



PHARMACOGNOSTICAL STUDY OF AMALAKI (*EMBLICA OFFICINALIS* GAERTN.)

Dr. Ketan Rathwa*¹ and Dr. Rakesh Salve²

¹Final Year Post Graduate Scholar, Department of Rasa Shashtra & Bhaishajya Kalpana, Parul University, Parul Institute of Ayurved, Limda, Vadodara, Gujarat, India.

²Associate Professor, Department of Rasa Shashtra & Bhaishajya Kalpana, Parul University, Parul Institute of Ayurved, Limda, Vadodara, Gujarat, India.

***Corresponding Author: Dr. Ketan Rathwa**

Final Year Post Graduate Scholar, Department of Rasa Shashtra & Bhaishajya Kalpana, Parul University, Parul Institute of Ayurved, Limda, Vadodara, Gujarat, India.

Article Received on 20/05/2018

Article Revised on 10/06/2018

Article Accepted on 30/06/2018

ABSTRACT

Any plant which is used medicinally requires detail study prior to its use because the therapeutic efficacy is absolutely depends on the quality of the plant drug used. It is also the first step to standardize a drug which is the need of the day. If the plant drugs are adulterated, then the quality of preparation cannot give the desirable results. So before using a drug it is very much essential to carry out its detailed Pharmacognostical study. Freshly collected *Amalaki* were subjected for Pharmacognostical study. The taste of fresh *Amalaki* and *Amalaki* powder was sour and astringent. Transverse section of fresh *Amalaki* and dry showed an epicarp consisting of single layer of epidermis. Epidermal cells tubular in shape covered externally with a thick cuticle and appear in surface view as polygonal. Mesocarp forms bulk of fruit consisting of thin walled parenchymatous cells with intercellular spaces, peripheral 6-9 layers smaller, ovoid or tangentially elongated while rest of the cells are larger in size, isodiametric and radially elongated. The powder microscopy of *Amalaki* powder showed prismatic crystals of calcium oxalate, fragments of Mesocarp cells, groups of sclerides, fibers, tannin containing cells and stone cells.

KEYWORDS: Amalaki, Cell, Mesocarp, Pharmacognosy.

INTRODUCTION

The word pharmacognosy is formed by combination of 'Pharmakon' means a drug and 'gignosy' means 'to acquire knowledge'. So Pharmacognosy can be defined as a branch of biosciences that deals with the knowledge and authentication of medicinal and related products of crude or primary type originated from both plants and animals in the detailed form. Pharmacognosy is an important link between pharmacology and medicinalchemistry.

Any plant which is used medicinally requires detail study prior to its use because the therapeutic efficacy is absolutely depends on the quality of theplant drug used. The detailed Pharmacognostical study of plant help us to differentiate between closely related species of the same genus or relatedgenera of the same family. It is also the first step to standardize a drug whichis the need of the day. If the plant drugs are adulterated, then the quality of preparation cannot give the desirable results. So before using a drug it is very much essential to carry out its detailed Pharmacognostical study as it is not only helpful for correct identification butalso to get a clue for its phytochemical, pharmacological and medicinal properties.

AIMS AND OBJECTIVES

1. To authentify fresh *Amalaki* fruit by Macroscopic and Microscopic studies.
2. Powder microscopy of *Amalaki* powder.

Collection of samples

For the present study, fruits of fresh *Amalaki* were collected from local market of vadodara and powder was prepared in the department of RS&BK.

Sanskrit : Amalaki

English : Indian gooseberry, Emblicamyrobalan

Botanical Name : *Emblca officinalis*

Family : Phyllanthaceae

Common name / synonyms : Vayastha, Amla, Vrushyaa, Jatiphalarasa, Shiv Dhatriphala, Shriphala, Amrutphala etc.

