

Traditional Fruits of Odisha: Nutritional Value and Functional Properties

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Abstract:

This review highlights the nutritional and functional properties of traditional fruits native to Odisha, India. Odisha's rich biodiversity provides a variety of fruits with significant health benefits, including antioxidants, vitamins, and bioactive compounds. Key fruits such as Bael (*Aegle marmelos*), Jamun (*Syzygiumcumini*), and Wood Apple (*Limoniaacidissima*) offer unique therapeutic potential, traditionally utilized in managing conditions like diabetes, inflammation, and digestive health. This paper explores the nutritional composition, phytochemical properties, and potential health applications of Odisha's traditional fruits, drawing attention to their functional role in promoting health and preventing diseases.

Keywords: fruits, health benefits, nutrition, functional properties, *Syzygiumcumini*, *Aegle marmelos*, *Limoniaacidissima*

Introduction

Odisha, located on the eastern coast of India, has a rich diversity of native fruits that have been consumed for centuries due to their nutritional value and medicinal benefits. Many of these fruits are high in essential nutrients, antioxidants, and phytochemicals, providing both dietary value and therapeutic effects (Behera et al., 2017). With a growing

interest in functional foods, understanding the properties of these fruits has become essential for promoting health and preserving cultural food practices. This review examines the nutritional profiles and health benefits of Odisha’s traditional fruits.

1.2 Nutritional Composition of Traditional Fruits

1.2.1 Bael (*Aegle marmelos*): Known for its high vitamin C content, bael is also rich in dietary fibre and minerals like calcium and phosphorus. Its pulp contains significant levels of phenolic compounds, which provide antioxidant activity (Swain et al., 2018). Studies indicate that bael’s fibre and nutrients support digestive health, making it a valuable addition to traditional diets (Patra et al., 2020).

1.2.2 Jamun (*Syzygiumcumini*): Jamun is widely recognized for its anti-diabetic properties, containing compounds like jamboline, which assist in controlling blood sugar levels (Sharma & Pant, 2017). It is also rich in iron, vitamin A, and flavonoids, which help improve vision and bolster immune health (Tripathy et al., 2019).

1.2.3 Wood Apple (*Limoniaacidissima*): The wood apple is high in vitamin C, calcium, and potassium, known for its anti-inflammatory and antimicrobial properties. The fruit has been used traditionally for treating gastrointestinal issues and is high in antioxidants that support cellular health (Mishra et al., 2018).

1.2.4 Custard Apple (*Annona squamosa*): Custard apple is rich in energy, carbohydrates, and dietary fibre, which aid digestion. The fruit also contains vitamin B6, which plays a role in mental health and reducing stress levels (Behera et al., 2017).

Table: Nutritional Composition of Traditional Fruits of Odisha from Previous Studies

Fruit	Nutritional Components	Key Nutritional Highlights	Reference
Bael (<i>Aegle marmelos</i>)	High in dietary fibre, vitamin C, calcium, phosphorus, potassium	Rich in antioxidants and bioactive compounds	Swain et al. (2018)

Jamun (<i>Syzygiumcumini</i>)	Iron, vitamin A, calcium, magnesium, phosphorus, flavonoids	Known for its high iron and vitamin A content; anti-diabetic	Sharma & Pant (2017)
Wood Apple (<i>Limoniaacidissima</i>)	Vitamin C, calcium, phosphorus, fibre, tannins, flavonoids	High vitamin C content; excellent for digestion	Mishra et al. (2018)
Custard Apple (<i>Annona squamosa</i>)	High in carbohydrates, dietary fibre, vitamin B6, potassium	Rich in energy, vitamins, and essential minerals	Behera et al. (2017)
Kendu (<i>Diospyros melanoxylon</i>)	Vitamin C, tannins, phenolic compounds, fibre, iron	High tannin and iron content; used traditionally for its health benefits	Patra et al. (2020)
Jackfruit (<i>Artocarpus heterophyllus</i>)	Carbohydrates, vitamin C, potassium, fibre, protein	High energy, fibre, and antioxidant properties	Dash & Dash (2019)

1.3 Functional Properties and Health Benefits

1.1.1 Antioxidant Properties: Many traditional fruits of Odisha, like bael and wood apple, contain high levels of antioxidants, which play a crucial role in reducing oxidative stress, lowering inflammation, and preventing chronic diseases such as heart disease and cancer (Swain et al., 2018).

1.1.2 Antidiabetic Effects: Fruits like jamun are commonly used in traditional medicine for their antidiabetic properties. Jamboline, a bioactive compound in jamun, helps to regulate blood sugar and enhance insulin sensitivity, making it beneficial for diabetes management (Sharma & Pant, 2017).

1.1.3 Anti-Inflammatory and Antimicrobial Benefits: Wood apple, due to its bioactive compounds, exhibits both anti-inflammatory and antimicrobial properties, helping to prevent infections and support immune health. These properties make it beneficial in traditional medicine for treating infections and promoting wound healing (Mishra et al., 2018).

1.1.4 Digestive Health: High-fibre fruits like bael and custard apple contribute to digestive health by improving gut motility and acting as prebiotics, supporting beneficial

gut bacteria. This aids in nutrient absorption, alleviates constipation, and improves overall gastrointestinal function (Patra et al., 2020).

Table: 2 Functional properties and health benefits of the traditional fruits of Odisha.

Fruit Species	Local Name (Odia)	Functional Properties	Health Benefits	References
<i>Carissa carandas</i>	Karanda Koli	Contains antioxidants, vitamins, and minerals.	Exhibits anticancer, antidiabetic, anthelmintic, and adaptogenic activities.	Ahuja et al., 2024
<i>Citrus medica</i>	Limbu	Rich in vitamin C and antioxidants.	Acts as an analgesic, antioxidant, anticancer, and possesses antiulcer properties.	Patra& Basak (2020)
<i>Ficus auriculata</i>	Raja Dimiri	High in antioxidants and possesses antimicrobial properties.	Offers antimicrobial and antifungal activities.	Jenipher et al. (2025)
<i>Limoniaacidissima</i>	Kaitha	Contains bioactive compounds with medicinal properties.	Functions as an antidiabetic, anticancer agent, and aids in wound healing and hepatoprotection.	Amardeepa& Vijayakumar (2025)
<i>Phyllanthus emblica</i>	Aonla	Extremely rich in vitamin C and antioxidants.	Provides astringent, laxative, antipyretic, analgesic, and diuretic effects.	Tiwana et al. (2025)

<i>Sonneratiacaseolaris</i>	Orua	Contains essential nutrients and bioactive compounds.	Used as vegetables, acts as anthelmintic, relieves cough, and serves as an antiseptic.	Aznawi et al. (2025)
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Future Research and Applications

While traditional fruits of Odisha have been shown to have beneficial properties, further research is necessary to explore their bioactive compounds, dosage, and mechanisms of action in health and disease prevention. Developing functional food products using these fruits could promote local biodiversity and enhance community health.

1.5 Conclusion

The traditional fruits of Odisha possess rich nutritional and functional properties, making them valuable for both diet and health. Emphasizing their consumption and integrating them into modern food systems could provide health benefits while preserving cultural heritage. Ongoing research and awareness are essential to realize the full potential of these fruits in promoting health and preventing disease.

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