SERIES 1

Common plants
of the Maldives



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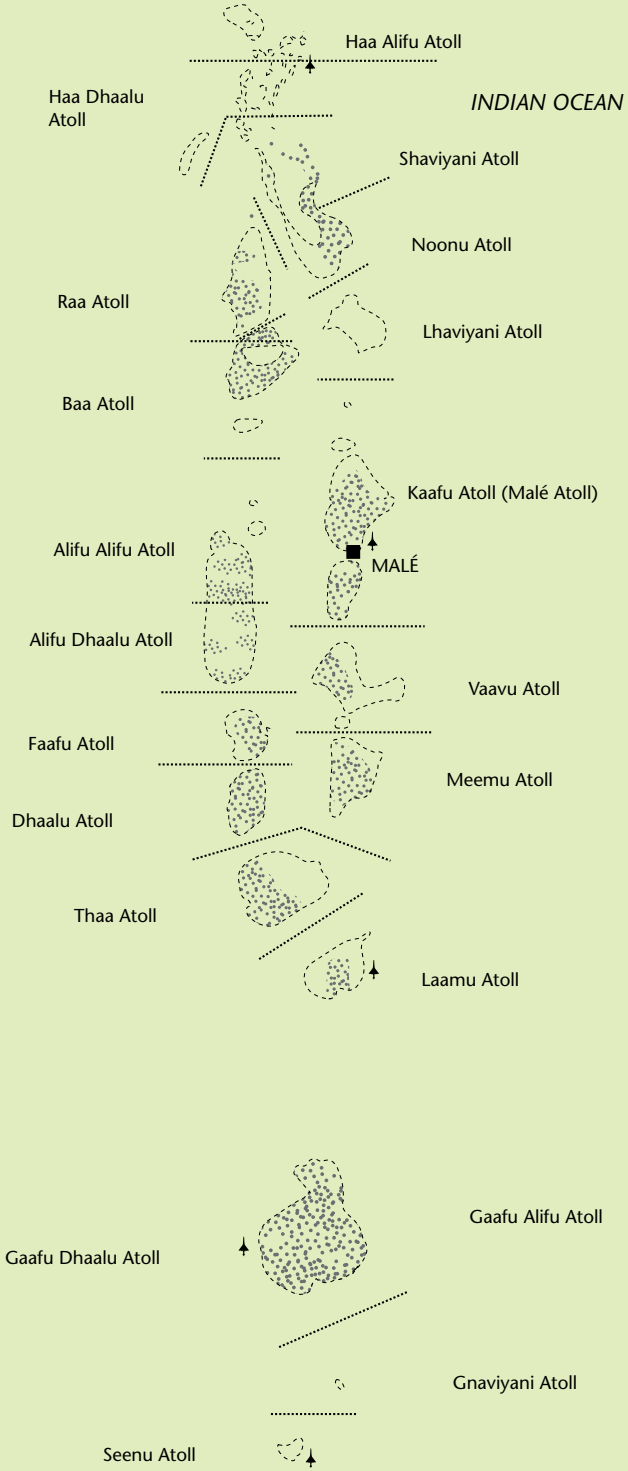
LIVE&LEARN
Environmental Education

The Maldives

- There are approximately 1190 islands in the Maldives with some form of vegetation on them.
- Approximately 200 are inhabited islands and 990 are uninhabited.
- There are 26 distinct geographical atolls. These are divided into 20 administrative regions, with the capital Male′ making up a separate administrative unit.
- The Maldives is 860km long and 130km wide.
- More than 99% of the country is water (115,000km^2) with less than 0.3% land (300km^2).



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Section 1

Introduction

Plants belong to the kingdom Plantae. They are one of the most evolved and diverse living organisms on Earth. Approximately 270,000 plant species have been recorded throughout the world, with more being discovered and identified all the time. Plants are the only organism capable of producing their own food using solar energy, and the direct and indirect role they play in sustaining life on earth is vital. The benefits derived from plants and plant communities are endless and people, having managed their plant resources for millennia, are the custodians of unique cultural and geographical knowledge of plants and their uses.

Common Plants of the Maldives is a starting point for people interested to learn about the trees and shrubs found in the Maldives. The book contains plant descriptions and photographs to facilitate identification followed by a number of their traditional uses recorded in the Maldives and throughout the world.

The fruit from the Breadfruit tree (Ban'bukeyo) is prepared and eaten in many different ways in the Maldives.

The acidic juice from the fruit of the Bilimbi tree (Bilimagu) was traditionally used to clean metal, tarnish brass and remove stains from cloth.

The Importance of Plants

Without plants, life on Earth would not be possible. As the foundation to all ecosystems, plants provide humans with direct and indirect benefits. They are an essential resource providing food; industrial products such as timber and clothing; pharmaceuticals and cosmetics, biotechnology and pest control. They provide aesthetic value, recreation, and help people to relax, to be creative and to increase productivity. They hold cultural, spiritual and religious significance and provide important wildlife habitats. Plants provide many goods and services which save people and Governments enormous amounts of money each year through clean water, climate and hydrological regulation, pollination, soil stability and nutrient cycling as well as forming the basis of wildlife habitats.

Oxygen and good air quality come from *photosynthesis* - the process through which plants make food. Land plants take carbon dioxide from the air, water from the soil and energy from the sun and convert them into sugar and starch.
The process of photosynthesis releases oxygen into the atmosphere which is vital for our survival. Through the intake of carbon dioxide, plants lessen the greenhouse effect caused by burning fossil fuels.

Plants in the Maldives

The Maldives is an island nation in the Laccadives - Chagos submarine ridge in the Indian Ocean. It has a warm and humid tropical climate with two monsoon periods. 583 plant species have been recorded in the Maldives, of which 323 are cultivated and 260 are native or naturalized species. This is a relatively large number considering the islands geographical isolation, harsh climatic conditions, the absence of large land masses and the poor and infertile nature of island soil. Southern islands are known to have greater plant diversity than northern islands, but the limited documentation of island ecosystems could mean that many more plants remain to be identified. The proximity of land to sea has resulted in plant species that are highly adapted to island conditions such as infertile and saline soil, drought, flooding and salt spray. Native plants play an important role in the prevention of beach erosion and protect against large waves. Relative isolation and slow island development has meant that a wealth of plant knowledge has developed over time as people have depended directly upon their natural resources to fulfill basic livelihood needs such as food, construction materials and medicine; for example, 300 plant species are used in traditional medicinal practices in the Maldives.

Firewood is collected and used daily on local islands.

The sweet fruit from the pandanus tree (maakashikeyo) is eaten and the leaves are used to make mats.

Plant Conservation

Today, the affects of human-kind on the environment are more evident than ever and increasing. Population increase, societal changes and the fast pace of development have resulted in habitat loss, natural resources over exploitation, invasive species introduction and climate change.

Out of the 270,000 plant species worldwide, one in eight is threatened with extinction; a possible food source, the cure to a disease or a keystone species within an entire ecosystem. The extinction of plants and entire ecosystems is followed by the loss of traditional knowledge and wisdom among people to protect and respect our environment.

Despite the importance of plant biodiversity for the well-being of present and future generations, putting a halt to the disappearance of species poses a great challenge

to the international community. Today Governments, organizations, communities and individuals are making efforts to ease the threats to plants around the world. This is being done through *in situ* conservation: the designation and management of protected areas, tackling invasive species, the promotion of sustainable plant use and habitat restoration, and *ex situ* conservation: the maintenance of living organisms (whole plants, seeds, pollen, tissue and cell cultures) outside their natural habitat (in botanical gardens); rescuing threatened germ plasm, removing and reducing pressure from wild harvesting and making material for conservation education available to people.