Morphology

Amalaki is available in small or moderate sized deciduous trees. The leaves are small, simple, subsessile, many in each branchlet, linear-oblong and entire. Flowers are small, greenish yellow, unisexual in dense axillary fascicles along the branchlets. There are 6 tepals. The fruits are globose, fleshy, spherical, light greenish yellow, quite smooth and hard on appearance, with 6 vertical stripes or furrows. The fruiting Period is autumn.

According to ayurveda there are 2 varieties of Amla Vanya (wild) Gramya (cultivated).

Rasapanchaka (Ayurvedic Pharmacodynamics)

Rasa: Amla (Sour), Kashaya (Astringent), Tikta (Bitter), Katu (Pungent), Madhur (Sweet).

Guna: Guru (Heavy), Ruksha (Dry), Sheeta (Cold)

Veerya : Sheeta (Cold)

Vipaka : Madhur (Sweet)

Doshakarma : Tridoshashamak (Alleviate all the Three Dosha)

* Due to its Amla Rasa (Sour) it alleviates Vata

* Due to Madhur Vipaka (Sweet) it alleviates Pitta

* Due to Kashaya Rasa (Astringent) and Ruksha (Dry)

* Guna it alleviates Kapha

Medicinal Properties

Amla or the Indian Gooseberry is the richest source of Vitamin C and natural anti oxidant. It is digestive, aphrodisiac, laxative, diuretic and tonic. It helps in detoxifying the body and regulates digestion. It promotes Ojus and the reproductive fluids.

Useful Parts: Fruits

Chemical composition / key active constituents

The fruit contains Gallic acid, tannic acid, albumin, cellulose and other minerals. It contains plenty of vitamins C. it contains moisture 81.2%, proteins 0.5%, fats 0.1%, carbohydrates 14.1%, calcium 0.05%, phosphorus 0.02%, iron 1.2 mg and nicotinic acid 0.2 mg per 100 gram. A seed contains the stable oil which is 16%.

Key Active Constituents

Emblicanin A&B, Punigluconin, Pedunculagin, 2-keto-gluconolactone (Vitamin-C equivalents). Ellagic acid, Hexahydroxy-diphenic acid and conjugates.

Pharmacological activities

It is Vata, Pitta and Kapha suppressant. It reduces the burning sensation in the body. It helps in providing the essential minerals and vitamins required for good vision and mental development. It helps in strengthening the nervous system. It helps in improving the condition of digestive system. It stimulates liver for proper secretion of bile juices. It is helpful in supporting heart by fighting its ailments. It is a good aphrodisiac agent and also a good female tonic. It is helpful in skin related ailments. It also helps in sorting out the urinary problems and diabetes. It is a good general health tonic.

Dose: Swarasa (juice) 10 - 20 ml; Churna (Powder) 3 - 6 gms.

Important Formulations: Chyavanaprasha, Triphala, Dhatri-loha, Amalaki Rasayana., Brahmarasayana, Dhatri-rasayana, Amalakyavaleha, Phalarista, Brihachhaladyaghrita.

Medicinal Uses

1. Respiratory Disorders- It is especially valuable in seasonal cough and cold. Amla is also useful in recurrent respiratory tract infections such as tonsillitis, sinusitis and sore throat.

2. Diabetes- Amla, with its high vitamin C content, is considered valuable in diabetes. It stimulates the Islets of Langerhans i.e. -the isolated group of cells that secrete the hormone insulin. It therefore reduces the blood sugar in diabetic patient. Being the best eye toner, it will also prevent eye problems as complications of diabetes.

3. Heart Disease- It tones up the heart muscles and make them strong. The heart then pumps the blood throughout the body. Amla is also known to build the health by destroying the heterogeneous elements and regenerating the body energy.

4. Eye Disorders-The Amla, taken with honey, is useful in preserving eye sight. It will also be beneficial in the treatment of conjunctivitis and glaucoma. It reduces intraocular tension in effective manner.

5. Rheumatism- Amla is useful in the treatment of rheumatism.

6. Scurvy-As an extremely rich source of vitamin C. Indian gooseberry is one of the best remedies for scurvy. It heals bleeding gums and spots over the body.

