarina equisetifolia

Name of the Plant	<i>Casuarina equisetifolia</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Fagales
Family:	Casuarinaceae
Genus:	<i>Bauhinia</i>
Species:	<i>C. equisetifolia</i>
Binomial name	<i>Casuarina equisetifolia</i> L.

It is native of Australia, Burma, Malaya and Pacific Islands and is commonly called as beefwood, Janglisaru, Farash or Jor-Tor on account of cord like leaves which are easily separated at the node and can be temporarily fixed without knowing breaking point. It is a tall, upright, evergreen and fast growing tree.

It has rough bark and spreading branches. Trees are dioecious producing male and female cones separately. Easily propagated through seed. It is tolerant to saline soils. It is planted for screening purpose and can be planted closely and trimmed as tall hedge.



Casuarina equisetifolia Trees *Casuarina equisetifolia* Fruits

Cedrela toona

Name of the Plant	<i>Cedrela toona</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Sapindales
Family:	Meliaceae
Genus:	<i>Cedrela</i>
Species:	<i>C. toona</i>
Binomial name	<i>Toona ciliata</i> M. Roem

It is commonly called the toona or Indian Mahagoni tree and is native of Indo-Malaya region and Australia. It is a large, quick growing tree having shining compound leaves. Flowers are small, white and appear in middle of April. Easily propagated by seeds. It is planted in the garden in groups for shade and also suitable for roadside plantation.



Cedrela toona Trees



Cedrela toona Flowers

Chorisia speciosa

Name of the Plant	<i>Chorisia speciosa</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Malvales
Family:	Malvaceae
Genus:	<i>Ceiba</i>
Species:	<i>C. speciosa</i>
Binomial name	<i>Ceiba speciosa</i> (A.St.-Hil.) Ravenna

It is native of Mexico and Brazil and commonly called as Mexican Semal. It is an erect tree with well-placed branches. Stem is waxy green with spines. Leaves are palmate in shape, of light green colour. Flowers are pink with creamish white centre which appear in October-November when tree is in leafless condition. It flowers when other trees are not in bloom. It is planted in the garden as specimen.



Chorisia speciosa Trees



Chorisia speciosa Flowers

Delonix regia

Name of the Plant	<i>Delonix regia</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Fabales
Family:	Fabaceae
Genus:	<i>Delonix</i>
Species:	<i>D. regia</i>
Binomial name	<i>Delonix regia</i> (Boj. ex Hook.) Raf.

It is native of Madagascar and is commonly known as Gulmohar, Peacock or Flamboyant flower. It is a fast growing large tree. Limbs are spreading and form an umbrella. Leaves are compound and leaflets are small with round apices. Showy flowers or orange, red, scarlet to salmon colour are produced in May-June.

Easily propagated through seeds. It is an ideal tree for big parks for beautiful flowers as well as for shade. Under North Indian conditions it starts declining after 10-12 years. It has shallow root system and hence grass does not grow under this tree.



Delonix regia Trees



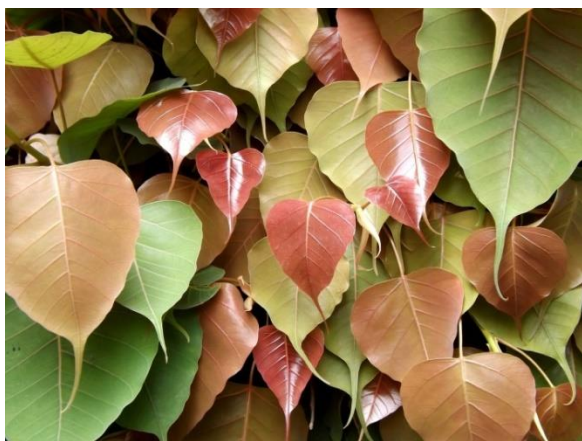
Delonix regia Flowers

Ficus religiosa

Name of the Plant	<i>Ficus religiosa</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Rosales
Family:	Moraceae
Genus:	<i>Ficus</i>
Species:	<i>F. religiosa</i>
Binomial name	<i>Ficus religiosa</i> L.

It is commonly called as Pipal or Bodhi tree and native of India. It is associated with three deities of Hindu religion i.e. Brahma, Vishnu and Shiva and also with Lord Buddha; hence, it is considered to be a sacred tree and is worshipped. It is a huge tree with spreading branches.

Leaves are cordate in shape and shining. Flowers are very small hidden in synconium which appear in April-May. Easily propagated through seeds and cuttings. It is commonly planted in villages near ponds for shade and also in big parks. Birds take shelter on this tree, eat fruit and disperse the seeds.



