AMLA (EMBLICA OFFICINALIS GAERTN) THE WONDERFUL UNANI DRUG: A REVIEW

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ABSTRACT
Amla (Emblica officinalis), a phytochemical reservoir of great medicinal value possesses a vast ethnomedical history. It is among the most widely used drugs of Unani (Greeco-Arab) system of medicine with amazing remedial qualities. In Unani system of medicine, it is described as a tonic for heart and brain. Because of its miraculous actions like muqawwie aza rayeesa, mufarreh wa muqawwie qalb, muqawwie bah, muqawwie chashm, musaffie akhlat etc, it is considered as a potential remedy for various ailments. It has its beneficial role in cancer, diabetes, liver diseases, heart trouble, gastric ulcer, anaemia etc. Indian mythology believes it as the first tree to be created in the universe. Amla is native to India, found wild and cultivated in all parts of India. Each and every part of the Amla tree is used medicinally. This article discusses and summarizes the important medicinal values of Amla berry(fruit) in the perspective of Unani literature as well as modern scientific research.

Keywords: Amla; Emblica officinalis; Unani medicine.

INTRODUCTION
Amla commonly known as Indian gooseberry, is a wonder herb and one of the precious gift of nature to human health. It belongs to family Euphorbiaciae. It is an integral constituent of various Unani and Ayurvedic medicine with amazing remedial qualities.1[1] Amla is one of the 64 drugs listed in ‘Advia Qalbia’, the legendary text for cardiac ailments written by eminent Unani physician Avicenna (Sheik Bu Ali Sina, 980-1037 A.D.) due to its muqawwie qalb and mufarreh properties (cardiotonic).2
In addition to its tonic and rejuvenating function, Ancient Unani literature recommends its use in various diseases also, such as bleeding disorder, digestive system disorder, cardiac and respiratory disorders, liver diseases, urogenital disease, skin problem etc. Its wide spectrum of action includes habis, qabiz, hazim, mushtahi, muqawwi, mubarrid, mudire baul, musaffie akhlat etc.\[3\]

It has a wide range of corrective and curative effects on human body due to which in Ayurveda it is called ‘Sarvadoshahara’ i.e. a remover of all diseases.\[4\] 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.\[1,4\] In the ancient Indian mythology, it is believed as the first tree to be created in the universe.\[5\] Amla is known as “Divya” and “Amrut” or Amrit phala in Sanskrit, which literally means fruit of heaven or nectar fruit. The Sanskrit name, Amlaki, translates as the sustainer or the fruit where the Goddess of prosperity resides.\[1,4\] The active ingredient that has significant pharmacological action in amla is designated by Indian scientists as “Phyllemblin”.\[1\] The edible fruit contains protein concentration 3-fold and ascorbic acid concentration 160-fold compared to that of the apple.\[6\]

![Emblica officinalis](image1.jpg)

**Scientific Classification**

- **Kingdom:** Plantae
- **Order:** Malpighiales
- **Family:** Euphorbiaceae, Phyllanthaceae.\[7,8,9,10,11,12,13\]
- **Genus:** Phyllanthus
- **Species:** P. emblica
- **Binomial name:** Phyllanthus emblica
- **Botanical name:** *Emblica officinalis* Gaertn.\[7,8,9,11,12,13\]
Synonyms:  
*Cicca emblica Kurz*[^16]  
*Phyllanthus emblica* Linn.[^7,12]

Vernacular names

Arabic : Amlaj[^3,7,16,17,18,19,20,21]  
Persian : Aamla[^3,7,16,17,18,20]  
Urdu : Anwala, Aamla,[^7,16,17,18,22] Amlika[^22]  
English : Emblic myrobalan, Indian gooseberry[^7,8,21,22]  
Kannada: Nellka,[^8] Nelli, Amalaka[^7,23]  
Tamil: Nelli,[^8,23] Nellikay[^9]

Description in Unani literature

It is a small medium sized deciduous tree with smooth, greenish grey, exfoliating bark. Leaves are feathery with small narrowly oblong, pinnately arranged leaflets. Fruits are depressed globose ½ - 1 inch in diameter, fleshy and obscurely 6-lobed, containing 6 small seeds.[^22] The tree is 30-40 ft in height and circumference of stem usually extends up to 3-6 ft and rarely up to 9 ft. Stem is usually curved, branches are strong and extended. Bark is thin and brownish in colour. Leaves resemble to tamarind leaves. Fruits are fleshy and round in shape. Raw fruits are green in colour and become greenish yellow on ripening.[^3] Fruit contain a three celled nut each cell of which contain two triangular seeds. Seeds are round, edges of which are sharp.[^20] Fruits when soaked in milk known as Sheer Amla[^24]

Habitat and Cultivation: It is a potential crop which grows in marginal soils and various kinds of degraded lands such as salt-affected soils, dry and semi-dry regions.[^10] Found wild and cultivated in all parts of India, especially the south, to an altitude of 1500 m,[^25] the Deccan, sea cost districts and Kashmir.[^9,22] Although it is native to India, also grows in tropical and subtropical regions of Pakistan, Uzbekistan, Srilanka, South East Asia, China and Malaysia.[^5] It is distributed in tropical and subtropical areas of Indonesia, Malaysia and the Peninsula,[^11] and also found in Burma and Ceylon.

