



Phytomedicine- Amla(*emblica officinalis*)

Pawan Maurya, Sashikant Maurya, Piyush Yadav, Suraj Maurya, Dr. S.K Maurya.

Department of Pharmacy, Prasad institute of technology jaunpur, (U.P) 222001, India.

Abstract- From the ancient time, plants have been playing a key role for the betterment of mankind presenting as an extraordinary source of natural medicine. The complexity in formulating chemical based drugs as well as their health related side effects and uprising cost has led worldwide researchers to focus on medicinal plant research. Bangladesh has a vast repository of diverse plant species where about five thousand plants species have been claimed as having significant medicinal values. The researched papers on medicinal plants publishing from last few decades mention the activities of different plant bioactive compounds that are used widely in the treatment of various human ailments. *Emblica officinalis* is reported to possess bioactive compounds like tannins, flavonoids, saponins, terpenoids, ascorbic acids and many other compounds which are confirmed to have diverse pharmacological activities like antimicrobial, antioxidant, anti-inflammatory, radio-protective, hepatoprotective, antitissuive, immunomodulatory, hypolipidemic and many other activities. *Emblica officinalis* is very effective in treatment of Acidity and Peptic ulcers. *Emblica officinalis* is rich in Vitamin C, Calcium, Iron, essential amino acids and many other vitamins and minerals and anti-oxidants. Regular Use of *Emblica officinalis* improves immunity, fights cancers, rejuvenates the body. It fights chronic diseases like hypertension, high Cholesterol, Diabetes, AIDS, influenza, Chronic cough and cold, Chronic infections, Chronic fatigue and Chronic inflammatory conditions. Ayurveda describes it as one of the best herbs for Diabetes, bleeding disorders, strength and stamina promoter.

Keywords- Amla: Introduction, Synonyms, biological source, geographical source, morphological character, botanical classification, phytochemistry, Traditional medicine in use of Amla.

Introduction-

Herbal Medicine sometimes referred to as Herbalism or Botanical Medicine, is the use of herbs for their therapeutic or medicinal value. An herb is a plant or plant part valued for its medicinal, aromatic or savoury qualities. Isolated the medicinal properties of a large number of botanicals, and their healing components have been extracted and analysed. Many plant components are synthesized in large laboratories for use in pharmaceutical preparations. For example, vincristine (an antitumor drug), digitalis (a heart regulator), and ephedrine (a bronchodilator used to decrease respiratory congestion) were all originally

discovered through research on plants¹. Many herbal and patent drugs have been formulated by the constituents of this plant. *E. officinalis* primarily contains tannins, flavonoids, phenolic compounds, saponins, terpenoids, ascorbic acids, carbohydrates and many other compounds². Supplements of fresh amla fruit is very favorable to individuals suffering from anemia. The juice of fresh amla fruit is given as diuretic, anti-bilious remedy and as a tonic. It is also helpful in over thirst, dyspepsia, burning sensation and other complaints of digestive system³. It improves complexion and removes wrinkles. Amla is also used to treat constipation and is used as a cooling agent to reduce the effects of sun strokes and sun burns. It is the main ingredient used in the shampoo. Amla oil is used all the world. Amla is used in sauces, candy, dried chips, pickle, jellies and powder. It is even used in the dyeing industry. Its extract is popularly used in the ink. Amla wood is commonly used in firework.



Triphala is a traditional Ayurvedic herbal formulation, consisting of equal parts of three medicinal plants namely *Emblica officinalis*, *Terminalia chebula* and *Terminalia bellerica*. Triphala strengthens the different tissues of the body, prevents ageing, promote health and Immunity⁴.

Synonyms:

Emblica, Indian goose berry, amla.

Biological Source:

This consists of dried, as well as fresh fruits of the plant *Emblica officinalis* Gaerth (*Phyllanthus emblica* Linn.), belonging to family Euphorbiaceae.

Geographical Source:

It is a small- or medium-sized tree found in all deciduous forests of India. It is also found in Sri Lanka and Myanmar. The leaves are feathery with small oblong pinnately arranged leaflets. The tree is characteristic greenish-grey and with smooth bark⁵.