Ficus religiosa Leaves



Ficus religiosa Fruits

Pithecellobium dulce

Name of the Plant	<i>Pithecellobium dulce</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Fabales
Family:	Fabaceae
Genus:	<i>Pithecellobium</i>
Species:	<i>P. dulce</i>
Binomial name	<i>Pithecellobium dulce</i> (Roxb.) Benth.

It is popularly known as Jangal jalebi due to its curvaceous fruits. It is quick growing evergreen tree having thorns. Leaves are compound and of dark green colour. Flowers are not very showy which appear in the month of March-April and easily propagated through seeds. It is highly suitable for boundary plantation and tall protective hedge.



Pithecellobium dulce Trees



Pithecellobium dulce fruits

Santalum album

Name of the Plant	<i>Santalum album</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Santalales
Family:	Santalaceae
Genus:	<i>Santalum</i>
Species:	<i>S. album</i>
Binomial name	<i>Santalum album</i> L.

Santalum album, or **Indian sandalwood**, is a small tropical tree, and is the most commonly known source of sandalwood. It is native to southern India and Southeast Asia. Certain cultures place great significance on its fragrant and medicinal qualities. It is also considered sacred in some religions and is used in different religious traditions. The plant is widely cultivated and long lived, although harvest is only viable after many years. Etymologically it is derived from Sanskrit *chandanam*.

The height of the evergreen tree is between 4 and 9 metres. The tree is variable in habit, usually upright to sprawling, and may intertwine with other species. The reddish or brown bark can be almost black and is smooth in young trees, becoming cracked with a red reveal. The heartwood is pale green to white as the common name indicates. The leaves are thin, opposite and ovate to lanceolate in shape.



Flowers of Santalum



Fruits of Santalum

Mangifera indica

Name of the Plant	<i>Mangifera indica</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Sapindales
Family:	Anacardiaceae
Genus:	<i>Mangifera</i>
Species:	<i>M.indica</i>
Binomial name	<i>Mangifera indica</i> L.

Mangifera indica, commonly known as mango, is a species of flowering plant in the sumac and poison ivy family Anacardiaceae. It is native to the Indian sub-continent where it is indigenous. Hundreds of cultivated varieties have been introduced to other warm regions of the world. It is a large fruit-tree, capable of growing to a height and crown width of about 30 metres (100 ft) and trunk circumference of more than 3.7 metres (12 ft). Mangiferin(a pharmacologically active hydroxylated xanthone C-glycoside) is extracted from mango. Allergenicurushliols are present in the fruit peel. In Ayurveda, it is used in a Rasayana formula sometimes with other mild sours and shatavari (*Asparagus racemosus*) and guduchi (*Tinospora cordifolia*). In traditional medicine, varied properties are attributed to different parts of the mango tree. The wood is susceptible to damage from fungi and insects. The wood is used for musical instruments such asukuleles, plywood and low-cost furniture.



Mangifera indica Flowering



Mangifera indica Fruits

Ficus racemosa

Name of the Plant	<i>Ficus racemosa</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Rosales
Family:	Moraceae
Genus:	<i>Ficus</i>
Species:	<i>F. racemosa</i>
Binomial name	<i>Ficus racemosa</i> L.

Ficus racemosa (syn. *Ficus glomerata* Roxb.) is a species of plant in the family Moraceae. Popularly known as the **cluster fig tree**, **Indian fig tree** or **goolar (gular) fig**, this is native to Australia, Malesia, Indo-China and the Indian subcontinent. It is unusual in that its figs grow on or close to the tree trunk, termed cauliflory. In India, the tree and its fruit are called *gular* in the north and *atti* in the south. The fruits are a favorite staple of the common Indian monkeys. It serves as a food plant for the caterpillars.

Health uses

The bark of *audumbar* (*oudumbar*) tree is said to have healing power. In countries like India, the bark is rubbed on a stone with water to make a paste, which can be applied over afflicted by boils or mosquito bites. Allow the paste to dry on the skin and reapply after a few hours.



Ficus racemosa Fruits

Cocos nucifera

Name of the Plant	<i>Cocos nucifera</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Monocots
Clade:	<u>Commelinids</u>
Order:	Arecales
Family:	Arecaceae
Genus:	<i>Cocos</i> L.
Species:	<i>C. nucifera</i>
Binomial name	<i>Cocos nucifera</i> L.

The **coconut tree** (*Cocos nucifera*) is a member of the palm tree family (Arecaceae) and the only known living species of the genus *Cocos*.

Coconuts are known for their versatility of uses, ranging from food to cosmetics. The inner flesh of the mature seed, as well as the coconut milk extracted from it, forms a regular part of the diets of many people in the tropics and sub tropics. Coconuts are distinct from other fruits because their endosperm contains a large quantity of clear liquid, called coconut water or coconut juice.