Guidelines to Collecting Plants

Here are a few guidelines to help make learning about and collecting plants safe for you and the environment.

- Do not touch or consume any plant you are unfamiliar with. Plants and their inner latex can cause skin irritations, sting or make you ill if eaten.
- If the root is the desired part of the plant, leave some in the ground to ensure new growth. Removing the entire root system will kill the plant leaving one less plant in the ecosystem! If the roots are not required, ensure to take only what's above the ground.
- Wild plants are perishable and fragile; take care not to damage plants in your day to day activities.
- Collecting wild plants can put significant stress on plant populations. Vary your collection sites so the same species are not repeatedly collected from the same area.
- Before collecting, know which plants are rare and which are commonly found.

Types of Plants

There are many different types of land and aquatic plants. Within these categories are trees, herbs, shrubs, vines, ferns, grasses, mosses, green algae and epiphytes. This booklet focuses solely on a number of land plants.

A herb is a non-woody plant. It has a soft stem e.g. periwinkle.

A shrub is a woody plant. It has multiple stems and is low to the ground e.g. sea lettuce.

A vine is a climbing or trailing plant with curling stems or tendrils e.g. beach morning glory.

Main Features of Plants

Embryophytes or land plants are the most commonly known group of plants. Land plants come in all shapes and sizes but their basic structure is very similar. The external parts of the plant are called organs; the roots, stem, flowers and leaves. The roots anchor the plant to the ground and allow it to absorb water. Roots are usually underground but can sometimes be found above ground also, as with the banyan tree. The stem carries the water and minerals to other parts of the plant. It grows upwards and bears leaves. On a tree, the stem is called the trunk with branches that extend to the leaves. Plants reproduce and disperse through their fruit and seeds.

Leaves

The leaves are an important part of the plant as they aid the processes of transpiration and photosynthesis. Transpiration is the process by which water evaporates from the leaves while the stomata or pores of the leaf are open for the passage of carbon dioxide and oxygen. It is also the mechanism through

Bee pollinating the flower of tree heliotrope (boashi).

Flowers can be all different colours and shapes.

which the plant keeps its leaves cool and draws up water and minerals from the roots. Leaves are the main organ of photosynthesis. Photosynthesis uses the sun's light to convert carbon dioxide into food-sugar and starch. It is during this process that oxygen is released into the air. Leaves also serve to protect the plant.

Leaves can be all shapes and sizes, with smooth and severed margins and with different venation. For example, look at the difference in shape between the coconut palm leaf and the leaf of the breadfruit tree. With so much individuality and detail, leaves are one important way in which a plant can be identified.

The leaves of deciduous plants change colour, fall off and re-grow according to the seasons of the year, while coniferous, or ever-green plants, never shed their leaves.

The Flower

Flowers are often the most attractive part of the plant. They are intricate, colourful and scented making them another important means of identification. They also contain the plant's reproductive organs. All parts of the flower - the

petals, stamen, stigma, pollen and nectar - work together to attract pollinators (birds and insects), and ward off predators. Once pollinated, the plant can produce fruits and seeds. Some flowers must be pollinated by a pollinator, while others complete the process on their own.

Fruits and Seeds

Plants are dispersed by their fruit and seed. This happens in a number of ways: exploding, being eaten, attaching to animals, drifting through the air or floating in water. The structure of the fruit or seed often depends upon its mode of dispersal. Some fruits taste sweet, encouraging animals to eat them and carry their seed. Others have a hard coat, or are covered in spikes and inedible. The coconut seed can float extensive distances in water.

Fruit and seed of a coconut.

Plant Names

A plant can be called by its:

1. Common name e.g. Indian almond
2. Scientific name e.g. *Terminalia catappa*. Scientific names are usually written in italics.
3. Local name(s) e.g. midhili

The formal system of naming plant species is through the *binomial classification system*. Instead of using the seven-category system of kingdom-phylum-class-order-family-genus-species, scientific names are formed using only the genus name, and the specific name or epithet. The genus name always begins with a capital, the specific name does not. The full name is often written in italics. Botanical scientific names are usually followed by the abbreviated surname of the scientist who first published the classification, this is never italicized e.g. *Guettarda speciosa* L.

Section 2

Plant descriptions

In the following pages you will find some of the most commonly found and utilized native plants of Maldives. A new plant description is given on each page with information about its global distribution and habitat, key features to help you identify the plant and its many uses in the Maldives and abroad. A terminology page is provided at the back of the book on page 44, to ensure that your interest to learn about Maldivian plants is made easy and enjoyable. Whether you're relaxing on the beach or exploring the forests and natural vegetation, you will be amazed by the versatility of plants and the many things they offer from delicious fruits to medicine, nutritious foods, firewood and construction materials, religious and ritualistic significance to soil stability and so much more.

Coconut Palm

Scientific name: *Cocos nucifera* L. (family Arecaceae)

Dhivehi name: Dhivehi ruh

Distribution: The coconut is a pantropical plant found across Africa, South America and Asia. Its wide distribution has been aided by humans and the ability of the coconut seed to drift extensive distances across water. In the Maldives, the coconut palm is a pioneer species, quickly growing and colonizing new land. Today it is found and used throughout the country.

Description: The coconut is a tall palm reaching between 20 – 30 m in height. It has a smooth grey bark marked with leaf scar rings. The leaves can be 6 m in length and are pinnate with bright green leaflets. Male and female flowers are on the same inflorescence. Female flowers are larger than male flowers. They are yellow and sweetly scented. The fruit is large and ovoid. The seed is surrounded by a thick fibrous husk. Inside the seed is a white fleshy layer and a liquid (coconut water/milk). Fruits are greenish-yellow at first turning brown when mature.

Uses: The coconut palm is considered to be one of the ten most useful trees in the world, giving it the name, 'The Tree of Life'. Throughout the tropics, the coconut is an important source of food: sprouting seeds, the thick flesh and watery milk. From the stem a starch is extracted and made into flour. The fibers, called coir, are woven into rope, mats, and bags or used for padding in mattresses. The hard fine grained shell is often carved into decorative pieces or burned as charcoal on the fire. The palm wood is carved into ornamentals. The leaves are also woven into mats or baskets and the leaf fibers used to make clothing. The root can be used as a dye. The root and the coconut are also used medicinally.

The coconut palm is a keystone species in the Maldives. It is one of the principle agronomic crops, and almost all parts of the coconut palm can be used. It is an important food source for people, animals and insects. As the national tree of the Maldives, the coconut has become an integral part of Maldivian life. In Dhivehi, names have been given to each stage of the coconut e.g. eh, maa, gobolhi, miri, kurumba, gabulhi, kaashi, kurolhi.



Sea Hibiscus

Scientific name: *Hibiscus tiliaceus* L. (family Malvaceae)

Dhivehi name: Dhiggaa

Distribution: The sea hibiscus is widespread throughout the tropics and sub-tropics. In the Maldives, it is found along the seashore, in forests and residential areas.

