

Emblica officinalis

TAXONOMICAL CLASSIFICATION:^[1]

Emblica officinalis Gaertn. Syn. *Phyllanthus emblica* Linn.

- Kingdom: Plantae
- Division: Angiospermae
- Class: Eudicots
- Subclass: Archichlamydeae
- Order: Malpighiales
- Family: Euphorbiaceae
- Group: *Emblica*
- Species: *officinalis* Gaertn.



INTRODUCTION:

Emblica officinalis is a small to medium-sized deciduous tree native to tropical southeastern Asia especially India. It is commonly known as Amla, Indian gooseberry, Amalaki etc. Its leaves are simple, feather-like, and closely set along the branches. Flowers are green-yellow, and the round, greenish-yellow fruits are smooth and hard in appearance. It is one of the most important plants in the traditional Ayurvedic medical system as well as in other traditional health systems for immunomodulatory, anti-

inflammatory, antiulcer, hepatoprotective, and anticancer actions. It is reported to contain up to thirty times the amount of vitamin C found in oranges and is known as an anti-aging tonic. Amla may be used to help maintain a healthy immune and nervous system, and to support the health of the eyes, hair, nails, bones, teeth and heart.^[4]

Amla Fruit contains a high concentration of ascorbic acid, which degrades with heating or cooking.



(<https://www.indiamart.com/proddetail/amla-amalaki-phyllanthus-emblica-extract-8927094112.html>)

Additionally, it also contains phenols, including ellagic acid, gallic acid, quercetin, kaempferol, corilagin, geraniin, furosin, gallotanins, emblicanins, flavonoids, glycosides, and proanthocyanidins. The roots contain glycosides and tannins.

Most of the properties assigned to *Emblica officinalis* are accredited to its strong antioxidant action. Approximately, 1 g per 100 mL of fresh fruit juice accounts for 45% to 70% antioxidant activity. ^[2]



Average percentage composition of the fruit pulp

of *Emblica officinalis*:^[1]

(<https://shaman.co.nz/product/amla/>)

Table 2: Average percentage composition of the fruit pulp of *Emblica officinalis* ^[12]

S. No	Components	Percentage
1.	Moisture	81.2%
2.	Protein	0.5%
3.	Fat	0.1%
4.	Mineral matter	0.7%
5.	Fibre	3.4%
6.	Carbohydrate	14.1%
7.	Calcium	0.05%
8.	Phosphorous	0.02%
9.	Iron	1,2mg/100gm
10.	Nicotinic acid	0.2mg/100gm
11.	Vitamin C	600 mg/100 gm

PROPERTIES AND USES:^[1]

- Antioxidant activity
- Anti-ulcer Activities
- Immune modulatory Activities
- Antipyretic and Analgesic Activities
- Hepatoprotective Activity
- Anti-Inflammatory Activity
- Cardio-protective Activity
- Anti cancer activity
- Cytoprotective, Antitussive, Gastro-protective activity
- Memory Enhancing Effects

- Chelating Agent
- Hair Growth Property
- As Snake Venom Neutralizer
- In Respiratory disease
- In Diabetes
- In Gonorrhoea: The juice of the bark combined with honey and turmeric is a remedy for gonorrhea.
- Nausea/Acidity
- In Ophthalmic Disorder
- Hair Growth
- In Reducing Cholesterol and Dyslipidemia:
- In Dental disease: The roots of *Emblica officinalis* (10 g) are ground and taken twice daily for one day only after taking food. Alternatively, the leaves of *Emblica officinalis* are squeezed and the juice extracted. This juice is put in the ear (a few drops) to find relief from toothache.
- Skin Whitening: Skin lightening agents have been widely used to either lighten or depigment the skin.

