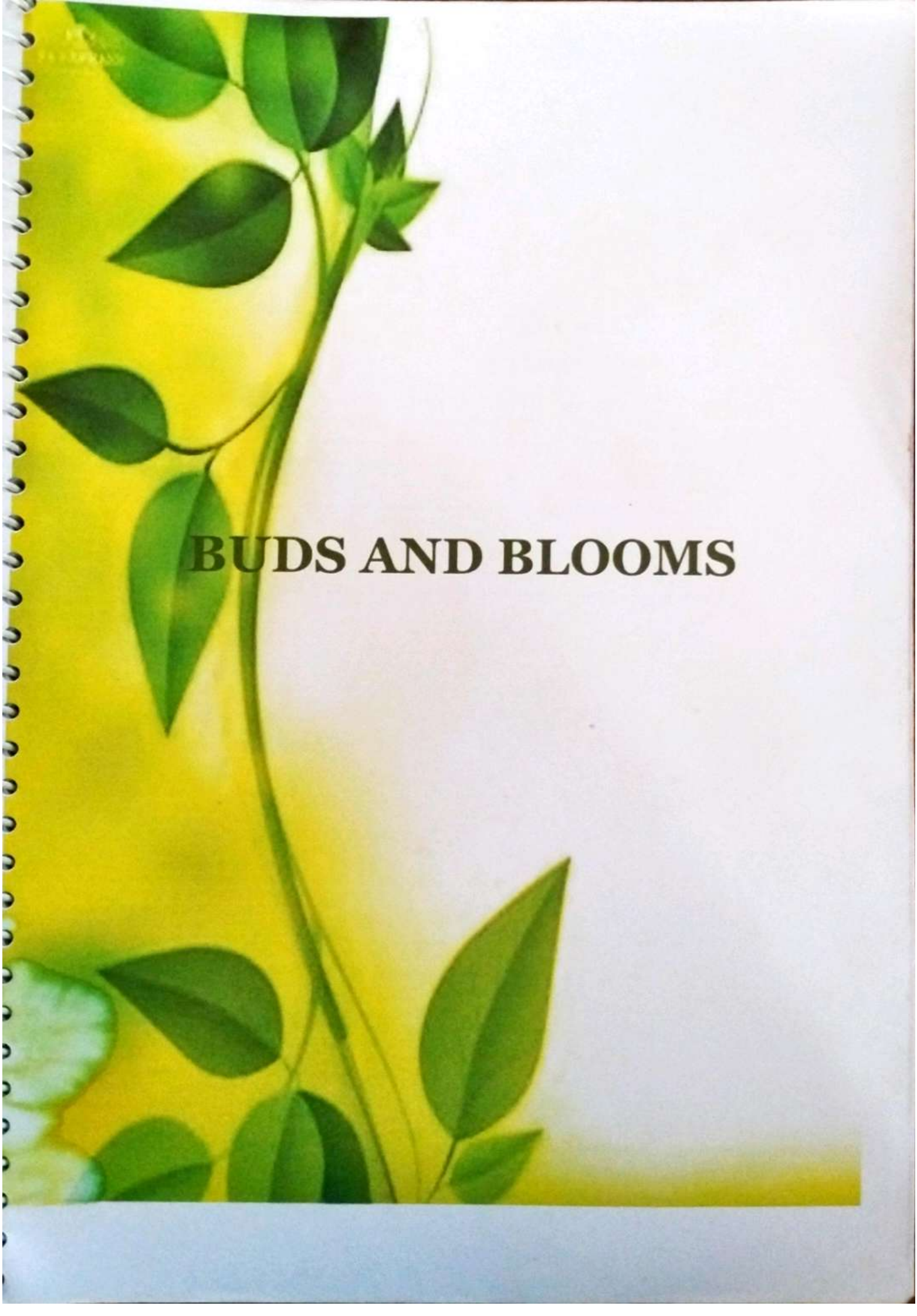
BUDS AND BLOOMS

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INTRODUCTION

This booklet named Buds and Blooms includes different plants and their detailed description of Malabar Botanic Garden & Institute for Plant Science. MBGIPS is dedicated to the conservation and research on aquatic plant diversity, lower group plants, endangered plants, as well as many other like medicinal plants, star forest etc. This book includes the details of plants in Aquagene area were wetland plants collected from different regions of the country are maintained. Also MBGIPS has an excellent collection of non flowering lower group plants – bryophytes. So this book includes the details of some important bryophytes that are maintained there. The pioneer vascular plants called as Pteridophytes are also maintained in the garden, near- by bryophytes. A list of Pteridophytes like psilotum, angiopteris, pteris etc… and their details are also provided in this book. Also the book includes the details of medicinal plants in the area called Sanjeevani which includes dhashapushpam, dashamoolam, and many other important plants with medicinal value. Book also comprises the details of the plants in metrological garden called star forest, which the book gives the details of the trees denoting birth stars. Another important area that the book covers is the list of rare, endangered plants that are present in the area Janakia of botanic garden. Most beautiful area of garden is Butterfly garden area in which different flower bearing plants are grown to attract butterflies. A list of such flowering plants is also included in this book. Along with these details of some important trees that are grown along the paths of botanic garden are also included in the book. In essence this book is a collection of details of different plant verities that are protected in MBGIPS.