Description: Sea hibiscus is an evergreen tree or large bush. It can grow between 8 – 10 m in height and just as wide if not pruned. The tree can vary greatly in form, leaf and flower colour. The short trunk extends and entwines to form a dense thicket of branches and foliage. The bark is grey to light brown and fissured with horizontal cracks. The leaves are simple, heart-shaped and large. The upper surface is usually bright green while underneath they are greenish-grey. The flowers are cup-shaped with a corolla of 5 bright yellow petals and a crimson base. They are short lived, falling on the same day they open. Before falling, the flowers will fade to a dull orange or reddish colour. In winter there may be few or no flowers in mild-tropical or subtropical climates, but the flowers may remain on the tree for more than a single day, creating an interesting effect as both yellow and reddish flowers can be seen on the trees at the same time. The fruit is a brown ovoid capsule that splits into 5 segments and ten cells of seeds when mature.

Use: The plant serves as a coastal wind-break and boundary plant. In the Maldives, it is used for boat building, tools and firewood. The bark contains strong, water resistant fibers which are used for mat-weaving, rope and fishing nets. The wood of the plant is hard and rich in colour and widely used in household furniture.

Sea hibiscus tolerates a wide variety of soils ranging from coralline, skeletal soils to waterlogged swampy soils of medium to heavy texture. It also tolerates aerosol salt spray, brackish water and shallow flooding.

Beach Gardenia

Scientific name: *Guettarda speciosa* L. (family Rubiaceae)

Dhivehi name: Uni

Distribution: Beach gardenia is found in the Indo-Pacific region. It is present on all islands in the Maldives. It grows in abundance along coastlines, in dune scrub, on sand and rock, and on edges of mangroves.

Description: Beach gardenia is a small to medium sized shrub reaching between 5 – 10 m in height and 3 m in width. The bark is a creamy-grey colour and smooth. The leaves are large and ovate with a blunt tip and rounded or heart-shaped base. They are dark green with prominent venation. The upper surface is smooth while underneath there is a velvety pubescence. The small, tubular flowers are 2.5 – 5 cm. long and grow from the leaf axils. The corolla is creamy white, yellow or greenish white in colour and scented. The flowers are sensitive to the sun and so bloom in the evening and fall before dawn. The fruit is rounded, faintly ribbed and about 1.5 cm. in diameter. They are green when unripe and brown when mature. Mature seeds can float and are dispersed by ocean currents.

Uses: The white, durable, hard wood of beach gardenia is used in the construction of houses and boats. In the Maldives, it is said that heating the wood before use strengthens it. To keep its freshness for future use, the wood is buried under the sand near the sea. The wood is used as firewood and in lacquer work, for which Baa Atoll is famous. The latex of the plant is used medicinally to treat wounds and the flowers are used in Ayurvedic medicine. Considered as one of the most sweetly scented flowers in the Maldives, people have been known to hang their clothes over the trees at night to absorb the scent. Throughout the Pacific, beach gardenia is used in agroforesty and it is a good bioshield for coastal areas.

Ironwood

Scientific name: *Pemphis acidula* J. R. Forst. & G. Forst. (family Lythraceae)

Dhivehi name: Kuredhi

Distribution: The wind and salt-resistant ironwood is found along tropical coastlines, close to high tide line of coral islands and at the edge of mangroves.

Description: This is an evergreen shrub that grows in dense thickets. The leaves are opposite and decussate; small, fleshy and succulent; oblong-ovate shaped; attenuate at the base and with entire margins. The flowers are small and solitary with 6 petals. The petals are elliptic, shortly clawed or sessile, white-pink tinged. The flowers are pollinated by bees, and are produced throughout the year. The seeds are a dehiscent capsule that float and are dispersed by water.

The plant retains water in the leaves making it well adapted to arid climate and soil conditions. Ironwood is a very strong shrub and can withstand the harsh forces of nature. If it is not given a regular spray of sea water, the tree can become weak and die.

Use: The wood is very hard and resistant to warping. It is used in house construction, boat building and the making of tools and ornamental objects.

Banyan Tree

Scientific name: *Ficus benghalensis* L. (family Moraceae)

Dhivehi name: Nika

The tall Banyan is said to have been a guide for Maldivian boatmen when out at sea.

Distribution: The banyan tree originated from India and Pakistan but is now naturalized and found across Asia. It is an important tree in the Maldives.

Description: The banyan tree is an evergreen tree approximately 25 m in height. The bark is smooth and grey. The leaves are alternate, ovate to elliptical in shape with a blunt tip and heart shaped base; the margin entire and puberulous. It is characterised by the aerial roots that extend down from the branches. This can make it spatially very large. The seeds germinate on other trees from which large strong roots grow and extend gradually choking the host tree. When the roots reach the ground, they take root and grow into woody trunks that can become indistinguishable from the main trunk. The fruit, a fig, is paired, small and downy. The seeds are most commonly spread by local birds and bats that feed on the fruit.

Use: In the Maldives, the aerial roots *alhoa*, are used for making yard which support the sail of *dhoni* - known as *farumaan* in Dhivehi. The wood is also used for boat construction. The tree is commonly planted for shade in residential areas, and soil conservation. The fruit is eaten with sugar or *rihaakuru* (tuna fish paste). According to Ayurvedic and Unani sytems of medicine, almost all parts of the plant, the leaves, bark, latex, fruit and the roots have medicinal properties.

Indian Almond

Scientific Name: *Terminalia catappa* (family Combretaceae)

Dhivehi name: Midhili

Distribution: The Indian almond is native to Southeast Asia where it is common throughout the area. It also found in Australia, Polynesia, India and Pakistan, Africa and South and Central America.

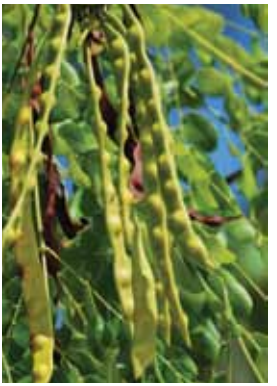
Description: The Indian almond is a deciduous tree approximately 20 – 30 m tall. The bark is dark grey or brown and fissured; the branches are arranged in tiers. The leaves are alternate, clustered at the branch tips and arranged in rosettes. They are obovate, thinly leathery, shiny, glabrous, varying in colour from green, orange, yellow and red. The flowers appear in long spikes, primarily male with few bisexual flowers at the base. They are small and greenish-white. The fruit is ovoid and turns from green to orange or red when ripe. The seed is surrounded by a thick juicy flesh.

Use: The bark, leaves, root and green fruit of the Indian almond provide a black dye, used for tanning leather, dying cotton and as pen ink. The timber is used for house furniture. The seed and fruit are eaten. Oil is extracted from the seed and administered as a medicine. The leaves and bark also have medicinal uses. The tree is also planted to provide shade.

Red Sandalwood

Scientific name: *Adenanthera pavonina* L. (family Mimosaceae)

Dhivehi name: Madhoshi



Red sandalwood grows in a variety of soil types but prefers neutral-acidic soils. It can quickly form colonies in moist closed forests.

Distribution: Red sandalwood is found throughout the tropics.

Description: This is a large tree reaching 30 m in height with a trunk about 90 cm in diameter. The bark is smooth with brown-grey fissures. The leaves are pinnate with 3 – 6 pairs of pinnae, 4 – 9 pairs of leaflets per pinna. Leaflets are ovate-oblong and downy. Leaves are pale green turning yellow with age. The inflorescence is a raceme with small, yellow star shaped flowers. Flowers are scented. The fruit is a brown pod that spirally contorts before opening. It bears 6 – 10 scarlet seeds. The red sandalwood flowers and fruits throughout the year.

