



Review Article

Medicinal and cosmetic uses of Bee's Honey - A review

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Abstract

Bee's honey is one of the most valued and appreciated natural substances known to mankind since ancient times. There are many types of bee's honey mentioned in Ayurveda. Their effects differ and 'Makshika' is considered medicinally the best. According to modern scientific view, the best bee's honey is made by *Apis mellifera* (Family: Apidae). In Sri Lanka, the predominant honey-maker bee is *Apis cerana*. The aim of this survey is to emphasize the importance of bee's honey and its multitude of medicinal, cosmetic and general values. Synonyms, details of formation, constitution, properties, and method of extraction and the usages of bee's honey are gathered from text books, traditional and Ayurvedic physicians of Western and Southern provinces, villagers of 'Kalahe' in Galle district of Sri Lanka and from few search engines. Fresh bee's honey is used in treatment of eye diseases, throat infections, bronchial asthma, tuberculosis, hiccups, thirst, dizziness, fatigue, hepatitis, worm infestation, constipation, piles, eczema, healing of wounds, ulcers and used as a nutritious, easily digestible food for weak people. It promotes semen, mental health and used in cosmetic purposes. Old bee's honey is used to treat vomiting, diarrhea, rheumatoid arthritis, obesity, diabetes mellitus and in preserving meat and fruits. Highly popular in cosmetic treatment, bee's honey is used in preparing facial washes, skin moisturizers, hair conditioners and in treatment of pimples. Bee's honey could be considered as one of the finest products of nature that has a wide range of beneficial uses.

Key words: Bee's honey, Mee Peni, Makshika

Introduction

Forest is the heart of environment. Though silent, it provides an everlasting, priceless service to the world. Environment supplies every need of the forest and reproduction is essential in maintaining this chain. The reproduction of plants helps to maintain the equilibrium of the environment and bees help this process by pollinating flowers. The flowers which give beauty to the forest also provide foods to bees. *Apis cerana*, *Apis dorsata*, *Apis mellifera*, *Apis floria*, *Apis andreniformis*, *Apis koschevnikov*, and *Apis laborisa* are the varieties of bees that make honey. They suck nectar from flowers and convert it into honey.

Honey is one of the foods which have religious significance. Buddhists in India and Bangladesh celebrate a festival called 'Madhu Purnima' by giving bee's honey to monks. This is to commemorate the offering of honey by a monkey to Lord Buddha when he retreated to wilderness due to a dispute among his disciples.^[1] Hindus consider bee's honey as one of the five elixirs

of immortality (*Panchamruta*). Honey is poured over the statues of deities in a ritual called 'Madhu Abhisheka'. In Jewish tradition, honey is the symbol of new year, 'Rosh Hashana'. Traditionally slices of apples dipped in honey are eaten to bring a sweet new year. In Islam, Prophet Mohammad strongly recommended honey for healing purposes and Quran promotes it as a nutritious and healthy food. As bee's honey has wide and vivid values, the present survey is conducted in order to view some benefits of honey as a medicine, cosmetic, nutrient and a preservative.^[2]

Materials and Methods

Method of data collection

Details of bee's honey are collected from Ayurvedic and Traditional medical books, Ayurvedic physicians of Southern and Western provinces, villagers of Kalehe, Galle district and from internet.

Observations and Results

Synonyms of bee's honey

Synonyms of bee's honey in Sanskrit are *Madhu*, *Madvika*, *Kshaudra*, *Saradha*, *Makshika*, *Vantha*, *Varati*, *Bhrungavantha*

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and *Pushparasodbhava*. It is called *Mee Peni* in Sinhala and *Thein Paani* in Tamil.^[3]

Scientific classification of bee

Kingdom	: Animal
Phylum	: Arthropoda
Class	: Insecta
Order	: Hymenoptera
Suborder	: Apocrita
Superfamily	: Apoidea
Family	: Apidae
Subfamily	: Apinae
Tribe	: Apini
Genus	: Apis
Species	: <i>Mellifera</i> , <i>cerana</i> etc.
Binomial name	: <i>Apis mellifera</i> , <i>Apis cerana</i> etc.

