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"A Review on Pharmacognostic Study of Amla"

Priyanka Shivaji Lokare[1], Bhagat Dnyaneshwari Manohar[2], Bandgar Rupali Dhananjay[3], Khade Priyanka Maruti[4], Bhosale Harshada Hanumant.[5]

1. *Lecturer, Anusaya Institute of pharmacy, Bhigwan.*
2. *Assistant Professor, Anusaya Institute of pharmacy, Bhigwan.*
3. *Lecturer, Anusaya Institute of pharmacy, Bhigwan.*
4. *Lecturer, Dattakala Institute of pharmacy, Kettur.*
5. *Lecturer, Anusaya Institute of pharmacy, Bhigwan.*

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ABSTRACT-
Emblica officinalis (Amla) is widely used in the Indian system of medicine and believed to increase defense against diseases. It belongs to the family of Euphorbiaceae. Amla commonly known as Indian gooseberry. The species is native to India and also grows in tropical and subtropical regions. Amalaki tree may be a small to medium sized deciduous tree. Fruits are fleshy, almost depressed to globose shape, Leaves are 10 -13 mm long, 3 mm wide. It is the richest natural source of Vitamin C. The fruit contains two hydrolysable tannins Emblicanin A and B. It is one of the oldest oriental medicines mentioned in Ayurveda as potential remedy for assorted ailments. It plays a positive function in the treatment of degenerative conditions like cancer, diabetes, liver disease, ulcers, anaemia, eye conditions, and heart problems. It is also a key ingredient in hepatoprotective and rejuvenating formulae.

KEYWORDS- Emblica officinalis, Indian gooseberry, Euphorbiaceae, Amla, Emblicanin A and B.

I. INTRODUCTION-

Indian gooseberry, or amla, is a miracle herb and one of nature's priceless gifts to human health.
It is a member of the Euphorbiaceae family.[1] The plant is indigenous to India, although it can also be found growing in South East Asia, China, Malaysia, Pakistan, Uzbekistan, Sri Lanka, and other tropical and subtropical countries. It has thin, light grey bark, grows to a height of 8 to 18 meters, and has simple, green, sub-sessile leaves that are closely spaced along branchless structures resembling pinnate leaves. Greenish yellow flowers bloom, and the fruits are globose, fleshy, pale yellow, and have six obscure vertical furrows that enclose six trigonous seeds in two-seed, three-crustacious cocci. [2]

CLASSIFICATION:
♣ **Kingdom**: Plantae
♣ **Division**: Angiospermae
♣ **Class**: Dicotyledonae
♣ **Order:** Geraniales
♣ **Family**: Euphorbiaceae
♣ **Genus**: Emblica
♣ **Species**: officinalis Geartn.

VERNACULAR NAMES :
♣**English**: Emblic myrobalan ,
♣ **Indian**: Goose berry
♣ **Sanskrit:** Aamalaki
♣ **Hindi:** Amla
♣ **Kannada:** Nelli Kayi
♣ **Marathi:** Amla

II. MORPHOLOGY-

The Amalaki tree is a deciduous tree that ranges in size from small to medium, reaching a mean height of 8 to 18 meters. Its thin, light grey bark sheds in tiny, uneven flakes. The most stems typically have a girth of 70 cm. In terms of the bottom, the majority of trunks are divided into two to seven scaffolds. The pinnate arrangement of the 10–13 mm long and 3 mm wide leaves gives the branches a feathery appearance. Unisexual flowers with a length of four to five mm and a color of pale green are carried in clusters of six to ten in the axils of leaves. Fruits have a fleshy, almost globose shape, with a diameter of 2.1–2.4 cm, a weight of 5.3–5.7 g, and a volume of 4.5–5.0 mL.. Additionally, the provinces of Madhya Pradesh and Rajasthan grow it.[3]

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CHEMICAL CONSTITUENTS:

Emblica officinalis produces fruits that are high in tannins. 28% of the tannins in the entire plant are found in the fruits. Emblicanin A and B, two hydrolyzable tannins found in the fruit, have antioxidant qualities. When one of the tannins is hydrolyzed, it produces gallic acid, ellagic acid, and glucose, while the other yields ellagic acid and glucose. [4] Phyllemblin is also present in the fruit.[5]

The bark, leaves, and fruits have a lot of tannins. Bark contains leucodelphinidin, and the root contains lupeol and ellagic acid. A stable oil (16%) with a brownish-yellow color is extracted from the seeds. Linolenic (8.8%), linoleic (44.0%), oleic (28.4%), stearic (2.15%), palmitic (3.0%), and myristic (1.0%) are the fatty acids found in it. [6]

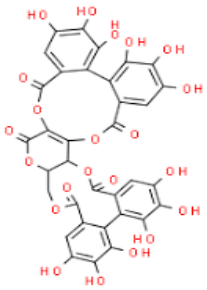
Leaves: It has alkaloids called phyllantine and phyllantidine as well as gallic, chebulic, ellagic, chebulinic, and chebulagic acids, as well as amlic acid. [7]

