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REVIEW ARTICLE **OPEN ACCESS**

Review on Madhupakwa Haritaki

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ABSTRACT
Ayurveda uses thousands of plant and animal origin products for treatment of diseases. Haritaki (Terminalia chebula Retz.) and madhu (honey) are two examples for them which are very commonly used in most of the formulations. Different varieties of haritaki (Terminalia chebula Retz.) and madhu (honey) are mentioned in classics. Haritaki (Terminalia chebula Retz.) proved for many properties like antioxidant and free radical scavenging activity, cytoprotective activity, anticarcinogenic activity, antimutagenic, radioprotective and chemo preventive activity etc. Researchers have shown that honey is antiseptic, antimicrobial, antipyretic, anti-inflammatory, anti allergent, antitoxic, sedative, laxative, anti-anaemic, antioxidant, healing and cleansing (external and internal), moisturizing and blood-purifying. There are many formulations are mentioned which include both haritaki (Terminalia chebula Retz.) and madhu (honey) among them madhupakwa haritaki is one. Under the name of madhupakwa haritaki different formulations are mentioned in classics which are indicated in wide range of diseases like swasa (dyspnoea), kasa(cough), pratishyaya (coryza), kshaya (deficiency), jwara (fever), arsha (haemorrhoids), vatavyadhi (disease due to vatadosha).
Keywords: Madhu, haritaki, madhupakwaharitaki, honey, *Terminalia chebula*.

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INTRODUCTION

Ayurveda uses 1587 plants for many well-documented herbal medicines formulated based on Ayurvedic principles to cure several diseases. This can become a good source for developing more scientifically advanced herbal products. There are several elaborate dosage forms of herbal medicines in Ayurveda such as curṇa (powder), swarasa (juice), kaṣhaya (decoction), asava (fermentation preparation), ariṣṭa (fermentation preparation), ghṛitakalpana (ghee formulation), avalehakalpana (confection) and tailakalpana (oil formulation) used by the people owing to its affordability and easy access [1].
Haritaki (*Terminalia chebula* Retz.) is an important medicinal plant in Indian traditional medicine and it is most frequently used herb in Ayurveda. The fruit of *Terminalia chebula* is consider as the "king of medicines" by Tibetans and second-to- none by ayurvedic apothecaries, and also held in high regard by other folk medicinal practitioners.
Antibacterial activity of *Terminalia chebula* extracts against several bacterial strains have been reported. Extracts from different parts of diverse species of plants like root, flower, leaves, seeds, etc. exhibit antibacterial properties were applied on cotton material for wound, healthcare care application. It is a well-known fact that the demand for the herbal drug treatment of various ailments is increasing and plant drugs from the ayurvedic system are being explored more, not only in India but also globally [2].
Haritaki (*Terminalia chebula* Retz.) is a drug which acquires highest position among all the drugs. According to Acharya Charaka 'Haritaki Pathyanam' i.e., it is wholesome for body in all ways as it cleans all the channels of the body as well keeps all the three dosha balanced. It is an important rasayana (rejuvenating) drug.

CHEMICAL CONSTITUENTS

In *Terminalia chebula*, 33% of the total phytoconstituents are hydrolysable tannins (which may vary from 20-50%) and are responsible for pharmacological activity. These tannins contain phenolic carboxylic acid like gallic acid, ellagic acid, chebulic acid and gallotannins such as 1,6 di-O-galloyl-β-D-glucose, 3,4,6 tri-O-galloyl-β- D-glucose, 2,3,4,6 tetra-O galloyl-β-D-glucose, 1,2,3,4,6 penta-Ogalloyl-β-D-glucose. Ellagitannin such as punacalagin, casurarinin, corilagin and terchebulin and others such as chebulanin, neochebulinic

acid, chebulagic acid and chebulinic acid reported in literature. The tannin content varies with the geological variation. Flavonol glycosides, triterpenoids, coumarin conjugated with gallic acid called chebulin, as well as phenolic compounds were also isolated [3].

Haritaki (*Terminalia chebula* Retz.) proved for many properties like antioxidant and free radical scavenging activity, cytoprotective activity, anticarcinogenic activity, antimutagenic, radioprotective and chemo preventive activity, purgative property, gastrointestinal motility improving and anti-ulcerogenic activity, antispasmodic activity, antiulcerogenic activity, hepatoprotective activity, cardioprotective activity, hypolipidemic and hypocholesterolemic activity, anti-inflammatory and anti-arthritic activity, wound healing activity, antiviral activity, anti-plasmodial activity, antidiabetic, reno protective activity and anticaries activity [4].

