



Cultivation and Nutrient composition of Indian Gooseberry (*Phyllanthus indica*)

*Anbunithi S¹, Jagadesh S¹, Vivekanadhan S¹, Mano M¹, Hariharan M¹ and Prabu M²

¹B. Sc. (Hons.) Agriculture Students, School of Agriculture and Animal Sciences,
The Gandhigram Rural Institute, Dindigul, India

²Teaching Assistant, School of Agriculture and Animal Sciences, The Gandhigram
Rural Institute, Dindigul, India

*Corresponding Author's email: anbunithi263@gmail.com

Amla (*Phyllanthus indica*), or Indian gooseberry, is a nutrient-rich fruit widely cultivated in tropical and subtropical regions, especially in India. It thrives in well-drained soils with a dry climate and is primarily propagated through seeds or vegetative methods like grafting and budding, with trees bearing fruit within 4–5 years. Amla is highly valued for its exceptional vitamin C content, which surpasses that of citrus fruits, along with polyphenols, flavonoids, iron, calcium, and dietary fibre. These nutrients contribute to its numerous health benefits, including immune support, improved digestion, and antioxidant properties. The fruit is used in various forms, such as fresh, dried, powdered, and processed products like juices and herbal supplements. Due to its resistance to pests and diseases, amla is a sustainable crop that holds significant economic and medicinal importance. This article represents the Nutrient composition and Packaging practices of *Phyllanthus indica* and which is most predominantly used by most of them.

Key words: Propagation, antioxidant, packaging practices and grafting.

Introduction

Indian gooseberry (*Phyllanthus indica*), commonly known as amla, is a nutrient-rich fruit native to the Indian subcontinent and widely recognized for its medicinal and nutritional properties. It holds a significant place in traditional systems of medicine such as Ayurveda and is increasingly popular in modern health and wellness due to its high vitamin C content and antioxidant properties. Understanding the optimal conditions for its growth—such as climate, soil, and propagation methods is essential for successful cultivation. Moreover, knowledge of its nutrient composition is important not only for promoting its health benefits but also for its application in the food processing and pharmaceutical industries. This overview focuses on the key cultivation practices and the nutritional profile of Indian gooseberry to support both agricultural development and public health awareness.

Scientific Classification of *Phyllanthus indica*

Kingdom	:	Plantae
Order	:	Malpighiales
Family	:	Phyllanthaceae / Euphorbiaceae
Genus	:	Phyllanthus
Species	:	<i>Phyllanthus indica</i>

How Does it is Cultivated?

Prominent Cultivars of Indian Gooseberry in India

1. Banarasi

Characteristics: Fruits are medium to large, roundish with six linear grooves; light green when immature, turning whitish-green at maturity. The flesh is moderately fibrous and semi-transparent which is primarily used for making candies.

2. Chakaiya

Characteristics: Fruits are small to medium, flattened with smooth greenish skin; fibrous and hard flesh and it is a Late-maturing variety which is suitable for making pickles and other products.

3. Francis (Hatijhool)

Characteristics: Fruits are large, flattened, oval with greenish-yellow smooth skin; soft and nearly fibreless flesh and it is mostly preferred for making value-added products such as candy, powder, and juices.

4. Krishna (NA-4)

Characteristics: Fruits are large, with high yield potential and it has high fruit retention and yield; suitable for arid climates.

5. Kanchan (NA-5)

Characteristics: Fruits are medium-sized with good quality and it has moderate yield potential; suitable for arid climates.

6. BSR-1 (Bhavanisagar)

Characteristics: Fruits are medium-sized with good quality and it has moderate yield potential; suitable for arid climates

Soil and climate

Amla is a subtropical plant and prefers dry climate. Well-drained **sandy loams to clay loam soils** are ideal. Amla can tolerate a range of soil textures. The crop can tolerate salinity and alkalinity. pH Range is 6.5 to 8.5. Rainfall of 630 to 800 mm required annually and temperature ranges between 20 - 42°C.

Planting material

1. Seedlings – Not generally recommended for commercial use.
2. Grafting – mostly preferred for commercial use.
3. Air layering, Inarching and tissue culture are usually practiced for growth.

Planting

Planting is done during July-August with a spacing of 6 x 6 m in pits of 1x1m or 1.25 x 1.25m.

Irrigation

Irrigate the plants initially for establishment. No irrigation is required during rainy and winter season. Drip irrigation is appropriate which can save water upto 40-45%.

