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## Ayurvedic Aspect of *Amalaki* -A Review

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### ABSTRACT:

Mother Nature has gifted us with various resources for the survival of mankind. Amongst them not only lie the foods that we consume but also a mine of medicines that are being explored each and every day. *Amalaki*, also known as Indian gooseberry, scientifically known as *Emblca officinalis* (Syn. *Phyllanthus emblica*) belonging to the family Euphorbiaceae is such a gem of a drug that is a gift to mankind. *Amalaki* is used widely as a single drug and as an ingredient of numerous formulations for the betterment of lifestyle and also as treatment procedure. It is known to possess antioxidant, anti-inflammatory, hepatoprotective, immunomodulatory, etc. properties. Although, numerous studies regarding *amalaki* are widely available, there still lies scope for evaluation and analysis on this topic.

**Keywords:** *Amalaki*, *Emblca officinalis*, Gooseberry, Synonyms, Properties,

## INTRODUCTION

*Amalaki*, also known as Indian Gooseberry is one of the widely available and used medicine in Ayurveda. Not only singly but also as an ingredient of numerous compound formulations *Amalaki* stand out ubiquitously. *Amalaki* consists of mature fruits of *Emblca officinalis* Gaertn. Syn. *Phyllanthus emblica* Linn. (Fam. Euphorbiaceae); mostly collected in winter season after ripening and in Kashmir in summer, a small or medium sized tree, found both in natural state in mixed deciduous forests of the country ascending to 1300 m on hills; cultivated in gardens, home yards or grown as a road side tree. <sup>[1]</sup> *Amalaki* is known by various synonyms in various ayurvedic texts like *Amrita*, *Amritaphala*, *Dhatri* which

means nector, showing that *Amalaki* has nector like properties for mankind. Owing to its numerous chemical constituents like Vitamin C, Carotene, Nicotinic acid, Riboflavin, Embicol acid and various other active principles it is known to possess various pharmacological activities like anti ageing, anti-inflammatory, immunomodulatory, hepatoprotective, hypolipidaemic and etc. In Ayurveda these properties are correlated with the terms like *Vayastha*, *Sothahara*, *Rasayana*, *Yakriduttejaka*, *Medahara* etc. Being an important drug of ayurveda, extensive study regarding *Amalaki* is needed to gain knowledge about it in depth.



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## AIMS & OBJECTIVES

This study is aimed at reviewing the literature texts of Ayurveda through and through to bring out the information available regarding *Amalaki*. The main objective of this study is to present the knowledge regarding *amalaki* under one heading.

**Scientific Name:** *Emblica officinalis* Gaertn. (Syn. *Phyllanthus emblica* Linn.)

**Family:** Euphorbiaceae / Phyllanthaceae

**Taxonomical Classification Acc. To Bentham And Hooker (1862-1883)**

Kingdom:	Plantae
Subkingdom:	Viridiplantae
Infrakingdom:	Streptophyta
Superdivision:	Embryophyta
Division:	Tracheophyta
Subdivision:	Spermatophytina
Class:	Magnoliopsida
Superorder:	Rosanae
Order:	Malpighiales
Family:	Phyllanthaceae
Genus:	Phyllanthus
Species:	<i>emblica</i> Linn. [2]

Table 1. Synonyms As Per Different Nighantu

The synonyms of *Amalaki* have been given for various reasons. The fruit of *amalaki* is purifying (*Amala*), *Rasayana* (*Amrita*, *Amritaphala*), maintains youth (*Vayahstha*), sustains and promotes the dhatus (*Dhatri*), prolongs life (*Vayasya*), promotes virility (*Vrisya*). It is beneficial for mankind in all ways (*Shivam*). The fruit is round (*Vrittaphala*), weighs one kola (*Kolam*), has six rasas (*Sadarasa*) and has *sita virya* (*Sitaphala*). The juice of *amalaki* is extremely useful (*Jatiphalarasa*). [3]

The table-1 provides the necessary details regarding the various synonyms of *Amalaki* and their presence in ten Nighantus. It can be evidently seen that the maximum number of synonyms of *Amalaki* has been stated by Kaiyadeva Nighantu and we also come across to see that in Raj Nighantu not a single synonym has been used to

refer *Amalaki* which shows that in this entire lexicon *Amalaki* has been referred solely by its name. Apart from this we also see that the most common synonyms of *Amalaki* that have been widely used are *Amrita phala*, *Dhatri*, *Shiva*, *Vayastha* and *Vrishya*.

