

AONLA: A PROMISING NUTRACEUTICAL WONDER

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The Indian gooseberry, also known as Aonla (*Phyllanthus emblica* L.), is a major indigenous minor fruit crop in the Phyllanthaceae family. This species is a medium-sized deciduous tree that grows to a height of 8-18 metres and is endemic to tropical Southeast Asia, specifically central and southern India, Pakistan, Bangladesh, Sri Lanka, southern China, the Mascarene Islands, and Malaysia. India ranks first in the world in terms of area and production of Indian gooseberry. Uttar Pradesh, Madhya Pradesh, and Tamil Nadu are the major gooseberry-cultivation states, accounting for 75% of the total gooseberry production in India. Many herbal and patent drugs have been formulated by the constituents of this plant. The tree is distinguished by its spreading canopy and thin, grayish-gray bark. The stem is often bent, 3-6 feet broad, and has branches. Green to yellowish flowers with six sepals and no petals are produced by aonla trees. Along the leaf axils, there are clusters of fruits. The sub-sessile, oblong leaves are 10–13 mm long, 2–3 mm wide, and light green in colour. They are tightly packed along the branchlets. Fruit is spherical, juicy, without a stalk, and segmented into sinlobes. Fruit surfaces are glossy, transparent, and have a firm feel. Fruits are green when unripe, turning greenish-yellow as they ripen. The fruit has three crustaceous cocci with two seeds and six oblique vertical furrows that enclose six trigonous seeds.

NUTRITIONAL COMPOSITION OF AONLA

The Aonla fruit has high nutraceutical and medicinal value, thus recognized as 'Amrit-Phal' in traditional medicinal system. It has been used in traditional medicinal systems, such as Indian Ayurvedic, Chinese, and Tibetan medicine. Among fruit crops, aonla is the second-richest source of ascorbic acid (vitamin C) after Barbados Cherry, which aids in the prevention of scurvy. In addition to ascorbic acid, aonla is a rich source of polyphenols and hydrolysable tannins (emblicanin A and B), which are thought to be the basis for their antioxidant properties. It also contains a lot of vitamins and minerals. Calcium (129.77 mg/100 g) is the most abundant mineral in amla fruit powder, followed by phosphorus, iron, and magnesium. Consuming 50 g of amla powder can suffice the daily requirement of calcium in humans. Amla is also contains trace minerals abundantly such as manganese followed by iron, cobalt and chromium. Riboflavin, thiamine and amino acids including lysine (5%), alanine (5%), proline (14%), glutamic acids (29%) and aspartic acid (8%) are all present in significant amounts in aonla fruit. Aonla also contains moisture (81.2%), protein (0.5%), fat (0.1%), mineral matter (0.7%), fibre (3.4%), carbohydrates (14.1%) and iron (1.2 mg/100g). Ayurvedic and Unani pharmaceutical formulas use almost all tree parts, including the root, bark, leaf, flower, fruit, and seed, to enhance heart health, ease asthma and cough, and improve general digestion.



Table 1: Nutrients Value per 100 g

S.NO	NUTRIENTS	UNIT VALUE PER 100g
1.	Water	81 %
2.	Protein	1 g
3.	Total lipid	0.5 g
4.	Fibre	3.2 g
5.	Carbohydrate	14 g
6.	Energy	170 kcal
7.	Calcium	25 mg
8.	Iron	1 mg
9.	Magnesium	10 mg
10.	Phosphorous	21 mg
11.	Potassium	198 mg
12.	Sodium	13 mg
13.	Chloride	25 mg
14.	Vitamin C	720 mg
15.	Vitamin E	0.17 mg
16.	Vitamin A	290 IU
17.	Vitamin B1	30 mg

NATURAL HEALTH BENEFITS AND MEDICINAL PROPERTIES OF AONLA

The medical benefits of aonla have been widely acknowledged. Asthma, bronchitis, and pulmonary tuberculosis can all be treated with a spoonful of fresh aonla juice. Additionally, it helps in the treatment of glaucoma and conjunctivitis. Similar to this, drinking its juice everyday for two months while mixing it with a cup of fresh bitter gourd juice lowers blood sugar in diabetics. For a month, two teaspoons of jaggery mixed with one tablespoon of dry fruit powder can be used to treat rheumatism. Similar to this, it is advised to take one tablespoon of powdered aonla and sugar three times per day with milk to treat scurvy. Hindu literature also prescribes that if ripe gooseberry fruits are eaten for 40 days in the morning

after fasting, it restores health and vitality, known as Kaya Kalpa. Fresh amla fruit has a revitalising impact on the body because it is packed with nutrients and helps older individuals maintain their stamina. Aonla is one of the main constituents of numerous ayurvedic preparations like Triphala and Chyawanprash. Amla choorna (powder) or in the form of triphala tablets or decoction. Triphala meaning three fruits which is a traditional herbal formulation composed of *Emblica officinalis*, *Terminalia bellerica* and *Terminalia chebula*.

NUTRACEUTICAL POTENTIAL OF AONLA

Several beneficial effects of aonla include cooling, ophthalmic, carminative, digestive, stomachic, laxative, dyspepsia, aphrodisiac, rejuvenating, diuretic, antipyretic and tonic. Aonla is useful against diabetes, cough, jaundice, diarrhoea, dysentery asthma, bronchitis, cephalalgia, ophthalmopathy, dyspepsia, colic, flatulence, hyperacidity, peptic ulcer, erysipelas, skin diseases, leprosy, haematogenesis, inflammations, anaemia, emaciation, hepatopathy, haemorrhages, leucorrhoea, menorrhagia, cardiac disorders, intermittent fevers and premature greying of hair.

Compared to synthetic antioxidants as BHA and quercetin, amla extracts offer stronger antioxidant properties. According to reports, the amla fruit has 17 times more antioxidant potential than pomegranate and is two times more potent than acai. The fruit's enormous antioxidant power has been directly connected with the amount of phytochemicals it contains, especially phenols and flavonoids. Amla has antiproliferative properties that can stop the spread of cancer



cells. The enhancement of natural killer (NK) cell function has protective benefits against the spread of cancer cells. Amla significantly inhibits the proliferation of lung, stomach, breast, and liver cancer cells. When it comes to lung cancer, substances like isocarilagin found in amla have cancer-protective properties. Additionally, ellagitannins and quercetin in amla demonstrate anti carcinogenicity due to modification of the body's natural defences. Amla blocks the activation of metabolite promutagens, which is how it has anti-carcinogenic properties. Supplements containing amla extract can benefit people undergoing radiation therapy by helping patients maintain lost body stamina and vigour. In laboratory studies, amla has been proven to effective for high cholesterol and prevention of atherosclerosis. It strengthens the heart muscles and causes a significant decrease in total cholesterol, LDL cholesterol, VLDL cholesterol and triglycerides. Due to its many positive benefits, including memory enhancement and the reversal of memory losses, amla-churna may prove to be an effective treatment for the management of Alzheimer's disease.

CONCLUSION

In conclusion, aonla exhibits significant nutraceutical potential, offering a wide range of health benefits and potential for treating various diseases. Its rich composition of Vitamin C, polyphenols, and other bioactive compounds provides antioxidant, anti-inflammatory, and immune-boosting properties. Aonla has been traditionally used in Ayurvedic medicine to treat ailments and is now being recognized for its potential in preventing chronic diseases, improving liver health, managing diabetes, and promoting digestive wellness. With its versatile therapeutic properties, aonla holds promise as a valuable nutraceutical for supporting overall health and well-being.