Honey bee's life cycle

The life of a honey bee colony is perennial. There are three castes of honey bees: queens, which produce eggs; drones or males which mate with new queens; and workers, which are non-reproducing females. The queen lays eggs singly in cells of the comb. Larvae hatch from eggs in three to four days. They are then fed by worker bees and develop through several stages in the cells. Cells are capped by worker bees when the larva pupates. A colony may typically consist of tens of thousands of individuals. Development from egg to emerging bee varies among queens, workers and drones. The average lifespan of a queen is three to four years. Drones usually die upon mating.^[4]

Formation of bee's honey

Bees produce honey by collecting sugar-rich nectar from flowers, which is a clear liquid consisting of nearly 80% water and complex sugars. In the hive, the bees use their 'honey stomachs' to ingest and regurgitate the nectar many times until it is partially digested. They continue this process until the product reaches desired quality. After the final regurgitation, the honeycomb is left unsealed. This partly processed raw honey is still high in water content and natural yeast which, unchecked, would cause fermentation. Raw honey is then stored in honeycomb cells to dry. The process continues as bees inside the hive fan their wings, creating a strong draft across the honeycomb which enhances evaporation of about 80% of the water from the raw honey. Once dried, the cells of the honeycomb are sealed (capped) with wax to preserve the honey. Ripe honey, as removed from the hive by a beekeeper, has a long shelf life and will not ferment if properly sealed.^[4]

Extraction of bee's honey

There are two methods to extract Bee's Honey. The traditional method is to calm or chase the bees away by introducing smoke into the beehive. When the bees have left the beehive or fully calm down, the combs are taken out and squeezed to drain the honey. Some people place the combs in a metallic bowl which has a hole at the base. Burning embers are put on the combs. Honey and beeswax melt and drains down the hole and is collected.^[5]

Other method is to use a mechanical honey extractor. This extracts honey without destroying the comb. Extractors work by centrifugal force. A container holds a frame basket which spins, flinging the honey out. With this method, the wax comb stays intact within the frame and can be reused by the bees.

Chemical composition of bee's honey

Honey is a mixture of carbohydrates, proteins, amino acids, vitamins, minerals, antioxidants and other compounds. It contains a number of enzymes, including invertase, glucose oxidase, catalase, and acid phosphatase. Honey also contains eighteen free amino acids, the most abundant of which is proline.^[6]

It contains trace amounts of the vitamins B₂, B₄, B₅, B₆, B₁₁ and vitamin C. Minerals like calcium, iron, zinc, potassium, phosphorous, magnesium, selenium, chromium and manganese are also found in honey. The main group of antioxidants in honey are the flavonoids, of which, pinocembrin is unique to honey and bee propolis. Naturally darker honey has greater antioxidant properties.^[6]

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.^[6]

Chemical composition of royal jelly

Royal jelly is an emulsion of proteins, sugars and lipids in a water base, and is synthesized by the bee from pollen. 82-90% of the protein content is made up of a group of proteins found only in royal jelly and worker jelly, known as the major royal jelly proteins (MRJPs), which has five main members. These are rich in essential amino acids which cannot be biosynthesized.

However, the lipids present are unusual, in that they are unlike the lipids of typical insect fats. Royal jelly lipids are composed mainly of 8-10 carbon acids, hydroxy acids and diacids, which may be saturated, unsaturated, linear or branched. The unusual lipids of royal jelly make it highly acidic, and give it good antimicrobial properties.^[6]

Types, Qualities and Properties of bee's honey according to Ayurveda

According to the *Charaka Samhita*, honey is of four types. They are *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 color of *Tila Taila* (sesame oil). *Bhramara* honey is produced by the *Bhramara* type of bee. It is *Guru* (heavy) and is of white color. *Kshaudra* honey is produced by a small type of honey bee and is brown in color. *Paittaka* honey is produced by a large type of bee and is of the color of ghee.^[7]

