



EMBLICA OFFICINALIS (AMLA): A REVIEW ON CHARACTERISTICS PROPERTIES AND THERAPEUTIC APPLICATION OF AMLA.

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ABSTRACT :

Emblca officinalis or phyllanthus emblica linn. commonly called as Indian gooseberry or amla is one of the most important medicinal plant in Ayurveda, unani and siddha. All part of amla plant in between fruit are most important part. It is used in Indian systems for the treatment of diuretics, liver tonic, refrigerant, stomachic. Amla contains chemical constituents include tannins, alkaloids, polyphenols, vitamins and minerals, gallic acid, ellagic acid and emblicanin A&B. Ascorbic acid (vitamin C) is found a biologically effective constituents. Amla fruits is utilized all around the world used as antioxidant, hepatoprotective, nephroprotective, cardioprotective, hypolipidemic, anti-cancer and dermatoprotective in aggregate with different herbs. The review article is related to amla well known it's anti coughing, kidney protective, nephroprotective and anti-cancer homes. In this text communicate the description of amla in Ayurveda system of medicine also its uses of household treatment.

Keywords : Amla, antioxidant, cardioprotective

Introduction :

Plants are widely used to cure different type of diseases by developing different types of medicines. From them in the worldwide survey is showed that 80% of population used conventional drug for their primary health care that suitable for remain 20% of population. Mother nature has gifted mankind along with enormous medicinal plant to treat disease and healthy life. Various medicinal plants are present in the Indian traditional system of medicine (like Ayurveda, unani, sidha). Among them the amla (*Emblca officinalis*) is a well known tree that is used for the developing herbal as well as pharmacological medicine. Amla is also called as Indian gooseberry or phyllanthus emblica linn. Amla is a small to medium sized plant found in all over India, Pakistan, Sri Lanka, South East Asia, China, and Malaysia. The height of amla plant is 8-18 cm with thin light grey bark, leaves are simple, light green glowers are greenish yellow; fruits are globes pale yellow, fleshy, contain six trigonous seeds in two seeded three crustaceous cocci. Amla contains a large number of nutrients, best origin from inorganic content like ascorbic acid (vitamin C), amino acid & galic acid. It also contains other important chemical i.e. alkaloid, tannins and emblicanin A&B.

Various part of amla plant contains a medicinal properties i.e. fruit which has been used in ayurvedic system as powerful rasayana and in traditional system used in treatment of diarrhoea, jaundice, inflammation and other server ailments. Amla fruits is widely used in Indian systems of medicine as alone. Also used in combination of other plant and also used to treat common cold, as laxative, liver tonic, diuretics, stomachic, antipyretic, hair tonic and to prevent ulcer and dyspepsia. The pharmaceutical based research article on amla show its pain relieving property, anticough, cardioprotective, gastroprotective, nephroprotective and nephroprotective action.

CLASSIFICATION

Amla fruit

Amla fruit is nearly spherical in shape, 18-25 mm in width and 15 layers of the pericarp (i.e., mesocarp) of a fruit are yellow in color while endocarp becomes yellowish-brown in ripened state. In case of fresh Amla fruit, the mesocarp contains sour taste, while it gives puckery taste in dried fruit, 20 mm in length.

Amla oil

Its fat and oil mainly obtained through seeds and fruits of Amla, and Golden yellow-light brown in color. It contains light, sweet, and nutty smell. It is highly moisturizing and moderate viscous oil.

Amla seeds

Each fruit contains 4-6 seeds which smooth to touch and dark brown in color. They are better source of Amla oil. Amla seeds are commonly used to cure the asthma and bronchitis.

Amla bark

Amla extract

Its color is normally gray-brown or gray-green and about 12 mm thick.

Amla fruit extract obtained by alcoholic extraction is very efficient in its Antiviral activities.