Seeds- include phosphatides, a fixed oil, and a tiny amount of essential oil. It has 8.78% linolenic acid and 44% linoleic acid. miristic acid (0.95%), oleic (28.40%), steric (2.15%), and palmitic(2.99%).[7]

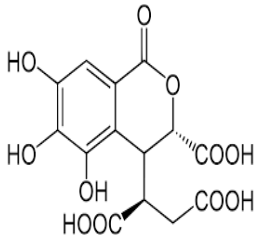
Barks : proanthocynidin, tannin and leucodelphinidin are present [7]

Roots: Contains lupeol and ellagic acid. [7]

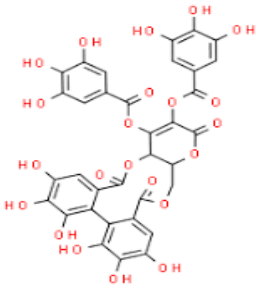
Emblicanin- B



Chebulic acid-



Emblicanin A -



Chebulagic acid-

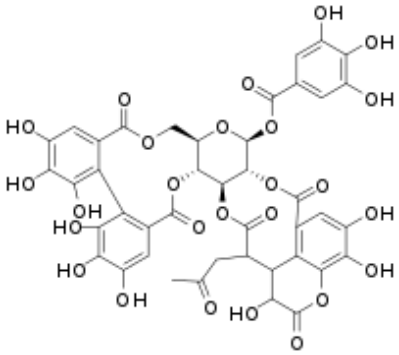


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Figure 1: Amla fruit pulp: Composition

USES OF AMLA:

1] Antianaemic activity:

Amla is high in ascorbic acid, often known as vitamin C, which is necessary for the absorption of iron. Amla supplements can be quite helpful for people with iron deficient anemia. [8,9,10]

2]Antidiarrheal activity :

for young people Twice daily in the morning and at bedtime, a compound powder containing emblic seed, chitrak root, chebulic myrobalan, pipli, and pallone is given in appropriate dosages based on age, along with warm water. Give tender shoots with buttermilk to treat diarrhea and dyspepsia. Fresh green leaves and curds work similarly together. The leaves are used as a bitter tonic and as an infusion with fenugreek seeds for chronic dysentery. Grind one tola of the seeds after soaking it overnight in a canister. Whisk in the cow's milk. This works well as a bilious treatment. [8,9,10]

3] Scurvy:

As a remarkably abundant supply of vitamin C.
One of the most effective treatments for scurvy is Indian gooseberry. One teaspoon of dry gooseberry powder combined with the same amount of sugar should be taken three times a day with milk. [8,9,10]

4]Eye disorders:

When E. officinalis and its tannoids are used to treat eye disease, oxidative pressure is less likely to occur because changes in the levels of lipid peroxidation, protein carbonyl content, and antioxidant enzyme functions are reversed. Amla also stopped lens protein aggregation and insolubilization brought on by hyperglycemia. [11]

5] Antioxidant and free radical scavenging activity:

Galic acid, which is the equivalent of the total phenolic content found in the fruit and seeds of E. officinalis, has strong antioxidant qualities and is crucial for scavenging free radicals, which are needed to maintain redox equilibrium and are linked to a number of degenerative disorders in milk. [12] It is an excellent natural source of vitamin C and an antioxidant. Amla aids in eliminating free radicals.

6] Anticancer:

Anti-tumor the high concentration of polyphenol components in E. officinalis makes it more effective against cancer than other natural therapeutic plants.
The mechanisms of polyphenols' anticarcinogenic, inflammatory, and radiation-retardant properties are involved. [13]

7] Antidiabetic Activity:

The naturally occurring substances of P. emblica L. have been linked to anti-diabetic properties. According to an in vitro study, the primary phytochemicals in amla, namely ellagic acid and ascorbic acid, decreased the activity of an important enzyme involved in enzyme digestion.[14]

8]Balances stomach acids :
It helps with digestion but doesn't raise body temperature; For the relief of mild to moderate hyperacidity and other pitta-related digestive issues, amla-berry is perfect.[15]

9] Excellent source of Vitamin C:
Amla is the most concentrated source of Vitamin C in the plant kingdom. The human body can easily assimilate the Vitamin C when the entire fruit is used instead of just an active element. [16,17] The tannins in amla fruit form a bind with the vitamin C, preventing it from being oxidized by heat or light.

10] Cardioprotective:
Its main benefit is that it protects against heart disorders, atherosclerosis, and CVD in addition to other advantages. Reversing atherosclerosis can only occur when low-density lipoprotein (LDL) or injury oxidation is reduced. The high content of polyphenols in the juice of the Amla fruit was guaranteed. Furthermore, the recovery of heart muscles after surgical pathology ensured that E. officinalis was not acting as a preventive agent. All of the evidence and debate pointed to E. officinalis's potential as an antioxidant, heart-protective, and free radical scavenger. [18, 19]

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