

REVIEW ARTICLE

Therapeutic effects of amla in medicine and dentistry: A review

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ABSTRACT

Emblica officinalis (Amla) is widely used in the Indian system of medicine and believed to increase defense against diseases. Amla is called amalaki in Sanskrit. It is one of the oldest oriental medicines mentioned in Ayurveda as potential remedy for assorted ailments. A wide range of phytochemical components present in amla including alkaloids, tannins, and flavonoids have been shown to procure useful biological activities. It is an ingredient of many Ayurvedic medicines and tonics as it removes excessive salivation and internal body heat. Research has been done with amla evaluating its role as an antioxidant. Amla is useful in ulcer prevention, for diabetic patients, and for memory effects. Amla Tonic has a hematinic and lipalytic function useful in scurvy, prevents indigestion, and controls acidity as well as it is a natural source of anti-aging.

Key words: Alternative therapy, amla, dentistry

Introduction

Name of the Medicinal Plant: *Phyllanthus emblica* Linn. (syn. *Emblica officinalis*)

Family: *Euphorbiaceae*

Common name: Indian gooseberry or Amla^[1]

Emblica officinalis (EO) enjoys a hallowed position in Ayurveda an Indian indigenous system of medicine. According to believe in ancient Indian mythology, it is the first tree to be created in the universe. It belongs to family *Euphorbiaceae*. It is also named as amla, *Phyllanthus emblica*, or Indian gooseberry. The species is native to India and also grows in tropical and subtropical regions including Pakistan, Uzbekistan, Sri Lanka, South East Asia, China, and Malaysia. The fruits of EO are widely used in the Ayurveda and are believed to increase defense against diseases. It has its beneficial role in

cancer, diabetes, liver treatment, heart trouble, ulcer, anemia, and various other diseases. Similarly, it has the application as antioxidant, immunomodulatory, antipyretic, analgesic, cytoprotective, antitussive, and gastroprotective. In addition, it is useful in memory enhancing, ophthalmic disorders, and lowering cholesterol level. It is often used in the form of triphala, which is an herbal formulation containing fruits of EO, *Terminalia chebula*, and *Terminalia bellerica* in equal proportions.^[2] The presence of microbial contaminants may affect the efficacy and stability of the active compounds. This may also lead to the spoilage of traditional herbal preparations and pharmaceutical drugs to which they are added. Further, the presence of pathogenic microorganisms in plant materials can precariously affect the human health.^[3]

Chemical Constituents

EO primarily contains tannins, alkaloids, phenolic compounds, amino acids, and carbohydrates. Its fruit juice contains the highest Vitamin C (478.56 mg/100 mL). The fruit when blended with other fruits, boosted their nutritional quality in

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terms of Vitamin C content.^[4] Compounds isolated from EO were gallic acid, ellagic acid, 1-O-galloyl-beta-D-glucose, 3, 6-di-O-galloyl-D-glucose, chebulinic acid, quercetin, chebulagic acid, corilagin, 1, 6-di-O-galloyl beta D glucose, 3-ethylgallic acid (3-ethoxy-4, 5-dihydroxy benzoic acid), and isostrictinin.^[5] *P. emblica* also contains flavonoids, kaempferol-3-O-alpha-L-(6''-methyl)-rhamnopyranoside, and kaempferol-3-O-alpha-L-(6''-ethyl)-rhamnopyranoside.^[6] A new acylated apigenin glucoside (apigenin-7-O-(6'' - butyryl-beta-glucopyranoside) was isolated from the methanolic extract of the leaves of *P. emblica* together with the known compounds; gallic acid, methyl gallate, 1, 2, 3, 4, 6-penta-O-galloylglucose, and luteolin-4'-O-neohesperidoside were also reported [Tables 1 and 2].^[7]

Table 1: Shows constituents found in *Emblica officinalis*

Chemical constituents
Tannins
Alkaloids
Phenolic compounds
Amino acids
Carbohydrates
Vitamin C
Flavonoid
Ellagic acid
Chebulinic acid
Quercetin
Chebulagic acid
Emblicanin A
Gallic acid
Emblicanin B
Punigluconin
Pedunculagin
Citric acid
Ellagitannin
Trigallayl glucose
Pectin

Table 2: Shows average percentage composition of the fruit pulp of *Emblica officinalis*