1. **Rainfed:** Amla is drought-resistant but benefits from irrigation in the first 2–3 years during dry periods.
2. **Irrigated conditions:** Water every 15–20 days during the dry season.

Manures and fertilizers (per plant/year)

Manures and Fertilizers	Bearing tree
FYM	10 kg
N	200 g
P	500 g
K	200 g

Manuring should be done immediately after pruning.

Training and Pruning

The main branches should be allowed to appear at a height of 0.75-1 m above the ground level. Plants should be trained to modified central leader system. Two to four branches with wide crotch angle, appearing in the opposite directions should be encouraged in early years. During March – April, prune and thin the crowded branches to provide maximum fruit bearing area in the tree.

Mulching and Intercropping

During summer, the crop should be mulched with paddy straw or wheat straw at the base of the tree up to 15-20 cm from the trunk. Inter crops like green gram, black gram, cow pea and horse gram can be grown up to 8 years.

Control

- Stem swelling / bulging can be controlled by proper pruning

Plant protection

Pests

- Gall caterpillar
- Bark eating caterpillar

Disease

Rust

Rust appears as circular reddish solitary or gregarious on leaves and also on fruits. Spray 0.2 per cent Mancozeb at an interval of 7 to 28 days during July to September.

Yield

The crop yields about 100 kg/tree annually.

Source: <https://agriculture.vikaspedia.in/viewcontent/agriculture/crop-production/package-of-practices/fruits-1/amla?lgn=en#section6>

Medicinal Properties and Uses

- Amla is an important crop in Ayurveda
- Fruits have the richest source of vitamin-C (700 mg per 100 g of fruits)

Preparations (Products) using Amla

- Chyawanprash
- Triphala churna (mixture of Amla, Terminalia chebula and T. bellerica)
- Brahma Rasayana
- Madumegha churna

Medicinal properties:

- Anti scorbutic, diuretic, laxative, antibiotic and anti-dysenteric.
- Phyllembilin, obtained from fruit pulp has been found to have mild depressant action on central nervous system.
- Good liver tonic

Good demand from the industries for the preparation of various health care products also like hair oil, dye, shampoo, face creams and tooth powder.

Nutrient content of *Phyllanthus indica*:

Amla is well known for its nutritional qualities. It is rich in polyphenols, minerals and is regarded as one of the richest source of vitamin C (200-900 mg per 100 g of edible portion).

Table 1: Major components of nutritional importance

Chemical constituents	Percentage (%)
Carbohydrates	14.1
Protein	0.5
Fat	0.1
Fibre	3.7

Mineral matter	0.7
Calcium	0.05
Phosphorus	0.02
Iron	1.5 mg /100g
Vitamin c	600 mg/ 100 g
Nicotinic acid	0.2 mg /100 g
Moisture	81.2

Source: (Muzaffar, K., Sofi, S. A., Makroo, H. A., Majid, D., & Dar, B. N. (2022).

Conclusion

Indian gooseberry, or amla, stands out as a highly beneficial fruit both nutritionally and medicinally. Its rich content of vitamin C, antioxidants, and other essential nutrients makes it a valuable resource for promoting health and wellness. Effective cultivation practices—including proper site selection, soil management, propagation, and orchard care—are crucial for achieving high yield and fruit quality. With increasing demand for natural health products and functional foods, the scientific cultivation of amla offers great potential for farmers and entrepreneurs alike. By combining traditional knowledge with modern agricultural techniques, amla cultivation can contribute significantly to sustainable farming, rural development, and improved public health.

References

1. Javed, S., Nasim, T., and Zia-Ul-Haq, M. (2023). Amla. In *Essentials of Medicinal and Aromatic Crops*, Cham: Springer International Publishing. Pp:53-81.
2. Kaur, M., Sharma, A., Bhardwaj, P., Kaur, H., & Uppal, S. K. (2021). Evaluation of physicochemical properties, nutraceuticals composition, antioxidant, antibacterial and antifungal potential of waste amla seed coat (*Phyllanthus indica*, variety Neelam). *Journal of Food Measurement and Characterization*, 15, pp:1201-1212.
3. Parveen, K., and Khatkar, B. S. (2015). Physico-chemical properties and nutritional composition of aonla (*Emblca officinalis*) varieties. *International Food Research Journal*, 22(6), 2358.
4. <https://agriculture.vikaspedia.in/viewcontent/agriculture/crop-production/package-of-practices/fruits-1/amlalgn=en#section6>
5. Research gate from the Indian Gooseberry (*Emblca officinalis*) Industry and Cultivation in India