Use: This tree is used as an ornamental and shade tree for cultivated tree crops. In the Maldives, the red wood is used in boat building. Raw seeds are toxic but roasted seeds are commonly eaten and ground into coffee. The young leaves are eaten as a vegetable. The seeds are collected by children for games such as *Ohvalhugondi* and *Thinhama*. It is said that the seeds were previously used to weigh gold, as almost all the seeds have a uniform weight of 0.25g. The tree fixes nitrogen and improves soil fertility.

Portia Tree

Scientific name: *Thespesia populnea* L. Soland. Ex Correa (family Malvaceae)

Dhivehi name: Hirun'dhu

Distribution: The portia tree is found in coastal areas throughout the tropics.

Description: This evergreen tree is bushy when young but thins out with age. It grows to 13 m with a spread of 3 – 6 m. It grows rapidly under favourable conditions. The bark is brown-grey and fissured. The leaves are arranged spirally, simple and entire. They are heart-shaped, shiny green, usually ranging in size from 5 – 20 cm in length. The flowers are solitary in leaf axis. The corolla is large, with 5 yellow petals and maroon spots at the base. Towards the end of the day, the flowers can turn purple. They are produced intermittently throughout the year in warm climates. The fruit is a globose capsule that contains many seeds. It is yellow-brownish green when mature. The fruit can float in water and is dispersed by ocean currents.

Use: The portia tree is an important timber species throughout its area of distribution. The fine-grained, durable wood is used in the Maldives for construction and boat making, furniture and household items. In other parts of the world it is also used to make jewellery, musical instruments, decorative paneling, toys and ornaments. The flowers and fruit make a yellow dye. Fibers from the bark are used to make cordage. Most parts of the plant are used in traditional medicinal practices. The portia tree acts as a natural boundary, is ornamental and provides shade.

The Lantern tree

Scientific name: *Hernandia nymphaeifolia* (C.presl) Kibitzki (family Hernandiaceae)
Dhivehi name: Maskan'dhu

Distribution: The lantern tree occurs throughout the tropics and is abundant in forested areas of the Maldives.

Description: This coastal tree can grow above 20 m in height. It has a large trunk with grey-brown bark that is flaky and slightly fissured. The leaves are large, peltate, simple and heart-shaped; shiny and alternate in arrangement. Flowers are greenish-white with male (3 petals) and female (4 petals) flowers separate. The flowers are scented. The fruit is round and has one seed. The surrounding flesh is waxy white or red. The seed is dispersed by bats.

Use: The wood of the lantern tree is soft and less durable, however, it is easy to carve and manipulate and is therefore used in Maldives to make handicrafts such as souvenir *dhonis*. Trunks and large branches were commonly used for rolling *dhonis* into the sea. Poles are made to support betel vine. The leaves, root and bark are used to prepare *ruhgalu beys* a treatment for bone fractures. The flowers are known to alleviate headache.

Sea Lettuce

Scientific name: *Scaevola taccada* (Gaertner) Roxb. (family Goodeniaceae)

Dhivehi name: Magoo

Distribution: Sea lettuce is found from Madagascar across Southeast Asia and throughout the Pacific. It is also cultivated in the United States. In the Maldives, it is commonly found along the seashore.

Description: Sea lettuce is a spreading shrub that grows up to 7 m tall. Branchlets are smooth, cylindrical and tapering. Leaves are thin and fleshy; alternate, sessile and crowded at the end of the branches; they are spatulate in shape with sinuate to dentate margins and relatively smooth. They have a wax layer which helps them to survive the salt spray. Inflorescence is axillary, cymose, branched and slender with few flowers. Flowers are white or pale yellow, scentless and have 5 petals. The fruit is a fleshy 2-seeded drupe, white when ripe. The seeds are carried by birds and can float in seawater. In the ancient days they were used as firewood.

Use: The leaves, stem and root have been used medicinally throughout Asia and the Pacific. In the Maldives, sea lettuce was traditionally used for rafters and roofing strips on houses. It is considered a 'famine food' as the leaves have been eaten during times of food shortage. It is used as firewood and for making handicrafts. Medicinally, the juice from the leaves has been applied to reduce swelling and eye infections. It also has ornamental value, and is used for soil stabilization and wind and salt spray protection.

Tree Heliotrope/ Octopus Bush

Scientific name: *Heliotropium foertherianum* Sy: *Tournefortia argentea* (family Boraginaceae)
Dhivehi name: Boashi

Distribution: Tree heliotrope is found on Africa's East coast and islands in the Indian and Pacific Oceans. It is a strand plant, restricted to coastal environments hence it tolerates saline conditions, nutrient-poor and rocky soils.

Description: Tree heliotrope is a spreading tree that grows 6 – 12 m in height. It is anchored to the ground even in the harshest of coastal conditions by its strong vertical and lateral root system. The bark is grey-brown with deep ridges and grooves. The branches are stout with prominent leaf scars. The leaves are at the end of the branches. They are spirally arranged, oblanceolate, grey-brown and velvety on both sides; sessile or with short petiole. Inflorescence is cymous with numerous flowers; sessile or with small petiole. Calyx (plural of sepal) is long and velvety. The petals are white and as long as, or just shorter than the calyx. Its flowers bloom almost continuously throughout the year. The small green fruit is globose, ribbed and turns brown when mature. Inside are 2 – 4 seeds.

Use: Ecologically, tree heliotrope is an important species on islands. It serves as a nesting site for sea birds and is valuable in coastal protection such as screening against salt spray, as

a windbreak and soil stabilizer. The trees are an important source of mulch. As it flowers almost all year, it is important bee forage and attracts butterflies, both of which are important for a healthy ecosystem. On Pacific Ocean Islands, the leaves were traditionally used as fish bait and fish poison. Tree heliotrope has also featured prominently in the cultural ecology and ritual of many islanders. The leaves can be eaten raw and used as animal fodder. The wood is harvested for canoe and house construction, making handicrafts and tools, and for fuel. It is also valued for its medicinal properties. The meristem and inner root bark are used to treat children suffering from dermatitis and diarrhea, or to stop the bleeding of wounds. The leaves are put in a bath as a restorative for women after childbirth. A mixture of the inner root bark and coconut is used to treat hemorrhoids. An infusion from the leaves is ingested to treat food poisoning. They also produce a red dye. The leaves were traditionally used as a deodorant and to preserve and reduce odor of corpses. Ritually, the wood close to the ground is used to cure diseases caused by the violation of sea taboos, and the immature flower stalk is used in love magic. Tree heliotrope also serves as an ornamental and shade tree in home gardens.

Tree Heliotrope makes a good habitat for shrub-nesting seabirds like the Grey heron.

Sea Trumpet

Scientific name: *Cordia subcordata* (family Boraginaceae)

Dhivehi name: Kaani

Distribution: The sea trumpet can be found on beaches on the African East coast and throughout the Indo-Pacific region. It inhabits all Maldivian islands.

Description: Sea trumpet can grow into a tree of 15 m with a wide canopy. The leaves are light green, alternate, ovate to circular in shape, usually glabrous or with some minute flat lying hairs. Older plants can be pubescent and dotted with groups of cystoliths (concretion of minerals). Inflorescence is cymose and loosely branched. Flowers are long, funnel shaped with 5 – 7 wrinkled lobes and joined near the apex. They are orange in colour and scentless. The fruit is circular, smooth and shiny, green when young, brown and hard when ripe.