Components	Percentage
Moisture	81.2
Protein	0.5
Fat	0.1
Mineral matter	0.7
Fiber	3.4
Carbohydrate	14.1
Calcium	0.05
Phosphorous	0.02
Iron	1.2 mg/100 g
Nicotinic acid	0.2 mg/100 g
Vitamin C	600 mg/100 g

The Ayurvedic Description of Amla

The fruit has these properties using the Ayurvedic classifications:

1. Rasa (taste): Sour and astringent are the most dominant, but the fruit has five tastes, including sweet, bitter, and pungent
2. Veerya (nature): Cooling
3. Vipaka (taste developed through digestion): Sweet
4. Guna (qualities): Light, dry
5. Doshas (effect on humors): Quietens all three doshas: Vata, kapha, pitta, and is especially effective for pitta.

Commercially available as:

1. Amla juice
2. Chyavanaprash
3. Oil
4. Amla pickle
5. Amla murabba.^[8]

Medical Implications

Healing options

- a. Amla protects cells against free radical damage and provides antioxidant protection
- b. Amla is used to treat skin disorders, respiratory infections, and premature aging
- c. Amla is useful in hemorrhage, diarrhea, dysentery, and has therapeutic value in treating diabetes
- d. Amla has antibacterial and astringent properties that help to prevent infection and help in the healing of ulcers
- e. Amla is sometimes used as a laxative to relieve constipation in piles.

Immunity booster

One reason for amla's reputation as a general energy-promoting, disease-preventing tonic may be its effect on the immune system. Multiple studies have shown significant increases in white blood cell counts, and other measures of strengthened immunity in rodents given amla.

Respiratory disorders

Indian gooseberry is beneficial in the treatment of respiratory disorders. It is especially valuable in tuberculosis of lungs asthma and bronchitis.

Diabetes

This herb, due to its high Vitamin C content, is effective in controlling diabetes. A tablespoon of its juice mixed with a cup of bitter gourd juice, taken daily for 2 months will stimulate the pancreas and enable it to secrete insulin, thus reducing the blood sugar in diabetes. Diet restrictions should be strictly observed while taking this medicine. It will also prevent eye complication in diabetes.

Heart disorder

Indian gooseberry is considered an effective remedy for heart disease. It tones up the functions of all the organs of the body

and builds up health by destroying the heterogeneous or harmful and disease causes elements. It also renews energy.

Eye disorder

The juice of Indian gooseberry with honey is useful in preserving eyesight. It is beneficial in the treatment of conjunctivitis and glaucoma. It reduces intraocular tension in a remarkable manner. Juice mixed with honey can be taken twice daily for this condition.

Aging

Indian gooseberry has revitalizing effects, as it contains an element which is very valuable in preventing aging and in maintaining strength in old age. It improves body resistance and protects the body against infection. It strengthens the heart, hair, and different gland in the body.

Amla/treats hypertension

Amla is rich in Vitamin C and helps control blood pressure. You can have it as amla choorna (powder) or in the form of triphala tablets or decoction. Triphala, a combination of amla and two other herbs is an excellent medication for high blood pressure.

Natural cure for anemia

Amla is rich in Vitamin C or ascorbic acid, an essential ingredient that helps in the absorption of Iron. Supplements of amla can be very beneficial to patients suffering from Iron deficiency Anemia.^[9]

Antioxidant

Nature has gifted us with defensive antioxidant mechanisms-superoxide dismutase, catalase, glutathione (GSH), GSH peroxidases, reductase, Vitamin E (tocopherols and tocotrienols), Vitamin C, etc., along with several dietary components. Higher consumption of components/nutrients with antioxidant capabilities has been associated with lower frequency of numerous human morbidities or mortalities as per many epidemiological studies. Diverse potential applications of antioxidant/free radical manipulations in prevention or control of disease has been revealed by ongoing research. Natural products from dietary components such as Indian spices and medicinal plants are known to possess antioxidant activity.^[11] The study by Poltanov *et al.* investigated the chemistry and antioxidant properties of EO fruit extracts. Extracts produced positive responses in the total phenol, total flavonoid, and total tannin assays.^[10]

Excellent source of Vitamin C

Amla is the most concentrated form of Vitamin C found in the plant kingdom, and when the whole fruit is used rather than an active ingredient, the Vitamin C is easily assimilated by the human body.^[11,12] The Vitamin C in the amla fruit is bonded with tannins that protect it from being destroyed by heat or light.