According to *Susrutha Samhita*, honey is of eight types. *Pauttika*, *Bhramara*, *Kshaudra*, *Makshika*, *Chatra*, *Arghya*, *Auddalaka* and *Dala Madhu*. *Pauttika* honey is *Ruksha* (dry), *Ushna* (hot), it increases *Vata*, *Rakta* and *Pitta*, and this is also *Chedana* (liquefaction), produces heart burn and is intoxicative due to inherent poisonous nature. *Bhramara* honey is *Guru* (heavy - not easily digested) because of its *Picchila* (slimy) and *Ati Swadu* (excessively sweet) properties. *Kshaudra* honey is specially *Sheetha* (cold), *Laghu* (light - easy to digest) and *Lekhana* (anti-obesive). *Makshika* honey is *Laghu* (lighter than *Kshaudra*), *Ruksha* (dry), is the best and especially beneficial in diseases like asthma. *Chatra* honey is *Madhura* (sweet after digestion), *Guru* (heavy), *Sheetha* (cold) and *Picchila* (slimy). It cures bleeding disorders, leucoderma, urethritic discharges and worm infestations. *Arghya* honey is beneficial for eyes, eliminates vitiated *Kapha* and *Pitta Dosha*, *Kashaya* (astringent in taste),

Katu Vipaka (pungent after digestion) *Balya* (strengthening) and does not aggravate *Vata*. *Auddalaka* honey bestows taste, good for voice and cures skin diseases. It is *Kashaya* (astringent) and *Amla Rasa* (sour), *Katu Vipaka* (pungent after digestion) and aggravates *Pitta*. *Dala* honey is *Ruksha* (dry). It mitigates vomiting and diabetes mellitus.^[8]

According to *Sushruta*, some actions of new and old bee's honeys are very much opposite to each other. New bee's honey has *Vrumhana guna* (nourishing the body) but it does not eliminate vitiated *Kapha Dosha* much and is a laxative. Old bee honey is *Grahi* (anti diarrheal), reduces fat and obesity.^[8]

Properties of mature and immature bee's honey according to Ayurveda

According to *Sushruta*, mature honey eliminates vitiated *Tridosha* while immature honey vitiates *Tridosha* and is sour in taste.^[8]

It is the best *Yogavahi* substance. That is to say, while without changing its own properties, honey carries the effects of the drugs added to it. It means it enhances the properties and actions of the substances with which it combines.^[8]

Properties according to modern science

Experiments and studies on honey have shown that honey is antiseptic, antimicrobial, antipyretic, anti-inflammatory, antiallergent, antitoxic, sedative, laxative, antianemic, 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.^[9]

Value of bee's honey in diabetes mellitus

Use of honey in medications for diabetes is mentioned in Ayurveda since ancient times. In various localities, patients suffering from diabetes mellitus use honey in place of sugar. Bee's honey is beneficial for diabetic patients in two ways. One is; honey being three times sweeter than sugar, one may need a much smaller quantity of honey as a sweetener and w/w, honey contains lesser calories than sugar. The other is, by providing vitamins B₂, B₄, B₅, B₆, B₁₁ and vitamin C, and minerals like calcium, iron, zinc, potassium, phosphorous, magnesium, selenium, chromium and manganese. The nutritional values of honey could be altered by feeding the bees with selective food.^[10]

Medicinal uses of bee's honey

Bee's honey is used in treatment of various ailments and as a popular home remedy. Some of these uses are given below.

1. Stress / fatigue: 15 ml of bee's honey orally to reduce stress and fatigue.^[11]
2. Weakness: 15 ml each of bee's honey and fruit juice of *Punica granatum* twice a day before meals.^[11]
3. Sleep disturbance: Intake of 15 ml of bee's honey leads to sound sleep.^[11]
4. Eyesight: 10 ml of honey mixed with 10 ml of carrot juice and consumed regularly will improve eyesight.^[12]
5. Bad breath: 5 g of powdered cinnamon bark and 5ml of bee's honey mixed with water and use as a mouth wash.^[13]
6. Teething pain: Massage gums gently with bee's honey.^[14] Should not use in children below one year.
7. Sore throat: 5 ml of bee's honey and 10 ml of lime juice is mixed and given. Swallow the concoction (without water)