Mature, ripe coconuts can be used as edible seeds, or processed for oil and plant milk from the flesh, charcoal from the hard shell, and coir from the fibrous husk. Dried coconut flesh is called copra, and the oil and milk derived from it are commonly used in cooking –frying in particular – as well as in soaps and cosmetics. The hard shells, fibrous husks and long pinnate leaves can be used as material to make a variety of products for furnishing and decorating. The coconut also has cultural and religious significance in certain societies, particularly in India, where it is used in Hindu rituals.



Entire Coconut Tree



Coconut Fruits

Eucalyptus globulus

Name of the Plant	<i>Eucalyptus globulus</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Myrtales
Family:	Myrtaceae
Genus:	<i>Eucalyptus</i>
Species:	<i>E. globulus</i>
Binomial name	<i>Eucalyptus globulus</i> L.

The bark is smooth, fibrous, hard or stringy, leaves with oil glands, and sepals and petals that are fused to form a "cap" or operculum over the stamens. The fruit is a woody capsule commonly referred to as a "gumnut".

The wood of the trees can be used as ornament, timber, firewood and pulpwood. Eucalyptus wood is also used in a number of industries, from fence posts and charcoal to cellulose extraction for biofuels. Fast growth also makes eucalypts suitable as wind breaks and to reduce erosion. It is the most common source for pulp wood to make pulp. Eucalyptus oil is readily steam distilled from the leaves and can be used for cleaning and as an industrial solvent, as an antiseptic, for deodorizing, and in very small quantities in food supplements, especially sweets, cough drops, tooth paste and decongestants. It has insect repellent properties, and is an active ingredient in some commercial mosquito repellents. Eucalyptus globulus is the principal source of eucalyptus oil worldwide.



Flowers of Eucalyptus



Fruits of Eucalyptus

Grevillea robusta

Name of the Plant	<i>Grevillea robusta</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Myrtales
Family:	Myrtaceae
Genus:	<i>Grevillea</i>
Species:	<i>G. robusta</i>
Binomial name	<i>Grevillea robusta</i> A.Cunn. ex R.Br.

Grevillea robusta, commonly known as silver oak or Australian silver oak, is a flowering plant in the family Proteaceae. It is a fast-growing evergreen tree with a single main trunk, growing to 5–40 m tall. The bark is dark grey and furrowed. Its leaves are fern-like, 10–34 cm long, 9–15 cm wide and divided with between 11 and 31 main lobes. The flowers are arranged in one-sided, "toothbrush"-like groups, sometimes branched, 12–15 cm long. The carpel (the female part) of each flower has a stalk 21–28 mm long. The flowers are glabrous and mostly yellowish orange, or sometimes reddish. Flowering occurs from September to November and the fruit that follows is a glabrous follicle. The timber of the plant was widely used for external window joinery, as it is resistant to wood rot. It has been used in the manufacture of furniture, cabinetry, and fences.



***Grevillea* leaves**



***Grevillea* fruits**

Hyophorbe lagenicaulis

Name of the Plant	<i>Hyophorbe lagenicaulis</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Monocots
Clade:	<u>Commelinids</u>
Order:	Arecales
Family:	Areaceae
Genus:	<i>Hyophorbe</i>
Species:	<i>H. lagenicaulis</i>
Binomial name	<i>Hyophorbe lagenicaulis</i> (L.H.Bailey) H.E.Moore

Bottle palm has a large swollen (sometimes bizarrely so) trunk. Bottle palms have only four to six leaves open at any time. The leaves of young palms have a red or orange tint, but a deep green at maturity. The flowers of the palm arise from under the crown shaft. Its inflorescence branches in 4 orders, and its 2.5 cm fruits can be orange or black. The trunk of species becomes more and more slender at older ages. Bottle palms are very cold sensitive and are killed at 0 °C (32 °F) or colder for any appreciable length of time. They may survive a brief, light frost, but will have foliage damage.



Bottle palm trees

Azadirachta indica

Name of the Plant	<i>Azadirachta indica</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Sapindales
Family:	Meliaceae
Genus:	<i>Azadirachta</i>
Species:	<i>A. indica</i>
Binomial name	<i>Azadirachta indica</i> A.Juss. (Neem)

Azadirachta indica, commonly known as neem, nim tree or Indian lilac. Neem is a fast-growing tree that can reach a height of 15–20 metres. It is evergreen, but in severe drought it may shed most or nearly all of its leaves. The branches are wide and spreading. The fairly dense crown is roundish and may reach a diameter of 20–25 metres. The opposite, pinnate leaves are 20–40 centimetres long, with 20 to 30 medium to dark green leaflets. The terminal leaflet often is missing. The petioles are short. The (white and fragrant) flowers are arranged in more-or-less drooping axillary panicles. The fruit is a smooth (glabrous), olive-like drupe which varies in shape from elongate oval to nearly roundish. The fruit skin (exocarp) is thin and the bitter-sweet pulp (mesocarp) is yellowish-white and very fibrous. Neem leaves are dried in India and placed in cupboards to prevent insects eating the clothes, and also in tins where rice is stored. Neem products are believed by Siddha and Ayurvedic practitioners to be anthelmintic, antifungal, antidiabetic, antibacterial, antiviral, contraceptive, and sedative. It is particularly prescribed for skin diseases. Neem oil is also used for healthy hair, to improve liver function, detoxify the blood, and balance blood sugar levels. Neem leaves have also been used to treat skin diseases like eczema, psoriasis, etc.

