

Cocos nucifera

COCONUT is a palm. Probably native to Malaysia and Polynesia (and possibly the Barrier Reef off Australia), it has small yellowish-white flowers.

It is also known as *Albero del cocco* (Italian), *Coco* (French), Coconut-fibre, Coconut palm, *Cocotero* (Spanish), *Cocotier* (French), Coir, *Dab* (Bengali), *Drakhte-bading* (Persian), *Dũa* (Vietnamese), *Hindistan cevizi ag* (Turkish), *Kalapa* (Javanese, Sundanese), *Kelapa* (Malay), *Klapperboom* (Dutch), *Kokosi* (Twi), *Kokosnuss* (German), *Kokosovník obyčejný* (Slovak), *Kokosovník ořechoplodý* (Czech), *Kokospalm* (Swedish), *Kokospalme* (German), *Kokoye* (Creole), *Kookospalmu* (Finnish), *Koperu* (Indian), *Mapeow* (Thai), *Narcil ag* (Turkish), *Narikela* (Sanskrit), *Narikelam* (Malayalam), *Narikelamu* (Telugu), *Nariyal* (Hindi), *Nariyeli* (Gujarati), *Nar jiil* (Arabic), *Nióg* (Filipino/Tagalog), *Niu* (Fijian, Hawaiian, Samoan, Tongan), *Noix de coco* (French), Pharaoh's nut, *Pol* (Singhalese), Porcupine wood, *Tenkai* (Tamil), *Thenga* (Tamil), *Thennai* (Tamil), *Touz-i-hindi shagratur* (Arabic), *Ye-taze* (Chinese), and *Yue-wang-t'ou* (Chinese); and in flower language (as for all palms) is said to be a symbol of victory.

A new flowerspike appears in the crown about twelve times in a year. The flowers are visited by bees and other insects but many believe that most pollination is due to the wind. Each spike or cluster yields 6-12 fruit (known as 'nuts') that take one year to mature – but the succession of flowerspikes means that there are invariably some that are ready to harvest. Their shell contains white pulp known as 'meat' itself surrounding a milky-white liquid known as 'coconut milk' or 'water' (which is absorbed by the fruit as it ripens).

The dried flesh of nearly ripe fruit (from which the oil has been extracted) is known as 'copra', the fibrous husk yields 'coir', and sweet juice (sap) is drawn from the immature flower clusters (which would of course preclude the formation of coconuts from that year's growth). The fruit are usually harvested by hand (after climbing the tree) or sharp knives on long bamboo poles are used to cut them down. In some south-east Asian countries monkeys have been trained to collect the coconuts. Copra is refined to produce coconut butter, or oil (60-70% of the copra), and the residual oil cake is known as 'ponac'. The oil is still extracted in some parts of Asia by primitive methods (using bullocks or humans and large presses or mortars and pestles) but elsewhere hydraulic presses predominate. [The most pure, clear, colourless and fragrant oil is obtained from the fresh flesh that is grated, pounded and squeezed to obtain the emulsion. This emulsion is boiled, the scum is removed and the oil floating on the surface is then poured off.] The flower sap or juice is boiled to yield a brown sugar, and is left to stand and ferment for wine (which can be distilled for strong spirits) and ultimately vinegar. The fibrous coir is removed by steeping the husks of shells (often in salty backwaters) for several months, after which the fibres are beaten off. The wood from the trunk is sometimes familiar under the name Porcupine wood.

Nucifera is derived from Latin *nucleus* (nut) and *-fer* (bearing, carrying) components meaning 'bearing nuts'.

Considered by many authorities to be the most important of all palm trees, the coconut palm can live for 80-100 years and is of considerable nutritional and, for many tropical countries, economic value. This is recognized in such references as

mankind's greatest provider in the tropics,
man's most useful tree,

and

one of Nature's greatest gifts to man.