- every few hours until symptoms clear up. Add a pinch of black pepper to increase blood circulation to the throat.^[9]
8. Cold and cough: Mix 10 ml of honey with equal quantity of ginger juice and consume twice a day.^[12]
9. Bronchial asthma: A mixture of 2.5g of black pepper powder, 5ml each of honey and juice of ginger consumed thrice daily help to relieve the symptoms of asthma.^[12]
10. Hiccough: 5 ml of bee's honey is mixed with 10 ml of breast milk. *Nasya Karma* (nasal douche) is performed with this mixture in treatment of hiccough. This is used by traditional physicians of Sri Lanka.
11. Stomach ulcers: 5 ml of new bee's honey diluted in 10 ml of water and given twice a day before meals.^[9]
12. Vomiting: 2.5g each of powder of fruit of *Piper longum* and popped rice is ground with 15ml of bee's honey and given orally as an antiemetic.^[15]
13. Dehydration: Fresh bee's honey diluted in water is given to rehydrate.^[9]
14. Diarrhea: Drink 5 ml of old bee's honey thrice a day before meals.^[16]
15. Diarrhea/Dysentery: 15 ml of bee's honey mixed with 120 ml of decoction of tubers of *Cyperus rotundus* is given in treatment of diarrhea and dysentery.^[17]
16. Bed-wetting: Give 5ml of old bee's honey daily just before going to bed.^[18]
17. Polyuria: 5 ml of bee's honey, 20 ml of fresh juice of fruits of *Phyllanthus emblica* and 6g of pulp of *P. emblica* are mixed together and consumed twice a day.^[19]
18. Diabetes mellitus: 5 ml of bee's honey mixed with a pinch of powdered seeds of *Gossypium herbaceum* and is given to reduce blood sugar in diabetic patients.^[19]
19. Hypertension: Daily intake of 10 ml of honey mixed with 5 ml of garlic juice helps to control blood pressure.^[12]
20. Hemiplegia: 240 ml of bee's honey is dissolved in 960 ml of water and is boiled down to total volume of 960 ml. In Unani system of Medicine, this is known as *Mavul Asal*. 30ml of this is given twice a day during early stages of hemiplegia. This prescribed for patient suffering from hemiplegia at Ayurveda Teaching Hospital, Borella, Sri Lanka.
21. Obesity: Keep garlic immersed in bee's honey for one year. Then, use 1 clove of garlic daily before breakfast. This is used as a home remedy. One glass of warm water taken with 10 ml of honey and 5 ml of lemon juice in early morning reduces fat and purifies blood.^[12]
22. Arthritis: 30 ml each of bee's honey and coconut vinegar is mixed in 100ml of water and given twice a day to reduce arthritis and arthralgia.^[11]
23. Burns: Apply fresh bee's honey directly.^[9]
24. Cut and wounds: Apply bee's honey on cuts and wounds.^[9]
25. Eczema: Apply fresh bee's honey on the lesion.^[13]
26. Dermatitis: Bee's honey is mixed with ash obtained by burning stem of *Pterocarpus santalinus* and applied on the lesion.^[15]
27. Allergies due to seasons: Bee's honey should be collected from the area where the patient lives. 5ml of this honey is to be given daily before breakfast.^[9]
28. Sub fertility due to lack of semen: Add 5 ml of bee's honey to a glass of goat's milk and drink.^[13]
29. Morning sickness: 15 ml of bee's honey before breakfast.^[20]
30. Relief from hangover: Mix 10ml of bee's honey with half

a cup of orange juice and half a cup yogurt. Blend them together properly and drink.^[9]

31. Jaundice, bleeding disorders: 15ml of bee's honey mixed with 120 ml of fresh juice of *Adhathoda vasica*, is given twice a day in treatment of jaundice and bleeding disorders. (60g each of fresh leaves and flowers of *A. vasica* are taken, pounded well, and fresh juice is extracted after adding 100 ml of water).^[17]
32. Burning sensation in the body and thirst: Unpolished rice is washed with water and 100ml of this water is taken. 15 ml of bee's honey, 5g of sugar and 10g of powder of stem of *Santalum album* are added to this and mixed well. This mixture is given twice a day after meals.^[17]

Cosmetic uses of bee's honey

Honey and beeswax are used in the beauty industry as a skin moisturizer, softener and to heal the skin tissue. Some cosmetic applications of bee's honey are given below-