For many centuries, honey has been used in Ayurveda and is one among the foods having religious significance. Honey has long history of human consumption and is used in various foods and beverages as a sweetener and flavouring.

Physical and Chemical Properties of honey

The physical properties of honey vary, depending on water content, the type of flora used to produce it (pasturage), temperature and the proportion of the specific sugars it contains. Fresh honey is a supersaturated liquid, containing more sugar than the water can typically dissolve at ambient temperatures. At room temperature, honey is a super cooled liquid, in which the glucose will precipitate into solid granules. This forms a semisolid solution of precipitated glucose crystals in a solution of fructose and other ingredients [5].

Chemical composition of honey

The precise composition of honey varies according to the plant source, season and production method. Storage conditions may also influence final composition. But the honey has greater antioxidant properties. Acetic, butanoic, formic, citric, succinic, lactic, malic, pyroglutamic, gluconic acids and a number of aromatic acids are found in honey. Bee's honey is free of Cholesterol [5].

Nutritional Value of Honey

Honey is carbohydrate rich syrup prepared by honey bees. Fructose and Glucose are the major components but a large number of other chemical compounds are present in small quantities.

Types and Qualities of Honey According to Ayurveda

According to the charakasamhita, honey is of four types namely makshika, bhramara, kshaudra and paittaka. Makshika, the best type of honey is produced by reddish variety of honey bee. This type of honey is of the colour of tilataila (sesame oil). Bhramara honey is produced by the bhramara type of bee. It is guru (heavy to digest) and is of white colour. Kshaudra honey is produced by a small type of honey bee and is brown in colour. Paittaka honey is produced by a large type of bee and is of the colour of ghee. According to susruthasamhita, honey is of eight types. Pauttika, bhramara, ksaudra, makshika, chatra, arghya, oudalaka and dalamadhu. According to bhavprakash, honey is of eight types. Makshika, bhramara, kshaudrapauttika, chatra, aarghya, oudalaka and dala madhu [5].

PROPERTIES ACCORDING TO MODERN SCIENCE

Experiments and studies on honey have shown that honey is antiseptic, antimicrobial, antipyretic, anti-inflammatory, antiallergent, antitoxic, sedative, laxative, anti-anaemic, antioxidant, healing and cleansing (external and internal), moisturizing and blood-purifying. It promotes rehydration, easily digestible, stimulates immunity, and is beneficial for all types of skins diseases.

Honey is hygroscopic in nature, with a pH of 3.2–4.5. It prevents colonization and bacterial growth in tissues due to this acidic nature. Most microorganisms do not grow in pure honey because of its low water activity (a) of 0.6. Honey also has antibacterial properties. The presence of hydrogen peroxide. and a high osmotic pressure also contribute to the antibacterial effect of honey. These natural properties of madhu (honey)are said to make it suitable for use in wound management. We present a case where a chronic wound healed after the application of honey [5].

MATERIAL AND METHODS

Ingredients

1) MadhupakwaHaritaki[6]

Sl no	Name of the drug	Latin name/English name	Quantity
1.	Bilva	*Aegle marmelos Corr.*	10 tola (120g)
2.	Agnimantha	*Premna integrifolia Linn.*	10 tola (120g)
3.	Shyonaka	*Oroxylum indicum Vent.*	10 tola (120g)
4.	Patala	*Steriospermumsuaveolens DC.*	10 tola (120g)
5.	Gambhari	*Gmelina arborea Roxb*	10 tola (120g)
6.	Shalaparni	*Desmodiumgangeticum DC.*	10 tola (120g)
7.	Prishniparni	*UrariapictaDesv.*	10 tola (120g)
8.	Brihati	*Solanum indicum Linn*	10 tola (120g)
9.	Kantakari	*Solanum surattense Brum. F.*	10 tola (120g)
10.	Gokshura	*Tribulus terrestris Linn.*	10 tola (120g)
11.	Pippali	*Piper longum Linn.*	10 tola (120g)
12.	Chitraka	*Plumbago zeylanica Linn.*	10 tola (120g)
13.	Kapittya	*Feronia elephantum*	10 tola (120g)
14.	Bhibitaki	*Terminalia bellirica*	10 tola (120g)
15.	Katphala	*Myrica nagi Hook.*	10 tola (120g)
16.	Maricha	*Piper nigrum*	10 tola (120g)
17.	Shunti	*Zingiber officinale Rosc.*	10 tola (120g)
18.	Pippalimula	*Piper longum Linn.*	10 tola (120g)
19.	Saindavalavana	*rock salt*	10 tola (120g)
20.	Raktarohitaka	*Tecomelliaundulata Seem*	10 tola (120g)
21.	Dantimula	*Baliospermummontanum*	10 tola (120g)
22.	Draksha	*Vitis vinifera*	10 tola (120g)
23.	Jeeraka	*Carum carvi*	10 tola (120g)
24.	Haridra	*Curcuma longa*	10 tola (120g)
25.	Daruharidra	*Berberis vulgaris*	10 tola (120g)
26.	Amalaki	*Phyllanthus emblica*	10 tola (120g)
27.	Vidanga	*Embeliaribes*	10 tola (120g)
28.	Shikari	*Achyranthes aspera Linn.*	10 tola (120g)
29.	Karkatashringi	*Pistacia integerrima*	10 tola (120g)
30.	Devadaru	*Cedrus deodara*	10 tola (120g)
31.	Punarnava	*Trianthemaportulacastrum*	10 tola (120g)
32.	Dhanyaka	*Coriandrum sativum*	10 tola (120g)
33.	Lavanga	*Syzygiumaromaticum*	10 tola (120g)
34.	Amaltasa	*Cassia fistula*	10 tola (120g)
35.	Gokshura	*Tribulus terrestris*	10 tola (120g)
36.	Vidarimula	*Pueraria tuberosa*	10 tola (120g)
37.	Karanja	*Pongamiapinneta*	10 tola (120g)
38.	Useera	*Andropogon muricatus Retz.*	10 tola (120g)
39.	Jala	*Water*	40 ser (40 litre)
40.	Haritaki	*Terminalia chebula*	4 ser (4 kg)
41.	Madhu	*Honey*	Q S