Aquagene

Malabar Botanical Garden and Institute for Plant Sciences, a member of the Botanic Gardens Conservation International (BGCI), UK, has a very large collection of aquatic plants of India. These wetland plants are collected from different regions of the Country and are maintained in the Aquagene. The collections involve all Indian species of Nymphaea, Wolffia globosa, Trapa natans, Vallisneria spiralis, Nelumbo nucifera, Nuphar luteum, etc. In addition to the Aquagene, a natural breeding station for Nymphaea spp. is also maintained as'Sarovar'here. A scheme for establishing an "Aquatic Biopark" meant as the live gene bank of aquatics is also progressing at Malabar Botanical Garden, which is a Lead Garden of the Ministry of Environment and Forests, Govt. of India, . The delicate aquatic plants which are at the threat of extinction in its original habitats are cultivated ex situ in the Aquatic Plant Conservatory.

Some of the Aquatic plant conserved here are;

- ★ ***Wolffia globosa*** is a species of flowering plant known by the common name Asian watermeal. *Wolffia globosa* has been described as the world's smallest flowering plant, at 0.1–0.2 mm (0.004–0.008 in) in diameter. It is native to Asia and is found in parts of the Americas, where it may be native or naturalized. It grows in mats on the surface of calm, freshwater bodies, such as ponds, lakes, and marshes. It is a very tiny, oval-shaped plant with no leaves, stems, or roots. The body of the plant, a transparent green frond, is less than a millimeter wide. Like other Wolffia, the plant is edible and makes a nutritious food.
- ★ ***Trapa natans:*** The water chestnut is an annual aquatic herb with a rosette of floating leaves and submerged, paired but not opposite, pinnatisect and leaf-like adventitious roots.The plant can be free-floating in the water, or rooting in the mud in shallow water. It is also able to grow out of water in very wet, muddy soils.Its use as a food crop has greatly declined in recent times in Europe, but it is an important crop in many parts of Asia where it is widely cultivated for its edible seeds.The plant is also grown as an ornamental in aquaria and outdoor ponds.The raw seed contains toxins but that these are destroyed in the cooking process.

- ★ ***Vallisneria spiralis*** also known as straight vallisneria, tape grass, or eel grass is a common aquarium plant that prefers good light

and a nutrient rich substrate. In the wild, it can be found in tropical and sub-tropical regions worldwide. It has narrow, linear leaves that range in colour from a pale-green to reddish up to 3 feet (1 m) long and up to 0.75 inches broad. V. spiralis is monoecious with flowers carried on long spiral stalks that break away from the plant and float on the water's surface. Seeds have not been observed germinating in aquaria. Instead, it most often propagates by runners which can lead to dense stands.

★ ***Nelumbo nucifera*** also known as Indian lotus, sacred lotus, bean of India, Egyptian bean or simply lotus, is one of two extant species of aquatic plant in the family Nelumbonaceae. It is often colloquially called a water lily. Under favorable circumstances the seeds of this aquatic perennial may remain viable for many years, with the oldest recorded lotus germination being from that of seeds 1,300 years old recovered from a dry lakebed in northeastern China.

★ ***Nuphar lutea*** the yellow water-lily, or brandy-bottle, is an aquatic plant of the family Nymphaeaceae, native to temperate regions of Europe, northwest Africa, and western Asia.

★ ***Nymphoides Krishnakesara*** is a rare species with a very narrow distribution.More details about this plant is stil unknown.

★ ***Victoria amazonica*** is a species of flowering plant, the largest of the Nymphaeaceae family of water lilies.The species has very large leaves, up to 3 m (9.8 ft) in diameter, that float on the water's surface on a submerged stalk, 7–8 m (23–26 ft) in length. The species was once called Victoria regia after Queen Victoria, but the name was superseded. V. amazonica is native to the shallow waters of the Amazon River basin, such as oxbow lakes and bayous. It is depicted in the Guyanese coat of arms. The flowers are white the first night they are open and become pink the second night. They are up to 40 cm (1.3 ft) in diameter, and are pollinated by beetles. This process was described in detail by Sir Ghillean Prance and Jorge Arius. It is the largest waterlily in the world.

★ ***Ludwigia sedoides,*** commonly known as Mosaic Plant, Mosaic Flower and False Loosestrife, is a herbaceous perennial plant of the family Onagraceae. It has yellow flowers that bloom from June to August. This floating Ludwigia is native to Central and South America, where it can be found growing in stagnant waters as well as in sections of riverine environments that are free of current. It is a very common pond plant in warm climates or ponds in conservatories. Cultivation in an aquarium is a bit more complicatked.

BRYOPHYTES CONSERVATORY

Malabar Botanical Garden has an excellent live collection of non flowering lower group of plants, the Bryophytes. This primitive group constitute the second largest group of land plants and are considered to be the pioneer land plants. These are considered as 'Amphibians of the plant kingdom' due to their preference to aquatic and other wet habitats. They grow on varied substrates such as rocks, tree barks, concrete walls and other moist areas. The liverworts, hornworts and mosses constitute the Division Bryophyta. These are the groups with a dominant gametophyte and the sporophyte is parasitic on the gametophyte

Riccia fluitans

Scientific name: Riccia fluitans
Higher classification: Riccia
Kingdom: Plantae
Division: Marchantiophyta
Family: Ricciaceae

Riccia fluitans, whose common name is floating crystalwort, is an aquatic floating plant of the liverwort genus Riccia which is popular among aquarists as a retreat for young fry and is used in live-bearing tanks. It can be found floating in ponds, and often forms thick mats on and under the water surface.

Marchantia polymorpha

Scientific name: Marchantia polymorpha
Higher classification: Marchantia
Kingdom: Plantae
Class: Marchantiopsida
Order: Marchantiales
Family: Marchantiaceae

Marchantia polymorpha, sometimes known as the common liverwort or umbrella liverwort, is a large liverwort with a wide distribution around the world. It is variable in appearance and has several subspecies. It is dioicous, having separate male and female plants.