## VARIETIES:

- According to P.V. Sharma *Amalaki* is of 2 types:
  - 1-*Vanya*
  - 2-*Gramya*<sup>[4]</sup>
- According to Narendradev University of Agriculture & Technology 4 types:
  - 1- *Krishna* (NA5)
  - 2- *Amrit* (NA6)
  - 3- *Neelam* (NA7)
  - 4- *Kanchan* [5]

## Literary Reviews Of *Amalaki*:

**1-VEDIC & PAURANIK PERIOD:** The earliest knowledge of this plant is found in Vedas which are usually accepted, as the oldest repository knowledge of Hindus. In **Yajurveda** (11/31/34) the plant is described as a tonic which promotes the health. Its use in some of the diseased condition is also found in **Atharva Veda** (4/7/12). In later periods the description of the *amalaki* is observed in **Jaiminiya Upanishad Brahmana** (1/38/6), **Chandagya-Upanishad** (1/7/3/2), '**Shri-Madbhagvata Purana**' (9/3/2,10,22), '**Vayupurana**' (1/3/169), **Balmiki Ramayana (Balkanda 71/72)**. Table 2. Categorization Of *Amalaki* In Samhitas & Nighantus:

## Botanical Description:

It is a small to medium sized deciduous tree, 8-18m in height with greenish-grey or red bark, peeling off in scales.

**Leaves:** Simple many sessile, pinnate, distichously close-set along the branchlets, linear-oblong, obtuse, light green in colour.

**Flowers:** Densely fascicled along the branchlets, yellowish, males on slender pedicles, female sub-sessile.

**Fruits:** berry, depressed globose, succulent, yellow or pink when ripe, obscurely 6 lobed.

**Seeds:** trigonous (flowers in February-May & fruits in

October-April)<sup>[5]</sup> Fig. 1,2 Fig.3, Fig. 4.

**Distribution:**

Wild/cultivated throughout tropical India<sup>[5]</sup>

**Ayurvedic Properties: (Table 3)**

*Rasa: Amla pradhana panca rasa (except lavana)*

*Guna: Guru, Ruksha, Sita*

*Virya: Sita*

*Vipaka: Madhura*<sup>[6]</sup>

Summarizing the *Rasapanchak* mentioned by the various Nighantukaras it can be concluded that *Amalaki* has *Lavana rikta Pancha rasa, Laghu, Ruksha gunas, Sita virya and Madhura Vipaka.*

**Karma:**

- **Dosakarma:** *Tridosasamaka*, especially *pittasamaka*
- **Sharirakarma:** *Dahaprasamana, Chaksushya, Keshya, Medhya, Nadibalya, Balya, Rocana, Dipana, Anulomana, Amlatanasaka, Yakriduttejaka, Stambhana, Sramsana, Hridya, Sonitasthapana, Kaphaghna, Vrishya, Garbhasthapana, Mutrala, Pramehaghna, Kushthaghna, Jwaraghna, Rasayana*
- **Vyadhikarma:** *Paittikavikara, Daha, Paittikashiroshula, Mutraavarodha, Netraroga, Khalitya, Palitya, Mastishkadourbalya, drishtimandya, Indriyadourbalya, Aruchi, Trishna, Agnimandya, Vibandha, Yakridvikara, Amlapitta, Parinamashula, Udavarta, Arsha, Hridroga, Raktapitta, Raktavikara, Kasa, Swasa, akshma, Sukrameha, Pradara, Garbhasayadourbalya, Mutrakriccha, Paittikaprameha, Kushtha, Visarpa, Jirnajwara, Kshaya, Dourbalya, Daha, Sotha*<sup>[7]</sup>

**Chemical Constituents:**

Vitamin C, Carotene, Nicotinic acid, Riboflavin, Embicol acid, Mucic acid, Indole acetic acid, Phyllembic acid, Phyllembin, Leucodelphinidin, Procyanidin, Tannin, Ellagic acid, Lupeol, Polyphenolic compounds, 1,2,3,6-trigalloylglucose, Terchebin, Corialgin, Alkaloids, Phyllantidine, Phyllantine<sup>[8]</sup> Fig. 5. Major chemical constituents of *Amalaki*

