EMBLIC MYROBALANS: AMLA/AMALAKI

Key herb of Ayurvedic medicine

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Amla or Amalaki is one of the most frequently used of the Ayurvedic herbs; it is the fruit of *Phyllanthus emblica*, also called *Emblica officinalis*. The fruit is similar in appearance to the common gooseberry (*Ribes spp*., a type of currant), which is botanically unrelated to amla. However, due to the similar appearance of the fruit clusters (see below), amla is usually called the "Indian gooseberry." The plant, a member of the Euphorbiaceae, grows to become a medium-sized tree (pictured below) that is found growing in the plains and sub-mountain regions all over the Indian subcontinent from 200 to nearly 2000 meters above sea level. Its natural habitat, like other members of its family, ranges from Burma in the East to Afghanistan in the West; from Deccan in south India to the foothills of the Himalayan range.

Emblica fruits are one of three "myrobalans," a term deriving from the Greek for acorn, which is a well-known astringent used in tanning. In fact, both emblic myrobalans and chebulic myrobalans (*Terminalia chebula*) are relied upon for their high content of tannins; chebulic myrobalans have long been used for tanning leather; the emblica twig bark and immature fruits are used for tanning. The third fruit, beleric myrobalans, is a close relative of chebulic myrobalans, from *Terminalia belerica*, also a tanning agent.

These three fruits together make up the popular remedy "Triphala," a rejuvenating formula that is frequently applied to treating intestinal disorders (inflammation, infection, diarrhea, constipation).

The ***Caraka Samhita***, the main text of Ayurvedic herbal medicine, describes emblic and chebulic myrobalans as possessing the same virtues, though they have slightly different nature. Here is what is said (1):

"They have healing virtues and are auspicious (used in sacred and ceremonial occasions). They restore the faults (doshas) to their normal course. They are light (as food). They enkindle digestive fire, and are good pacanas (digestive aids). They promote longevity and induce nourishment. They deserve every praise (for the virtues they possess). They prevent the effects of age more than any other drug. They alleviate all varieties of ailments, and impart strength to the intellect and the senses. They quickly conquer vitiligo, abdominal tumors, flatulence, dropsical swellings (edema), chlorosis, alcoholism, piles, ailments of the grahani (duodenum), chronic intermittent fever, diseases of the chest, diseases of the head, diarrhea, disgust for food, cough, gonorrhea, epistasis, enlargement of the spleen, abdominal dropsy when new, discharge of phlegm matter, hoarseness of the voice, discoloration or loss of complexion, anemia, intestinal worms, waste of dhatus (main body components), some forms of asthma, vomiting, loss of virility, weakness of the limbs, blockage of ducts of various kinds, sensation like a wet blanket covering the chest, a similar sensation in the heart, and dullness of the memory and understanding. Those who are suffering from indigestion, those who habitually take dry food and drink, those who have been weakened by sexual indulgence and wine and poisons, and those who are afflicted by hunger and thirst and heat, should eat myrobalans."

Most of the "rasayana" (rejuvenation and longevity tonics) of Ayurveda are made with amla as an ingredient, and often with Triphala as a base to which numerous other herbs are added. Emblic myrobalans is the main ingredient of Chyawanprash, one of the important rasayanas and the principal Ayurvedic remedy currently produced in India (accounting for well over half the sales of the Ayurvedic medicines industry). It is a complex combination of about three dozen spicy ingredients in small amounts, with a large proportion of amla in a honey base. According to the accounts in the ***Caraka Samhita***, by consuming a rasayana made with amla as the main ingredient, one will "live for a hundred years without any sign of decrepitude." Relying on amla alone, and following a unique ceremonial approach-including hand collection of the fruits from a forest of amla trees on the day of the full moon and reciting the mantra *Om* until the fruits are imbued with a sweet nectar (that overcomes the sour, astringent taste)-it is said that "one will live in enjoyment of youth for as many thousands of years as the number of fruits on eats according to this method."

A branch of emblica fruits, called "Indian gooseberries."

A branch of true gooseberries (Ribes spp.).

HOW DOES AMLA PRODUCE THE DESIRED EFFECTS?

Most advertisements for amla products describe the fruit's rich content of vitamin C, which is often said to be responsible for several of the therapeutic actions of the herb. The advertisements are sometimes very peculiar, saying that emblic vitamin C is far more potent than ordinary vitamin C (e.g., one promotion specifies "Dr. B.B. Arora has proved that 8.7 mg of vitamin C from amla is equivalent to 100 mg of vitamin C from synthetic sources.") In fact, it has been shown that amla does not contain any significant amount of vitamin C, but other organic acids (such as malic acid and mucic acid) and various common tannoids (small tannin-like molecules) and some unique tannins, one or more of which were mistaken for vitamin C in the initial tests conducted more than 50 years ago. Even so, at the levels described (at about 0.5-0.7% of the fruit pulp), the amount of vitamin C consumed would be small by modern standards. The dominant active constituent of amla is a group of tannins derived from gallic and ellagic acids, which make up a large portion of the extractable non-nutritive constituents. The fresh fruit pulp has been analyzed, roughly as follows:

Moisture: 81-84%
Carbohydrates:14.0-14.3% (sugar/starches/gums, about 5%; polyphenols, about 5.7%; fiber, about 3.4%)
Minerals: 0.7-2.4%
Miscellaneous other compounds: 0.5-0.7%
Protein: 0.5-0.7%
Fat: 0.1-0.5%

When the fruit is dried, the main ingredient, water, is mostly eliminated, and the remaining constituents are present in considerably larger proportions. The contents of the dry fruit include roughly:

Carbohydrates 70-75% (fiber, about 17% and sugars/starches/gums, about 25%; polyphenols: 28%)
Minerals: 4-6% (calcium, magnesium, potassium, sodium, zinc, iron, etc.)
Miscellaneous other components: 2.5-3.5%
Protein: 2.5-3.5%
Fats 1.5-2.0%
Residual moisture: 6-9%

A high tannin standardized extract has been prepared by Sabinsa Corporation, at 40% polyphenols (mostly in the form of tannins), leaving behind some of the other carbohydrates. The presence of a large proportion of tannins in the fruit may easily explain some of the more prosaic proclaimed benefits of amla, including treatment of respiratory and intestinal disorders, particularly intestinal ulcerations. In addition, polyphenols have been shown to have numerous health protective benefits, including lowering blood lipids and blood sugar, enhancing blood circulation, and blocking the action of carcinogens, which together contribute to the antiaging effect. The apparent superior effect of the mistaken "vitamin C" component is actually the more stable and potent anti-oxidant effect of the tannins that appeared to be the vitamin.

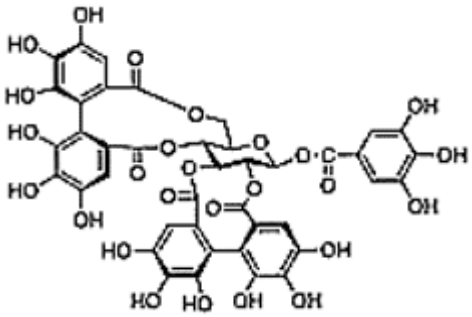
Dr. Shibnath Ghosal, at the Banaras Hindu University, published his findings about active constituents of emblica fruits in 1996, reporting on the mistaken identification of vitamin C (2). He turned his research findings into a patent just four years later, describing the production of the mixture he called Capros. It is derived from amla by a careful process of extraction that prevents breakdown of the tannins. It contains (3):


Unripe emblica


Ripe emblica ready for collection

Emblicanin-A: 27%
Emblicanin-B: 23%
Punigluconin: 8%
Pedunculagin: 14%
Gallo-ellagitannoids: 18%
Rutin: 10%

The first four ingredients listed are polyphenols (tannins); the next constituent is a combination primarily of gallic acid and ellagic acid, the tannoid components that are linked together to make the other tannins. Rutin is another phenolic compound, a common flavonoid found in many plants and isolated as a natural health care product. Dr. Ghosal describes his extract (U.S. patent # 6,124,268) as having a greater antioxidant potential than vitamin C, while being more stable against heat and oxidation. It can be formulated into skin creams that are designed to protect the skin from damage due to excess sun exposure and may also be used as a component of internal remedies for health protective effects, especially for cardiovascular risk factors.



Structure of pedunculagin, one of the ellagitannins of emblica. Each of the ring structures is a phenol, gallic acid.

A compilation of applications for emblica fruits was carried out by several Ayurvedic writers during the last 25 years. The main indications are:

- Digestive system disorders: dyspepsia, gastritis, hyperacidity, constipation, colic, colitis, hemorrhoids
- Bleeding disorders: bleeding hemorrhoids, hematuria, menorrhagia, bleeding gums, ulcerative colitis
- Metabolic disorders: anemia, diabetes, gout
- Lung disorders: cough, asthma
- Aging disorders: osteoporosis, premature graying of heart, weak vision
- Neurasthenia: fatigue, mental disorders, vertigo, palpitations

According to the Ayurvedic system of classification, the fruit has these properties (4):

Rasa (taste): sour, astringent are dominant, but fruit has five tastes, including sweet, bitter, and pungent
Veerya (nature): cooling
Vipaka (taste developed through digestion): sweet
Guna (qualities): light, dry
Doshas (effect on humors): pacifies all three doshas: vata, kapha, pitta, especially effective for pitta

Because of its cooling nature, amla is a common ingredient in treatments for a burning sensation anywhere in the body and for many types of inflammation and fever; these are manifestations of pitta (fire) agitation.

The popularity of emblica fruits, especially for use in making Chyawanprash and Triphala, has led to the cultivation of amla trees, despite widespread distribution of the wild trees. A problem has arisen whereby collectors take a short-cut in collecting the fruits; instead of climbing the trees and carefully hand picking each fruit, large branches containing numerous fruits are lopped off, which can eventually kill the trees. As a result, some areas have been virtually denuded of these valuable trees. Government and non-government agencies in India are undertaking efforts to educate collectors to avoid damaging their economic future by such practices and is encouraging development of plantations of amla trees that are devoted specifically to yielding raw materials for medicinal products. In addition to the fruit pulps, the fruit seeds, and the tree's leaves, branches, and bark can all be collected for production of health care and tanning products.

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