Funaria hygrometrica

Scientific name: Funaria hygrometrica
Kingdom: Plantae
Higher classification: funaria
Division: bryophyta
Family:Funariaceae

Funaria hygrometrica, the bonfire moss or common cord-moss, is a type of water moss which grows on moist, shady, and damp soil. It can also be found on moist walls and the crevices of rocks and places where recent fires have taken place. The plant body is green, soft, and upright, about half an inch tall.

Sphagnum palustre

Scientific name: Sphagnum palustre
Higher classification: Peat moss
Division: Bryophyta
Family: Sphagnaceae
Class: Sphagnopsida

Sphagnum palustre, the prairie sphagnum or blunt-leaved bogmoss, is a species of peat moss from the genus Sphagnum, in the family Sphagnaceae. Like other mosses of this type it can soak up water up to the 30-fold amount of its own dry weight thanks to its elastic spiral fibers.

Polytrichum commune

Scientific name: Polytrichum commune
Higher classification: Polytrichum
Division: Bryophyta
Family: Polytrichaceae
Class: polytrichopsida

Polytrichum commune is a species of moss found in many regions with high humidity and rainfall. The species can be exceptionally tall for a moss with stems often exceeding 30 cm though rarely reaching 70 cm, but it is most commonly found at shorter lengths of 5 to 10 cm.

Sphagnum fallax

Scientific name: Sphagnum fallax
Higher classification: Peat moss
Kingdom: Plantae

Medium-sized, green to mustard-brown, growing in carpets. Male plants may have a contrasting darker tip to the capitula and spreading branches. Capitula are convex and usually stellate, with developing branches in neat pairs, obvious between the capitula rays. Branch leaves are weakly to clearly in straight lines. Spreading and pendent branches are well-differentiated; the pendent branches are almost white, appressed to and hiding the stem, about as long as or shorter than the spreading branches.

Rhytidiadelphus triquetrus

Scientific name: Rhytidiadelphus triquetrus
Higher classification: Rhytidiadelphus
Rank: Species
Family: Hylocomiaceae
Kingdom: Plantae

Rhytidiadelphus triquetrus, the big shaggy-moss or rough goose neck moss, is species of moss in the family Hylocomiaceae. It is often the dominating moss species in moderately rich forest habitats in the boreal regions and the Pacific Northwest.

Phaeocarpus laevis

8. ***Gmelina arborea*** **(Kumizhu):** Commonly called as beach wood. The useful parts are heartwood, root skin, flower, leaf. Used in the treatment of snakebite and scorpion sting, promotes the growth of hairs, vata disorder, thirst, vaginal discharge, anemia, leprosy, and ulcers. Flowers are useful in leprosy and blood diseases. The root and bark are useful to improve appetite, hallucination, piles, and abdominal pains etc.. Leaf paste is applied to relieve headache. It has anti-fungal property.

9. ***Steriospermum suaveolens*** **(Pathiri):** Commonly known as broken bone plant. The root, leaves, fruits, seeds are used medicinaly. It is used to treat vata, kapha, cardiac disorders, inflammation, dropsy, gout, sprain, cough, asthma, bronchitis, dysentery, vomiting, sprain, wounds, stomachic and flatulence.

Scientific name: Phaeoceros laevis
Kingdom: Plantae
Higher classification: Phaeoceros
Division: Anthocerotophyta
Family: Notothyladaceae

Phaeoceros laevis, the smooth hornwort, is a species of hornwort of the genus Phaeoceros. It is commonly found in areas where moisture is plentiful, such as moist soils in fields, the banks of streams and rivers or inundated beneath the surface of the rivers.

PTERIDOPHYTES

Pteridophytes are the oldest group of land plants and they are the pioneer vascular land plants.They are a very diverse groups only next to angiosperms and produce neither flowers nor seeds,hence referred to as Cryptogams. MBGIPS offers conservation for different species of plants under pteridophytes. Some are;

1. ***Botrychium daucifolium***

Description :

Botrychium is a genus of ferns, seedless vascular plants in the family Ophioglossaceae. *Botrychium* species are known as **moonworts**. They are small, with fleshy roots, and reproduce by spores shed into the air. One part of the leaf, the trophophore, is sterile and fernlike; the other, the sporophore, is fertile and carries the clusters of sporangia or spore cases. Some species only occasionally emerge above ground and gain most of their nourishment from an association with mycorrhizal fungi. *B.daucifolium* is commonly called thin leaved moonwort.. It is an erect perennial herbs upto 60cm tall.Rhizome fleshy;sheath scales upto 3cm long,covering the base of stipe.Stipe is fleshy,sterile blade,compound dark green ,thick fleshy ultimate lobes,fertile branch arising below the sterile blade forming panicles.Spores tetrahedral,irregular in shape,whitish yellow,exine densely tuberculate.

It is generally found in evergreen and shola forest.In kerala ,it is found in Idukki ,Palakkad and Wayanad districts.

2. ***Osmunda huegeliana***

Description :

Rhizome erect or sub erect,scales abscent;stipes tufted,numerous.Lamina lanceolate,bipinnate,distal one fourth to one sixth part bearing sporangia;sterile pinnae upto seven pairs,shortly stalked,ascending.Pinnae pale green to rufous brown,texture coriaceous;fertile pinnules compressed,panicle forming,bearing large spherical sporangia all over the branches,spores globose. They are the terrestrial plants growing as large colonies or bushes in fully exposed marshy places near streams or lakes. Their fronds are used as tonic and also for rickets,rheumatism,and for intestinal gripping.

3. ***Pellaea boivinii***

Description :

Pellaea is a genus of ferns. Sometimes called **cliff brakes**, member species primarily grow in rocky habitats, including moist rocky canyons, slopes, and bluffs.