Use: The wood is fine-grained, soft and durable. In the Maldives, the timber is used for house and boat building and handicraft making. The leaves are used to make a dye that is applied to fish nets and lines to make them less visible to fish. It has also been used medicinally.

Alexandrian Laurel

Scientific name: *Calophyllum inophyllum* L. (family Clusiaceae)
Dhivehi name: Funa

Distribution: The Alexandrian laurel is found in Africa and throughout the Indo-Pacific region. It is abundant on islands in the Maldives.

Description: It is a low-branching and slow-growing tree with a broad and irregular crown. It usually reaches 8 – 20 m in height. The flower is white and fragranced, 25 mm wide and occurs in a racemose or paniculate inflorescence consisting of 4 to 15 flowers. The fruit (ballnut) is a round, green drupe reaching 2 – 4 cm in diameter and having a single large seed. When ripe, the fruit is wrinkled and its color varies from yellow to brownish-red. It has been cultivated successfully in inland areas at moderate altitudes. It tolerates varied kinds of soil, coastal sand, clay or even degraded soil.

Use: Besides being a popular ornamental plant, its wood is hard and strong and has been used in construction and boat building. Traditional Pacific islanders used Alexandrian laurel wood to construct the keel of their canoes while the boat sides were made from breadfruit (*Artocarpus altilis*) wood. The seeds yield thick, dark green oil for medicinal use or hair grease. Active ingredients in the oil are believed to regenerate tissue making it sought after by cosmetics manufacturers for skin creams. The nuts should be well dried before cracking, after which the oil-laden kernels are further dried. The nuts used to prepare *madhan*, a caulk applied to boats.

Poison Bulb

Scientific name: *Crinum asiaticum* L. (family Amaryllidaceae)

Dhivehi name: Maakan'dholhu

Distribution: The poison bulb can be found across India and Southeast Asia, Australia and Polynesia.

Description: Poison bulb is a herb, 1 - 1.8 m in height that grows from an underground bulb. It has numerous leaves, narrowly to broadly elliptical, 50 – 150 cm x 3.5 – 20 cm; leaf margins are entire. The inflorescence is an umbel; twenty to fifty flowers are formed on top of thick succulent stems that rise above the foliage and become scented at night. The corolla tube is straight and long; white-pink. The anthers are also long and straight; yellow at first turning purple. The fruit is circular with a fleshy pericarp. It is yellowish-green with 1 – 5 seeds.

Use: The entire plant is known to be poisonous however, across Southeast Asia and the Pacific, the leaves, root and stem have been widely used in traditional medicine.

Beach Morning Glory

Scientific name: *Ipomoea pes-caprae* (L.) R. Br, Syn. Ipomoea biloba (family Convolvulaceae)

Dhivehi name: Thanburu

Distribution: Beach morning glory can be found on all tropical beaches. It appears just behind the flood-line of beaches, often colonizing entire spaces. It can also be found on road sides and ditches.

Description: This is a perennial, glabrous vine. The stems, 5 – 30 cm long, grow flat along the ground, sometimes twining. They contain a milky juice and often root at the nodes. The leaves are variable; they can be ovate, elliptical, circular and reniform in shape, deeply two lobed. The flower is peduncle, leathery, corolla funnel-shaped; purple to reddish purple with a dark center. The fruit is circular, glabrous and leathery with 4 seeds.

Use: Throughout Southeast Asia, the leaves, root and seeds have been used medicinally to treat bladder infection, jellyfish sting, stomach ache, ulcers and boils. It is also an excellent sand binder and highly useful in preventing beach erosion.

Grey Nickernut

Scientific name: *Caesalpinia bonduc* L. Roxb.(family Leguminosae)

Dhivehi name: Kashikunburu

Grey nickernut grows well in sandy soils; it is saline tolerant and grows into dense thickets along the shoreline. For this reason, it makes a good wind and wave break and is good for conservation of coastal areas.

Distribution: Grey nickernut is pantropical and is commonly found in coastal areas.

Description: It is a woody, vine-like shrub with stems of up to 15 m in length with robust prickles. Leaves are opposite and bipinnately compound with 6 – 11 pairs of pinnae. Each pinna has 6 – 12 leaflets. Leaflets are opposite and rounded to acute with short hairs on the midrib and margins. Flowers are large and yellow; petals are free and unequal, clawed, the upper one different in shape and size. The fruit is an oblong shaped pod covered with stiff hairy prickles. Each pod has 1 – 2 hard, smooth seeds.

Use: Throughout Africa, tropical Asia and Pacific Ocean islands, the leaves, roots and seeds of grey nickernut are commonly used in traditional medicine - the seeds are nicknamed 'poor man's quinine' for their application in the treatment of malaria. In the Maldives, tips of the shoots are given to women to hasten postnatal recovery. Oil from the seeds is used in cooking. The seeds are also used as beads, weights and counters in indoor games.

Neem

Scientific name: *Azadirachta indica* A. H. L. Juss. (family Meliaceae)

Dhivehi name: Hithigas

Distribution: Neem is pantropical, and has been noted as being one of the fasted spreading trees in the world. It is cultivated and naturalized in Southeast Asia, Australia, the United States and South and Central America.

Description: Neem is a small to medium sized tree. It can grow up to 20 m in height, but in the Maldives it rarely grows above 10 m. It has a large round crown with dense foliage. The bark is brown, grey and flaky in old trees. It is thick and deeply fissured with small scattered outgrowths. It has a colourless sticky sap. The leaves are green, alternate and crowded near the end of branches with 8 - 19 glossy lanceolate shaped leaflets. The flowers are small and white, arranged in panicle flower heads; they arise from the corner of the leaves. The fruit is an oblong drupe, greenish, green-yellow or purple when ripe. The fruit contains a single ovoid seed.

Use: Neem is a multipurpose plant. Neem provides shade, shelter, timber and fuel; it improves poor soils, controls erosion and is used as a windbreak. It is found in Ayurvedic and Unani schools of medicine; used widely across Africa in traditional medicinal practices and in modern medicine, antibacterial, antifungal and anti-inflammatory effects have been demonstrated. Neem is a good biopesticide. Oil from the seeds is used in soap manufacturing. The durable and highly pest-resistant wood is used for boat building.

Neem cannot tolerate water-logging but it grows in many types of soil: dry, sandy, acidic, alkaline, shallow soils, clayey soils and tolerates saline and drought conditions.

Coffee senna grows best in high moisture, acidic to neutral soil types.

Coffee Senna

Scientific name: *Cassia occidentalis* L. (family Leguminosae)

Dhivehi name: Dhigu thiyara

Distribution: Coffee senna is a common weed throughout the tropics and subtropics. It is common in the Maldives, usually found near houses.

Description: Coffee senna is an erect, woody herb of approximately 2.5 m. The stem is often richly branched; the roots are black. The leaves are pinnately compound, arranged spirally. Each pinna has 3 – 6 pairs of leaflets. Leaflets are ovate to ovate-oblong with a rounded base and pointed tip; margins are entire. Each leaf has a distinct spherical-shaped gland located 0.5 cm from the base of the petiole. Flowers are yellow and scented. The fruit is a flattened cylindrical legume (seedpod), 8 – 12 cm long, brown with pale margins. Each legume contains 30 – 45 flatted, brown seeds.