SIDE EFFECTS OF EXCESS CONSUMPTION:^[6]

- Damages liver
- Causes constipation
- Affects blood pressure
- Inflammation while urinating
- Increases acidity

RESEARCH:

1. *Emblica Officinalis* reduces oxidative stress thus preventing development and progression of hypertension as well as cardiac and renal hypertrophy in DOCA/HS-induced hypertension via modulation of activated eNOS, endogenous antioxidants, serum NO and electrolyte levels.^[7]
2. Amalaki causes reduction of iNOS and COX-2 expression levels by inhibiting NF-κB activation thus reduction of elevated expression level of Bax occurs which is a proapoptotic protein thus acting as a Nephroprotective and Neuroprotective substance.^{[9][1]}
3. The cytoprotective and immunomodulating properties of *Emblica officinalis* (Amla) against chromium (VI) induced oxidative damage. Chromium (VI) at 1 µg/mL concentration was highly cytotoxic as it enhanced free radical production and decreased reduced glutathione (GSH) levels and glutathione peroxidase (GPx) activity in macrophages. The presence of Amla improvised cell survival, decreased free radical production and produced more antioxidant.^{[10][1]}
4. Aqueous extracts of *Cassia occidentalis* Linn. (Leguminosae) and *Emblica officinalis*. (Euphorbiaceae) were screened for effectiveness in inhibiting mutagenicity of Aflatoxin B1 (AFB1) and benzo[a]pyrene (B[a]P) in Ames test. Anti mutagenicity was evaluated using

Salmonella typhimurium strains TA 98 and TA 100. In the assay, metabolic activation of AFB1 (0.5 microg/plate) and B[a]P (1 microg/plate) was mediated by rat liver S9 preparation. Although both plants inhibited mutagenicity, E. officinalis had more inhibitory effect than C. occidentalis. Their inhibitory action on chromosomal aberrations together present antimutagenic and anticarcinogenic potential against mutagens requiring metabolic activation.^{[11][1]}

Precautions & Warnings:^[5]

Bleeding disorders: Indian gooseberry might increase the risk of bleeding or bruising in some people.

Diabetes: Amla might decrease blood sugar levels. Diabetes medications might need to be adjusted by your healthcare provider if you consume Indian gooseberry.

Surgery: Indian gooseberry might increase the risk of bleeding during and after surgery. Stop taking Indian gooseberry at least 2 weeks before a scheduled surgery.

INTERACTIONS WITH MEDICATIONS:

- **Anti diabetes drugs:** Indian gooseberry might decrease blood sugar. Diabetes medications are also used to lower blood sugar. Taking Indian gooseberry along with diabetes medications might cause Hypoglycemia.
Some medications used for diabetes include glimepiride (Amaryl), glyburide (DiaBeta, Glynase PresTab, Micronase), insulin, pioglitazone (Actos), rosiglitazone (Avandia), chlorpropamide (Diabinese), glipizide (Glucotrol), tolbutamide (Orinase), and others.
- **Hepato toxic drugs Interaction.**
Some Ayurvedic formulations that contain Indian gooseberry have been linked to liver damage. While it's not clear if Indian gooseberry or other ingredients in these formulations caused the liver damage, in theory, taking Indian gooseberry along with medication that might also harm the liver can increase the risk of liver damage. Medications that can harm the liver include acetaminophen (Tylenol), amiodarone (Cordarone), carbamazepine (Tegretol), isoniazid (INH), methotrexate (Rheumatrex), methyl dopa (Aldomet), and many others.
- **Anticoagulant / Anti platelet drugs**
Indian gooseberry might slow blood clotting. Taking Indian gooseberry along with medications that also slow clotting might increase the chances of bruising and bleeding. Medications that slow blood clotting include aspirin, clopidogrel (Plavix), diclofenac (Voltaren, Cataflam, others), ibuprofen (Advil, Motrin, others), naproxen (Anaprox, Naprosyn, others), dalteparin (Fragmin), enoxaparin (Lovenox), heparin, warfarin (Coumadin), and others.

Tablets

Emblica officinalis tablets provide a superior alternative for powder making it travel friendly, easy to consume thus avoiding messy handling. A typical dose is one to two tablets, once or twice daily, or as directed by your healthcare practitioner^[3]

References:

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