7. Prevents Aging- It has revitalizing effects. It contains an element which is very valuable in preventing aging and in maintaining strength in old age. It improves body resistance and protects against infection. It strengthens the heart, hair and different glands in the body. It is said that the great ancient sage Maharishi Chyawan rejuvenated himself in his late 70's and regained his virility by the use of Amla.

8. Hair Tonic- Amla is an accepted hair tonic in traditional recipes for enriching hair growth and hair pigmentation. Amla is excellent for strengthening the roots of hair and maintaining its color and luster.

9. Liver Functions- Regular use of pain killers, antibiotics and medication, regular intake of alcohol, all cause toxin build-up in the liver. Amla helps strengthen the liver, and rid the body of these toxins. It thus helps purify and clean the blood. This is why Amla is good for the skin, and if taken in combination with Neem, it can help clear out pimples that are caused due to impure blood.

10. Other uses- It is also indicated in gastritis, colitis, ulcers, heartburn or acid reflux. It expels excess heat from the body. It cures thirst, burning sensation, vomiting, anorexia, toxicosis, fever. Also useful in cough, dyspnea, jaundice, leucorrhoea and menorrhagia. It is coolant, refrigerant, diuretic, laxative and tonic.

Home remedies

1. Amalaki is the highest natural source of Vitamin C. Consumption of one fresh fruit provides 3000 mg Vitamin C to the body. It is particularly effective as Rasayana (Rejuvenative) herb.

2. Internal use of Amalaki powder in the dose of 3-5 gm daily improves eyesight, cleanses mouth, and also provides rejuvenative effects.
3. External use of paste of Amalaki on scalp provides luster and shine to the hair.
4. Internal use of Amalaki in any form helps in increasing immunity.

- **Macroscopic Characters**^[1]

Colour - Green changing to light yellow when matured.

Odour - None

Taste - Sour and astringent

Size - 1.5 to 2.5 cm in diameter.

Shape - The fruits are depressed, globose.

Extra Features - Fruits are obscurely 4 lobed with 6-trygonous seeds.

Fresh fruit: transverse section

Procedure: The section was 1st studied under distilled water and then under stain flourogucinol + concentrated Hcl.

Transverse section of mature fruit shows an epicarp consisting of single layer of epidermis and 2-4 layers of hypodermis. Epidermal cells tubular in shape covered externally with a thick cuticle and appear in surface view as polygonal, hypodermal cells tangentially elongated, thick walled, smaller in dimension than epidermal cells. Mesocarp forms bulk of fruit consisting of thin walled parenchymatous cells with intercellular spaces, peripheral 6-9 layers smaller, ovoid or tangentially elongated while rest of the cells are larger in size, isodiametric and radially elongated. Several collateral fibrovascular bundles are scattered throughout mesocarp consisting xylem fibers. Tracheal elements show reticulate, scalariform and spiral thickenings. 2 – 3 layers of epidermal cells with tannin containing material, Prismatic crystal of calcium oxalate, Vascular bundle, Yellowish brown tannin containing cells. Xylem fibres are elongated with narrow lumen and pointed end. Mesocarp contains large aggregates of numerous irregular silica crystals.

Powder microscopy

The diagnostic characters of *Amalaki* powder under the microscope are crystals of silica, mesocarp cells, group of sclerides, fibers, simple starch grain and yellow brown tannin containing cells, lignified fibre, parenchyma cells and fragment of annular vessels.

CONCLUSION

Amla is an extensively used herb in making Ayurvedic medicines. Amla is supposed to rejuvenate all the organs and systems of the body, provide strength and wellness. According to Ayurvedic experts regular usage of Amla will make us live more than 100 years like a youth. Amla keeps us away from all the diseases by boosting our immune system.

REFERENCES

1. Database on Medicinal plants used in Ayurveda, P.C.Sharma, M.B.Yahe, T.J.Denw, 2005, volume-3.