

**T**he wood apple is the only species of its genus, in the family 'Rutaceae'. It is native to the dry plains of India, Pakistan and Sri Lanka, where it grows in the wild and is also cultivated along roads, the edges of fields and occasionally in orchards. It is also cultivated throughout South-east Asia, particularly in Malaysia.

In India, the fruit was traditionally a 'poor man's food' until processing techniques were developed in the mid 1950s. Besides the name 'wood apple,' it is also referred to as elephant apple, monkey fruit, curd apple, Keth bel, golden apple, stone apple, etc.

In Malaysia it is called gelingga or belinggai, in Thailand ma-khwit, in Cambodia kramsang and in Laos ma-fit. In French, it is called pomme d' elephant, pomme de bois or citron des mois.

It is a well-known fruit which contains several known and unknown medicinal properties and hence is viewed as one of the most valuable medicinal plants in India.

### Plant description

A medium-sized tree grows to 12 metres (40 feet). The tree is slow growing but very tough for a subtropical species, surviving a wide temperature range from  $-6^{\circ}\text{C}$  to  $48.8^{\circ}\text{C}$ . This plant is propagated by seed. The wood apple can grow in almost every type of soil. It easily withstands long periods of drought. It requires little care once established. Saplings begin to bear fruit within seven years. The fruit takes 10-12 months to ripen from the flowering stage.

### Varieties

Several varieties of wood apple grow in India, of which two types are very popular—yellow bael, which is sweet when ripe, and the kod bael,

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## WOOD APPLE: USES AND BENEFITS

With the immense medicinal value of this plant, growers can expect good long-term returns from its cultivation.

Read on to learn more about the wood apple.



*A medium-sized tree grows to about 12 metres*

which is both sweet and sour when ripe. Both have tremendous medicinal value. Many pharmaceutical companies are doing extensive research on this fruit and its plant.

### Season

In Malaysia, the leaves are shed in January, flowering occurs in Feb-

ruary 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 it onto a hard surface from a height of 30 cm (1 foot). Immature

fruits bounce, while mature fruits do not. After harvest, the fruit is kept in the sun for two weeks to fully ripen.

### Nutritive value

The wood apple is high in oxalic, malic, citric and tannic acids. It also has a good mixture of vitamins and minerals including calcium, iron, phosphorus, carotene, thiamine, riboflavin and niacin.



Wood apple fruit cut open

### Multiple uses of the wood apple

**Food.** The wood apple is a cheap, highly nutritious and seasonally available fruit that can be preserved for human consumption throughout the year. Young bael leaves are used in salads in Thailand. Indonesians eat the pulp of the ripe fruit with palm sugar at breakfast. Indians eat the pulp of the ripe fruit with sugar or jaggery. It is used for making chutney and pickles or is blended with coconut milk and palm-sugar syrup and drunk as a beverage. Wood apple pulp is excellent for making jelly.

**Medicinal uses.** 1. The fruit is extensively used in India as a liver tonic and also to treat certain cardiac problems.

2. The half-ripe fruit is perhaps the most effective remedy for dysentery. To treat diarrhea or piles, the mashed pulp of the fruit is used without the seeds.

3. An infusion of wood apple leaves is an effective remedy for peptic ulcers. Wood apple leaves are rich in tannin, which reduces inflammation and help in the healing of ulcers.

4. It is also useful in preventing cancer of the breast and uterus and

helps treat infertility caused by insufficiency of the progesterone hormone.

5. The flesh of the mature fruit can also be used to treat stomach upsets among children.

6. The bark of the tree is beneficial for biliousness. It can be taken both in the pulverised or decoction form. The juice of the leaves can also be massaged on the skin rashes caused by biliousness.

7. The root of the bael tree is used as a domestic remedy to check several kinds of ear problems.

8. In Ayurveda, all parts of the wood apple plant are used to cure snake bites.

9. 100 gm of the fruit's pulp provides 140 calories and is therefore a

good energy booster.

10. The wood apple is used to treat kidney ailments like stones.

11. The leaves of the wood apple are used to prevent and treat cold and other respiratory disorders. The fruit is also effective in relieving sore throats and chronic coughs.

12. The wood apple contains carotene, which is beneficial for the eye.

13. An extract of the bark of the tree is used

to prevent sun burn.

**Other uses.** 1. The fruit's shell

is fashioned into snuffboxes and other small containers.

2. Interestingly, in addition to its edible and medicinal properties, the gum from the trunk and branches is used as glue. The exudation is profuse after the rainy season.

3. The gum, mixed with lime, is used to waterproof wells and walls. It also protects oil paintings when added as a coat onto the canvas.

4. The fruit rind yields oil that is popular as a fragrance for hair; it also produces a dye used to colour silks and calico.

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

6. The wood apple's pulp has a soap-like action, which resulted in it being used as a household cleaner for hundreds of years.

7. The sticky layer around the unripe seeds is a household glue that also finds use in jewellery making. ■

### Food Value per 100 gm of Edible Pulp

Nutrition	Pulp (ripe)	Seeds
Moisture	74.00%	4%
Protein	8.00%	26.18%
Fat	1.45%	27.00%
Carbohydrates	7.45%	35.49%
Ash	5.00%	5.03%
Calcium	0.17%	1.58%
Phosphorus	0.08%	1.43%
Iron	0.07%	0.03%
Tannins	1.03%	0.08%

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