



Therapeutic Value of Nelli (*Emblica officinalis*) - A Review

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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. Nelli (*EMBLICA OFFICINALIS*) is widely used medicinal plant throughout the world. The fruit, leaves, flowers, barks of the plant play a crucial role in various medical ailments. It has been widely used in diuretics, laxative, refrigerant and astringent, etc. Pharmacological activity of nelli (*EMBLICA OFFICINALIS*) has Anti-diabetic, Hypo lipidemic, Anti-oxidant, Anti-Inflammatory, Hepato protective activities etc. Hence, a major research study about this plant goes on. Here is a review of the characteristic chemical composition and pharmacological activities of the plant.

Keywords:

Emblica officinalis, chemical composition, pharmacological activity, medicinal aspect.

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INTRODUCTION

Siddha is one among the system of AYUSH, which was widely practiced in southern part of India. The unique nature of this system is to be places equal emphasis on body, mind and spirit of the individual. Siddhars provide many medicinal preparations to cures various diseases with the herbal plants. Medicinal plants are widely used in siddha system of medicine. Nowadays plants play a major role in curing various diseases and also it promotes healthy life. Hence peoples are willing to take medicines like herbal formulations and single herb. So, one among the plant nelli (*EMBLICA OFFICINALIS*) is used worldwide nowadays. Siddhars are used nelli as KAYAKALPA. *EMBLICA OFFICINALIS* also known as *PHYLLANTHUS EMBLICA*.

The fruit is also used in a combination form known as Triphala meaning three fruits namely *EMBLICA OFFICINALIS*, *TERMINALIA BELERICA* AND *TERMINALIA CHEBULA*.

Many herbal and patent drugs have been formulated by the constituents of this plant. It primarily contains tannins, flavonoids, phenolic compounds, saponins, terpenoids, ascorbic acids, carbohydrates and many other compounds. Supplements of fresh amla fruit is very favorable to individuals suffering from anemia. It also helpful in Hypertension, Menorrhea, Tasteless, Vomiting, stomach ulcers, eye diseases, diarrhea.

CLASSIFICATION:

- Kingdom –plantae [plants]
- Subkingdom-tracheobionta [vascular]
- Superdivision-spermatophyta [seed plants]
- Division-angiospermae [flowering plant]
- Class-dicotyledonae [dicotyledons]
- Subclass-rosidae
- Order-geraniales
- Family-euphorbiaceae
- Genus-emblica
- Species-officinalis

COMMON NAMES:

Tam; amalagam, aalagam, ambal, amarigam, thatthari, thatthri, miruthubala, korangam, methunthu,

- Eng; Indian gooseberry
- Tel; Usirika
- Mal;nellikay
- Kan;nellikai
- San;amalaki
- Hind; amlika
- Arab; amlaj
- Pers; amila
- Nepal;amrita,adhipala
- Japanese;kemloko
- Vietnames; chu me, kam lam

MORPHOLOGY:

EMBLICA OFFICINALIS is a small to medium sized deciduous tree, reaching 8 to 18cm in height, which is known for its edible fruit of the same name.

Fruit; nearly spherical, light greenish yellow, quite smooth and hard on appearance with vertical stripes or furrows.

Leaves; the leaves are simple, nearly stalk less and closely set along slender branchlets.

Flowers; small, greenish yellow or pinkish.

ACTIONS:

Diuretic, laxative, refrigerant, astringent

CHEMICAL COMPOSITION:

This herb has many bioactive compounds including apigenin, Gallic acid, ellagic acid, chebulinic acid, quercetin, chebulagic acid, corilagin, isostrictiniin, methyl gallate, and luteolin and so on.