Use: The roasted seeds of coffee senna can be used as a coffee substitute. The young leaves and root are eaten as a vegetable. Foliage can be used as green manure. Animals do not eat coffee senna and the seeds are poisonous if eaten in large quantities. It is considered a panacea with numerous medicinal applications. In Maldives it is used as a medicine to alleviate asthma and to calm those suffering from hysteria. The leaves are also eaten raw or mixed with coconut, chili and onion.

Henna Tree

Scientific name: *Lawsonia inermis* L. (family Lythraceae)

Dhivehi name: Heenaa Heenaagas

Distribution: Henna can be found across Southern Asia, the Middle East and Africa. It is cultivated for commercial production in India, Pakistan, Iran, Egypt, Libya, Niger and Sudan but most commonly grown in home gardens.

Description: Henna is a much-branched shrub or small tree approximately 6 m tall. The bark is greyish-brown; older trees sometimes displaying spine-tipped branches. The leaves are opposite, simple and entire; elliptic to broadly lanceolate in shape. Inflorescence is a large pyramid shaped cyme with numerous small, whitish (sometimes reddish) flowers. Flowers have 4 crumpled petals and are scented. The fruit is a circular purple-green capsule with many thickly coated seeds.

Use: Henna is one of the oldest cosmetics in the world. It is used to colour fingernails and paint hands and feet; it is universally used as a hair dye with colours ranging from reddish-blond, chestnut brown to intense black. In India, Pakistan and Egypt the scented flowers are used to make perfume. The fine-grained hardwood has been used to make tools and as firewood; the fibers of the branches are used in basketry. Medicinally, it is applied to treat skin and nail complaints; the leaves and root has been used to treat diarrhoea, to promote childbirth and treat parasites.



Breadfruit Tree

Scientific name: *Artocarpus altilis* (family Moraceae)

Dhivehi name: Ban'bukeyo

Distribution: The breadfruit tree can be found throughout the humid tropics.

Description: Breadfruit is a tree 30 m in height. It is semi deciduous in monsoon climates. It has a straight, thick trunk with large spreading branches that have pronounced leaf scars. The leaves are large and deeply lobed; thick, leathery, dark green and shiny above, pale green and rough below. Male flowers are yellow and drooping, the flowers are minute with a single stamen; female flowers are stiffly upright, circular and green. It has a fleshy round fruit, 10 – 30 cm in diameter with a yellowy-green rind; inside is a pale yellow juicy pulp. Most cultivated breadfruits are seedless, those that do seed are called breadnuts. The edible pulp is replaced by the brown seeds.

Use: The ripe fruit and seeds of the breadfruit are edible. It can be boiled, baked, roasted or fried. In the Maldives, it was traditionally roasted in an underground stove. Maldivians peel firm-ripe fruits, slice the pulp and cook it in sugar syrup or palm sugar until it is crisp and brown. The pulp is also diced, mixed with coconut milk and sugar and baked to make a pudding called *Bambukeylu Bondibai*. *Theluli keyo* (fried breadfruit) is a famous Maldivian dish commonly served at buffets. Roasted sweet and savory chips are sold and have good market value. The light wood is also used to make doors, boxes, tools and surfboards; gum from the tree is used for caulking boats, as a glue to catch birds and as a chewing gum. Diluted with water, latex from the trunk is used medicinally to treat diarrhoea; the leaves are also thought to lower blood pressure, relieve asthma and counteract food poisoning. The leaves and fallen fruits make good animal fodder. Breadfruit trees are also planted for shade and as windbreaks.

Indian Mulberry/ Noni Tree

Scientific name: *Morinda citrifolia* L. (family Rubiaceae)

Dhivehi name: Ahi

Distribution: Indian mulberry is native to Australia. It can now be found throughout Southeast Asia, wild and cultivated. It is naturalized in the Caribbean region. It is found throughout the Maldives, mostly in forested areas.

Description: Indian mulberry is an evergreen shrub or small tree reaching between 3 – 10 m. The bark is grey or yellow-brown, shallowly fissured, glabrous. The leaves are opposite and simple, elliptic-lanceolate and entire. The inflorescence is globose, the flowers are funnel shaped, scented and white. The fruit is yellow-white in colour, fleshy and cone like in shape. Each fruit has many seeds, each enclosed in a distinct air chamber.

Use: All parts of the Indian mulberry, the leaves, root, bark and fruit, are used. Before synthetic dyes, the red dye taken from the root bark was very important. It is used widely throughout Southeast Asia for its medicinal properties. The roots have been used to treat stiffness, tetanus and arterial tension; the bark is antiseptic and applied to skin lesions, ulcers and wounds; the leaves treat dysentery, nausea and convulsions. Studies suggest that Indian mulberry is adaptogenic, increasing the body's resistance to stress, trauma, anxiety and fatigue. The fruits and leaves can be eaten raw or prepared and are highly nutritious. The fruit pulp is used to cleanse hair, steel and iron.

Lime

Scientific name: *Citrus aurantifolia* (Christm. & Panzer) Swingle (family Rutaceae)
Dhivehi name: Lun'boa

Lime tree can grow in infertile and sandy soils. It requires proper drainage and does not tolerate water logging.

Distribution: Lime tree originated in Southeast Asia. Although it can now be found in all parts of the world, it prefers warm tropical climates. In the Maldives, it is commonly grown in home gardens.

Description: Lime is an evergreen shrub or tree up to 5 m tall. It has many branches covered in short spines or thorns. The leaves are green, oblong-ovate, alternatively arranged on branches. The leaf stalk is narrowly winged, leaf margins crenulated (round toothed). The leaves can be both blunt and sharply pointed. Flowers are small and white. The number of petals can vary between 4 and 6. The fruit is a round-oval berry with a green or yellow peel characterized by a large number of minute glands. The flesh is yellow, very acidic, juicy and fragrant. The seeds are small, smooth and ovoid in shape. It fruits throughout the year.

Use: The fruit is edible. The juice and concentrate are commonly used by soft drink companies. Pectin is produced from the peel, and the peel and leaves are used to make aromatic citrus oils. Lime is widely used to make pickle. In the Maldives, it is commonly used in food dishes such as *garudhiya* (tuna soup), rice and lime and *lonu lumbo*, a pickle prepared by ripening the lime in salt water and drying it in the sun until brown. The leaves and fruits also have medicinal and nutritional value. Some believe that limes drive evil spirits away.

Pond Apple

Scientific name: *Annona glabra* L. (family Annonaceae)

Dhivehi name: Kalhuhuththu meyvaa

Distribution: Pond apple is native to tropical and subtropical America and west tropical Africa. It is now naturalized throughout the tropics. In the Maldives, it is commonly found in home gardens.

Description: Pond apple is a semi-deciduous tree reaching 13 m in height. It has a single trunk, but seedlings often grow in clumps giving the appearance of a multi-stemmed tree. The bark is grey and fissured with prominent lenticels. The leaves are glossy, oblong-elliptical and alternate along the branch. The upper surface of the leaf is dark green, the bottom is pale. Flowers are large and single and creamy yellow white in colour. They have 3 outer petals and 3 inner petals with a red inner base. The fruit is cylindrical in shape and smooth. It is yellow orange with a salmon coloured pulp and a strong aroma. Each fruit contains many small brown seeds.