*P.boivinii have r*hizome erect to short creeping;rhizome scales dark to golden brown,paler margins,top slowly tapering to a point.Fronts tufted,erect,coriaceous.Stipe brownish black with a few scales near the base,similar to those on the rhizome.Lamina sharply triangular in outline,pinnae petiolate,deltate upto 15 pairs.Pinnules oblong to ovate in outline,margins entire,veins hardly visible,free.Rhachis,secondary rhachis brownish black,with short brown hairs on the upper surfaces.

Their habitat includes granite 'whalebacks',on sandstone in rock crevices and at the edge of vegetation islands overlying granite sheetrock.

4. ***Psilotum nudum***

Description :

Psilotum nudum, known as the **whisk fern**, is a fernlike plant. Like the other species in the order Psilotales, it lacks roots. It is found in tropical Africa, Central America, tropical and subtropical North America, South America,tropical Asia, Australia, Hawaii, southern Japan, Lord Howe Island, New Zealand, with a few isolated populations in SW Europe.

Its name, *Psilotum nudum*, means "bare naked" in Latin, because it lacks most of the organs of typical vascular plants, as a result of evolutionary reduction.

In tropical areas, this plant is often epiphytic, whilst in more temperate areas, such as south-eastern Australia, it is usually found growing in rock crevices

The plant, which grows wild in southern Japan, was once much cultivated in Japanese gardens as an ornamental plant.Called *matsubaran* ("pine-needle orchid") in Japanese, it was one of the noble plants in the Edo period .Known locally as Moa because of its chicken feet like stems, the Hawaiians collected large quantities of the spores and used them like talcum powder, under the loin cloth to prevent chafing. The spores were also used medicinally as a purge.Its common name, whisk fern, alludes to its use in the past as a small broom, made by tying a handful of its branches together. It is sometimes found in cultivation (either accidentally, as a weed in greenhouses, or deliberately, in the form of a number of cultivars).

It may prove to be a good source of antimicrobial chemicals.

5. ***Doryopteris ludens***

Description :

Doryopteris is a genus of ferns in the cheilanthoideae subfamily of the pteridaceae.

D.ludens is a species in that genus and it is a perennial that reaches the heights of 20 to 30 cm.They are evergreen and its leaves are simple.They are ovate,entire and petiolate.It is native to IndoChina and the Philippines.

The perennials prefer a half shady situation on moderately moist soil.The substrate should be gritty loam.They tolerate temperatures only above atleast one degree celsius.

They are noted for their shiny black stipes.Some of these ferns are highly dimorphic and are subtropical in their requirements.While this species has not been in full cultivation,it is now being cultivated by many fern growers.

6. ***Huperzia phlegmaria***

Description :

Huperzia phlegmaria (commonly known as either **coarse tassel fern**, or **common tassel fern** is an epiphytic species of tassel fern native to rain forests in Madagascar, some islands in the Indian Ocean, Asia, Australasia and many Pacific Islands. *H. phlegmaria* is commonly found in moist forests and rainforests at high altitudes; in and amongst mosses and other epiphytes.

A vascular species of the phylum **Lycopodiophyta**, *H. phlegmaria* resembles many species of moss.It is a variable species and plants from different regions and can vary widely in stature.They can be identified by having petiolate sterile microphylls and small fertile microphylls on thin branching strobili.Individuals of *H. phlegmaria* have true root systems. Their elongated aerial stems hang from host trees (up to 80 cm long. The spirally arranged leaves are **lanceolate** (lance like), narrow and rounded at the base. They become even narrower at the extreme base, where the **sporangia** are located in the fertile zone of the stem. Leaves are **coriaceous** (resemble leather). The leaves differ in morphology in the fertile zone, making distinction between the zones easy. Leaves in the fertile zone are known as **sporophylls**. Sporophylls are club shaped - hence the common name "clubmoss". Homosporous spores are produced in **axils**.

7. *Adiantum peruvianum*

Description :

Commonly called silver dollar.*A. peruvianum* is a large, beautiful fern, native to Peru. It is of tropical origin and is quite hardy in cultivation, but requires glasshouse conditions with moderate heat in temperate climates.It has black stems and large flat pinnules. New growth is oval shaped and displays a pale pink shade, later turning to pale green with a metallic sheen and finally to a dark green. Spores are produced around the edge of the leaflets. It is a remarkably handsome species, the fronds spread and hang gracefully dependent as the boughs of a weeping willow.The plant typically grows in partial to full shade, prefers moist but well-draining soil amended with organic matter, much like in its natural habitat in humus-rich woods.

Propagation by spore or division. Larger plants can be divided during repotting.

Uses: It is frequently grown as an ornamental greenhouse or house plant and is favored for its unusually large pinnules. They are an attractive addition to any home or office. Ferns are popular because of their graceful foliage and ability to grow in low light.

8. *Davallia fejeensis*

Description :

D. fejeensis is a species of fern in the Davalliaceae family.It is native to the Fiji Islands in Oceania.Named Rabbit's foot ferns for their delightful furry rhizomes that creep over the top of the plant pot. They grow on trees or within rock crevices taking moisture and nutrients from other sources "not soil" such as air, rain, trees and other debris.It is easily recognisable as a fern because of it's fronds (grow upright) that display gauzy or lace like leaflets. The small leaves are attached to kind of wiry stalks that grow from the visible rhizomes. These furry and yellowish brown rhizomes creep over the pot; they are main feature of this species.

SANJEEVANI

Plants have been one of the major sources of medicines since the beginning of human civilization. There is a growing demand for plant based medicines, health products, pharmaceuticals, food supplements and cosmetics in the recent days.