Method of preparation

Above mentioned (1 to 37) should be taken 10 tola (120g) each in vessel and add 40 ser (40 litre) water to it. 4 ser (4 kg) haritaki (*Terminalia chebula* Retz.) fruit should be tied in cloth and should be suspended in the same vessel in such way that haritaki (*Terminalia chebula* Retz.) should immerse in water. When haritaki (*Terminalia chebula* Retz.) fruit completely boiled, immerse same pottali (bundle) in vessel containing madhu (honey). After 3, 5 and 10 days replace the madhu (honey) with fresh madhu (honey).

Indications – swasa (dyspnoea), kasa(cough), kshaya (deficiency), pandu (anaemia), hikka (hiccup), vamana (emesis), brama, mada, mukharoga (diseases of oral cavity), trishna (thirst), aruchi(anorexia), agnimandhya (decreased digestive power), yakrut (disease of liver), pleeha (disease of spleen), udara (disease of abdomen), darunvatarakta (gout), shirashula (headache), karnashula (pain in ear), netrashula (pain in eye), baddhagudodara, grahani (malabsorption syndrome), tridoshajashosa (tuberculosis).

2) Madhupakwa Haritaki [7].

Sl no	Name of the drug	Latin name/English name	Quantity
1.	Kadambatwak	*Anthocephalus cadambaMiq.*	1 ser (1kg)
2.	Nimbatwak	*Azadirachta indica A. Juss.*	
3.	Chinchatwak	*Tamarindus indica Linn.*	
4.	Ajamutra	Goat's urine	16 ser (16kg)
5.	Gomutra	Cow's urine	
6.	Mahishamutra	Buffalo's urine	
7.	Haritaki	*Terminalia chebula* Retz.	100
8.	Bhanga	*Cannabis sativa Linn.*	
9.	sauvarchalalavana	Sodium chloride	
10.	Madhu	Honey	

Method of preparation

Kadambatwak, nimbatwak and chinchatwak should be coarsely powdered. Combination of powdered drugs should beboiled in mixture of ajamutra (goat's urine), gomutra (cow's urine), mahishamutra (buffalo's urine) and reduced to ¼. obtained liquid should be filtered and again it should be boiled with addition of 100 haritaki (*Terminalia chebula* Retz)fruits till all the Haritaki are properly cooked. Seeds of Haritaki should be separated and Haritaki (*Terminalia chebula* Retz) fruits should be filled with paste of bhanga(Cannabis sativa Linn.) and souvarchalalavana (Sodium chloride). Haritaki (*Terminalia chebula* Retz) fruits filled with drugs should be tied in cloth and pottali (bundle) should be prepared. Prepared pottali (bundle) containing haritaki(*Terminalia chebula* Retz) fruits should be immersed in honey for three days and then it is used for therapeutically purposes.