Morphological character:

Amla is a small to medium sized deciduous tree, reaching 8 to 18 m in height, which is known for its edible fruit of the same name. The tree has crooked trunk and spreading branches. ... The fruit is nearly spherical, light greenish yellow, quite smooth and hard on appearance, with 6 vertical stripes or furrows.



Botanical Classification-

Kingdom	Plantae (Plants)
Subkingdom	<i>Tracheobionta</i> (Vascular plants)
Superdivision	<i>Spermatophyta</i> (Seed plants)
Division	Angiospermae (Flowering plants)
Class	Dicotyledona (Dicotyledons)
Subclass	Rosidae
Order	Geraniales
Family	Euphorbiaceae
Genus	<i>Emblica</i>
Species	<i>officinalis</i> Geartn.

Vernacular names :**Amala** – Indian gooseberry**Hindi:** aonla**Manipuri:** Heikru**Marathi:** Amla**Tamil:** Neli**Malayalam:** Nelli, Nellikka**Telugu:** Usiri, Usirikaya**Kannada:** Betta nelli, Amalaka**Oriya:** Aonla**Gujarati:** Ambala**Sanskrit:** dhatri, Amalka**Phytochemistry-**

This herb has many bioactive compounds including apigenin, gallic acid, ellagic acid, chebulinic acid, quercetin, chebulagic acid, corilagin, isostrictiniin, methyl gallate, luteolin and so on. Emblicanin A, emblicanin B, phyllaemblicin B, punigluconin and pedunculagin are tannins present in *Emblica officinalis*. Glutamic acid, proline, aspartic acid, alanine, and lysine are 29.6%, 14.6%, 8.1%, 5.4% and 5.3% respectively of the total amino acids. The pulpy portion of fruit, dried and freed from the nuts contains: gallic acid 1.32%, tannin, gum 13.75%; albumin 13.08%; crude cellulose 17.08%; mineral matter 4.12% and moisture 3.83%. Amla fruit ash contains chromium, 2.5 ppm; zinc 4 ppm; and copper, 3 ppm. Nickel and lead metals were not found in leaves of *Emblica officinalis*. The level of copper was found higher in the sample leaves of *Emblica officinalis* followed by chromium, manganese and zinc. Chemical constituents from different plant parts of are illustrated below:

Leaves: It contains gallic acid, chebulic acid, ellagic acid, chebulinic acid, chebulagic acid, amlic acid, alkaloids phyllantine and phyllantidine.

Seeds: A fixed oil, phosphatides and a small quantity of essential oil. The fixed oil (acid value 12.7; saponification value 185; iodine value 139.5; acetyl value 2.03; unsaponifiable matter 3.81%; sterol 2.70% ; saturated fatty acid 7%. Contains linolenic acid (8.78%), linoleic (44%), oleic (28.40%), steric (2.15%), palmitic (2.99%) and miristic acid (0.95%).

Barks: Contain leukodelphinidin, tannin and proanthocyanidin⁷.

A new acylated glucoside was isolated from the methanolic extract of the leaves of *P.emblica*. Their structures were named as apigenin 7-O-(6''-butyryl-beta)-glucopyranoside, along with four known compounds gallic acid, methyl gallate, 1,2,3,4,6-penta-Ogalloylglucose and luteolin-4'-Oneohesperidoside⁸. The seeds of *P. emblica* contain fixed oil, phosphatides and a small quantity of essential oil. In addition, the leaves contain gallic acid, ellagic acid, chebulagic acid and chebulinic acid. Phyllaemblic acid, a novel highly oxygenated norbisabolane were isolated from the roots of *P.emblica* and its structure was fully characterized by spectroscopic and chemical means. Ellagic acid and lupeol are present in roots of *P.emblica*⁹.