Parts used: Fruit fresh and dried, seeds, leaves, root, bark and flowers.[^5,8,22,25]  
Temperament:  
Cold 2⁰ & dry 3⁰[^3,19]  
Cold 2⁰ & dry 2⁰[^21]  
Cold 1⁰ & dry 2⁰[^3,20]
Miqdare khuraq (Dosage)
- Fresh fruit: 10-20 g
- Pulp juice: 5-10 ml.\(^{[26]}\)

Muzirat (Adverse effects): Constipation and colic, \(^{[18,19,21]}\) harmful to spleen.\(^{[3,19]}\)

Musleh (Corrective): Honey and almond oil \(^{[18,19,21]}\)

Taste: Sour,\(^{[19]}\) bitter and astringent,\(^{[20]}\) astringent and somewhat acrid,\(^{[27]}\) natural balance of taste i.e. sweet, sour, astringent, bitter and pungent.\(^{[1,11]}\)

Badal (substitute): Halelah Kabuli (Terminalia chebula)\(^{[3,19]}\)

Asaroon (Asarum europaeum Linn)\(^{[3]}\)

Afal (Actions mentioned in Unani literature)
- Habisuddam (haemostatic/styptic) \(^{[19,20]}\)
- Qabiz (astringent), \(^{[3,7,18,19,20]}\)
- Mane is’hal (anti diarrhoeal), \(^{[20]}\)
- Dafe qai (anti emetic) \(^{[3,19,20]}\)
- Muqawwi azae rayeesa (vital organs tonic), \(^{[3,18]}\)
- Muftarreh wa muqawwie qalb (cardiac stimulant and tonic) \(^{[7,19,20]}\)
- Muqawwie bah (aphrodisiac) \(^{[3,19,20]}\)
- Muqawwie chashm (eye tonic) \(^{[3,18,20]}\)
- Muqawwi wa musawwid sha’ar (hair tonic) \(^{[15,16,18]}\)
- Musakkin atsh \(^{[3,19,20]}\)
- Hazim (digestive), \(^{[3]}\)
- Mushtahi (appetizer), \(^{[3,19,20]}\)
- Mulayyan (laxative) \(^{[20]}\)
- Musaffie akhlat (blood purifier), \(^{[3,27]}\)
- Dafe balgham (anti phlegmatic)\(^{[3]}\)
- Mubarrid (refrigerant/cooiling), \(^{[3,20]}\)
- Mudire baul (diuretic)\(^{[3]}\)
Uses mentioned in Unani classical literature

- **Digestive disorders:** Dyspepsia, gastritis, hyperacidity, constipation, colitis, diarrhoea, dysentery, loss of appetite, nausea, vomiting, and gastric ulcer.
  
- **Bleeding disorders:** Epistaxis, bleeding haemorrhoids, haematuria, menorrhagia, bleeding gums, and haemorrhage.
  
- **Metabolic disorders:** Anaemia, gout, polydypsia, oligouria.
  
- **Cardiac and respiratory disorders:** Palpitation, cough, asthma.
  
- **Aging disorder:** Hairfall, premature graying of hair, opacity of cornea, weakness of vision, joint weakness.
  
- **Neurasthenia:** Fatigue, vertigo, paralysis.
  
- **Urogenital disorders:** Leucorrhoea, vaginitis, gonorrhoea, supra pubic pain, oligouria, infertility, bed wetting.
  
- **Skin diseases:** Pruritus, boils.
  
- **Liver disease:** Jaundice, weakness of liver.
  
- **Mental disorders:** Insanity, epilepsy, melancholia, loss of memory.

