

Wood Apple: A Exploited Nutritional Fruit

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Wood Apple or *Limonia Acidissima* is a tropical food grown in south Asia and south-east Asian countries. The reason behind its name is its hard shell structure. Wood Apples are available in the summer season. It is sometimes also called monkey fruit. 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 Southeast 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, Kethbel, golden apple, stone apple, etc.



Table 1: Taxonomy of *Limonia Acidissima*


Kingdom	Plantae
Order	Sapindales
Family	Rutaceae
Subfamily	Aurantioideae
Genus	Aegle
Species	<i>A.marmelos</i>

Nutritional composition of *Limonia Acidissima*

It has numerous health benefits for the human body. For example, if you ever suffer from dehydration, one glass of wood apple juice can boost your whole body.

Table 2 : Nutritional composition of *Limonia Acidissima*

Fruit composition	Amount
TSS	9.40-16.00 ^u B
Titrateable Acidity	0.83 to 2.76 %
Total Sugar	4.08-4.47 %
Vitamin-C	1.68 to 3.40 mg/ 100g
Protein	6.3 g/100 g
Total Carbohydrates	15.6 g/100 g
Moisture	72 %
Total Phenol	235 mg/100g
Antioxidant Capacity	1412.55 µg/g
P (%)	0.037 - 0.078
K (%)	1.29 - 1.86
Ca (%)	0.11 - 0.39
Mg (%)	3.18 - 5.92
Na (%)	3.07 - 7.54
Pectin (%)	1.39 - 1.65



Medicinal benefits of Wood Apple:

- ✚ **Prevents cancer:** Wood Apple shows anticancer activity by reducing the risk of cancer and inflammation in the body, it causes the death of cancer cells, particularly those affecting breast and skin.
- ✚ **Anti-ageing benefits:** Vitamin C present in wood apple which supports natural collagen synthesis. It helps to reduce the oxidative damage from ultraviolet sun exposure, and skin quality can be maintained for years. Diets high in antioxidant nutrients are among the best for excreting anti-ageing benefits and are something wood apple excels at.
- ✚ **Promotes detoxification:** Wood apples are equipped with riboflavin and thiamine chemicals, so they effectively detoxify the body. In addition, wood apples help to protect the liver from inflammation.
- ✚ **Supports respiratory health:** Consumption of wood apple can assist with free-breathing owing to decongestant properties, along with cough suppressant and mucolytic actions to clear the lungs catarrh.

- ✚ **Antimicrobial activity:** The Wood apple fruit contains flavonoids which give anti-oxidant property, saponins which are responsible for foaming and anti-fungal property, antimicrobial agent which possesses properties against the replication of bacteria and viruses.
- ✚ **Energy Booster:** A single wood apple delivers around 25 g of fast-digesting carbohydrates, which helps provide energy to the body when needed the most. However, it is not suitable for patients suffering from diabetes as it provides high sugar levels.
- ✚ **Wound healing agent:** Wood apples may promote the healing of bones as they contain anti-inflammatory agents. They also possess the ability to inhibit the accretion of pathogens. In addition, it also can stimulate the production of collagen, which is a protein responsible for the structure of the scar.
- ✚ **Blood purifier:** A small quantity of wood apple helps in purifying the blood and helps in removal of toxins. This, in turn, has the effect of reducing the load on the liver and kidneys.
- ✚ **Anti-Diabetic activity:** Wood apple fruits which contains polyphenols and flavonoids, which have been shown to have hypoglycemic effects and helps in lowering blood sugar levels in diabetics. It is not just the fruit, but also other parts of the tree that have medicinal properties. For instance, the bark has something called Feronia gum, which can balance sugar levels in the blood by adjusting glucose and insulin level.
- ✚ Wood apple used for the treatment of nausea, vomiting, acts as antidote against some poisons, improves the taste perception, beneficial for cardiac muscles, and clears the phlegm from the throat, dyspnea and thirst.

Conclusion

Considering such tremendous nutritional benefits of wood apple we can incorporate it with various food products formulation like Jam, jelly, pickle, ready to serve drinks, ice cream, fruits bar, chutney and powder preparation.