Insufficient research has been done to assess the purported benefits of neem, however. In adults, short-term use of neem is safe, while long-term use may harm the kidneys or liver; in small children, neem oil is toxic and can lead to death. Neem may also cause miscarriages, infertility, and low blood sugar.



Flowers of Azadirachta indica



Fruits of Azadirachta indica

Mimusops elengi

Name of the Plant	<i>Mimusops elengi</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Asterids
Order:	Ericales
Family:	Sapotaceae
Genus:	<i>Mimusops</i>
Species:	<i>M. elengi</i>
Binomial name	<i>Mimusops elengi</i> L.

Mimusops elengi is a medium-sized evergreen tree found in tropical forests. Its timber is valuable, the fruit is edible, and it is used in traditional medicine. As the trees give thick shade and flowers emit fragrance, it is a prized collection of gardens. Bullet wood is an evergreen tree reaching a height of about 16 m . It flowers in April, and fruiting occurs in June. Leaves are glossy, dark green, oval-shaped. Flowers are cream, hairy, and scented. Bark is thick and appears dark brownish black or grayish black in colour. The tree may reach up to a height of 9–18 m with about 1 m circumference. The bark, flowers, fruits, and seeds of *Bakula* are used in Ayurvedic medicine in which it is used as astringent, cooling, anthelmintic, tonic, and febrifuge. It is mainly used for dental ailments such as bleeding gums, pyorrhea, dental caries, and loose teeth.



Flowers and Fruits of Mimusops elengi

Plumeria alba

Name of the Plant	<i>Plumeria alba</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Asterids
Order:	Gentianales
Family:	Apocynaceae
Genus:	<i>Plumeria</i>
Species:	<i>P. alba</i>
Binomial name	<i>Plumeria alba</i> L.

Plumeria flowers are most fragrant at night in order to lure sphinx moths to pollinate them. *Plumeria* species may be propagated easily by cutting leafless stem tips in spring. Cuttings are allowed to dry at the base before planting in well-drained soil. *Plumeria* cuttings could also be propagated by grafting a cutting to an already rooted system. *Plumeria* species have a milky latex that, like many other Apocynaceae contains poisonous compounds that irritate the eyes and skin. The various species differ in their leaf shape and arrangement. The leaves of *Plumeria alba* are narrow and corrugated, whereas leaves of *Plumeria pudica* have an elongated shape and glossy, dark-green color. *Plumeria pudica* is one of the ever blooming types with non-deciduous, evergreen leaves.



***Plumeria alba* Tree**



***Plumeria alba* Flowers**

Terminalia catappa

Name of the Plant	<i>Terminalia catappa</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Myrtales
Family:	Combretaceae
Genus:	<i>Terminalia</i>
Species:	<i>T. catappa</i>
Binomial name	<i>Terminalia catappa</i> L.

The tree grows to 35 m tall, with an upright, symmetrical crown and horizontal branches. *Terminalia catappa* has corky, light fruit that are dispersed by water. The seed within the fruit is edible when fully ripe, tasting almost like almond. As the tree gets older, its crown becomes more flattened to form a spreading, vase shape. Its branches are distinctively arranged in tiers. The leaves are large, 15–25 cm long and 10–14 cm broad, ovoid, glossy dark green, and leathery. The trees are monoecious, with distinct male and female flowers on the same tree. Both are 1 cm in diameter, white to greenish. The fruit is a drupe 5–7 cm long and 3–5.5 cm broad. It is widely grown as an ornamental tree. The fruit is edible, tasting slightly acidic. The wood is red and solid, and has high water resistance. The leaves contain several flavonoids such as kaempferol or quercetin, several tannins such as punicalin, punicalagin or tercatin, saponines and phytosterols. Due to this chemical richness, the leaves (and the bark) are used in different herbal medicines for various purposes.



Flowers of Terminalia catappa



Fruits of Terminalia catappa

Alstonia scholaris

Name of the Plant	<i>Alstonia scholaris</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Asterids
Order:	Gentianales
Family:	Apocynaceae
Genus:	<i>Alstonia</i>
Species:	<i>A. scholaris</i>
Binomial name	<i>Alstonia scholaris</i> (L.) R.Br.

