

REVIEW ARTICLE

Nutritional Importance and Traditional Uses of Amalaki (*Phyllanthusemblica*):

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ABSTRACT

Ayurveda, which is the oldest health system in the world, appreciates and uses Amla to treat a host of diseases and promote positive health. Amla is called Amalaki in Sanskrit. It is extensively used as a rejuvenator in ayurveda. Amla is indeed, the key ingredient in the popular Ayurvedic recipe, Chyavanaprasha. More than anything, it may be called as "King of Rasayana" [rejuvenation], due to its multiple health benefits, it is one of the oldest oriental medicines mentioned in Ayurveda as potential remedy for various ailments. The fruit is rich in gallic acid, tannins, Flavonoids, pectin and vitamin C chromium, Zinc and copper etc. The fruit also contains higher concentration of most minerals and amino acids than apples. Many pharmacological studies have demonstrated the ability of the fruit shows antioxidant, anticarcinogenic, antitumour, antigenotoxic, antiinflammatory activities, supporting its traditional uses. Amla works wonder with pregnant and lactating mothers. The pregnant women requires additional amount of energy and nutrition as she has to supply the fetus which may lead to nutritional deficiency disorders like Anemia, etc It also reduces the incidence of cancer of the gastrointestinal and respiratory tract In view of its reported Nutritional properties and relative safety, *P. emblicacould* be a source of therapeutically useful products.

Keywords: Amalaki, Nutritional importance, Traditional uses.

INTRODUCTION

Amla is a gift of nature to mankind. It is an indispensable part of the ayurvedic and unani system with amazing remedial qualities. In Sanskrit, it is called Amalaki or Dhartiphala. Amla is perhaps the single most often mentioned herb in "Charak Samhita", the Ayurvedic medicine literature (500 BC). Amla is a wonder herb and one of the precious gifts of nature to humans. Amla is known as "Divya" and "Amrut" or AmritPhala in Sanskrit, which literally means fruit of heaven or nectar fruit. The Sanskrit name, Amlaki, The Fruit where the Goddess of Prosperity Resides. In Hindu religious mythology the tree is worshipped as the Earth Mother as its fruit is considered to be so nourishing as to be the nurse of mankind. ^[1] Amla is a small to medium sized deciduous tree, found in throughout India, Pakistan, Uzbekistan, Sri Lanka, South East Asia, China and Malaysia.



Plant anatomy and harvesting^[21]

- Kingdom : Plantae
- Division: Flowering plant
- Class: Magnoliopsida
- Order :Malpighiales
- Family :Phyllanthaceae
- Tribe :Phyllanthaeae
- Subtribe :Fluegginae

In India, it is common to eat gooseberries steeped in salt water and turmeric to make the sour fruits palatable. There are two varieties of Amla - cultivated (gramya) and wild (vanya). The wild amla is small, while cultivated amla is big, smooth and juicy. Chemical composition of the amla fruit contains more than 80% of water. It also has protein, carbohydrate, fiber and mineral and also contains gallic acid which is a potent polyphenol. Vitamin C is important for human beings. It is necessary for the synthesis of the inter-cellular cementing substance which is responsible for keeping the cells of the body together. The amla fruit is reported to contain nearly 20 times as much vitamin C as orange juice. The edible amla fruit tissue has 3 times the protein concentration and 160 times the ascorbic acid concentration of an apple. The fruit also contains higher concentration of most minerals and amino acids than apples. Amla fruit ash contains chromium, Zinc and copper. It is considered as adaptogenic that improves immunity. The tree is small to medium sized, reaching 8 to 18 m in height, with a crooked trunk and spreading branches. The branchlets are glabrous or finely pubescent, 10-20 cm long, usually deciduous. The leaves simple, subsessile and closely set along branchlets, light green, resembling pinnate leaves. The flowers are greenish-yellow. The fruit is nearly spherical, light greenish yellow, quite smooth and hard on appearance, with 6 vertical stripes or furrows. Ripening in autumn, the berries are harvested by hand after climbing to upper branches bearing the fruits. The taste of Indian gooseberry is sour, bitter and astringent, and is quite fibrous^[2].

Nutritive value

Amla is well known for its nutritional qualities. It is rich in polyphenols, minerals and is regarded as one of the richest sources of vitamin C (200-900 mg per 100 g of edible portion)^[3].

