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WOOD APPLE: NO LONGER JUST A POOR MAN'S FOOD

The wood apple is today processed, preserved and used in a number of juices, jellies and in the treatment of many illnesses. Read on to know more about this native fruit.



The wood-apple, *Feronia Limonia* Swingle, is the only species of its genus, in the family Rutaceae. It is also referred to as elephant apple, monkey fruit, crud fruit, kath bel and other dialectal terms across India. In Malaya it is called gelinggai or belinggai; in Thailand ma-khwit; in Cambodia kramsang; and in Laos ma-fit. In French it is known as pomme d' elephant, pomme de

bois or citron des mois.

Features of the wood apple tree

This slow-growing tree is erect, with a few upward-reaching branches bending outward near the summit where they sub-divide into slender branchlets drooping at the tips. The bark is ridged, fissured and scaly, and there are sharp spines about 2-5 cm long on some

of the twigs. The deciduous, alternate leaves, 7.5-12.5 cm long, are dark-green, leathery, often minutely toothed, and blunt or notched at the apex. They are dotted with oil glands and are slightly lemon-scented when crushed. Dull-red or greenish flowers 1.25 cm wide are borne in small, loose, terminal or lateral panicles. They are usually bisexual. The fruit is round to oval, 5-12.5 cm wide, with a hard, woody, grayish-white, scurfy rind of about 6 mm thickness. The pulp is brown, mealy, odorous, resinous, astringent, acid or sweetish, with numerous small, white seeds scattered through it.

Climate. The tree grows at an elevation of 450 metres. It is said to require a monsoon climate with a distinct dry season.

Soil. Throughout its range there is a diversity of soil types, but it is best adapted to light soils.

Propagation. The wood-apple is generally grown from seeds, though seedlings will not bear fruit until at least 15 years old. Propagation may also be done with root cuttings, air-layers, or budding onto self-seedlings to induce dwarfing and precociousness.

Season. In Malaya, the leaves are shed in January, flowering occurs in February and March, and the fruit

matures in October and November. In India, the fruit ripens from early October through March.

Harvesting. The fruit is tested for maturity by dropping onto a hard surface from a height of about 30 cm. Immature fruits will bounce, while mature fruits do not. After harvest, the fruit is kept in the sun for two weeks to fully ripen.

The poor man's food

The wood-apple is native and common in the wild across the dry plains of India and Sri Lanka and is cultivated along roads, the edges of fields and occasionally in orchards. It is also grown throughout South-east Asia, in northern Malaya and on Penang Island. In India, the fruit was traditionally a 'poor man's food' until processing techniques were developed in the mid-1950s.

Varieties

There are two forms—one with large, sweetish fruit and the other with small, acid fruit.

Nutritional uses of wood apple

The rind must be cracked with a hammer. The scooped-out pulp, though sticky, is eaten raw with or without sugar, or is blended with coconut milk and palm-sugar syrup and drunk as a beverage, or frozen as an ice cream. It is also used in chutneys and for making jelly and jam. The jelly is purple and much like what is made from black currants.

Sterilisation

A bottled nectar is made by diluting the pulp with water, passing it through a pulper to remove the seeds and fibre, further diluting, straining, and then pasteurising. A clear juice for blending with other

fruit juices is obtained by clarifying the nectar with Pectinol R-10. Pulp sweetened with the syrup of cane or palm sugar, is canned and sterilised. The pulp can be freeze-dried for future use.

The pulp represents 36 per cent of the whole fruit. The pectin content of the pulp is 3 to 5 per cent (16 per cent yield on dry-weight basis). The seeds contain a bland, non-bitter, oil that is high in unsaturated fatty acids.

Other uses

Pectin. The pectin in the wood apple has potential for multiple uses in pectin-short India, but it is reddish and requires purification.

Rind. The fruit shell is fashioned into snuffboxes and other small containers.

Gum. The trunk and branches exude a white, transparent gum especially following the rainy season. It is used as a substitute for, or adulterant of, gum Arabic, and is also used in making artists' watercolours, ink, dyes and varnish. It consists of 35.5 per cent arabinose and xylose, 42.7 per cent d-galactose, and traces of rhamnose and glucuronic acid.

Wood. The wood is yellow-gray or whitish, hard, heavy, durable, and valued for construction, pattern-making, agricultural implements, rollers for mills, carving, rulers and other products. It also serves as fuel.

The fruit is much used in India as a liver and cardiac tonic, and when unripe, as an astringent means of halting diarrhea and dysentery.

Nutritional Value of Wood Apple

Food value per 100 gm of edible pulp	Pulp (ripe)	Seeds
Moisture	74.0%	4.0%
Protein	8.00%	26.18%
Fat	1.45%	27%
Carbohydrates	7.45%	35.49%
Ash	5.0%	5.03%
Calcium	0.17%	1.58%
Phosphorus	0.08%	1.43%
Iron	0.07%	0.03%
Tannins	1.03%	0.08%

Medicinal uses. The fruit is much used in India as a liver and cardiac tonic, and when unripe, as an astringent means of halting diarrhea and dysentery, and as an effective treatment for hiccups, sore throat and diseases of the gums. The pulp is made into a poultice to be placed onto bites and stings of venomous insects, as is the powdered rind.

The juice of young leaves is mixed with milk and sugar candy, and given as a remedy for biliousness and intestinal problems in children. The powdered gum, mixed with honey, is given to overcome dysentery and diarrhea in children.

Oil derived from the crushed leaves is applied on itches and the leaf decoction is given to children as an aid to digestion. The leaves, bark, roots and fruit pulp are all used against snakebite. The spines are crushed with those of other trees and an infusion taken as a remedy for menorrhagia. The bark is chewed with that of *Barringtonia* and applied on venomous wounds. ■

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