Alstonia scholaris is a glabrous tree and grows up to 40 m tall. Its mature bark is grayish and its young branches are copiously marked with lenticels. The upper side of the leaves are glossy, while the underside is greyish. Leaves occur in whorls of three to ten; petioles are 1–3 cm. The leathery leaves are narrowly obovate to very narrowly spatulate, base cuneate, apex usually rounded. Cymes are dense and pubescent. Pedicels are usually as long as or shorter than calyx. The corolla is white and tube-like, 6–10 mm, lobes are broadly ovate or broadly obovate, 2–4.5 mm, overlapping to the left. The ovaries are distinct and pubescent. The follicles are distinct and linear.

Flowers bloom in the month October. The flowers are very fragrant. Seeds of *A. scholaris* are oblong, with ciliated margins, and ends with tufts of hairs 1.5–2 cm. The bark is almost odorless and very bitter, with abundant bitter and milky sap. The wood of *Alstonia scholaris* has been recommended for the manufacture of pencils, as it is suitable in nature and the tree grows rapidly and is easy to cultivate. At one time, decoctions of the leaves were used for beriberi. The bark contains the alkaloids ditamine, echitenine, echitamine and strictamine.



***Alstonia scholaris* Flowers**



***Alstonia scholaris* Fruits**

Neolamarckia cadamba

(Anthocephalus cadamba)

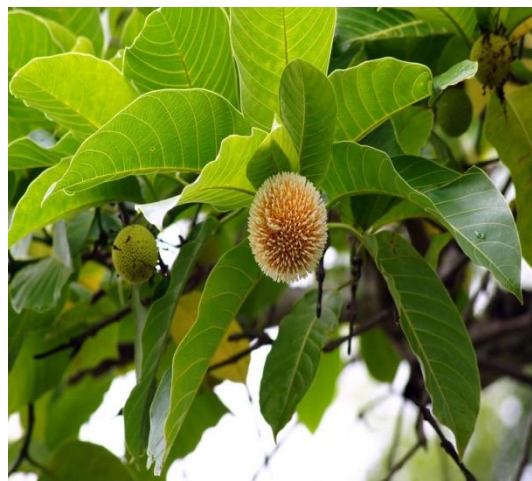
Name of the Plant	<i>Neolamarckia cadamba</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Asterids
Order:	Gentianales
Family:	Rubiaceae
Genus:	<i>Neolamarckia</i>
Species:	<i>N. cadamba</i>
Binomial name	<i>Neolamarckia cadamba</i> (Roxb.) Bosser

A fully mature kadam tree can reach up to 45 m in height. It is a large tree with a broad crown and straight cylindrical bole. It is quick growing, with broad spreading branches and grows rapidly in the first 6–8 years. The trunk has a diameter of 100–160 cm, but typically less than that. Leaves are 13–32 cm long. Flowering usually begins when the tree is 4–5 years old. Kadam flowers are sweetly fragrant, red to orange in colour, occurring in dense, globular heads of approximately 5.5 cm diameter. The fruit of *N. cadamba* occur in small, fleshy capsules packed closely together to form a fleshy yellow-orange infructescence containing approximately 8000 seeds. On maturing, the fruit splits apart, releasing the seeds, which are then dispersed by wind or rain. Stamens 5, inserted on the corolla tube, filaments short, anthers basifixed. Ovary inferior, bi-locular, sometimes 4-locular in the upper part, style exserted and a spindle-shaped stigma. Fruitlets numerous with their upper parts containing 4 hollow or solid structures. Seed trigonal or irregularly shaped. The sapwood is white with a light yellow tinge becoming creamy yellow on exposure and is not clearly differentiated from the heartwood. The fruit and inflorescences are reportedly edible by humans. The fresh leaves are fed to cattle. *N. lamarckia* is grown as an ornamental, and for low-grade timber and paper. The timber is used for plywood, light construction, pulp and paper, boxes and crates, dug-out canoes, and furniture components. Kadamba yields a pulp of satisfactory brightness and

performance as a hand sheet. The wood can be easily impregnated with synthetic resins to increase its density and compressive strength. The wood has a density of 290–560 kg/cu m at 15% moisture content, a fine to medium texture; straight grain; low luster and has no characteristic odor or taste. It is easy to work, with hand and machine tools, cuts cleanly, gives a very good surface and is easy to nail. The timber air dries rapidly with little or no degrade. Kadamba wood is very easy to preserve using either open tank or pressure-vacuum systems. Kadamba is one of the most frequently planted trees in the tropics. The tree is grown along avenues, roadsides and villages for shade. Kadamba are suitable for reforestation programs. It sheds large amounts of leaf and non-leaf litter which on decomposition improves some physical and chemical properties of soil under its canopy. This reflects an increase in the level of soil organic carbon, cation-exchange capacity, available plant nutrients and exchangeable bases. A yellow dye is obtained from the root bark. Kadamba flowers are an important raw material in the production of 'attar', which is Indian perfume with sandalwood (*Santalum* spp.) base in which one of the essences is absorbed through hydro-distillation. An extract of the leaves serves as a mouth gargle. The leaf extract has recently been used to produce silver nanoparticles for surface-enhanced Raman spectroscopy.