Physiochemical properties of amla seed -

The fruit pulp of *E. officinalis* is wealthy in minerals, as proven in fig :2 It incorporates excessive moisture content material up to ~81.2%, oil contents ~0.1%, Protein ~0.5%, inorganic contents ~0.7%, fiber ~3.4%, carbohydrates ~14.1%, calcium ~0.05%, phosphorus ~0.02%, iron up to two mg/a hundred g, Nicotinic acid 0.2 mg/a hundred g, ascorbic acid (Vitamin C) six hundred mg/a hundred g, And Vitamin B3 0.4 mg/a hundred g. Similarly, the juice of Amla fruit contains Excessive contents of ascorbic acid (0.47856 g/a hundred mL). On mixing Amlafruit, amongst different culmination decorate quantity of nutritive contents via way of means of the Collective impact of culmination [22].The leaves of *E. officinalis* are the satisfactory supply of biochemical compounds Including malic acid, chebulinic acid, ellagic acid, chebulic acid, alkaloids Phyllantidine, gallic acid, phyllantine, and chebulagic acid. On the alternative Hand, the bark of Amla (*E. officinalis*) is wealthy in tannin, proanthocyanidin.



Fig:1 Amla fruit (*Emblica officinalis*)

Table :1 Botanical classification :

Kingdom	Plante
Division	Angiospermae
Class	Dicotyledonar
Order	Geraniales
Family	Euphorbiaceae
Genus	Emblica
Species	Officinalis gearth
English name	Indian gooseberry

Chemical constituents :

- Amla is one of the most studied plants . report suggests that it contains tannins , alkaloids and phenols.
- Amla fruits contain 28% of the total tannins present in whole plants.
- Fruit contain two Tannins emblicanin A and B. Which have antioxidant properties. On hydrolysis it gives gallic acid ,ellagic acid and glucose respectively.
- The fruit of amla also contains a phyllemblin.It contains flavonoids like quercetin, alkaloids like phyllantine and phyllantidine are found.
- Amla primary contain Amino acid , carbohydrates and other compounds.
- Amla fruits juice contain high concentration of vitamin C more than those in presence in orange and lemons.

- The pulp of amla fruits composition are given in table

Table :2Chemical constituents of Amla

Type	Chemical constituents
Alkaloids	Phyllantine , phyllantidine
Phenolic compound	Gallic acid , methyl gallate
Carbohydrates	Pectin
Vitamins	Ascorbic acid
Flavonoids	Quereetin, kaempferol
Organic acid	Citric acid
Tannins	Elimination, geranlin

Fig : Amla fruits pulp composition



Potential therapeutic Applications :

Amla has number of applications in various field

Antioxidant – herbs and flowers are used as flavouring agent and it also as antioxidant in nature .amla fruits extract reveals oxidation inhibiting nature .all phenolic constituents gives antioxidant and show maximum results for flavonoids and tannins the collective effect of phytophenol , flavonoids material and ascorbic acid show the antioxidant properties.

Hepatoprotective – In amla all the chemical constituents seprated due to highly hepatoprotective isolated salt medicine like modern medicine.liver infection can cause due to inflammation in liver.however , Amla fruit used to treat liver infection because contain vitamin C , flavonoids and tannins . N- nitrosodiethylamine in liver can cause oxidation but amla fruits helps in absorb N-nitrosodiethylamine and reduce oxidation .act as Anti-

inflammatory.

Nephroprotective- amla fruits also treat the kidney infection. The study shows that its efficacy against kidney infection within the body and promote aging process.

Hypolipidemic- Like other plants, the Amla fruit is also hypolipidemic, lipid deficient, and immune modulating in nature because of the presence of excess flavonoid or any other substances that lower the glucose [33]. Using *E. officinalis*, the levels of lipids (i.e., cholesterol and triacylglyceride) in blood can be controlled.

Cardioprotective - Besides the other benefits, its major advantage is protection from CVD, atherosclerosis, and other heart diseases. The remedy from atherosclerosis is possible only when the oxidation of injury or low-density lipoprotein (LDL) is minimized. The juice of Amla fruit ensured that it is rich in polyphenol amount. Moreover, the surgical pathology recovery of cardiac muscles guaranteed the preventative activity of *E. officinalis*. All the research and discussion argued that *E. officinalis* shows heart protective, antioxidant, and free radical scavenging properties.