TANNINS present in *EMBLICA OFFICINALIS*,

- Emblicanin A,
- Emblicanin B,
- Phyllaemblicin B,
- Punigluconin
- Pedunculagin

TOTAL AMINOACIDS;

- glutamic acid -29.6 %
- proline -14.6 %
- aspartic acid -8.1 %
- alanine-5.4 %
- lysine-5.3 %

The pulpy portion of fruit, dried and freed from the nuts contains

- A.gallic acid -1.32 %
- b.tannin, gum-13.75 %
- C.albumin-13.08 %
- D.crude cellulose -17.08 %
- E.mineral matter-4.12 %
- F. moisture -3.83 %

FRUIT ASH CONTAINS;

1. chromium- 2.5ppm
2. zinc-4ppm
3. copper-3ppm

LEAVES;

It contains Gallic acid, chebullic acid, ellagic acid chebulagic acid, amlic acid, alkaloids, phyllantine and phyllantidine.

BARKS;

It contains leukodelphinidin, tannin and proanthocyanidin.

ROOTS;

It contains ellagic acid and lupeol.

SEEDS; A fixed oil, phosphotides 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 %

It contains, linolenic acid -8.78 %

- Oleic acid-28.40
- Linoleic acid -44 %
- Steric acid-2.15 %
- Palmitic -2.99 %
- Miristic acid-0.95 %

NUTRITIONAL VALUE OF *EMBLICA OFFICINALIS*;

| Chemical components | percentage % |
|---------------------|--------------|
| Fruit –moisture | 81.2 |
| Protein | 0.5 |
| Fat | 0.1 |
| Mineral matter | 0.7 |
| Fiber | 3.4 |
| Carbohydrate | 14.1 |

| BULK ELEMENTS | NET WEIGHT IN % |
|----------------|-----------------|
| Calcium | 0.05 |
| Phosphorus | 0.02 |
| Iron | 1.2mg/100g |
| Vitamin C | 600mg/100g |
| Nicotinic acid | 0.2mg/100g |

PHARMACOLOGICAL ACTIVITY:

EMBLICA OFFICINALIS is reported have anti fungal, anti bacterial, laxative, anti oxidant, anti diabetic, anti diarrheal, analgesic and anti pyretic, hypo cholesterolemic, hypo lipidemic, hepato protective, immune modulatory, cardio protective, anti proliferative, HIV reverse transcriptase inhibitor, anti cancer and anti tussive properties.

DISCUSSION

Anti inflammatory activity of *EMBLICA OFFICINALIS* and Gallic acid shows to have inhibitory effect on the synthesis and release of inflammatory mediators. Amala fruit have been reported to significant hypolipidemic, hypo cholesterolemic effect. Treatment with *EMBLICA OFFICINALIS* caused significant reduction of Total cholesterol [TC], Low density lipoprotein [LDL], Triglycerides [TG] and very low density lipoprotein [VLDL] and a significant increase in high density lipoprotein [HDL] levels in patients with type 2 hyper lipidemia. Fruit extract of *EMBLICA OFFICINALIS* has ability to rectify toxicity and hepatic damage.

EMBLICA OFFICINALIS exhibits its anti cancer activities through inhibition of activator protein 1 and targets transcription of viral oncogenes responsible for development of cervical cancer thus demonstrating its potential efficacy for treatment of human papilloma virus induced cervical cancers.

Anti fungal property of *EMBLICA OFFICINALIS* was reported against aspergillus. Fruit ethanol and acetone extracts shows moderate activity against *Fusarium equiseti* and *Candida albicans*. Gallic acid equivalent as total phenolic content from fruit and seed of *EMBLICA OFFICINALIS* has excellent anti oxidant properties and plays an important role as free radical scavengers required in the maintenance of 'redox homeostasis' responsible for diverse degenerative disease.

CONCLUSION

EMBLICA OFFICINALIS is a miracle herb which is used in siddha system. Due to its pharmacological properties to treat several human ailments. Therefore, further evaluation of unexplored bioactive compounds of *EMBLICA OFFICINALIS* is needed which can revealed more and more new biological activities of this medicinal plant.

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