***Neolamarckia cadamba* Tree**



***Neolamarckia cadamba* Fruits**

Cycas revoluta

Name of the Plant	<i>Cycus revoluta</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Division	Gymnosperms
Class	Cycadopsida
Order:	Cycadales
Family:	Cycadaceae
Genus:	<i>Cycus</i>
Species:	<i>C. revoluta</i>
Binomial name	<i>Cycus revoluta</i> Thunb.

This very symmetrical plant supports a crown of shiny, dark green leaves on a thick shaggy trunk that is typically about 20 cm in diameter, sometimes wider. The trunk is very low to subterranean in young plants, but lengthens above ground with age. It can grow into very old specimens with 6–7 m of trunk; however, the plant is very slow-growing and requires about 50–100 years to achieve this height. Trunks can branch several times, thus producing multiple heads of leaves. The leaves are a deep semi glossy green and about 50–150 cm long when the plants are of a reproductive age. They grow out into a feather-like rosette to 1 m in diameter. The crowded, stiff, narrow leaflets are 8–18 cm long and have strongly recurved or revolute edges. The basal leaflets become more like spines. The petiole or stems of the sago cycad are 6–10 cm (2.4–3.9 in) long and have small protective barbs. Roots are called *coralloid* with an *Anabaena* symbiosis allowing nitrogen fixation. Tannins-rich cells are found on either side of the algal layer to resist the algal invasion. As with other cycads, it is dioecious, with the males bearing pollen cones (strobilus) and the females bearing groups of megasporophylls. Pollination can be done naturally by insects or artificially. Propagation of *Cycas revoluta* is either by seed or clonally by removal of basal offsets. The pith contains edible starch, and is used for making sago. Before use, the starch must be carefully washed to leach out toxins contained in the pith. Extracting edible starch from the sago cycad requires special care due to the poisonous nature of cycads. Cycad sago is used for many of the same purposes as palm sago. Sago is extracted from the

sago cycad by cutting the pith from the stem, root and seeds of the cycads, grinding the pith to a coarse flour and then washing it carefully and repeatedly to leach out the natural toxins. The starchy residue is then dried and cooked, producing a starch similar to palm sago/sabudana. The cycad seed contains cycasin toxin and should not be eaten as it is possible for cycasin toxin to survive the most vigorous of repeated washings. Cycasin toxin can cause ALS, Parkinson's, prostate cancer and fibrolamellar hepatocellular carcinoma.

The hydro-alcoholic extract of leaves of *C. revolute* shows the presence of alkaloids, steroids and tannins while the chloroform extract shows the presence of saponins, tannins and sugars.^[10] Leaflets also contain biflavonoids. Estragole is the primary volatile compound emitted from the male and female cones of *C. revolute*



***Cycus revolute* Plant**



***Cycus revolute* Male Cones**

Syzygium cumini

Name of the Plant	<i>Syzygium cumini</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Myrtales
Family:	Myrtaceae
Genus:	<i>Syzygium</i>
Species:	<i>S. cumini</i>
Binomial name	<i>Syzygium cumini</i> L.

A slow growing species, it can reach heights of up to 30 m and can live more than 100 years. Its dense foliage provides shade and is grown just for its ornamental value. At the base of the tree, the bark is rough and dark grey, becoming lighter grey and smoother higher up. The wood is water resistant. Because of this it is used in railway sleepers and to install motors in wells. It is sometimes used to make cheap furniture and village dwellings though it is relatively hard to work on. The leaves which have an aroma similar to turpentine, are pinkish when young, changing to a leathery, glossy dark green with a yellow midrib as they mature. The leaves are used as food for livestock, as they have good nutritional value. Dried leaves are also used to make (native) cigarettes by wrapping them around a small piece of tobacco leave. *Syzygium cumini* trees start flowering from March to April. The flowers are fragrant and small, about 5 mm in diameter. The fruits develop by May or June and resemble large berries; the fruit of *Syzygium* species is described as "drupaceous". The fruit is oblong, ovoid. Unripe fruit looks green. As it matures, its color changes to pink, then to shining crimson red and finally to black color. A variant of the tree produces white coloured fruit. The fruit has a combination of sweet, mildly sour and astringent flavour and tends to colour the tongue purple.