Amla is highly nutritious and is an important dietary source of Vitamin C, minerals and amino acids. The edible fruit tissue contains protein concentration 3-fold and ascorbic acid concentration 160-fold compared to that of the apple. The fruit also contains considerably higher concentration of most minerals and amino acids than apples. Glutamic acid, proline, aspartic acid, alanine, and lysine are 29.6%, 14.6%, 8.1%, 5.4% and 5.3% respectively of the total amino acids. The pulpy portion of fruit, dried and freed from the nuts contains: gallic acid 1.32%, tannin, gum 13.75%; albumin 13.08%; crude cellulose 17.08%; mineral matter 4.12% and moisture 3.83%. Amla fruit ash contains chromium, 2.5 ppm; zinc 4 ppm; and copper, 3 ppm.

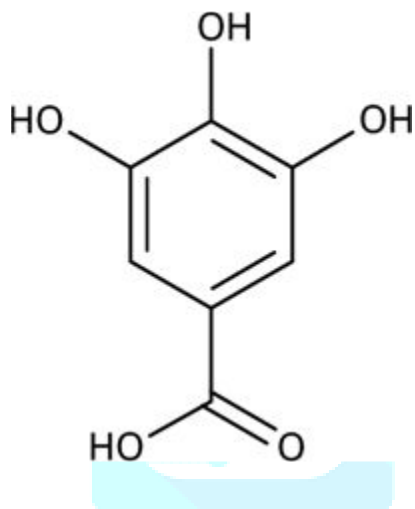


Fig: Structure of Gallic Acid

Traditional medicine in use of Amla-

Emblica officinalis scientifically, is the most widely used herb in the Ayurvedic system of medicine. It effectively controls digestive problems, strengthens heart, builds up and sustains defense mechanism, improves eye sight, imparts a natural glow to hair and body and a store house of Vitamin C, a powerful anti-oxidant that prevents premature ageing. Amla fruit is acrid, cooling, refrigerant, diuretic, laxative, antipyretic, aphrodisiac, tonic¹⁰. It is the richest natural source of Vitamin C. In addition to Vitamin C, it also contains calcium, iron, protein and tannic acids, sugar, phosphorus, carbohydrates etc. The juice of fresh Amla fruit is given as tonic, diuretic and anti-bilious remedy. It is also helpful in burning sensation, over thirst, dyspepsia and other complaints of digestive system. The powder of the dried Amla fruit is an effective remedy of hyperacidity, ulcers and blood impurities.

.Wash eyes daily, in the morning with Amla water, soaked in water and drink the water to improve the eyesight and remove constipation. Insert 2-4 amla juice drops into each nostril to cure bleeding for nose. Fresh fruit of Amla (*Emblica officinalis*) is refrigerant, diuretic and laxative. Green fruit is exceedingly acid. Fruit is also carminative and stomachic. Dried fruit is sour and astringent. Flowers are cooling and aperient. Bark is astringent¹¹.

□ **For diarrhea of children:** A compound powder of the emblic seed, Chitrak root, chebulicmyrobalan, pipli and pallone 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.

□ **As a vermifuge:** Juice of the fruit with honey is used. The recommended dose is from 1 to 3 drachms.

□ **To stimulate appetite:** Use pickles and preserves made from the green fruits.

□ **For irritability of the bladder, in retention of urine and to the forehead in cephalalgia** Use a paste of the fruit alone or with *Nelumbium speciosum*, Saffron and rose water. Apply it over the affected region.

□ **As a febrifuge and in diabetes:** Use an infusion of the seeds

□ **For hiccup and for painful respiration:** Use juice or extract of the fruit combined with honey and pipili¹².

In traditional Indian herbal medicine, dried and fresh fruits of the plant are used. All parts of the plant are used in various Ayurvedic medicine herbal preparations, including the fruit, seed, leaves, root, bark and flowers. According to Ayurveda, amla fruit is sour (*amla*) and astringent (*kashaya*) in taste (*rasa*), with sweet (*madhura*), bitter (*tikta*) and pungent (*katu*) secondary tastes (*anurasas*). Its qualities (*gunas*) are light (*laghu*) and dry (*ruksha*), the postdigestive effect (*vipaka*) is sweet (*madhura*) and its energy (*virya*) is cooling (*shita*).