Although many coconut palms are cultivated in plantations, its toleration of salty, sandy soil allows it to grow on landstrips unsuitable for most other crops, and one tree can produce as many as 500 fruit in a year (although 50-100 is commonplace). Another example of its advantages is found in the coconut milk. This is free of bacteria – a considerable asset in regions where water supplies can get contaminated.

It is said that the sight of an erect coconut palm is a rarity on exposed sandy shores as so many are uprooted by storms – after which they re-root themselves. This appears to have given rise to a past Hindu saying

he who sees a straight coco-nut palm will go direct to heaven'.

The genus has existed for many thousands of years. Archaeologists have found fossil remains predating modern man in New Zealand and India. There has been long debate on the origins of this species but it is certain that its distribution in tropical areas is not entirely the responsibility of man. The fruit float easily (for at least 100 days) as air gets trapped in the fibrous husk and, as they drift in the sea currents, the seed does not come into contact with sea-water. Thus the fruit themselves could have journeyed to distant shores. (It is understood that they have even been found on western British coastlines when, presumably, they have been carried north in the warm Gulf Stream from the West Indies.)

In the Indus Valley (in what is now Pakistan) archaeologists have shown that coconuts were eaten there at least as far back as 2300 BC. In India and eastern Asia milk came from the coconut flesh (not from animals). The grated flesh was soaked in hot water and a creamy juice was pressed out. The coconut was also familiar to the Arabs and, when they had secured Baghdad after their defeat of the Persian army in 633, it was one of the many exotic commodities that helped to fill their warehouses.

Marco Polo (1254-1324), the Venetian traveller, is credited as being the first European to come across the coconut and he called it 'Pharaoh's nut'. (Authorities suspect he may have been aware that ancient Egyptians were eating coconuts brought on the Arab caravans for a brief period around 6 AD – the earliest in time and the nearest geographically that the fruit is believed to have been to Europe.) But it was not until three centuries later that the first coconut appeared in north-western Europe, in Paris, and was presented to the Académie Française in 1674.

In the tropics on the western side of the Atlantic there was one particular area in which coconut palms were absent until relatively recently. This was the Bahamas and it is understood that they were only introduced there in about the 16th Century, after the European explorers had started to penetrate the Americas. (Records do indicate that the North American Seminole Indians who lived in the Florida area used the coconut for food – and they also made cups and spoons, as well as their ceremonial dance rattles from the palm.)

Off the western side of the Americas, in Hawaii (known in the past as the Sandwich Islands), the coconut used to fulfil a far greater role in the life of the Islands than it does today. Like the breadfruit (*Artocarpus altilis*) tree its trunk was used to make the large drum on which the basic rhythm of the *hula* was struck. Fibre was extracted from the leaflets and woven into fine-textured hats, and the mid-rib provided string for torches and material for musical instruments. Fibre from the fruit husks was made into rope and cordage that in turn was fashioned into nets or used in a multitude of other ways, including burial ceremonies. Parts of coconut shells were used to fulfil many functions – cups, spoons and even musical instruments. Naturally the coconut was also a source of food and drink. But, it was a forbidden food for Hawaiian women, together with banana (*Musa acuminata*),

breadfruit, turtle, pork and certain fish (if these came from specified places) as they were held to be suitable exclusive offerings for the gods.

The Hawaiians were not alone either in their reverence for the palm or in involving it in national rituals or traditions. Coconut oil used to be the cause of extreme discontent and conflict in parts of the Philippines. In more recent times this has been translated into a commemorative dance called *magla-latik*. While a Hindu priest must give a young Thai baby its first semi-solid food – three teaspoonfuls of creamy meat from unripe coconut. It is contended that the romantic idea of a ‘coconut pearl’ ie. a pearl formed inside a coconut, is more than that. Oriental princes are said to treasure them and hold them beyond price – certainly any world supply if it exists must be contained in the East. Such pearls are said to be a perfect glistening, creamy white sphere about half an inch in diameter – and in many Asian countries they are said to hold magical powers. It was probably quite disappointing, for a time, when it was revealed that those ‘coconut pearls’ that have been displayed in some museums actually came from molluscs. But all is not lost as apparently towards the 20th Century’s close scientific evidence suggests that such a jewel could be formed on rare occasions.