The seed of the fruit is used in various alternative healing systems like Ayurveda, Unani and Chinese medicine. The extract of the fruit and seeds are found be effective against hyperglycemia in diabetic rats. Wine and vinegar are also made from the fruit. It has a high source in vitamin A and vitamin C.



Syzygium cumini Flowers



Syzygium cumini Fruits

Millingtonia hortensis

Name of the Plant	<i>Millingtonia hortensis</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Asterids
Order:	Lamiales
Family:	Bignoniaceae
Genus:	<i>Millingtonia</i>
Species:	<i>M. hortensis</i>
Binomial name	<i>Millingtonia hortensis</i> L.F.

The tree grows to height of between 18 and 25 meters and has a spread of 7 to 11 metres. It reaches maturity between 6 and 8 years of age and lives for up to 40 years. It is a versatile tree which can grow in various soil types and climates with a preference for moist climates.

The tree is evergreen and has an elongated pyramidal stem. The soft, yellowish-white wood is brittle and can break under strong gusts of wind.

The leaf is imparipinnate. The white flowers come as large panicles which emit a pleasant fragrance. They are bisexual and zygomorphic. The bell-shaped sepals of the flower have five small lobes. The flower has four stamens with parallel anthers unlike in most other plants of this family where the anthers are divergent. The corolla is a long tube with five lobes

The fruit is a smooth flat capsule and is partitioned into two. It contains broad-winged seeds. The fruits are fed on by birds which aid in seed dispersal. In cultivation, the viability of seeds is low unless they are sown immediately after the fruit ripens, so the plant is generally propagated through cuttings.

The tree is considered ornamental and the pleasant fragrance of the flowers renders it ideal as a garden tree. The wood is also used as timber and the bark is used as an inferior substitute for cork. The leaves are also used as a cheap substitute for tobacco in cigarettes.



***Millingtonia hortensis* Flowers**



***Millingtonia hortensis* Fruits**

Muntingia calabura

Name of the Plant	<i>Muntingia calabura</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Malvales
Family:	Muntingiaceae
Genus:	<i>Muntingia</i>
Species:	<i>M. calabura</i>
Binomial name	<i>Muntingia calabura</i> L.

Muntingia is a genus of plants in the family Muntingiaceae, comprising only one species, *Muntingia calabura*. In Kerala it is seen in the areas adjacent to the Western Ghat. Usually it serves as a shade plant. The edible fruit ripens during November to January and is said to help diabetic patients. A small reduction was recorded in patients' blood sugar levels after consumption. A popular belief is that this tree leads to prosperity. 'Kattilanthi' is the colloquial name which means 'wild cherry'. It is also known as "Company Pazham". The tree is quite common in the dry land and planted for its shade along highways.

Muntingia calabura is a shrub or tree up to 12 m tall with spreading branches. The leaves are alternate, distichous, oblong or lanceolate, 4–15 cm long and 1–6 cm wide, with toothed margin and covered in short hairs. The flowers are small (up to 3 cm wide), solitary or in inflorescences of two or three flowers, with five lanceolate sepals, hairy, five obovate white petals, many stamens with yellow anthers, and a smooth ovoid ovary. Fruit, an edible berry, is red at maturity, about 1.5 cm wide.



***Muntingia calabura* Flowers**



***Muntingia calabura* Fruits**

Polyalthia longifolia

Name of the Plant	<i>Polyalthia longifolia</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Magnolids
Order:	Magnoliales
Family:	Annonaceae
Genus:	<i>Polyalthia</i>
Species:	<i>P. longifolia</i>
Binomial name	<i>Polyalthia longifolia</i> Sonn.

Large straight growing trees Found natively in India. It is introduced in gardens in many tropical countries around the world. Fresh leaves are a coppery brown color and are soft and delicate to touch, as the leaves grow older the color becomes a light green and finally a dark green. The leaves are shaped like a lance and have wavy edges. The leaves are larval food plant of the tailed jay and the kite swallowtail butterflies.

In spring the tree is covered with delicate star-like pale green flowers. The flowers last for a short period, usually two to three weeks, are not conspicuous due to their color.

Fruit is borne in clusters of 10-20, initially green but turning purple or black when ripe. The leaves are used for ornamental decoration during festivals. The tree is a main attraction in gardens throughout India. The tree can be cut into various shapes and maintained in required sizes. In past, the flexible, straight and light-weight trunks were used in the making of masts for sailing ships. That is why the tree is also known as the Mast Tree. Today, the tree is mostly used for manufacturing small articles such as pencils, boxes, matchsticks, etc. The oil of the seed has been confirmed to possess anti-oxidant, anti-lipoxygenase and antimicrobial.

Methanolic extracts of *Polyalthia longifolia* have yielded 20 known and two new organic compounds, some of which show cytotoxic properties. The fatty acid composition of the seed has also been reported.