**Compound Formulations of Amla in Unani medicine**

- *Jawai sh e-Amla*[^3,^7,^21]
- *Murabbae Amla*[^7,^21]
- *Anushdaru*[^7,^18,^21]
- *Safoofe hazim*[^7,^18,^21]
- *Itrifalat*[^7,^18]
- *Dawaul misk motadil sada*[^7]

**Actions mentioned in Ethno medicine:**

Astringent and antihaemorrhagic[^11,^13,^25]

Anti diarrhoeal and antidysentric, Antiemetic[^14,^26]

Digestive, carminative[^16,^26] and Laxative[^10,^11,^17]

Antiscorbutic[^16]

Hepatoprotective[^11,^14,^28,^29]

Cooling[^11,^16,^17]

Stomachic[^11,^16]

Tonic[^11,^16,^17,^30]

Anabolic[^14,^26]
Bechic\textsuperscript{[26]}  
Diuretic\textsuperscript{[11,26,29]}  
Antidiabetic \textsuperscript{[26]}  
Antioxidant\textsuperscript{[1,14,26,29]}  
Resistance building properties,\textsuperscript{[14]} Immunomodulator\textsuperscript{[14,28,30]}  
Anti- ageing\textsuperscript{[30]} and restorative\textsuperscript{[11]}  
Anti-inflammatory, antipyretic and analgesics\textsuperscript{[11,14,29]}  
Antitumor,\textsuperscript{[1,11,28,29]} Anticarcinogenic & antimutagenic\textsuperscript{[1,11,14]}  
Induction of apoptosis\textsuperscript{[1,11]}  
Antibacterial, antiviral, and antifungal\textsuperscript{[1,10,14,29]}  
Expectorant\textsuperscript{[14,17]}  
Antispasmodic  
Antisclerotic\textsuperscript{[14]}  
Lipid lowering / hypocholesterolemic\textsuperscript{[1,14,29]}  
Anti human immunodeficiency virus properties\textsuperscript{[14]}  
Antiulcerogenic\textsuperscript{[1,29]}  
Adaptogenic\textsuperscript{[29]}  
Cardiac stimulant\textsuperscript{[1]}  

MEDICINAL USES IN ETHNO MEDICINE  

• Decoction prepared of dried fruit in new earthen vessel is used as collyrium (medicated lotion for eye wash) in ophthalmic diseases.\textsuperscript{[3,4,9]}  

• The exudate collected from incisions made on the fruit is applied externally on inflammation of the eye.\textsuperscript{[4,13,17]}  

• Fermented liquor prepared from the fruit is used in jaundice, dyspepsia and cough.  
  • Sharbate amla with lemon juice is found to be beneficial in acute bacillary desentry.\textsuperscript{[13,21]}  

• Amla powder along with red sandalwood (Pterocarpus santalinum) and honey is used to relieve nausea and vomiting.\textsuperscript{[4]}  

• Sharbate amla, sweetened with sugar or honey is a favourite cooling drink for sick people.\textsuperscript{[9,27]}  

• Decoction prepared with amla and stems of Tinospora cordifolia is used in urinary diseases.\textsuperscript{[14]}
• Paste of the fruit is a useful external application over the pubic region in irritability of the bladder. [9]

• Fruits are used as an expectorant, an antidote to mineral poisons, particularly vermillion and sulphur.

• Fruit with seeds used for asthma, bronchitis and biliousness. [11]

• Amla juice with turmeric powder and honey is beneficial in diabetes insipidus. [26]

• A country-side prescription for biliousness used by Concans : Amla, 4 masha to be soaked overnight in water, and in the morning to be pounded and mixed with a 250ml of milk and flavoured with sugar and cumin. [27]

• In Persia the juice of the fruit is used as a vermifuge and it is generally given with honey in a dose of 1-3 drachms. [4]

• In Tibetan medicine, the fruit have been used as febrifuge, anti inflammatory and anti-diuretic. [11]

• Indonesians used this fruit for the treatment of dysentery, diarrhoea, cholera and biliary disorders.

• The pulp of the fruit is smeared on the head to dispel headache and dizziness. [4,11]

• In Turkistan the fresh fruit is used in inflammation of the lungs.

• Juice of the fruit along with other ingredients is used to cure cough, hiccough, asthma as well as fits and insanity. [4]

**Phytochemical constituents:** The active ingredient that has significant pharmacological action in amla is designated by Indian scientists as “Phyllemblin”. [1] The phytochemicals of this plant include hydrolysable tannins (Emblicanin A, Emblicanin B, punigluconin, pedunculagin), flavonoids (Kaempferol 3 O alpha L (6” methyl) rhamnopyranoside, Kaempferol 3 O alpha L(6” ethyl) rhamnopyranoside, alkaloids (Phyllantidine and phyllantine). [11] *Emblica Officinalis* primarily contains tannins, alkaloids, phenolic compounds, amino acids and carbohydrates. Fruit juice contains the highest vitamin C (478.56mg/100mL). Compounds isolated from EO were gallic acid, ellagic acid, 1-O-galloyl-beta-D-glucose, 3,6-di-O-galloyl-Dglucosechebulinic acid, quercetin, chebulagic acid, corilagin, 1,6-di-O - galloyl beta D glucose, 3 Ethylgallic acid (3 ethoxy 4,5 dihydroxy benzoic acid) and isostrictiniin. [5] A new acylated apigenin glucoside (apigenin 7 O (6” butyryl
beta glucopyranoside) was isolated from the methanolic extract of the leaves of *Phyllanthus emblica* together with the known compounds; gallic acid, methyl gallate, 1,2,3,4,6-penta-O-galloylglucose and luteolin - 4'- Oneohesperiodoside were also reported.[1,5] 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.[6]