Use: The fruit is commonly eaten or made into a juice in the Maldives, particularly during Ramazan. In tropical America, the leaves are used in traditional medicine. The bark is an ideal habitat for orchids and other air plants.

Pond apple requires moist soils and sunlight. It can tolerate freshwater flooding.



Pandanus / Screw Pine

Scientific name: *Pandanus odoratissimus* (family Pandanaceae)

Dhivehi name: Maakashikeyo

Distribution: Pandanus is found in West Africa, across Southeast Asia, the Pacific as far as Hawaii. The genus Pandanus has 600 species. It is abundant in the Maldives, commonly found on beaches.

Description: It is an erect evergreen tree of 15 m in height with elongated basal prop roots. The branches are often prickly with leaf scars. The leaves are sword shaped and spiraled in three series at the tips of branches. The midrib is usually bent with the upper part of the leaf hanging giving the pandanus a drooping appearance. On the underside of the leaf on either side of the midrib are two pale green stripes. The margins of the leaf and midrib are prickled. Plants are unisexual, having either male or female flowers but not both. The male inflorescence (staminate) bract is cream, flowers are small and fragranced. The female inflorescence (pistillate) is a solitary globose head composed of several celled carpels. The fruit varies in shape, elliptical, globose, ovoid and is composed of wedged fleshy drupes. They are green when unripe, turning yellow-red when ripe. The endocarp surrounding the seed is hard and stony.

Use: Pandanus has many uses in the Maldives. It is an important food source and is considered a 'famine food' turned to during times of food scarcity. The red portion of the fruit can be eaten raw. A juice called *baipainkandhi* is prepared by boiling the fruit with sugar and water. *Kashikeyo foa* is a sweet commonly found in the market. It is prepared by cooking the fruit with sugar and wheat flour. The leaves, dried and cleaned of prickles, are used to make mats called *saanthi*. The prop root, *alhoa*, is used as a paint brush on boats. The trunks are commonly used to make *holhuashi*, a resting platform on the beach.

Custard / Sweet Apple

Scientific name: *Annona squamosa* L. (family Annonaceae)

Dhivehi name: Dhivehi atha

Distribution: Custard apple is pantropical, found throughout the Caribbean, Central and Southern America, Africa, the Middle East, Southeast Asia and the Pacific. It is also found in parts of Europe.

Description: Custard apple is a small semi deciduous tree about 3 – 6 m tall. It has a broad crown and irregularly spreading branches. The bark is light brown with visible leaf scars. The leaves are single, alternate, oblong-lanceolate in shape, dull green on the upper surface and pale green on the bottom; slightly pubescent underneath and aromatic when crushed. The fragrant flowers grow opposite the leaves singly or in groups of 2 – 4. They are oblong in shape, never fully opening. They have 3 fleshy petals, yellow-green on the outside and pale yellow inside with a purple-red base. There are 3 tiny inner petals. The compound fruit is ovoid-conical in shape. It is composed of many segments and varies in colour from pale green to grey-green to dull pink. When ripe, the segments separate revealing the sweet juicy flesh. Some trees bear fruits with 20 – 40 seeds, others bear seedless fruits.

Use: The fruit is eaten fresh. Oil used in soap manufacturing is extracted from the seed kernels. Fiber from the bark is used for cordage. The leaves produce a blue-black dye. The seeds are hard enough to be swallowed whole with no ill effects, but the kernels are extremely toxic. The seeds, leaves and young fruits are insecticidal and are used as fish poison and to kill agricultural pests. Juice from the leaves and a paste from the seeds are applied to kill head lice. Contact with eyes however may cause blindness. Sap from the bark can cause skin irritation. Medicinally, the crushed leaves have been sniffed to overcome hysteria and fainting, and applied to boils, abscesses and ulcers. The leaves, bark, unripe fruit and root have been taken individually or together in cases of diarrhoea and dysentery. Fragments of the bark are placed against the gum to relieve toothache.

Bilimbi/Cucumber Tree

Scientific name: *Averrhoa bilimbi* (family Oxalidaceae)

Dhivehi name: Bilimagu

Distribution: Bilimbi can be found throughout the humid tropics. In the Maldives, it is commonly found in home gardens.

Description: Bilimbi is a small tree growing between 6 – 9 m tall. It is sparsely branched with thick brownish - red bark. Leaves are pinnate with a single leaflet at the apex; leaflets are ovate, entire and downy. Flowers are clustered, petals free; reddish purple in colour. The fruit is a brightly coloured lobed berry, 10 x 5 cm. It is green when unripe, turning white when ripe. The outer skin is glossy, soft and tender; the flesh is green, juicy and very acidic. There may be 6 – 7 disc-like smooth brown seeds.

Use: The fruit is used when making curries and chutney; pickled or preserved in syrup. The acidic juice is used to clean metal, tarnish brass and remove stains from hands and cloth. Medicinally, the leaves are applied as a paste on itches, swellings of mumps and rheumatism; on skin eruptions and poisonous animal bites. A leaf infusion is taken to treat cough and as a tonic after childbirth. The leaves, fresh or fermented are used to treat venereal disease.



Papaya

Scientific name: *Carica papaya* L. (family Caricaceae)

Dhivehi name: Falhoa

Distribution: Papaya is widely distributed throughout the tropical and warm subtropical region. In the Maldives, it is commonly cultivated in home gardens. Papaya grows well in hot, bright places. It grows in poor, marl and limestone soils, but performs best in organic rich soils.

Description: Papaya is a fast growing tree-like herb, 2 – 10 m tall. It is usually without branches. The trunk is hollow with prominent leaf scars, a spongy-fibrous tissue and white latex. The leaves are spirally arranged, clustered at the top of the trunk. The hollow leafstalk is up to 1 m in length, purple-green in colour. The leaf is large, 25 – 75 cm in diameter, palmate and deeply lobed. It is glabrous, deeply veined with broadly toothed lobes. Male, female or hermaphrodite flowers can be found on separate trees. Male flowers are yellow and trumpet shaped, female flowers single or small cyme, yellow green. The fruit is a fleshy berry 7 – 30 cm long, oval-spherical in shape. The skin is thin and smooth, yellow-orange when ripe; the flesh is yellow-orange with a mild sweet flavor. It has numerous circular black seeds.

Use: The papaya fruit is commonly eaten and available all year round. It is used to make fruit salad, juice, jam, jelly or crystallized fruit pieces. Green fruits are pickled and used as a vegetable. In Java, a sweetmeat is made from the flowers; young leaves are sometimes eaten. In the Maldives, the unripe green fruit are used to prepare spicy curries, and a traditional sweet dish called *falhoa murubba* is prepared by cooking the ripe fruit in sugar syrup. Medicinally, seeds are used to expel intestinal worms. Carpaine, an alkaloid present in papaya is used as a heart depressant, to kill parasitic species and as a diuretic. Papain, a proteolytic enzyme, is extracted from papaya and used in food, beverage and pharmaceutical industries: tenderizing meat, drug preparations for digestive problems and gangrenous wounds. It is also used to de-gum silk, bathe hides and soften wood.

Peacock Flower

Scientific name: *Caesalpinia pulcherrima* (L) Sw. (family Leguminosae)

Dhivehi name: Fa'thangu/ Fathan'gumaa

Peacock flower grows well in all kinds of soil including sand, clay, and loam, acidic or alkaline soils. It is highly drought tolerant but is intolerant to flooding. It is moderately tolerant to aerosol salt and can be planted along the beach.