Indications-tridosajaarsha (haemorrhoids)

Note-daily one haritaki (*Terminalia chebula* Retz) fruit should be taken with madhu (honey)

3) Madhupakwaharitaki [8]

Sl no	Name of the drug	Latin name/English name	Quantity
1.	Haritaki	*Terminalia chebula* Retz	100fruits
2.	Gomaya	Cow's dung	Qs
3.	Madhu	Honey	100 pala (4800 g)
4.	Pippali	*Piper longum Linn*	1 karsha (12g)
5.	Maricha	*Piper nigrum*	1 karsha (12g)
6.	Shunti	*Zingiber officinale Rosc.*	1 karsha (12g)
7.	Lavanga	*Syzygium aromaticum*	1 karsha (12g)
8.	Vamshalochana	*Bambusa bambos (L.) Voss.*	1 karsha (12g)

Method of preparation

100 haritaki (*Terminalia chebula* Retz) fruits should be tied in pottali(bundle)and boiled in gomaya rasa (cow's dung). After proper cooking, Haritaki (*Terminalia chebula* Retz) fruits should be added in 100 pala (48g)madhu (honey). When viscosity of madhu (honey) reduced and becomes thin replace the madhu(honey) with fresh one.

Matra (dose)- 1 haritaki (*Terminalia chebula* Retz) fruit

Indications-Increases bala (strength), varna (complexion)and agni (digestive power). vatavyadhi (disease due to vatadosa), ama (undigested food), raktavikara (diseases of blood), jirnajwara (chronic fever), pratishyaya (coryza), vruna (wound), vishpotaka (Blisterous eruption), vatajashoola (pain), sangrahani with shoola (malabsorption syndrome with pain).

DISCUSSION

Haritaki (*Terminalia chebula*Retz.) is a drug of paramount importance in ayurveda. It keeps all the three dosha in equilibrium, cleans the channels as well as nourishes all the dhatus (tissues) of the body. It is an effective drug in various diseases like agnimandya (poor digestion), grahani (malabsorption syndrome), vibandha (constipation), vishamjwara (intermittent fever), gulma (abdominal lump), kamla (jaundice), kasa (cough), kustha (skin disease), ashmari (calculus) etc. It is also rasayana (rejuvenating) and vayasthapka (age delaying). It is rich in various phytochemicals including tannins, anthraquinones and polyphenolic compounds. It exhibits a number of important pharmacological activities like antidiabetic activity, anti-plasmodial, wound healing activity, antiulcerogenic activity, antioxidant and free radical scavenging activity [9].

Honey is a valuable product of nature with time-proven, universally accepted medicinal, dietary and cosmetic properties. It has some cultural and religious significance too. Honey can be used singly or in

combination with other ingredients in treatment of various diseases. It also has the rare and invaluable quality of enhancing the properties and actions of the medicinal substances with which it combines. While due to its antioxidant properties Honey acts as a rejuvenator, it is also an important ingredient in beauty culture as a moisturizer and a conditioner [10].

Fresh honey helps to increase body mass while old honey produces constipation and decrease body mass. Cold honey should always be preferred. Honey is a valuable product of nature, which has universally accepted medicinal, dietary and cosmetic properties. Honey can be used singly or in combination with other substances in the treatment of various diseases. Honey is an important ingredient of certain lotions, cosmetics, soaps, creams, balms, toilet waters and inhalants. It should be kept in mind that honey should not be heated or consumed warm as it causes toxic effect.

Classics has also advocated the use of haritaki (*Terminalia chebula* Retz.) immersed in honey for achieving the rejuvenating effect (madhuharitaki).

By virtue of its possessing katu (pungent taste) and kashaya rasa (astringent taste), it subdues kaphadosha, vatadosha by amla rasa (sour taste) and subdues pitta dosha by virtue of madhura (sweet taste) and tikta rasa (bitter taste). It is drying in nature and digests the ama dosa (products of impaired digestion and metabolism) [11].

Further it is stated that if chewed, haritaki (*Terminalia chebula* Retz.) increases the digestion, powdered haritaki (*Terminalia chebula* Retz.) clears the stool, cooked haritaki (*Terminalia chebula* Retz.) solidifies the stools and roasted haritaki (*Terminalia chebula* Retz.) detoxifies the food.

CONCLUSION

Haritaki (*Terminalia chebula* Retz.) and madhu (honey) are commonly used in different formulations. Both haritaki (*Terminalia chebula* Retz.) and madhu (honey) were proved for their wide variety of activities by many researches. Madhupakwaharitakiis a unique formulation by its special method of preparation which contains other drugs. Madhu (honey) helps to make the formulation palatable and preserve. There are different types of madhupakwaharitaki are mentioned in classics which are indicated in different diseases like swasa(dyspnoea), kasa(cough), pratishyaya (coryza), kshaya(deficiency), jwara (fever), arsha (haemorrhoids), vatavyadhi (disease due to vatadosa) etc.Both the haritaki (*Terminalia chebula* Retz.) and madhu (honey) are rasayana so they can be used in most of the diseases.

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