Table 1: Nutritional Value of fruit of *Phyllanthusemblica* (% or per 100g)

Chemical components	Percentage
Fruits:Moisture	81.2 %
Protein	0.5%
Fat	0.1%
Mineral matter	0.7 %
Fibre	3.4%
Carbohydrate	14.1%
Bulk elements Mg/100g,	Net weight
Calcium	0.05%
Phosphorous	0.02%
Iron	1.2 mg/100g
Vitamin C	600 mg / 100 g
Nicotinic acid	0.2 mg / 100g (Gopalan <i>et al.</i> 1991) ^[4]

Table 2: Amla fruit Chemical constituents^[3,5]

Type	Chemical Constituents
Hydrolysable Tannins	Emblicanin A and B, Punigluconin, Pedunculagin, Chebulinic acid (Ellagitannin), Chebulagic acid (Benzopyran tannin), Corilagin, Ellagotannin
Alkaloids	Phyllantine, Phyllembin, Phyllantidine
Phenolic Compounds	Gallic acid, Methyl gallate, Ellagic acid, Trigallayl glucose
Amino acids	Glutamic acid, Proline, Aspartic acid, Alanine, Cystine, Lysine
Carbohydrates	Pectin
Vitamins	Ascorbic acid
Flavonoids	Quercetin, Kaempferol
Organic acids	Citric acid

The Ayurvedic description of Amla^[14, 15]

The fruit has these properties using the Ayurvedic classifications:

- Rasa (taste): sour and astringent are the most dominant, but the fruit has five tastes, including sweet, bitter, and pungent
- Veerya (nature): cooling
- Vipaka (taste developed through digestion): sweet
- Guna (qualities): light, dry
- Doshas (effect on humors): quiets all three doshas: vata, kapha, pitta, and is especially effective for pitta

Because of its cooling nature, amla is a common ingredient in treatments for a burning sensation anywhere in the body and for many types of inflammation and fever; these are manifestations of pitta (fire) agitation (Williamson, 2000)^[6]. Amla has been considered the best of the Ayurvedic rejuvenative⁷ herbs, because it is tridosaghna. Uniquely, it has a natural balance of tastes (sweet, sour, pungent, bitter and astringent) all in one fruit, it stimulates the brain to rebalance the three main components of all physiological functions, the water, fire, and air elements within the body^[8].

Amla in Ayurveda:^[8]

There are many benefits that Amla imparts that are mentioned in Ayurvedic texts. These are:

• 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 body⁹. 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 notice that they enjoy the taste of food better. It enhances all thirteen

digestive fires (Agni). But 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.

• **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.

• **Fortifies the liver**

Amla-Berry helps purify the Rasa Dhatu (nutrient fluid) and Rakta Dhatu (blood), thus supporting the functions of the liver. It also strengthens the liver, helping it in eliminating toxins from the body^[10].

• **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^[11].

Amla: Home remedy and Way of use^[13]

• **Stabilizer of blood sugar**

Amla seeds or dried Amla powder in the form of capsules with bitter gourd juice daily.

• **Natural cholesterol remedy**

It strengthens the heart muscles and causes a significant decrease in total cholesterol, LDL cholesterol, VLDL cholesterol and triglycerides. A 500 mg capsule of dried Amla powder can be added to your daily routine after consulting with doctor.

• **Treats hypertension**

High vitamin-C helps control blood pressure. 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, an essential ingredient that helps in the absorption of Iron.

• **Anti-ageing**

Fresh amla fruit has revitalizing effect on the body as it contains several nutrients and helps in preserving the stamina in aged people.

• **Herbal cough remedy**

- Add a teaspoon of Amla juice or powder to a glass of warm milk and drink this thrice a day. This will clear an unpleasant throat, adding some ghee to this decoction will clear a cough.
- Mix Amla powder with honey and suck this mixture twice a day to cure a chronic dry cough.
- Amla is invaluable in the treatment of tuberculosis, asthma and bronchitis.

• **Natural eye tonic**

Fresh Amla juice or dried Amla capsules are a good supplement to improve near-sightedness, cataract and glaucoma. It reduces intra ocular tension and corrects the vision.

• **Promotes hair growth**

Dried amla fruits are boiled in coconut oil and then ground to form amla oil. This is a very effective conditioner and prevents balding and greying of hair. For oily hair, mix half a cup of Amla juice, half a cup of lime juice and some water. Apply this to make an anti-grease hair wash.

• **A pitta pacifier**

Amla boiled in coconut water and the ground mixture is applied to the scalp.

Amla oil is an excellent way to reduce heat associated with summer season. It is a good remedy to pacify pitta conditions.

• **Treats white spots on the nails**

As a source of Vitamin C, serves as an effective remedy in vitamin deficit condition. Addition of Amla juice/powder in diet overcomes this condition.

Amla: Traditional uses^[13,14]

As a Vermifuge:

Juice of the fruit with honey is used. The recommended dose is from 1 to 3 drachms.

• **Appetizer:**

Use of pickles and preserves made from the green fruits.