Enhances food absorption

The regular use of Amla-Berry can strengthen digestion, absorption, and assimilation of food. People taking it and notice that they enjoy the taste of food better. It enhances all thirteen

digestive fires (Agni). However, it works more slowly and gently than ginger or other digestion-enhancing herbs, so it can be taken by people with a lot of Pitta without fear of creating excess stomach acid. In addition, it improves assimilation of iron for healthy blood.^[8]

Balances stomach acids

It improves digestion but does not heat the body; Amla-Berry is ideal for calming mild to moderate hyperacidity and other pitta-related digestive problems.^[8]

Nourishes the brain and mental functioning

Amla-Berry is good for the brain. It is medhya nurturing for the mind and enhancing coordination among dhi (acquisition), dhriti (retention), and smriti (recall). It helps sharpen the intellect and mental functioning. It supports the nervous system and strengthens the senses.^[13,14]

Helps the urinary system

Because it enhances all the 13 agnis (digestive fires) and supports Apana Vata, Amla-Berry is especially supportive to the urinary system and can be helpful if you experience a mild burning sensation while urinating. It supports natural diuretic action but does not force water from the body like diuretic pills. In other words, it helps to eliminate waste from the body but does not overstimulate the urinary system.

Good for the skin

Because Amla-Berry strengthens digestion, helps the liver detoxify, and is rich in Vitamin C and other minerals, it is very good for the complexion. Amla-Berry moisturizes the skin, cleanses the tissues of toxins, and supports immunity of the skin against bacterial infection. It helps to enhance glow and luster.^[8]

Promotes healthier hair

Amla-Berry boosts absorption of calcium, thus creating healthier bones, teeth, nails, and hair. It also helps to maintain youthful hair color and retards premature graying, and supports the strength of the hair follicles, so there is less thinning with age. The crushed fruits have a good effect on hair growth and prevent hair graying.

Acts as a body coolant

Although Amla-Berry is good for all doshas and seasons, it is especially effective in the hot season to cool pitta dosha. It is especially good rasayana for people with pitta and vata body types. In Tibetan medicine, the fruit has been described as having a sour taste with cooling potency.

Diarrhea

It is used medicinally for the treatment of diarrhea. As a fruit decoction, it is mixed with sour milk and given by the natives in cases of dysentery. The bark partakes of the astringency of the fruit. A decoction and evaporation of the root solution produces an astringent extract equal to catechu. An infusion of the leaves with fenugreek seed is given for chronic diarrhea.^[8]

Dental Implications

Dental problems

The roots of EO (10 g) are grinded and taken twice daily for 1-day only after taking food. Alternatively, the leaves of EO are squeezed, and the juice is extracted. This juice is put in the ear (a few drops) to find relief from a toothache. A final alternative is to grind the node of an EO and mix it with water. After vigorous stirring, it is filtered through a cloth. This water is put drop by drop in the right ear if the teeth on the left-hand side are in pain and vice versa. The remedy is continuing for 3 days.^[15]

Scurvy

As an extremely rich source of Vitamin C, Indian gooseberry is one of the best remedy for scurvy. Powder of the dry herb, mixed with an equal quantity of sugar, can be taken in doses of one teaspoon, thrice daily with milk.^[9]

Mouth ulcers

A decoction of the leaves is used as a chemical-free bactericidal mouthwash. Bark of the root mixed with honey is applied to inflammations of the mouth, and a decoction of the leaves is also useful as a mouthwash in the treatment of aphthae. Another remedy suggests root bark rubbed with honey is used in aphthous stomatitis (an inflammation of the mouth).^[15]

Conclusion

EO scientifically is the most widely used herb in the Ayurvedic system of medicine. Amla has said to be useful against many severe diseases, including diabetes, respiratory disorder, diarrhea, heart diseases, and dental disease. Amla cleanses the mouth, strengthens the teeth. The presence of amla results in an enhanced cell survival, decreased free radical production, and higher antioxidant levels. There are various classic Ayurvedic preparations, such as Chyawanprash, in which amla is used as a chief ingredient. It helps to improve intelligence and memory power. Triphala and Brahma Rasayana are other classic medicine in which amla is being used since time immemorial. Amla should be used in various forms and preparations by dental patients for the maintenance of oral hygiene.

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Conflicts of interest

There are no conflicts of interest.

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