***Polyalthia longifolia* Trees**



***Polyalthia longifolia* Flowers**



***Polyalthia longifolia* fruits**

Millettia pinnata

(Pongamia pinnata)

Name of the Plant	<i>Millettia pinnata</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Fabales
Family:	Fabaceae
Genus:	<i>Millettia</i>
Species:	<i>M. pinnata</i>
Binomial name	<i>Millettia pinnata</i> L.(Panigrahi)

Millettia pinnata is a legume tree that grows to about 15–25 metres in height with a large canopy which spreads equally wide. It may be deciduous for short periods. It has a straight or crooked trunk, 50–80 centimetres in diameter, with grey-brown bark which is smooth or vertically fissured. Branches are glabrous with pale stipulate scars. The imparipinnate leaves of the tree alternate and are short-stalked, rounded or cuneate at the base, ovate or oblong along the length, obtuse-acuminate at the apex, and not toothed on the edges. They are a soft, shiny burgundy when young and mature to a glossy, deep green as the season progresses with prominent veins underneath.

Flowering generally starts after 3–4 years with small clusters of white, purple, and pink flowers blossoming throughout the year. The raceme-like inflorescence bear two to four flowers which are strongly fragrant and grow to be 15–18 millimetres long. The calyx of the flowers is bell-shaped and truncate, while the corolla is a rounded ovate shape with basal auricles and often with a central blotch of green color. Croppings of indehiscent pods can occur by 4–6 years. The brown seed pods appear immediately after flowering and mature in 10 to 11 months. The pods are thick-walled, smooth, somewhat flattened and elliptical, but slightly curved with a short, curved point. The pods contain within them one or two bean-like brownish-red seeds, but

because they do not split open naturally the pods need to decompose before the seeds can germinate. The seeds are about 1.5–2.5 centimeters long with a brittle, oily coat and are unpalatable to herbivores.

The tree is well suited to intense heat and sunlight and its dense network of lateral roots and its thick, long taproot make it drought-tolerant. The dense shade it provides slows the evaporation of surface water and its root nodules promote nitrogen fixation. *Millettia pinnata* is well-adapted to arid zones and has many traditional uses. It is often used for landscaping purposes as a windbreak or for shade due to the large canopy and showy fragrant flowers. The flowers are used by gardeners as compost for plants requiring rich nutrients. The bark can be used to make twine or rope and it also yields a black gum that has historically been used to treat wounds caused by poisonous fish. The wood is said to be beautifully grained but splits easily when sawn thus relegating it to firewood, posts, and tool handles.

While the oil and residue of the plant are toxic and will induce nausea and vomiting if ingested, the fruits and sprouts, along with the seeds, are used in many traditional remedies. Juices from the plant, as well as the oil, are antiseptic and resistant to pests. In addition *M. pinnata* has the rare property of producing seeds of 25–40% lipid content of which nearly half is oleic acid. Oil made from the seeds, known as pongamia oil, is an important asset of this tree and has been used as lamp oil, in soap making, and as a lubricant for thousands of years. The oil has a high content of triglycerides, and its disagreeable taste and odor are due to bitter flavonoid constituents including karanjin, pongamol, tannin and karanjachromene. It can be grown in rainwater harvesting ponds up to 6 m in water depth without losing its greenery and remaining useful for biodiesel production.

The residue of oil extraction, called press cake, is used as a fertilizer and as animal feed for ruminants and poultry.

Long used as shade tree, *M. pinnata* is heavily self-seeding and can spread lateral roots up to 30 ft. over its lifetime. If not managed carefully it can quickly become a weed. However this dense network of lateral roots makes this tree ideal for controlling soil erosion and binding sand dunes.



***Millettia pinnata* Flowers**



***Millettia pinnata* Fruits**

Thespesia populnea

Name of the Plant	<i>Thespesia populnea</i>
Scientific classification	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Eudicots
Clade:	Rosids
Order:	Malvales
Family:	Malvaceae
Genus:	<i>Thespesia</i>
Species:	<i>T. populnea</i>
Binomial name	<i>Thespesia populnea</i> L.(Sol)

The *Thespesia* tree reaches a height of 6–10 m tall and its trunk can measure up to 20–30 cm in diameter. It grows at elevations from sea level to 275 m in areas that receive 500–1,600 mm of annual rainfall. The *Portia* tree is able to grow in the wide range of soil types that may be present in coastal environments, including soils derived from quartz (sand), limestone, and basalt; it favours neutral soils (pH of 6–7.4). Pollens are approximately 70 microns in size. The heartwood of the *Portia* tree is dark reddish brown to chocolate brown.



Thespesia populnea Flowers



Thespesia populnea Fruits