**Pharmacological Activities:**

Hepatoprotective, Spasmolytic, Mild CNS depressant, Hypolipidemic, Antiatherosclerosis, Antimutagenic,

Antioxidant, Immunomodulatory, Antifungal, Antitumor, Hypoglycemic, Anti-inflammatory, Antibacterial, Anti-ulcer, Adrenergic potentiating, HIV-1 reverse transcriptase inhibitory action<sup>[8]</sup>

Some of these pharmacological activities are described below on the basis of various research works that have been conducted.

**Hepato-protective activity:** The histopathological study of liver cells of rats was examined by administering *E. officinalis* as a preventative agent to reduce paracetamol induced hepatotoxicity and it has been observed that fruit extract has the ability to rectify toxicity or hepatic damage (Malar and Bai, 2009). Another histological study was undertaken to demonstrate the protective effect of 50% hydroalcoholic extract of the fresh fruit of *E. officinalis* against chronic toxicity induced by carbon tetrachloride and thioacetamide in rats. From the liver sections of the tested rats, it was observed that *E. officinalis* reversed the abnormal histopathology by accelerating the regenerative activity and in a few cases, the hepatocytic injury was found negligible in *E. officinalis* treated group of rats (Mir *et al.*, 2007).<sup>[9]</sup>

**Anti-inflammatory activity:** *E. officinalis* showed anti-inflammatory activities in carrageenan induced acute and cotton pellet induced chronic inflammation in Sprague-Dawley rats by reducing paw volume in acute inflammation and by decreasing cotton pellet induced granulomas tissue lipid peroxidation, the granulomatous tissue mass, myeloperoxidase activity and plasma extravasation in chronic inflammatory condition (Muthuraman *et al.*, 2011). *E. officinalis* water extract has reported to have inhibitory effect on the synthesis and release of inflammatory mediators in rats (Jaijoy *et al.*, 2010).<sup>[9]</sup>

**Hypolipidemic activity:** *Amla* fruit have been reported to have significant anti-hyperlipidaemic, hypolipidemic, and anti-atherogenic effect (Santoshkumar *et al.*, 2013). Treatment with *Embllica officinalis* caused significant reduction of Total Cholesterol (TC), Low Density Lipoprotein (LDL), triglyceride (TG) and Very Low Density Lipoprotein (VLDL), and a significant increase in High Density Lipoprotein (HDL) levels in patients with type II hyperlipidaemia. Both treatments from *E. officinalis* and simvastatin produced significant reduction in blood pressure; however, this beneficial effect was

more marked in patients receiving *E. officinalis* (Gopa *et al.*, 2012).<sup>[9]</sup>

**Anti ulcerogenic activity:** The ethanolic extract of *E. officinalis* has found highly effective in controlling growth of *H. pylori in-vitro* with minimum inhibitory control ranging from 0.91 to 1.87 µg/ µl. The result concluded that the plant ethanolic extract is well retained with total phenolics, reducing power, flavanoids and the antioxidant properties which make amla a proper remedial use against *H. pylori* infection and gastric ulcer (Mehrotra *et al.*, 2011).<sup>[36]</sup>

**Antimutagenic and wound healing activity:** An investigation on Swiss albino mice showed that 50% methanolic extract of Emblica fruit can protect mice against the chromosome damaging effects of the well-known mutagen cyclophosphamide (Agrawal *et al.*, 2012). Ascorbic acid and tannins of *E. officinalis*, namely emblicanin A and emblicanin B have strong antioxidant action and it is proposed that the addition of these antioxidants support the repair process of cells. Emblica increases cellular proliferation at the wound site, as supported by a raise in the action of extracellular signal-regulated kinase 1/2, along with an increase in DNA, type III collagen, acid-soluble collagen, aldehyde content, shrinkage temperature and tensile strength (Sumitra *et al.*, 2009).<sup>[9]</sup>