• **Irritability of the bladder, In retention of urine, To the forehead in cephalalgia:**

Use a paste of the fruit alone or with *Nelumbium speciosum*, Saffron and rose water. Applying it over the affected region.

• **For hiccup and for painful respiration:**

Use of juice or extract of the fruit combined with honey and pipli.

• **For hemorrhage, diarrhea and dysentery:**

Using dried fruit. A decoction prepared from the fruit combined with *T. chebula* and *T. belericais* useful in chronic dysentery and biliousness, in doses of 1 oz. once or twice daily.

• **For diarrhoea of children:**

- A compound powder of the amla seed, Chitrak root, chebulicmyrobalan, pipli and paleone is given in suitable doses, according to age, in warm water twice daily, morning and at bed time.
- Tender shoots given in butter-milk cure indigestion and diarrhea; green fresh leaves combined with curds have a similar effect.
- Leaves are used as infusion with fenugreek seeds in chronic dysentery and as a bitter tonic.
- Soak one tola of the seeds in a tinned vessel during the night. Grind it. Add cow's milk and use. This is a good remedy for biliousness.

• **For Anaemia, jaundice and dyspepsia:**

- Use dried fruit with iron. A fermented liquor prepared from the root is used in jaundice, dyspepsia, cough, etc.
- Take 20 to 40 grains of DhatriLeha for anemia, jaundice and dyspepsia.
- Dhatri Arista is used for jaundice, dyspepsia, indigestion, and cough.

• **To stop nausea and vomiting:**

A powder of the amla seed and red sandalwood is given with honey, to stop emesis.

• **For bleeding of the nose:**

Seed fried in ghee and ground in conjee is applied as Lep to the forehead to stop bleeding from the nose.

• **For scabies or itch:**

Apply the seed burnt, powdered and mixed in oil for scabies or itch.

• **As a restorative invigorator:**

- Make a powder from an equal quantity of amla seed and root of *Withaniasomnifera*. Add ghee and honey. Mix well. This is a restorative invigorator, especially in winter days.
- Combine half a drachm each of amla seed and gokhru. Grind and make them into a powder. Mix with 15 grains of essence of

Gulanha. Give this in early morning with ghee and sugar. This is a nutrient tonic.

Other uses:

- It helps in regulating blood sugar.
- It is very powerful anti-inflammatory herb, a wonderful antioxidant and a natural Source of Vitamin C. Amla helps scavengefree radicals.
- Amla is powerful food for the brain and helps lower cholesterol.
- Amla also helps maintain the functioning of the liver, increases haemoglobin, red blood cell count. It is useful for Cough, Bronchitis, and Asthma.
- Amla cleanses the mouth, strengthens the teeth. Its decoction is used in hyperacidity and with honey as an anthelmintic
- 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 help improve intelligence and memory power. Triphala and Brahmarasayana are other classic medicine in which Amla is being used since time immemorial.

Medicinal importance Description ^[16, 18, 21]

Healing options

- Protects cells against free radical damage and provides antioxidant protection.
 - To treat skin disorders, respiratory infections, and premature aging.
 - Useful in haemorrhage, diarrhoea, dysentery and diabetes.
 - Prevents infection and healing of ulcers.
 - Laxative to relieve constipation in piles.
- Immunity booster Increases white blood cell counts and other measures of strengthened immunity in rodents given with Amla tonic.

Respiratory disorders

- Useful in tuberculosis of the lungs, asthma and bronchitis.
- Diabetes High vitamin C content is effective in controlling diabetes. Amla juice with bitter gourd juice, used daily for 2 months stimulates the pancreas and enables to secrete insulin.

Heart disorders

- Effective remedy for heart disease.
- Tones up the functions of all the organs of the body and builds up health by destroying

the heterogeneous or harmful and disease cause elements.

Eye disorders

- With honey is useful in preserving eyesight.
- Beneficial in the treatment of conjunctivitis and glaucoma.
- Reduces intra ocular tension in a remarkable manner when juice mixed with honey and taken twice daily.

Diarrhoea and dysentery

- A drink made from *Amla* mixed with lemon juice and *misri* is considered highly beneficial in controlling acute ancillary dysentery.
- One tablespoonful of the paste of leaves mixed with honey or butter-milk is an effective medicine in the treatment of diarrhoea and dysentery.

Ageing

- Prevent ageing and maintains strength in old age. Improves body resistance, strengthens heart, hair and glands of body.
- The water in which dried *Amla* pieces are soaked overnight is also nourishing to hair. This water should be used for the last rinse while washing the hair.