I) DASHAPUSHPAM

A fairly good collection of plants over 200 taxa used in Ayurveda include **Dasapushpam**, ten sacred plants of Kerala tradition and culture. As per the Tradition of Kerala, the women wears Dasapushpam garland on the head for it was considered sacred plants. Plants included in Dashapushpam are;

1. ***Aerva lanata* (L.) Juss. Ex. Schult (Cheroola)** this plant is commonly known as polpala, of Amaranthaceae family an important gregarious shrub. The plant is endowed with various components such as flavonoids, alkaloids, Triterpenes, steroids, polysaccharides, tannins, and saponins etc., which possibly contribute its diverse uses in folklore medicine. Several phytoconstituents including 6 alkaloids have been reported earlier. The plant also contains palmitic acid, β- sitosterol and alpha-amyrin. It also has anthelmintic action. The roots of plants are used in the treatment of headache. It is also used as demulcent & useful in strangury (Ayurveda). It is used in traditional medicine as antidiarrhoeal, diuretic, and in lithiasis. It is valued for cough, as a vermifuge for children, in the treatment of headache, and in arsenic poisoning. The herb is also used in malaria and skin diseases. The plant is reported as anti- inflammatory, diuretic in lithiasis, antimicrobial , anti diabetic, antitumour.

2. ***Biophytum sensitivum* (L.) DC (Mukkutti):** This herb is commonly known as Lajjalu in Hindi. It is a very small flowering plant, an annual herb of erect stem, stout or slender, and glabrous. Leaves crowded into a rosette on the top of the stem. The main constituent present is insulin. The other constituents are two biflavones, cupressuflavone and amentoflavone, three flavonoids, luteolin -7-methyl ether, isoorientin and 3'-methoxyluteolin 7-O-glucoside as well as two acids, 4-caffeoylquinic acid were isolated from the aerial parts of *Biophytum sensitivum*. In Ayurveda, this is a tonic, stimulant and in the treatment of stomach ache, diabetes and asthma. It is also used in insomnia, convulsions, cramps, chest-complaints, inflammations, tumors, chronic skin diseases. Decoction is given in asthma and phthisis. Roots decoction is given in lithiasis. The plant is bitter, expectorant, stimulant and tonic. The leaves are diuretic, relieve strangury. The seeds are powdered and applied to wounds. The root in decoction is given in gonorrhea and lithiasis. The crushed whole plant is used in chronic skin troubles. It is eaten to induce sterility in man. The effect of the leaf extract for the treatment of hyperglycaemic patients was studied on glucose homeostasis in rabbits. The study revealed the insulinotropic effect of *Biophytum sensitivum*. The anti-inflammatory activity of aqueous and methanol extracts of aerial parts and roots were studied in the carrageenin-induced rat paw oedema model. All the extracts except the methanol extracts of aerial parts exhibited anti-inflammatory activity.

3. ***Cynodon dactylon (Linn.) Pers.*(Karuka):** . Bermuda grass or Dhub grass was considered as a sacred grass by the Hindus, and it is still used for worships in temples. In ancient days, the Romans squeezed the juice from the stems and used it as a diuretic and also used to stop bleeding. It grows in open areas where there are frequent disturbances such as grazing, flooding, and fire. Bermuda grass is reported to contain cynodin, hydrocyanic acid, and triticin. Phenolic phytotoxins—ferulic, syringic, *p*-coumaric, vanillic, *p*-hydroxybenzoic and O-hydroxyphenyl acetic acids, are reported from the plant. The leaves contain flavone C glycosides and a flavonoid sulphate. The grass is a remedy in epitaxis, haematuria, inflammed tumours, whitlows fleshy excrescences, cuts, cystitis, nephritis and in scabies and other skin diseases. Herb is possessing astringent, anticatarrhal, styptic properties.*The Ayurvedic Pharmacopoeia of India* describes the dried fibrous root in menorrhagia, metrorrhagia and burning micturation. It is also reported to be antiseptic, demulcent, diuretic, and emollient. A decoction of the root is

used to stop bleeding from piles. Internally it is used in the treatment of chronic diarrhoea and dysentery. The leaf juice has also been used in the treatment of hysteria, epilepsy and insanity. The plant is a folk remedy for headache, haemorrhage, hypertension, measles, snake bite, uro-genital disorders warts and wounds.

4. ***Emilia Sonchifolia*** **Dc. (Nilaappana):** This plant is commonly known as Red Pualele. The aerial part of the plant has been reported to contain alkaloids, flavonoids, and terpenes. The aerial parts contain pyrrolizidine alkaloids, senkirkine and doronine. The plant is sudorific, antiseptic, astringent, depurative, diaphoretic, diuretic, expectorant, febrifuge, and ophthalmic. A tea made from the leaves is used in the treatment of dysentery. The juice of the leaves is used in treating eye inflammations, night blindness, cuts and wounds and sore ears. It is used in infantile tympanitis and bowel complaints. Root used as antidiarrhoeal. Leaf used for otitis media under medical supervision.Fresh juice and methanoic extract of *E. sonchilfolia* leaves reported to possess anti inflammatory and antioxidant activities. The water extract of this plant showed antimicrobial activity. It has been reported that the alcohol extract of this plant (aerial part) has cytotoxicity, as well as anti Ehrlich ascitic carcinoma (EAC) and anti Dalton's lymphoma ascites (DLA) activities in mice.