**HIV-reverse transcriptase inhibitory activity:** Inhibition of HIV-Reverse Transcriptase (HIV-RT) by *P. emblica* plant extract fractions was tested on Peripheral Blood Mononuclear Cells. From this test it was observed that aqueous fraction and n-hexane fraction have highest inhibition of recombinant HIV-RT (91% and 89%, respectively) at 1 mg/ml concentration. Chloroform fraction showed highest inhibition of HIV-RT at 0.5 mg/ml and carbon tetrachloride fraction at 0.12 mg/ml concentration. At 0.12 mg/ml and 0.5 concentrations 50% of the HIV-RT activity is inhibited in n-hexane fraction and carbon tetrachloride fraction respectively (Estari *et al.*, 2012).<sup>[9]</sup>

**PART USED:** Fruit pulp / Fruit rind<sup>[6]</sup>

**DOSAGE:** Fresh juice- 10-20 ml, Powder- 3-6 gm<sup>[6]</sup>

**INDICATIONS:**

Diabetes Mellitus, Cough, asthma, Bronchitis, Headache,

Dyspepsia, Colic, Flatulence, Hyperacidity, Peptic ulcer, Erysipelas, Skin diseases, Leprosy, Haematemesis, Inflammations, Anaemia, Emaciation, Hepatic disorders, Jaundice, Strangury, Diarrhoea, Dysentery, Leucorrhoea, Menorrhagia, Cardiac disorders, Fevers, Grey hair.<sup>[7]</sup>

**Therapeutic Uses:**

External use: *Dahaprasamana, Chakshushya, Kesya*

*Nadi samsthana: Medhya, Balya, Indriya sakti vardhak*

*Pacana samsthana: Rocana, Dipana, Anulomana, Amlatanasaka, Yariduttejaka*

*Raktavaha samsthana: Hridya, Sonitasthapana*

*Swasana samsthana: Kaphaghna*

*Prajanana samsthana: Vrishya, Garvasthapana*

*Mutravaha samsthana: Mutrala, Pramehaghna*

*Twacha: Kusthaghna*

*Tapokrama: Jwaraghna, Dahaprasamana*

*Satmikanana: Rasayana<sup>[10]</sup>*

**Important Formulations:**

*Brahma rasayana, Chyavanaprasha, Dhatri louha, Dhattrirasayana, Triphala, Amalakyavaleha, Amalakyadi kwath, Brihad cchagaladya ghrita, Phalarista, Dhattryarishtha.*<sup>[8]</sup>

**DISCUSSION:**

*Amalaki (Emblca officinalis Gaertn./ Phyllanthus emblica Linn.)* is a large deciduous tree with greenish grey or red bark, leaves pinnate, linear-oblong, obtuse, flowers densely fascicled along branchlets yellowish, fruits berry depressed globose, succulent, yellow when ripe and six lobed, seeds trigonous. It is abundantly found and cultivated throughout tropical India. It consists various chemical constituents like Vitamin C, Ellagic acid, Tannin, Phyllemblein, Linolic acid, Phyllemblic acid and etc. Its main properties are presence of Amla Pradhan Pancha Rasa, Guru, Ruksha, Sita Gunas, Sita Virya and Madhura Vipaka. It is Tridosha hara, Vayasthapana, Rasayana, Vrishya. Amalaki has been widely used and accepted not only by the Indian system of medicine but also the modern system of medicine as a potent drug in the treatment of diseases involving the gastrointestinal system. The fruit of Amalaki is advised for consumption

by millions of physicians all over India not just as a supplement but as a curative measure.

## CONCLUSION

The literary analysis of *Amalaki* as done above provides us information regarding the various aspects of Indian gooseberry in a nutshell. It is evident from the above study that *Amalaki* is one of the most important drugs in Ayurveda. Not just as a single herb but also as an ingredient of various formulations *Amalaki* stands out by providing equilibrium of *dosa* and curing various disease conditions of the body.