CONCLUSION

Now a days, research on Indian traditional medicinal plants has gained a new recommence. Although, the other systems of medicine are effective they come with a number of undesired effects that often lead to serious complications. Being natural, herbal medicine alleviates all these problems. *Emblica officinalis* (*Amla*) has an important position in Ayurveda- an Indian indigenous system of medicine. *Amla* due to its strong antioxidant and biological properties prevent innumerable health disorders as it contains essential nutrients and highest amount of vitamin C. It can be used as a possible food additive or in nutraceuticals and biopharmaceutical industries. Several researchers revealed that various extracts and herbal formulations of *amla* showed potential therapeutic benefits against various diseases and the results are similar to standard drugs. In this review, we tried to make a summary the traditional and scientifically proven uses of *amla* and tried to establish their basic mechanisms. Even though, *amla* has various medicinal properties since ages, there is a immense necessity to scientifically explore and evident its medicinal values at

molecular level with help of various latest techniques.

REFERENCES

1. Onions, Alan: Siddha Medicinal Herbs as Cosmetics Ingredients. SPC, March 1994.
2. Brun V, Schumacher T. Traditional Herbal Medicine in Northern Thailand. University of California Press, Berkeley, 1987; 349.
3. Bharthakur NN, Arnold NP. Chemical analysis of the emblic (*Phyllanthusemblica* L) and its potential as a good sources. *Scientia Horticult* 1991; 47:99-105.
4. Gopalan C, Sastri BVR, Balasubramaniam SC. Nutritive value of Indian foods. NIN, Hyderabad, India, 1991.
5. Jain SK, Khurdiya DS, Vitamin C enrichment of fruit juice based ready-to-serve beverages through blending of Indian gooseberry (*Emblica officinalis* Gaertn.) juice, *Plant Foods for Human Nutrition*, 59(2), 2004, 63-6.
6. Williamson EM (editor), Major Herbs of Ayurveda, 2002 Churchill- Livingstone, London.
7. Udupa KN. Ayurveda for Promotion of Health. *Journal of Ayurveda* 1985; 3(Jan-March).
8. Bajracharya, M. B. Ayurvedic Medicinal Plants. Kathmandu; Piyusavarsi Ausadhalaya, 1979.
9. Nisha P, Singhal RS, Pandit AB. A study on degradation kinetics of ascorbic acid in *amla* (*Phyllanthusemblica* L.) during cooking.
10. Tasduq SA, Kaiser P, Gupta DK, *et al.*, Protective effect of a 50% hydroalcoholic fruit extract of *Emblica officinalis* against antituberculosis drugs induced liver toxicity. *Phytother Res.* 2005; 19(3):193-197.
11. Sarwat Sultana, Salahuddin Ahmed and Tamanna Jahangir., *Emblica officinalis* and hepatocarcinogenesis: A chemopreventive study in Wistar rats. *J Ethnopharmacol* 2008; 118: 1-6.
12. Vasudevan M, Parle M. Effect of Anwalachurna (*Emblica officinalis* GAERTN.): an ayurvedic preparation on memory deficit rats. *Yakugaku Zasshi.* 2007; 127(10):1701-1707.
13. Sampath Kumar KP, Bhowmik D, Dutta A, Yadav A, Paswan S, Shweta S, Lokesh D, Recent Trends in Potential traditional

- Indian Herbs *EmblicaOfficinalis* and Its Medicinal Importance, Journal of Pharmacognosy and Phytochemistry, 1(1), 2012, 24-32.
14. Singh E, Sharma S, Pareek A, Dwivedi J, Yadav S, Sharma S, Phytochemistry, traditional uses and cancer chemopreventive activity of Amla (*Phyllanthusemblica*): The Sustainer, Journal of Applied Pharmaceutical Science, 2(1), 2011, 176-183.
 15. Jain SK. Medicinal Plants. National Book Trust, New Delhi, 1968.
 16. Khan KH, Roles of *Emblicaofficinalis* in Medicine - A Review Botany Research International, 2 (4), 2009, 218-228.
 17. Thakkur, Chandrasekhar. Introduction to Ayurveda. Ancient Wis Pub, Bombay, 1965.
 18. Puri HS. An Ancient Preparation for Respiratory Diseases. Drug Research Journal 1970; 15-16.
 19. Jacob, Panday, Kapoor, Saroja. Effect of the Indian Gooseberry (Amla) on serum cholesterol levels in men aged 35-55 years. European JournClinNutrit 1988; 42:939-944.
 20. Bhattacharya A. Antioxidant activity of tannoid principles of *Emblicaofficinalis*(amla) in chronic stress induced changes in rat brain. Drug Research & Dev Ctr, Calcutta, 1994.
 21. Chopra RN, Nayar SL, Chopra IC. Glossary of Indian Medicinal Plants. Council of Scientific and Industrial Research, New Delhi, 1956.