Today, as much as in the past, the coconut meat (pulp) is usually consumed locally as a vegetable, and since the turn of 19th/20th Centuries the meat has also been dried (desiccated) and used in western Europe, including England and the United States, particularly in cakes and sweets. Land-crabs fed on coconut meat are a local delicacy in Guam and livestock often consume coconut meat in their diet as well.

The meat of nearly ripe fruit is grated, pounded and squeezed to obtain its oily, milky juice. As already mentioned above this, like almond (*Prunus dulcis* var. *dulcis*) in the Middle East, has been widely used in Asia for local cooking (as cow’s milk would be in the West today) for hundreds and hundreds of years. The digestive system of many peoples is not naturally compatible with dairy products, especially in the Asian tropics where it has not been used for thousands of years (and would deteriorate rapidly in the climate).

Apart from cooking, the oil is also used in Asia (particularly in past years when less clothing was worn) for anointing the body – and as a hair oil. The oil has been used in the West for the manufacture of fats (such as margarine and vegetable lard), and soap too – and in recent times as an ingredient in cosmetic and hair products. The remaining oil cake has not only provided animal feed (often supplemented with green leaves), especially for pigs, but it has also been burnt as a furnace fuel. As described above when the oil has been extracted from the meat copra can be obtained from the dried flesh.

Palm honey is enjoyed locally.

In the tropics the bud of the coconut palm, which appears nearest to the top of a shoot and is known as the ‘palm heart’ or ‘cabbage’, is eaten as a delicacy pickled in vinegar, raw in salad, or as a cooked (boiled) vegetable. The bud of this palm however is less sought after than that of others and like others its removal from the tree dooms that palm to death.

The milk or water (preferably from an unripe fruit when it still contains carbon dioxide and more sugar) is widely drunk locally as a refreshing and bacteria-free drink. In many tropical countries street sellers offer coconuts, expertly cut while you wait, so that the milk can be drunk straight from the fruit. This water has also been used by local dyers in a process involving indigo (*Indigofera tinctoria*) to obtain a green dye, and recent research has led botanists to employ it in the promotion of plant growth..

The amount of coconut toddy made depends not only on religious strictures in a particular region (historians suspect that the amount of fermented toddy per head of local population dropped significantly from about the 13th Century with the spread of Islam) but also on the accessibility of other suitable palm trees which may be less laborious to

tap. Arrack distilled from the fermented juice (or wine) is popular in Sri Lanka – a Country that is said to consume most of the over 8,000,000 gallons made there annually. The fully fermented juice (free of alcohol) yields vinegar for cooking. In parts of south-eastern Asia this has also been used not only to coagulate latex eg. on rubber plantations, but also as a bleach for palm-leaf hats.

India dominates world production of coir. The fibre has been used for cordage and matting for hundreds of years. Apparently its advantages were not fully appreciated in the West until about the middle of the 19th Century when the textile industry, in Britain especially, invented appropriate machinery to handle it.

The dust generated by the machinery which processes the coir has been used for tanning and can produce a soft, brown leather.

Leaves, often lashed together with string made from the leafstalks, have been used locally for thatching, and have also provided material for making baskets, house partitions, matting (which authorities have noted were used off western Indian shores in the 16th Century as ships' sails), brooms, torches and hats – and the fine quality of these hats is believed by many to rival closely that achieved with the panama hat palm (*Carludovica palmata*). In some parts of Asia plaited coconut palm leaflets are also used to decorate buildings for festive occasions. Young leaves have been used to wrap food.

In Malaysia the leaf midribs (several bound together) have provided material for a broom, and a small piece of midrib has been used as a cork. In some parts of Asia fibre from the leafstalks has been made into cordage.