5. ***Eclipta Alba*** **Hassk.(Kayyonni):** This plant is commonly known as False Daisy. In Ayurvedic medicine, the leaf extract is considered to be powerful liver tonic, rejuvenative and especially good for the hair. A black dye obtained from *Eclipta alba* is also for dyeing hair and tattooing. It also has traditional external uses, like eczema and dermatitis,

on the scalp to treat hair loss and the leaves have been used in the treatment of scorpion stings. It is reported to improve hair growth and colour.The whole plant contains ecliptine, nicotine and stigmasterol. The entire plant contains triterpenes: ecalbatin, echinocystic acid, oleanic acid, ursolic acid, flavone. It is a potential hepato protective agent, in jaundice and in conditions of liver and spleen enlargement. Hypotensive and myocardial depressant activity, anti-inflammatory, abortion and miscarriage, piles, insect bites, swellings and other skin diseases.Dried aerial parts are used as a purgative, emetic, cholagogue, antiasthmatic. Leaves are used to treat epilepsy in India. Roots are used for insanity. The entire plant is used for tuberculosis and as haemostatic. Oil soluble extracts helps in promotion of growth and colour of hairs. Used for the treatment of hepatitis and cirrhosis, as an antibacterial, anti-haemorrhagic, as an antidote for snake venom. The hydroalcoholic extract of the dried leaf reported analgesic activity. Various Other biological activities which have been reported in the literature for the extracts of *E. alba*: hepatoprotective, antiviral, antirheumatic, molluscicidal, antimalarial and antifertility.

6. **Ipomoea sepiaria koen. Ex Roxb.(Thirutali):** This plant known as Lakshmana. Whole plant is used medicinally. Juice of the plant is used as deobstruent, diuretic, hypotensive, uterine tonic, antidote to arsenic poisoning. Seeds used as cardiac depressant, hypotensive, spasmolytic. Plant is also used in the treatment of sterility in women, urinary retention, constipation, gynaecological disorders. The plant is reported to show aphidicidal activity and appeared to be useful as pesticides.

7. ***Cardiospermum halicacabum*** **Linn.(Valliyuzhinja) :** Plants common names are Balloon vine, Heartseed vine, love in a puff and Winter Cherry.It is known to contain saponin, quebrachitol, apigenin, proanthocyanidin and stigmasterol. The leaves contain an alkaloid, oxalic acid and amino acids. The root is considered diaphoretic, diuretic, and aperient. The fried leaves are considered emmenagogue. The leaves and stem are used against common cold and angina. The leaf paste is applied on domestic animals to kill lice and other insects. It is used in the treatment of rheumatism, lumbago, skeletal fractures, nervous diseases, amenorrhoea, haemorrhoids, and erysipelas, emetic, laxative, rubefacient and stomachic.The herb is used in hair oils for treating dandruff, alopecia and for darkening hair. Seeds have positive anabolic activity and increase body weight by inducing a positive nitrogen balance. The alkaloid fraction from the seeds showed hypotensive activities and cardiac inhibition in anaesthetized dogs; blocked spasmogenic effects of acetylcholine, histamine on guinea pig ileum, biphasic action on frog rectus abdominus muscle. The seeds also showed antibacterial activity.

8. ***Evolvulus alsinoides*** **Linn.(Vishnukranthi):** In Sanskrit, this plant is known as 'Vishnu's step' and was used in worship.The plant was used as a remedy for dysentery and was used to enhance intelligence and improve memory. The plant contains beta-sitosterol, stearic, oleic, linoleic acids, pentatriacontane and triacontane. Betane, sterols, tannins, carbohydrates, proteins and alkaloid namely evoline are present in the whole plant. The whole plant is used for various ailments. The plant is useful in bronchitis, brain tonic, an aid in conception, astringent, anti-dysenteric and asthma. It is also useful in epilepsy, forgetfulness, falling and greying of hair, intermittent fevers and general debility. It is also one of the ingredients of the polyherbal formulation, Bramhi Grita. Used in nervine affections (epilepsy, insanity, spermatorrhoea), and duodenal ulcers, also for uterine affections uterine bleeding and internal haemorrhages. A decoction of the herb is given as a blood purifier. It is reported to show powerful stimulant activity on respiration and blood pressure (possibly analeptic). Aqueous extract of the petal showed antifungal property.

9. ***Vernonia cinerea* (Linn.) Less (poovamkurunnila)**: This plant is commonly called as ash-coloured fleabane.The whole plant is also considered to promote perspiration in febrile condition. The plant is anthelmintic, antibacterial, antiviral, antifungal, anti-inflammatory, diuretic, and stomachic. The roots are useful in diarrhoea, cough, inflammations, skin diseases, leprosy, renal and vesical calculi. The leaves are useful in humid herpes, eczema, ring worm, guineaworms, and elephantiasis. The flowers are used in conjunctivitis, vitiated condition of vata and fever. The seeds are useful in roundworms, threadworms, cough, flatulence, leucoderma, psoriasis, chronic skin disease; the plant is used as anticancer, febrifuge, diaphoretic (infusion of herb, combined with quinine, is used against malaria). Used as a specific herb for leucorrhoea, dysuria, spasm of bladder, strangury and for haematological disorders, as a blood purifier and styptic, also used in asthma.

10. ***Curculigo orchioides* Gaetrn** (Nilappana): This plant is known as Musali, is an important Ayurvedic as well as Unani drug.Since generations, it is in used as folk medicine. The root is bitter, appetizer, nervine, adaptogenic, sedative, anticonvulsive, androgenic and anti-inflammatory. It is also used in Jaundice, urinary disorders and skin diseases, useful in piles, fatigue, diseases of the blood. The rhizome is used for asthma, diarrhoea, and gonorrhea, demulcent and diuretic, tonifying kidney and for strengthening muscles and bones. According to Ayurveda, root is heating, aphrodisiac, appetizer, useful in the treatment of piles, fatigue, blood related disorders. According to Unani system of medicine, root is carminative, tonic, aphrodisiac, antipyretic and useful in bronchitis, ophthalmic, indigestion, vomiting.The plant is reported to possess hepatoprotective, immunostimulant and antioxidant activities.