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**TABLE 1. SYNONYMS AS PER DIFFERENT NIGHANTU:**

S.N.	SYNONYMS	DN	HDN	MNP	RN	KN	BPN	SN	NA	MN	PN
1	<i>Amalaka</i>	+	-	+	-	+	+	-	-	-	-
2	<i>Amalaki</i>	-	+	-	-	-	+	+	+	+	+
3	<i>Amrita</i>	-	-	-	-	+	+	+	+	+	-
4	<i>Amrita phala</i>	+	-	+	-	+	+	-	+	+	-
5	<i>Amritodbhava</i>	-	-	-	-	+	-	-	-	-	-
6	<i>Dhatri</i>	-	+	-	-	-	+	+	+	+	+
7	<i>Dhatriphala</i>	+	-	+	-	+	+	-	-	-	-
8	<i>Divya</i>	-	-	-	-	+	-	-	-	-	-
9	<i>Jati phalarasa</i>	+	-	-	-	+	+	-	-	+	-
10	<i>Kola</i>	-	-	-	-	+	-	-	-	-	-
11	<i>Sheeta phala</i>	-	-	-	-	+	-	-	-	-	-
12	<i>Shiva</i>	+	+	+	-	-	+	+	-	+	-
13	<i>Sidhu phala</i>	-	-	-	-	+	-	-	-	-	-
14	<i>Sidhu rasa</i>	-	-	-	-	+	-	-	-	-	-
15	<i>Tishya phala</i>	-	-	-	-	+	+	+	+	+	-
16	<i>Vayastha</i>	+	-	+	-	+	+	+	-	+	-
17	<i>Vrishya</i>	+	-	+	-	+	+	+	-	+	-

(+ denotes presence, - denotes absence)

(DN-Dhanwantari Nighantu, HDN- Hridaya Dipaka Nighantu, MNP-Madanapala Nighantu, RN-Raja Nighantu, KN-Kaiyadeva Nighantu, BPN-Bhavprakash Nighantu, SN-Saligrama Nighantu, NA-Nighantu Adarsha, MN-Mahaushadha Nigraha, PN-Priya Nighantu)

**TABLE 2. CATEGORIZATION OF AMALAKI IN SAMHITAS & NIGHANTUS:**

S.N.	TEXTS	VARGA/GANA
1	<i>Caraka Samhita</i>	<ul style="list-style-type: none"> <li>◆ <i>Jwaraghna</i></li> <li>◆ <i>Kasaghna</i></li> <li>◆ <i>Virecanopaga</i></li> <li>◆ <i>Vayasthapana</i></li> <li>◆ <i>Kushthaghna</i></li> <li>◆ <i>Swasahara</i></li> <li>◆ <i>Jwaraghna</i></li> </ul>
2	<i>Sushruta Samhita</i>	<ul style="list-style-type: none"> <li>◆ <i>Triphala</i></li> <li>◆ <i>Parushakadi</i></li> <li>◆ <i>Mustadi</i></li> <li>◆ <i>Amalakyadi</i></li> </ul>
3	<i>Astanga Samgraha</i>	<ul style="list-style-type: none"> <li>◆ <i>Kushthaghna</i></li> <li>◆ <i>Kasahara</i></li> <li>◆ <i>Jwarahara</i></li> <li>◆ <i>Garbhasthapana</i></li> <li>◆ <i>Vayasthapana</i></li> </ul>
4	<i>Astanga Hridaya</i>	<ul style="list-style-type: none"> <li>◆ <i>Virecanagana</i></li> <li>◆ <i>Parushakadi</i></li> <li>◆ <i>Mustakadi</i></li> <li>◆ <i>Mustadi</i></li> </ul>
5	<i>Dhanwantari Nighantu</i>	◆ <i>Guduchyadi varga</i>
6	<i>Hridaya Deepaka Nighantu</i>	◆ <i>Dwipada varga</i>
7	<i>Madanapala Nighantu</i>	◆ <i>Haritakyadi varga</i>
8	<i>Raja Nighantu</i>	◆ <i>Amradi varga</i>
9	<i>Kaiyadeva Nighantu</i>	◆ <i>Aushadhi varga</i>
10	<i>Bhavprakash Nighantu</i>	◆ <i>Haritakyadi varga</i>
11	<i>Shaligrama Nighantu</i>	◆ <i>Haritakyadi varga</i>
12	<i>Nighantu Adarsha</i>	◆ <i>Amalakyadi varga</i>
13	<i>Mahaushada Nighantu</i>	◆ <i>Haritakyadi varga</i>
14	<i>Priya Nighantu</i>	◆ <i>Haritakyadi varga</i>