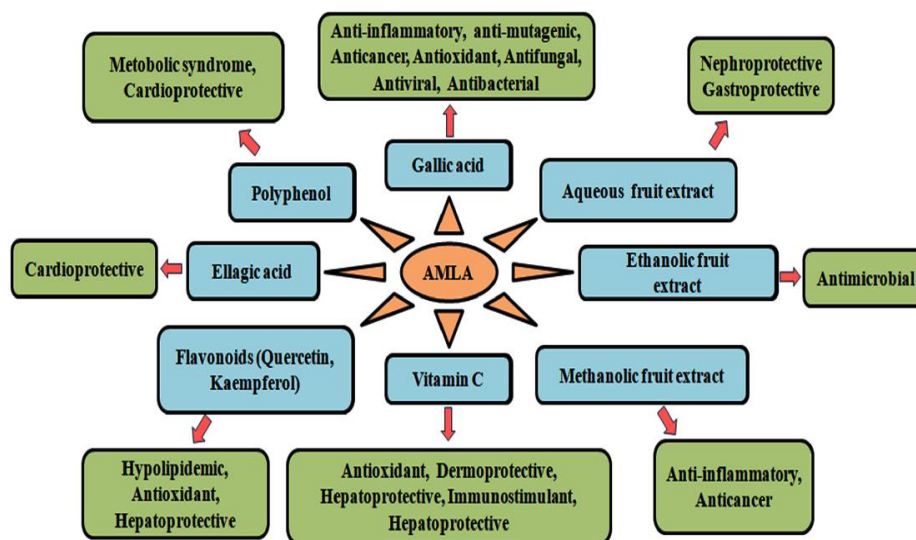


Fig : Therapeutic used of amla

Diabetes and related complications - Daily routine foodstuffs participate in controlling the diabetes level. Like garlic, onion, and turmeric, Amla (*E. officinalis*) shows also positive effect in lowering the diabetes level. Approximately 2–3 g of *E. officinalis* powder efficiently helps in improving the high-density lipoprotein cholesterol level and controlling the LDL cholesterol level. Furthermore, Amla fruit is also being used to get remedy from neuropathy development, for diabetic patient.

Antimicrobial - Approximately 50% and 20% of deaths are caused by infectious diseases in tropic areas and America, respectively. Chemical constituents obtained from medicinal plants are being used to cure antimicrobial infection since over 100 years [40]. The organic solvent (such as CHCl_3 and CH_3OH) extract of Amla (*E. officinalis*) shows efficient results against few Gram-positive and Gram-negative bacteria. However, in the future, *E. officinalis* drugs will serve as low cost and safe medicines due to its antimicrobial activities.

Anticancer - Like other natural medicinal plant, *E. officinalis* is better for anticancer because of high concentration of polyphenol constituents in it. Polyphenols involve the mechanisms associated with anticarcinogenic effect, inflammation, and radiation retardant.

Amla used in cosmetics :

Help in hair growth - Consumption of inexperienced vegetable juice with 2–3 *E. officinalis* fruits will prevent hair greying. It's the potent amazing impact on hair and skin. Amla stimulates the hair follicles and improves hair growth and provides entire nourishment to hair roots. It is also used in removing dandruff from the scalp and as a scalp cleaner.

Act against pimples - Pimples on the face are caused due to impure blood supply and might be removed by taking *E. officinalis* combined with neem tree.

As natural mouth freshener: Zeatin, a protein-like substance, is additionally found in *E. officinalis* leaves. It helps in refining the mouth, strengthening teeth and bones.

System enhancer: *E. officinalis* is taken into account as a flexible and powerful inhibitor that protects the body against every kind of cancer and helps to cut back the pressure.

Anti-venom activity: *Phyllanthus emblica* has been shown to possess anti-venom activity. The plant extracts that neutralized the defibrinogenating and inflammatory activity of genus *Vipera russellii* venom.

Conclusion :

Emblica officinalis scientifically is a most important herb widely used in Ayurvedic system of medicine. Amla has said to be useful against various types of diseases including diabetes, respiratory disorder, diarrhoea and heart disease. It has many other therapeutic applications. Approximately 80% of the population depends on conventional plants derived capsules for their primary health care system. Amla is also used in cosmetics as hair care, skin care, and many other cosmeceutical products. Amla has performed a critical role in curing different diseases. It has greater antioxidant and biological nature save you numerous health issues as it includes important vitamins and particularly ascorbic acid.

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