Nakshathra Vanam

Trees of Birth Stars

A mythological garden has been established as a novel step creating public interest on trees. As per the Ephemeris, for each of the 27 birth stars a tree is denoted and a person caring his birth tree will get prosperity. This belief of the people has been perpetuated through the project for protecting these trees which are displayed at MBGIPS.

ASWATHI

Kanjiram (Nux Vomica)

Ancient Ayurvedic scholars call me Vishadru(poisonous tree). My poisonous nature protects me. I have strong physical and mental faculties.

If your star is Aswathi, you may also have similar faculties like

BHARANI

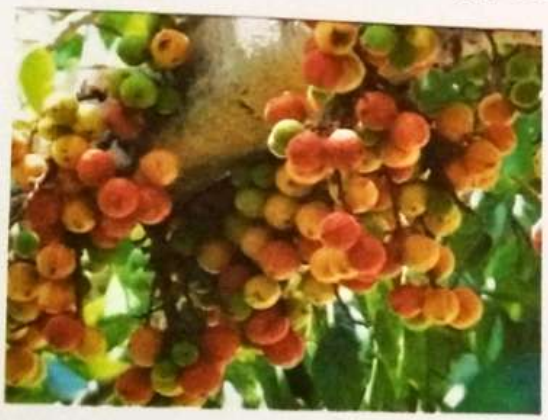
Nelli (Indian Gooseberry)

I am the Indian gooseberry. My ripe fruit is one of the components of the popular Ayurvedic formulation, "Triphala". Both Lord Vishnu and Lord Siva are also worshipped with my leaves.

KARTHIKA

Athi (Cluster Fig)

Ancient masters of Ayurveda called me 'Ksheera vriksha'. Owing to my special characters and quality, I am able to protect and purify the polluted environment. Therefore people plant me on the southern side of the home. My presence on the Northern side releases negative energy.



ROHINI

Njaval (Jamun)

I am considered as a tree of the God especially in India. According to Hindu tradition Rama subsisted in my fruit in the forest for 14 yrs during his exile from ayodhya.

MAKAYIROM

Karingali (Cutch tree)

My name is 'Khadira', meaning strong and stable. Use one for conditioning your physical and mental faculties.

THIRUVATHIRA

Karimaram (Cashmere Tree)

Thiruvathira is the star of Lord Siva. People celebrate his birthday during the month od 'Dhanu'(December).

PUNARTHAM

Mula (Bamboo)

People consider me as the king of grasses. My seeds are edible and leaves are medicinal , Astrologers say that my inner side is hollow an this special character is also seen in those born wit[redacted]h 'punartham' star.

POOYAM

Aryaal (Sacred Fig)

I am the son of Lord Maha Vishnu. This is because of my ability to enlighten the spiritual and mental faculties. I have my own energy field, releasing positive energy. Therefore people worship and plant me in temples.

AAYILAM

Nagapoo (Messua Tree)

I am the official flower of the serpent world. Snakes are my best friends. People of kerala worship Nagas for health, wealth and prosperity.

MAKAM

Peraal (BaniyanTree)

I have cooling atmosphere. I am one the ingredients of the 'Panchavalka'. If people plant me on the north side of the home, create abdominal diseases and if on the south side create positive energy.

POORAM

Chamatha, Plashu (Flame of the forest)

People call me 'Flame of the forest' because of my beautiful flowers which resemble the flame. I am used for rituals. I am the tree of Brahma, the creator of life. My leaflets represents Three- moorthi, Brahma, Vishnu, Shiva.

UTHRAM

Ithi (Indian Laurel)

I am stable and considered as the source of inspiration and knowledge. Those who are born on this day will also show similar characters. If I am planted within the homestead, I help to attain stability and courage to face any adverse situation most people born in this star choose teaching as their profession.

ATHAM

Ambazham (Hog Plum)

My fruit are edible, Gum obtained from my bark is used for fumigation, it acts as an insect and mosquito repellent.

CHITHIRA

Koovalam (Bael Tree)

I am considered as sacred by the Hindus. Its leaves are offered to Lord Siva duringworship. It is the star of Lord Kailasnath.

CHOTHI

Neermaruthu (Arjuna Tree)

Physically and mentally, I am very strong and stable. Those born in Chothi star will also have similar faculties. This may be the reason people of ancient India gave me the name 'Arjuna . People considered me as a savior of human beings from killer diseases like heart attack.

VISAKOM

Vayyankathavu (Governor's Plum)

My wood is used for making the 'Sruva' a ladle used for pouring ghee into the sacred fire, during the yanja.

ANIZHAM

Elanji (Bullet Wood Tree)

According to oral traditions, Lord Shiva is very fond of me. Hence I am planted in the temples or within the homested

THRIKETTA

Neervetti (Bodh Tree)

My popular sankrit name is 'Lodhra' meaning that whih is able to prevent diseases.

MOOLAM

Pine (White Dammar)

I am a huge tree. Gum that exudes from my body is highly medicinal and economically important. My fumes kill germs.

POORADAM

Vanzhi (Fish Poison Tree)

A powerful star with a tendency to create damage. Considered as a good star to perform rituals, sacrifices and start digging wells and gambling.

UTHRADAM

Plavu (Jack Fruit Tree)

I am large evergreen tree. Traditionally the people of Kerala used to design my leaves into very attractive eco friendly disposable spoon to drink rice gruel with green gram curry

THIRUVONAM

Erikku (Gigantic Swallow)

I am 'Arka' meaning the 'Sun'. I believe that special qualities like sharpness, brightness and hot character are gifts to me from the God.

