



## Understanding the Tangy Treasure: Tamarind's Unique Chemistry and Its Varieties

(\*Sangeeth Shyam Sundar S S, C Rajamanickam, Vasanth Kumar S S, Rubika R and Sabarivasan M)

Horticultural College and Research Institute, Periyakulam

\*Corresponding Author's email: [sangeethshyamsundarss2000@gmail.com](mailto:sangeethshyamsundarss2000@gmail.com)

The Tangy Tropical Treasure with Surprising Health Benefits Tamarind, a tropical fruit with a distinctive sweet-sour flavor, is a versatile ingredient found in cuisines around the world. But this humble fruit is more than just a culinary delight - it's a powerhouse of nutrients with an array of potential health benefits. Originating in Africa, tamarind has been naturalized in many tropical regions, including Asia, the Caribbean, and the Americas. The fruit's fleshy, fibrous pulp is the most commonly used part, lending its signature tartness to sauces, chutneys, drinks, and even desserts. But the seeds, leaves, and bark of the tamarind tree also have their own uses, from traditional medicine to modern research.

### Nutrient - Rich Superfruit

Tamarind is a nutritional powerhouse, packed with vitamins, minerals, and antioxidants. Just one ounce (30 grams) of the pulp provides a significant amount of magnesium, a mineral that plays a crucial role in over 600 bodily functions. It's also a good source of vitamin C, copper, and potassium. The fruit's polyphenol compounds, such as catechins and flavonoids, have been studied for their potential antioxidant and anti-inflammatory properties (Britannica, 2020). These compounds may help protect against chronic diseases like heart disease, cancer, and diabetes (Van den Bilcke et al., 2014). Tamarind has high nutritional value. According to the World Health Organization, tamarind fruit contains all necessary amino acids except tryptophan. The nutritional content of raw tamarind per 100 grams is the following:

Nutritional Component	Value
Energy	239 kcal
Vitamin B6	0.066 mg
Vitamin C	3.5 mg
Vitamin E	0.1 mg
Vitamin K	2.8 µg
Thiamin	0.428 mg
Riboflavin	0.152 mg
Niacin	1.94 mg
Vitamin B5	0.143 mg
Vitamin A	2 µg
Folate, total	14 µg
Folate, food	14 µg
Folate, Dietary Fibre Equivalent (DFE)	14 µg
Choline, total	8.6 mg

Carotene, beta	18 µg
Protein	2.8 g
Fat	0.6 g
Carbohydrate	62.5 g
Fibre (total dietary)	5.1 g
Sugars	38.8 g
Calcium	74 mg
Iron	2.8 mg
Magnesium	92 mg
Phosphorus	113 mg
Potassium	628 mg
Sodium	28 mg
Zinc	0.1 mg
Copper	0.086 mg
Selenium	1.3 µg
Tryptophan	0.018 g
Lysine	0.139 g
Methionine	0.014 g

(Singh, 2024)

### Potential Health Benefits

Tamarind's nutritional profile and bioactive compounds suggest a range of potential health benefits:

- **Digestive Health:** Tamarind has traditionally been used to treat digestive issues like constipation and diarrhea. The fruit's high fiber content may help regulate bowel movements and support overall gut health.
- **Heart Health:** The potassium in tamarind may help regulate blood pressure, while its antioxidants may protect against heart disease by lowering cholesterol levels and reducing inflammation.
- **Diabetes Management:** Some research indicates that tamarind extract may help manage blood sugar levels, making it a potential complementary therapy for diabetes. However, more studies are needed to confirm these effects.
- **Immune Support:** Tamarind's vitamin C and antioxidant content may bolster the immune system and help fight off infections.

### Culinary Versatility

Beyond its potential health benefits, tamarind is a versatile ingredient in the kitchen. The pulp can be used to add a tangy-sweet flavor to a variety of dishes, from chutneys and marinades to curries and beverages. The seeds and leaves are also edible, though less commonly used. Whether you're looking to add a unique twist to your cooking or seeking a nutritious fruit with promising health benefits, tamarind is a tropical treasure worth exploring. As with any new food or supplement, it's always best to consult with a healthcare professional before incorporating tamarind into your diet, especially if you have any underlying health conditions (Jennings, 2016).

### Varieties

The existing cultivated types of tamarind are all of seedling origin, being highly heterozygous there are a few recognized varieties based on the pulp colour of the fruit. The local varieties can be classified as 'brown sour types' and 'reddish sweet types'. The popular among the local types are Bangalore Tamarind, Tumkur Tamarind, Hosur Tamarind, Krishnagiri

Tamarind, Natham Tamarind, Nagarkoil Tamarind, Villupuram Tamarind, Ranchi Tamarind etc. (Board, 2021).

A few improved varieties of tamarind are:

**PKM - 1** : A clonal selection from the gene bank, it is an early variety yielding 263 kg pods per tree with a pulp content of 39 per cent. It can give 26 tonne of pods per hectare if transplanted at a spacing of 10 m x 10 m. The variety is characterized by purple pigmentation in the terminal buds, stems dark brown in colour, fruits borne in clusters of 4-5 nos, they are slightly curved with brown pulp.

**Urigam**: This is another local type providing very long pods having fleshy sweet pulp. It bears 2-3 pods per bunch. The fruit yield is low when compared to PKM-1.

**Pratisthan**: This is an improved sweet pulped high yielding variety of tamarind released from Marathwada Agricultural University, Parbhani.

**NTI-19 (DST -1)**: The variety is reported to yield well in Dharwad region of Karnataka. The pods are big and the grafted plants start yielding in 4-5 years of planting. The average yield per plant is about 3 kg at 5<sup>th</sup> year.

**Red Tamarind**: The variety is recommended for cultivation by the Tamil Nadu Agriculture University. The pulp is red in colour which has a great demand in Arabian countries.

**GKVK-6 and GKVK-33**: These two are local types released by the Division of Horticulture, UAS, Gandhi Krish Vignana Kendra, Bangalore.

## References

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