**Advance researches/ pharmacological studies**

**Antibacterial activity**

M. Kanthimathi and R.Soranam studied the antibacterial activity of aqueous crude extracts of *Emblica officinalis*, against five human bacterial pathogens. The data clearly shows that the aqueous crude extract of *Emblica officinalis* posses strong inhibitory action against all the test bacterial pathogen.[31]

**Chondroprotective activity**

Sumantran VN et al. measured the chondroprotective potential of fruit extracts of P. Emblica in osteoarthritis. The data provided a pilot pre- clinical evidence for the use of P. Emblica fruits as a chondroprotective agent in osteoarthritis therapy.[32]

**Insulin sensitizing activity**

Kalekar et al. evaluated the insulin sensitizing activity of *Phyllanthus emblica* by assessing glucose uptake activity in a 3T3L1 adipocyte model, they found that Phyllanthus emblica significantly stimulated glucose uptake in 3T3L1 adipocytes in a dose dependent manner with maximal effect at higher concentration.[33]

**Induction of apoptosis**

The effects of *Emblica officinalis* extracts on induction of apoptosis of human primary osteoclasts were Studied by Letizia Penolazzi et al. according to the result of this in vitro study, the extracts of *Emblica officinalis* were able to induce programmed cell death of mature osteoclasts. without altering the process of osteoclastogenesis.[34]
Antioxidant activity
Khopde et al. examined aqueous amla extract for its ability to inhibit g-radiation-induced lipid peroxidation in rat liver microsomes and superoxide dismutase damage in rat liver mitochondria. Based upon the results it is concluded that amla is a more potent antioxidant than vitamin C. [35]

Gastroprotective activity
Mehrotra et al. reported a novel property of ethanolic extract of Emblica officinalis (amla) fruit pulp in inhibiting the growth of Helicobacter pylori in-vitro, and recommended it suitable for a therapeutic use against H. pylori infection and gastric ulcer. [36]

Hypolipidemic effect
Gopa, Bhatt and Hemavathi evaluated the efficacy of Amla in patients with type II hyperlipidemia and compare its hypolipidemic effects with those of simvastatin. Amla produced significant hypolipidemic effect along with a reduction in blood pressure. [37]

Hepatoprotective activity
Hepatoprotective activity of Emblica officinalis (EO) and Chyavanaprash (CHY) extracts were studied using carbon tetrachloride (CCl₄) induced liver injury model in rats. EO and CHY extracts were found to inhibit the hepatotoxicity. [38]

Antitumour activity
E.O and chyavanaprash (a non-toxic herbal preparation containing 50% E.O) extracts were found to reduce ascites and solid tumours in mice induced by DLA cells. [39]

Anti-inflammatory activity
Anti-inflammatory effects of phenolic compounds from Emblica officinalis were evaluated by Muthuraman, Sood and Singla in carrageenan and cotton pellet induced acute and chronic inflammatory animal model. They concluded that phenolic compounds of E. officinalis may serve as potential herbal candidate for amelioration of acute and chronic inflammation due to their modulatory action of free radicals. [40]

Antimicrobial activity
Sabahat saeed and Perween tariq investigated antimicrobial potential of aqueous infusions and aqueous decoctions of Emblica officinalis (amla), and found it effective against Staphylococcus aureus, S. haemolyticus, S. saprophyticus, Micrococcus varians, M.
Lyla, M. roseus, M. halobius, M. sedenterius, Bacillus subtilis, B. Megaterium and Candida albicans.²⁹

**Anti-pyretic and analgesic activity**

James et al. investigated the anti-pyretic and analgesic activity of ethanol and aqueous extracts of *Emblica officinalis* fruits in several experimental models. Their findings suggested that extracts of *Emblica officinalis* fruits possess potent anti-pyretic and analgesic activity.⁴¹

**CONCLUSION**

*Emblica officinalis* is being used as medicine since antiquity. In present era it is essential to explore its medicinal values at molecular level with help of various biotechnological tools and techniques. More studies should be conducted to elucidate the molecular mechanism of interaction of various parts of this plant based drugs with human body in different diseases. As there are many actions and uses mentioned in Unani medicine which is practised since years to be validated by conducting scientific research and prove the claims of Unani physicians.

**REFERENCES**

2. advia qalbia