**Fig. 1.** Leaves of *Amalaki*



**Fig. 2.** Flowers of *Amalaki*



**Fig. 3.** Fruit of *Amalaki* (raw)



**Fig. 4.** Fruit of *Amalaki* (dry)

TABLE 3. RASAPANCHAKA OF AMALAKI FROM VARIOUS NIGHANTU

RASAPANCHAK		TEXTS						
		BN	MPN	KN	RN	DN	SGN	PN
RASA	MADHURA	+	+	+	+	+	+	+
	AMLA	+	+	+	+	+	+	+
	KATU	+	-	+	+	+	-	+
	TIKTA	+	-	+	+	+	-	+
	KASAYA	+	+	+	+	+	+	+
GUNA	GURU	+	-	-	-	-	-	-
	SITA	-	+	-	+	-	-	-
	RUKSHA	-	+	+	-	+	+	-
	LAGHU	-	-	-	+	-	+	+
VIRYA	SITA	+	-	+	-	+	+	+
VIPAKA	MADHURA	+	-	-	-	-	+	-

(+ denotes presence, - denotes absence)

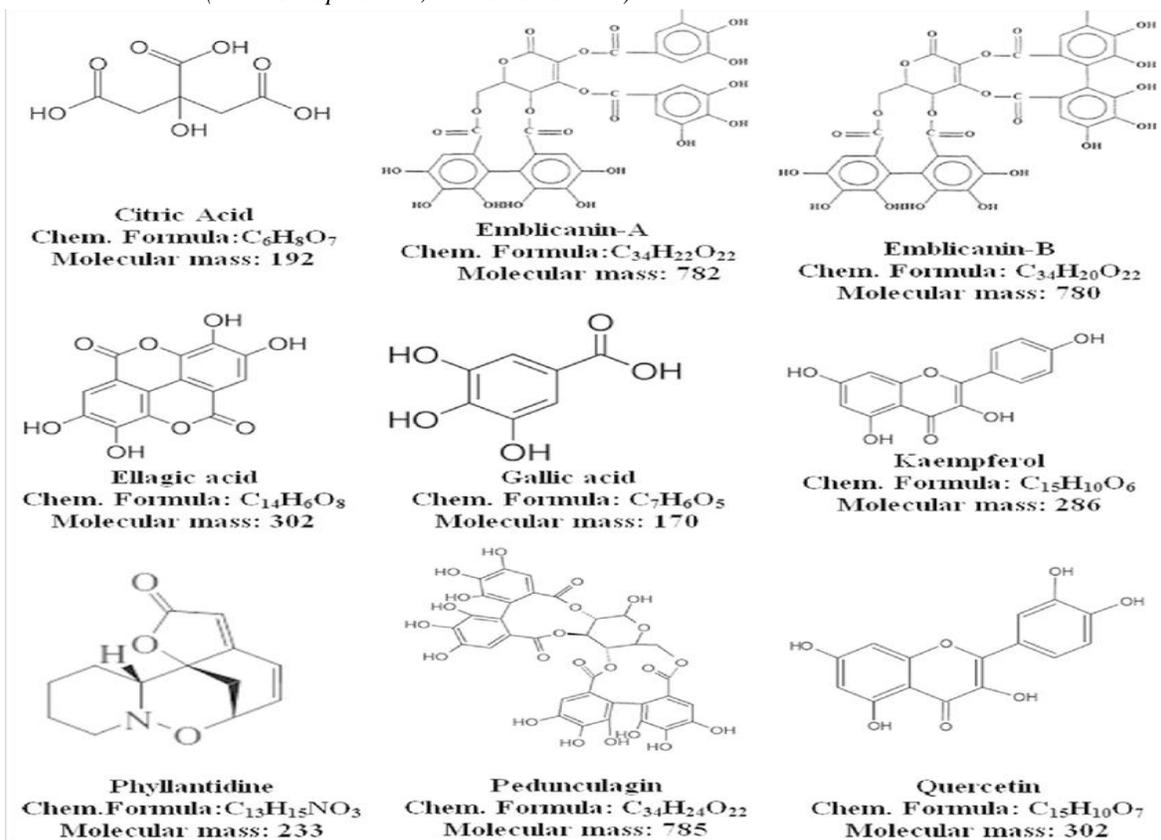


Fig. 5. Major chemical constituents of Amalaki