1. Face wash: Mix a small quantity of lemon juice into 5ml of bee's honey and apply on face before washing. This is used as a home remedy.
2. Facial cleansing scrub: Mix 5g of almond seed powder into 5ml of bee's honey, scrub softly and then wash.^[9]
3. Facial to improve smoothness: A tablespoon of honey whisked together with white of an egg, 1 teaspoon of glycerin and 1/4 cup of flour makes an excellent firming mask. Just smooth on the face, leave on 15 min, and rinse off with warm water.^[9]
4. Facial to improve softness: Mix one or two tablespoons of honey with one-third cup finely ground oatmeal. Add a teaspoonful of rose water. Clean face thoroughly. Spread facial mixture evenly over face. Relax for 10 min to 1.5 h. Remove with a soft washcloth and warm water. Rinse with cold water.^[21]
5. Facial moisturizing pack: Mix 2 tablespoons of honey with 2 teaspoons of whole milk. Apply over the face and keep for 15 min. Rinse off with warm water, and then with cold water.^[9]
6. Pimples: Apply bee's honey on pimples.^[9]
7. Cracked lips: Apply bee's honey on cracked lips.^[9]
8. Lotion for dry patches of skin: Mix 5ml of bee's honey, 5ml of olive oil and 2.5 ml of lemon juice. Apply on skin and wash after 15 min.^[9]
9. Hair lustre: Mix 5ml of bee's honey into 4 cups of warm water. Use as a hair rinse.^[9]
10. Conditioner: Mix 10 ml of olive oil into 5ml of bee's honey and apply on hair. Wash after 15 min.^[9]

Discussion

Bee's 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 bee's honey acts as a rejuvenator, it is also an important

ingredient in beauty culture as a moisturizer and a conditioner.

Conclusion

It can be concluded that bee's honey is an invaluable natural substance with many diverse usages. It is an effective medicine, a safe home remedy, cosmetic and a nutrient usable by people of all ages.

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हिन्दी सारांश

मधु के चिकित्सात्मक एवं सौंदर्य प्रसाधन उपयोग की समीक्षा

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मानवजाति को ज्ञात प्राकृतिक तत्वों में से मधुमक्खी द्वारा निर्मित मधु सबसे महत्वपूर्ण है। आयुर्वेद में मधुमक्खी निर्मित मधु के अनेक प्रकार बताये गए हैं। उनके प्रभाव भिन्न भिन्न हैं एवं औषधीय दृष्टि से माक्षिक सर्वोत्तम है। वैज्ञानिक मतानुसार सर्वोत्तम मधु *Apis mellifera* (Family : Apidae) प्रजाति द्वारा बनाया जाता है। श्रीलंका में प्रधान रूप से मधु उत्पादक प्रजाति *Apis cerana* है। प्रस्तुत सर्वेक्षण का मुख्य उद्देश्य, मधु का महत्व एवं उसकी विविधता - औषधीय, सौंदर्य प्रसाधक, सामान्य कर्म प्रयोग को दर्शाना है। मधु के विभिन्न पर्याय, बनाने की विधि का विस्तृत वर्णन, महत्वपूर्ण घटक, गुण, निष्कर्षण की विधि एवं उसके विभिन्न प्रयोगों की जानकारी पाठ्यपुस्तकों से, पश्चिम एवं दक्षिण प्रान्तों के आयुर्वेदीय एवं पारंपारिक चिकित्सकों से गाऽल जिला के कालाहे गाँव के वासियों एवं इंटरनेट से एकत्रित किया गया है। ताजा मधु नेत्र रोग, कंठरोग, तमकश्वास, राजयक्ष्मा, हिक्का, तृष्णा, भ्रम, थकावट, यकृतविकार, कृमि, विबन्ध, अर्श, त्वकविकार, व्रण संधान की चिकित्सा में एवं कृश व्यक्तियों के लिए पोषक एवं सुपाच्य वस्तु के रूप में प्रयोग होता है। यह वृष्य, मेध्य, सौंदर्यवर्धक है। पुराण मधु को छर्दि, अतिसार, आमवात, स्थौल्य, मधुमेह की चिकित्सा तथा मांस एवं फलों के परिरक्षण के लिए प्रयोग किया जाता है। सौंदर्य चिकित्सा में मधु का प्रयोग चेहरे को धोने के लिए, त्वचा की नमी बनाए रखने हेतु, केश रक्षण एवं युवान पिड़का के लिये किया जाता है। इतने विस्तृत एवं लाभदायक प्रयोग होने से मधु को एक सर्वोत्तम प्राकृतिक तत्व माना जा सकता है।

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