The woody shells of the ripe fruit provide fuel, in addition to vessels for holding liquids, scoops, cups, ladles – and also musical instruments. The charcoal from coconut shells has been used in metal smelting, and as it is deemed to have good gas absorption qualities it has also been prized for use in gas-masks. Local dyers used to fashion the shells into combs for processing yarn. While in Malaysia the shell was made into buttons and quoits. Shells of the unripe fruit, which drop from the palm early, have provided material for making boarding and panelling, and have been employed for sound or heat insulation.

Wood tar made from the shells has been used to blacken teeth.

The wood from the trunk, although not as hard as that of many other palm trees, has not only been used for general construction and for making furniture, but has also been fashioned into spear handles and walking sticks.

This palm for many in south-eastern Asia has long been believed to be the 'Tree of Life' (or 'Tree of Heaven') and to this day is still used in religious offerings. It is thus hardly surprising that different parts of it play a role in the varied Asian rituals that have been associated with both childbirth, and harvesting another staple crop, rice (*Oryza*). It is believed by some in Papua New Guinea the first coconut palm sprang out of the head of the first person to die there. Traditionally on some South Sea Islands a coconut palm is planted when a child is born and his or her age is determined by the tree's growth. In Borneo (an island which now includes Brunei, and parts of Malaysia and Indonesia) rings cut from fruit shells were used as charms. In India still a coconut successfully cracked open on the threshold of the premises of a new business is believed to be an omen of great good luck and the fibrous fruit are also used as offerings in religious ceremonies. Some authorities have suggested that they were chosen for this role as the shape is reminiscent of a human head (particularly with the two eye-like marks) thus it could be construed as a substitute for long forgotten human sacrifice.

A coconut palm is displayed in the coat of arms for Dominica in the Caribbean, in that of the islands of Sao Tomé and Príncipe (off the western African coast), in that of Western Samoa, and in that of Fiji as well.

Today this palm offers many different ingredients for international commerce and the following is only a summary of them. The oil is sold for domestic cooking and used by the food industry for margarine and processed foods. It is also used by the cosmetics and toiletry industries in soap, shaving cream, toothpaste and shampoo. The transport industry uses it in lubricating fluids for planes and racing cars and it can be found in inks used by the printing industry. Shredded dried kernel (known as 'deshicated coconut') is used by the confectionery industry. Poonac is used commercially as fodder for livestock, and in fertilizers. Fermented sap and young flowers are a commercial ingredient for the drinks industry eg. palm wine, arrack, and they are also used on a small scale for making sugar. The young flowers are also used by the food industry eg. vinegar. Coconut shells provide a plastic filler. Coir is used for matting, mattresses, heavy ropes, baskets and brushes. Husks offer charcoal, particularly for gas masks as already referred to and for cigarettes. Their short fibres are converted into coir dust (also known as 'coconut peat') for horticultural use. The wood is used for construction, buildings and cabinet making.

Medicinally, the seed is used on occasion in tropical countries to treat intestinal worms, and a grade of the coconut oil) is prescribed as part of a patient's diet when normal fats cannot be completely absorbed eg. cystic fibrosis, although it is not normally recommended now in the West for human consumption as, unlike many other vegetable oils, it boasts 90% saturated fatty acids. (In Polynesia coconut milk is mixed with cassava tubers (*Manihot esculenta*) and fruit of golden apple (*Spondias dulcis*) to make a porridge that is taken by mothers before childbirth.) The oil is also applied to the head as a cooling medium. The pulp of young fruit has been used in the treatment of sunstroke. Fruit have also been taken internally as an ingredient in local remedies for dysentery and some fevers, and have been applied externally on piles and ulcers. The palm's roots are said to be able to strengthen gums, have also been used on the Indonesian island of Java for treating dysentery, and in Malaysia they have been an ingredient in poultices applied in the treatment of rheumatism and some venereal diseases. The bark has been used to treat toothache and earache.