AVITTOM

Vanni (Indian Gum Tree)

My body is very tough and hard. According to Indian mythology Agni Deva once hide amongst my branches and leaves to escape from the other Devas

CHATHAYAM

Kadambu (Kadam Tree)

I am Kadamba, considered as the tree of Buddhism. It is associated with the Lord Krishna and Parvathi. This star is related to Goddess Lakshmi.

PUROORUTATHI

Mavu (Mngo Tree)

I am the tree of Lord Hanuman. Mango trees are interwined with the history and ulture of the Indian people. Mangoes are present through out Hindu folklore and mythology.

UTHRATTATHI

Karimbana (Palmyra palm)

I am stable and has a relationship with Goddess Lakshmi. A good star to start rituals, peace initiatives and construction of houses

REVATHI

Attilippa (South Indian Mahua)

I am one of the best source of honey. My flower also smells like honey so people call me 'Madhuka'. Those born in revathi star may also have similar qualities like being sweet, soft spoken with attractive physical faculties. It is good star to star all auspicious functions.

BOTTLE BRUSH

Scientific name: Callistemone lanceolatus

Family : Myrtaceae

It is known as common red, crimson bottle brush is a plant in the myrtaceae family. And is endemic to new south wales and Victoria in Australia. It is a hardy and adaptable species. Common in its natural habitat. It is widely cultivated not only in Australia, often as species of callistemone. It is showy red flower spike present over most of the year in an ideal situation. It is an evergreen shrub growing to 5m tall and is hard, fibrous or papery bark with silky hairs. The petals are red long and fall of as flower age.

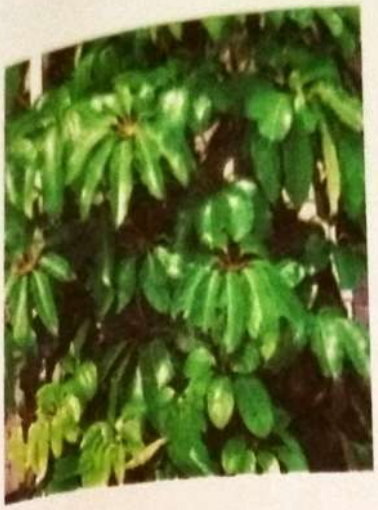
Plant has a number of uses for which it is harvested from the wild. The plant cultivated as ornamental plant.it is also used as water accent, anticough, antibronchitis and insecticide.

OCTOPUS TREE

SCIENTIFIC NAME: Schefflera actinophylla

Family; Araliaceae

It is a tree in the family araliaceae. it is native to tropical rainforest and gallery forest of Australia, java. Common names include Australia umbrella tree, queensland umbrella tree, octopus tree. It is invasive and can grow to 40 ft. Tall. Stems can be single or multistemmed. Leaves are palm like with 7 to 16 leaflets. Leaflets are ovate ,entire and long. Flower with red large inflorescence at stem tip. fruits are round dark and purple.plants are tolerate in wide range of sun. They are carnivorous plant found through out the world. Leaves coated with sticky dew like liquid.



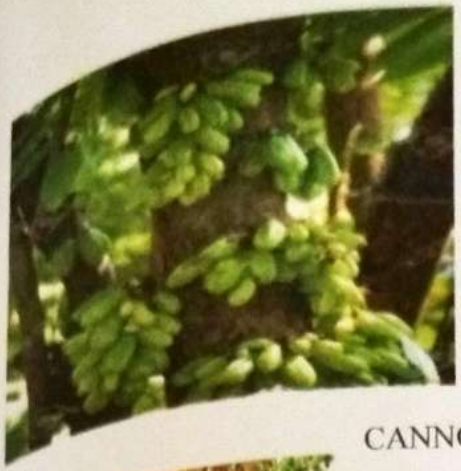
CUCUMBER TREE

Scientific name: Magnolia acuminate

Family : Magnoliaceae

It is commonly called cucumber tree, cucumber magnolia or blue magnolia is one of the largest magnolias, and one of the cold hardiest. It is a large forest tree of eastern united states and Canada .shining tree wood to preserve a stand of magnolia acuminate also known as the shining tree. The leaves are deciduous simple and alternate, ovate. 12 to 15 cm long and 6 to 12 cm wide. With smooth margins. They come in two forms , acuminate at both ends or cordate at base.

Cucumber trees are excellent shade tree for parks and gardens. they are tricky to transplant due to their coarse, fleshy root system.the wood is used as timber.



CANNON BALL TREE(NAGALINGA TREE)

Scientific name: Couroupita guianensis

Family : Lecithydaceae

Couroupita guianensis known by cannon ball tree, is deciduous tree in the family Lecithydaceae., which also include the Brazil nut and paradise nut. It is native to the rainforest of central and south America, and cultivatedin many other tropical areas throughout the world. Because of its beautiful, fragrant flower and large interesting fruits. There are medicinal uses for many parts of cannoball tree and it has many cultural and religious significance in India., Srilanka. Fruits are spherical giving commom name cannoball. An interesting feature of this tree are the large brightly coloured flowers with strong and sweet scented smell. They are orange.

SHIMSHIBA TREE

Scientific name: Amherstia nobilis

Family : fabaceae

It is a tropical tree in the family fabaceaehas large and showy flowers.it is the only member of the genus Amherstia. It is widely cultivated for ornament in the humid tropics, but is very rsre in the wild and only collected from its native habitat. It is native to Burma. Also called lady Amherst. Another common nane orchid tree. The extravagant flowers are seen hanging from the

long inflorescence, opr flower stalk, which is a bright crimson red at the end. The petals are five.
It is also called tree of heaven.