Distribution: Peacock flower is found throughout the tropics, cultivated in Southeast Asia and naturalized in some regions. It is common in the Maldives.

Description: Peacock flower is a shrub or small tree reaching 5 m in height. Branches are generally smooth with few prickles. Leaves are pinnately compound, 5 – 9 pairs of pinnae, each pinna with 7 – 15 pairs of leaflets. They are oblong-ovoid and have a smooth margin. Inflorescence is a cluster of flowers, red, orange or yellow. Each flower has 5 petals, one being significantly smaller than the others. The fruit is a compressed pod 6 – 12 cm long, green turning brown when ripe. It has 8 – 10 brown seeds.

Use: It is a popular ornamental plant that blooms throughout the year. Medicinally, an infusion of the root, bark, leaves or flowers is used as a laxative and can aid menstruation. According to the dosage, it can be used as a mouthwash and remedy for coughs and colds. The leaves are taken to relieve constipation.

Sapodilla

Scientific name: *Manilkara zapota* (L.) P. van Royen (family Sapotaceae)

Dhivehi name: Sabudheli

Distribution: Sapodilla is found throughout the tropical lowlands. In the Maldives, it is commonly grown in home gardens.

Description: Sapodilla is an evergreen, upright to spreading tree between 5 – 30 m in height. The trunk is low branched with rough bark and gummy latex. The leaves are alternate, ovate to lanceolate in shape, triangular at both ends often with a shallow notch at the tip. Leaves are entire and slightly glabrous, glossy dark green with a prominent midrib below. The flowers are single, green-white and bell-shaped. Fruit is a round berry. The skin is thin, dull red to yellow brown covered with brown scurf. The flesh is soft, juicy and sweet; yellow to red-brown. The fruit has 0 – 12 dark seeds.

Use: Sapodilla is an important source of fruit. It can be eaten fresh or made into ice-cream, butter or jam. The juice can be boiled into syrup, fermented into a wine or vinegar. The trees are tapped for their white latex. The gummy latex is used in transmission belts and dental surgery. The hard, insect resistant wood is good for furniture making. Medicinally, the leaves are antipyretic, reducing fever; the tannin is used to treat diarrhea. The tannin from the bark is used to dye ship sails and fishing tackle.

Sapodilla can grow in many soil types but prefers rich, well-drained sandy loam. It is drought tolerant, withstands saline soils and salt spray and stands well against hurricanes.

Section 3
Terminology

Acute – tapering to a sharp pointed apex with straight sides along the tip

Alternate – leaves or bud arranged singly at each node on different sides of the stem

Anter – pollen bearing part of the stamen

Apex – the tip of a leaf

Axil – the angel between the upper surface of a leaf stalk or branch and then stem from which it grows

Axillary – located in or relating to an axil

Basal – located at or near the base of the plant stem

Bipinnate – having the leaflets divided into smaller leaflets

Calyx – the sepals of a flower forming the outer floral envelope that protects the corolla

Capsule – a dry fruit that spreads its seeds by splitting or through pores

Carpel – the female reproductive organ of flowering plants

Compound leaf – a leaf whose blade is divided into two or more distinct leaflets

Corolla – the petals of a flower

Crenulated – having a margin with small rounded teeth

Cyme – a broad, flat topped inflorescence in which the central flower is the first to open.

Cymous – having the characteristics of a cyme

Cystolith – a knob-like deposit of calcium carbonate occurring in the outer cells

Dentate – edged with tooth-like projections

Downy – covered with short soft hairs

Drupe – a fleshy fruit usually with a single hard stone that encloses the seed

Endocarp – the hard inner layer of the pericarp (the stone)

Glabrous – smooth with no hairs

Globose – spherical

Lanceolate – narrow and tapering to a point at each end

Latex – colourless or milky sap of some plants

Lenticels – pores in the stem of a woody plant allowing the exchange of gases between the plant and the exterior

Lobed – deeply cut (but not as far as the midrib)

Midrib – the central rib/vein of a leaf

Mulch – a protective covering of organic matter (compost) placed around plants to prevent the evaporation of moisture, growth of weeds etc.

Oblanceolate – lance shaped, broadest above the middle and tapering toward the base

Palmate – having more than tree lobes or segments that come from a common point

Panacea – a remedy for all ailments

Panicle – a branched inflorescence with each flower a raceme – having its own stalk attached to the branch

Paniculate – growing or arranged in a panicle

Peduncle – the stalk of a plant bearing an inflorescence or single flower

Peltate – the stalk is attached near the center of the leaf, rather than near the margin

Perennial – a plant that lives for more than two years

Pericarp – part of the fruit enclosing the seed

Petiole – the stalk from which the leaf is attached to the stem

Pinna – a leaflet of a compound leaf

Pinnae – plural of pinna

Pinnate – leaflets grow opposite each other, in pairs on either side of the stem

Pod – the fruit of a leguminous plant (a long two-valved case containing seeds)

Prop root – a root that grows from the stem and penetrates the soil to support the stem

Raceme – an inflorescence in which the flowers are borne along the same stem, singly or clustered

Racemose – resembling or borne in a raceme

Reniform – kidney shaped

Tapering – to become gradually narrower or thinner toward one end

Sessile (leaf) – without a stalk, attached directly at the base

Sinuate – having a wavy indented margin

Spatulate – having a narrow base and a broad rounded apex (tip)

Umbel – a flat topped or rounded inflorescence with the individual flower stalks arising from the same point

Yard – a slender rod, tapered toward the ends, fastened at right angles across a mast to support a sail

Useful Websites and Plant Databases

- Botanical Gardens Conservation International (BGCI), http://www.bgci.org/
- The Global Strategy for Plant Conservation, Convention on Biological Diversity, http://www.cbd.int/gspc/
- Plantlife International, http://www.plantlife.org.uk/index.html
- The Royal Botanical Gardens, Kew http://www.kew.org/
- International Plant Names Index, http://www.ipni.org/
- Plants Database, http://plants.usda.gov/
- Plants for a Future, http://www.pfaf.org/index.php
- Royal Botanical Gardens Peradeniya, Sri Lanka, http://www.botanicgardens.gov.lk/peradeniya/
- Plant Resources of South East Asia (PROSEA), http://proseanet.org/prosea/
- Plant database, www.eFloras.org
- www.agroforestry.org
- The IUCN Red List of Threatened Species, www.iucnredlist.org
- Australian Plant Name Index (APNI), www.anbg.gov.au/apni/
- Plant Resources of Tropical Africa, www.prota.org
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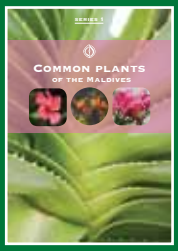
SERIES 1

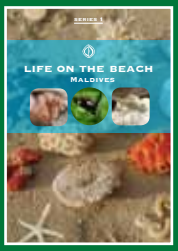
Common plants of the Maldives

Common Plants of the Maldives is a starting point for people interested in learning about trees and shrubs of the Maldives. It contains descriptions and photographs to help identify local plants as well as information on traditional uses in the Maldives and throughout the world. Whether you're relaxing in your deck-chair or exploring the island vegetation, you will come to learn that all plants, within every ecosystem are not only beautiful but important for our survival as they provide food, medicine, soil stability, fresh air and water.

BOOKS IN THIS SERIES ARE:

Common Plants of the Maldives,
Common Birds of the Maldives and *Life on the Beach, Maldives*.





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