

## THE FRUITS OF THE BEEDI LEAF-BEARING TREE (PERSIMMON) ARE RICH IN NUTRIENTS

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**T**huniki/Temburni (Telugu), Tendu (Hindi), Kendu (Odisha, Jharkhand, and Assam) (*Diospyros melanoxylon* Roxb.)

fruit belongs to Ebenaceae family and *Diospyros* species. It is origin to India and Sri Lanka. Its trade name is ebony, tendu/kendu, Thuniki/Temburni, and is also called as coromandel ebony or East Indian ebony. There are so many economic uses of this species, and all the



plant parts starting from bark, leaves, fruits, and seeds are important for various commercial purposes. Both unripe and ripe fruits have been used in folk-medicine by tribal communities. It's also called as a poor man's cigarette

*Tendu* is a dioecious, long lived, medium-sized tree up to 25-30 m and 1.9 m girth. In a dry locality, it's leafless for a short life in the hot weather; reproduce its leaves in May-June. In a moist locality, it's evergreen. The primary root is long, thick, and fleshy at first, afterward woody, greyish, often swollen in the upper part near ground level. Leaves opposite and coriaceous, up to 35 cm long, tomentose presence on both sides when it is young, becoming glabrous above when fully grown. The flowers are produced from April to June on new shoots, and the fruit ripens after 1 year. Persimmon flowers are yellowish white and 0.75 inches long. Male and female flowers are usually borne on separate trees; sometimes, perfect or female flowers are found on male trees, and occasionally male flowers on female trees. Male flowers, in groups of 3 in the leaf axils, have 18- 24 stamens in 2 rows. Female flowers, solitary, have a large leaflike calyx, and pale-yellow corolla, 8 undeveloped stamens, and oblate or rounded ovary bearing the style and stigma. Perfect flowers are intermediate

between the two. Fruits are usually set in clusters which hang on the branches during winter. The fruit is usually capped by the persistent calyx. The colour of ripe fruit ranges from light yellow-orange to dark red-orange depending on the species and variety. In some species, it is black as well. Fruits vary in size from 1.5 to 9 cm in diameter, and in shape. They may be spherical, acorn, or pumpkin shaped. The calyx becomes easy to remove once the fruit is ripe. Generally, the pulp is bitter and astringent until fully ripe, when it becomes soft, sweet, and pleasant, but dark-fleshed types may be non-astringent, crisp, sweet, and edible even before full ripening. Like the tomato, persimmons are not popularly considered to be berries, but in terms of botanical morphology, the fruit is in fact, a berry.

## Nutritional Use of Kendu

### Fruits

Kendu fruit is globose in shape with 3-4 cm diameter. It usually contains 3 to 4 seeds which are brown in colour, compressed, and oblong in shape. These fruits are rich in sugars, proteins, fibre and vitamin C.

Carbohydrate	81%	Protein	2%
Fat	2%	Fibre	11%
Caloric value	349 Kcal	Calcium	11.8 %
Magnesium	62 %	Zinc	1.28 %
Copper	0.2 %	Vitamin C	49 mg %
β-carotene	260 µg %)		

- ❖ The fruit has a cooling and astringent effect. Agency people use this fruit against **intense summer heat**. Tribal's using this fruit for extra vigour and efficiency to work for long hours without exhaustion.
- ❖ Unripe fruit is useful in relieving flatulence, and ripe fruit is used to check excessive bile secretion. Fruit extract relieves **fistula problems** and is also used as a **skincare** agent.
- ❖ The tannin content in dried powdered fruit is 15%, and that of half ripe fruit is 23%. It is used as a carminative and astringent.

- ❖ In ethnomedicine, it is also used against rheumatoid arthritis and abdominal pain. Methanolic extract of *kendu* is reported to possess saponins, tannins, terpenoids, flavonoids, alkaloids, and essential oils.
- ❖ Tendu fruit wine is popular among the tribal community. An analysis of wine prepared from kendu fruits reveals that it contains

Total sugar	3.78 g/100ml	Lactic acid	0.39 mg/100 mL
Titrateable acid	1.32 g/100 ml	Methanol	3.5 % (v/v)
pH	3.12	Ethanol	6.8 % (v/v)
Total phenolics	0.95 g/100 ml	ascorbic acid	1.52 mg/ 100 mL
β-carotene	8 μg/100 mL		

### Leaves

- The leaves are reported to contain crude fibre (25.28%) and crude protein (7.12%).
- Leaves are used as a styptic in the treatment of scabies and old wounds and as a laxative and carminative medicine.
- The leaves possess antimicrobial properties due to the presence of “*Pentacyclic triterpenes*”
- The leaves are commonly used for making beedis (an indigenous conventional cigarette which uses the kendu leaf for wrapped around of tobacco instead of paper).

### Bark:

- The bark colour is as pelican, exfoliating in rectangular scales.
- The bark is used to “cure” small-pox by negative people.
- The bark of Tendu tree found in India has determined to have significant Antiplasmodial effect against *Plasmodium falciparum*, which causes malaria in humans.

### Flowers

- Dried flowers are observed to be useful in urinary, skin and blood diseases.

## Seeds

Powdered seeds are also sold in markets along with fruits, and the seeds have been prescribed in India as a cure for mental disorders, nervous breakdowns, and palpitations of the heart.

## Timber

Wood is hard, whitish-pink, tough, fairly durable, and used for building shoulder poles, mine props and shafts of carriages. The wood of this tree is also utilized for making boxes, combs, ploughs and beams. *Diospyros melanoxylon* is reported to be good fuelwood; the calorific value of sapwood is (4957 kcal/kg) and of heartwood (5030 kcal/kg).

## Conclusion

The Kendu angiospermous tree being rich in nutritional, medicinal, and processing qualities can play a really significant role within the livelihood security communities through enhanced household income, employment generation, and environmental protection. Kendu fruits have an excellent potential; there is a scope of accelerating the world and production of this lesser known fruit and their products from the various parts of the tree. Value addition their nutritional and medicinal properties may be a future strategy, and government and non-government organizations should play an important role in value addition and popularization of the kendu tree.

## References

Hmar, B.Z., Mishra, S and Pradhan, R.C (2017). Physico-Chemical, Mechanical and Antioxidant Properties of Kendu (*Diospyros melanoxylon* Roxb.). *Current Research in Nutrition and Food Science*. **5**(3): 214-222.

Sailakshmi, A.S.R., Anand, A., Madhusudana, K., Nayak, V.L., Zehra, A., Babu, K.S and Tiwari, A.K (2018). *Diospyros melanoxylon* (Roxb.): A tribal fruit that maintains euglycemic state after consumption and cools oxidative stress. *Indian Journal of Natural Products and Resources*. **9** (3): 194-203.

Srivastava, A., Bishnoi, S.K and Sarkar, P.K (2017). Value Addition in Minor Fruits of Eastern India: An Opportunity to Generate Rural Employment. *Agrobios*. 395-417.