In Ayurvedic polyherbal formulation, Indian gooseberry is a common constituent, and most notably is the primary ingredient in an ancient herbal *rasayana* called *chamanprash*¹³.

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 scavenge free radicals.

Amla is powerful food for the brain. Studies

show that Amla helps lower cholesterol. Amla also helps maintain the functioning of the liver, increases hemoglobin, 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 ingredient¹⁴.

Conclusion-

A single tiny Amla is equivalent in vitamin C content to two oranges. Clinical tests on patients suffering from pulmonary tuberculosis have shown that this high concentrate is more quickly assimilated than the synthetic vitamin. It is an ingredient of many Ayurvedic medicines and tonics, as it removes excessive salivation, nausea, vomiting, giddiness, spermatorrhoea, internal body heat and menstrual disorders. Because it is also cooling, it increases *sattwa*, and is an excellent liver tonic. Traditionally *E. officinalis* have been used for the ailments of different diseases in different countries for ancient periods. These phytochemicals extracted from other plants has been investigated for different bioscreening showing significant results but have not been researched from *Emblica officinalis* solvent extraction yet. Therefore, further evaluation of unexplored bioactive compounds of Amla, is needed which can reveal more and more new biological activities of this potent medicinal plant. Amla Tonic has a haematinic and lipalytic function useful in Scurvy and Jaundice, prevents Indigestion and controls acidity as well as it is a natural source of anti-ageing.

Reference-

1. Al – Rehaily, A.J, Al – Howiriny, T.A, Al – Sohaibani, M. O, and Rafatullah, S. 2002. Gastroprotective Effects of ‘Amla’ *Emblica Officinalis* on in vivo test models in rats 515-522
2. Khan KH (2009). Roles of *Emblica officinalis* in Medicine - A Review. Bot. Res. Int. 2(4): 218-228.
3. Kumar KPS, Bhowmik D, Dutta A, Yadav AP, Paswan S, Srivastava S and Deb L (2012b). Recent Trends in Potential Traditional Indian Herbs *Emblica officinalis* and Its Medicinal Importance. J. Pharmacog. and Phytochem. 1(1): 24-32.
4. Juss SS, Triphala – the wonder drug. Indian Med Gaz 1997; 131:194 - 96.
5. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwi7kIqmquAhVk4zgGHTVQDiIQFjAFegQIBRAC&url=http%3A%2F%2Fwww.pharmacy180.com%2Farticle%2Famla318%2F&usg=AOvVaw2NP9Mi7RPbyACA5BCxd-Wn>.
6. Kumar A, Singh A and Dora J (2012a). Essential perspectives for *Emblica officinalis*. Int. J. Pharma. Chem. Sci. 1(1): 11-18.
7. Kapoor LD, Handbook of Ayurvedic Medicinal Plants. CRC, Press, Boca Raton, 1990.
8. Rastogi RP, Mehrotra BN. Compendium of Indian Medicinal Plants. CDRI, Lucknow and Publications & Information Directorate, New Delhi, 1993.
9. Bhattacharya A. Antioxidant activity of tannoid principles of *Emblica officinalis* (amla) in chronic stress induced changes in rat brain. Drug Research & Dev Ctr, Calcutta, 1994.
10. Jain SK. Medicinal Plants. National Book Trust, New Delhi, 1968.
11. Puri HS. An Ancient Preparation for Respiratory Diseases. Drug Research Journal 1970; 15-16.
12. Jacob, Panday, Kapoor, Saroja. Effect of the Indian Gooseberry (Amla) on serum cholesterol levels in men aged 35-55 years. European Journ Clin Nutrit 1988; 42:939-944.
13. Dharmananda S (September 2003). "*Emblic myrobalans*(Amla)". Institute of Traditional Medicine.
14. Bhattacharya A. Antioxidant activity of tannoid principles of *Emblica officinalis* (amla) in chronic stress induced changes in rat brain. Drug Research & Dev Ctr, Calcutta, 1994.