



## Review Article

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### THERAPEUTIC USES OF BEES WAX IN AYURVEDA AND ITS PHYSICO CHEMICAL ANALYSES: A REVIEW

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#### ABSTRACT

Beeswax, which is a natural product, is a wonderful drug which is used in many of the Ayurvedic products and is known as madhuchishta. Classical text books of Ayurveda mention different properties beeswax in detail. In Ayurveda, it is included under jangama dravya (animal origin drugs). It is used as single drug medicine as well as main ingredient in compound preparations. Not only in Ayurveda, but the entire world uses bees wax for different purposes especially in cosmetic industry. It is one of the important base of ointments and creams. Compared to other waxes it is better for skin protection as it possesses many medicinal properties. For the wax-making bees to secrete wax, the ambient temperature in the hive must be 33 °C to 36 °C (91 °F to 97 °F). The amount of honey used by bees to produce wax has not been accurately determined. The book, Beeswax Production, Harvesting, Processing and Products, suggests 1 pound of beeswax is used to store 22 pounds' honey. According to Whitcomb's 1946 experiment, 6.66 to 8.80 pounds of honey yields 1 pound of wax. With the increased demand of the commodity, many times, presently the bees wax may be adulterated and the obtained goods will be of low quality. To ensure and maintain the quality of raw materials before using in a preparation for therapeutic uses, a physico-chemical analysis of the goods should be conducted for testing the genuinity.

**Keywords:** Bee wax, Cosmetics, Physico chemical analyses, Therapeutic uses.

#### INTRODUCTION

Going through history<sup>1</sup> we can see various interesting uses of bees wax in various parts of world. Egyptians, Persians, Greek etc. used bees wax for various purposes like mummifications, as a part of art for making sculptures etc. Now a day it is used for preparing cosmetics, candle, varnishes, pharmaceuticals, textiles and for food products etc. Coming to Ayurvedic science there are descriptions of therapeutic uses of bees wax. It is used as single drug medicine as well as main ingredient in compound preparations. In Ayurveda, the drugs are divided into three categories like drugs from plant origin, drugs from animal origin and drugs from mineral origin. Among animal origin drugs, bees wax is included. Apiculture – the agriculture related with honey bees is very common in India. So, the bees wax is easily available in the market. But there are chances of adulterations because of its high cost. So, there is need of quality testing of bees wax.

#### Production and chemistry of bees wax <sup>2</sup>

Bees wax is produced by the bees of Apis genus. It is secreted from their wax secreting glands. They use these waxes for honey comb construction. Pure fresh form of bees wax is white in color but because of the presence of pollen and other substances it becomes yellow. So, in market yellow colored bees wax is available.

It is a stable substance with complex chemistry. It contains esters of higher fatty acids, long chain alcohols, pigments of pollens, propolis, etc.

#### Properties and therapeutic uses of bees wax in Ayurveda

In Ayurveda bees wax is denoted by the terms madhuchishta, sikta, madana, madhu shesha, madhushit.

For each substance, Ayurveda mentions some particular qualities. For bees wax, the qualities are mridu (soft), snigdha (unctuous) and having the properties vrana shodhana (cleansing the wound), vranaropana (healing the wound)<sup>3</sup>.

Therapeutic uses mentioned in Ayurveda are mainly external application and some of them are given below with Ayurvedic terminology.

- Bhagna sandhanakrit <sup>4</sup> - The substance used for treating fractures by its binding capacity.
- Vataraktahara <sup>5</sup> - The medicine which cures arthritic conditions like gouty arthritis.
- Kushta hara <sup>6</sup> - That which cures skin disease.
- Visarpahara <sup>7</sup> - That which cures disease like herpes.

#### Compound formulations of Ayurveda containing bees wax

There are many preparations containing bees wax. One famous preparation using bees wax is pinda taila<sup>8</sup>. A medicated oil used externally for treating arthritic conditions, burning sensations, etc. Another formulation using bees wax is malahara<sup>9</sup>. There are many malaharas used for external applications for various

disease conditions. Malahara is having ointment like consistency and bees wax is used as base.

#### Need of physicochemical analyses

Pure bees wax is having high cost. So, many of the time the market available samples may be adulterated with cheaper substances like paraffin, oils and fats. Most of the time, we will neglect the testing of quality of bees wax. As we Ayurvedic doctors are providers of natural medicine, we must know about the quality control parameters also.

#### Physicochemical analyses of bees wax<sup>10</sup>

For analyzing bees wax, organoleptic characters like color, odor, taste and state has to be tested. Main physicochemical analyses of bees wax and their standard values according BIS standards are given below.

#### Loss on drying

This test is used to measure the amount of water and volatile matter in the sample.

The value range maximum up to 1.0%.

#### Melting point

The point at which the sample starts to melt. This helps to check the purity assessment of bees wax.

The value ranges from 58<sup>0</sup> C – 66<sup>0</sup> C.

#### Specific gravity

Specific gravity is defined as the density of any substances to the density of a reference substance (generally water). This test indicates how much dense the sample compared with water.

The value ranges from 0.950 – 0.995

#### Acid Value

It is defined as the mass of Potassium hydroxide in mg that is required to neutralize 1 g of substance. This will help to identify the age of the sample, adulteration, etc.

The value ranges maximum up to 12.

#### Saponification value

The saponification value is the number of mg of potassium hydroxide required to saponify 1 g of sample. It is helpful for finding adulterations.

For a standard sample value should not be less than 80.

#### DISCUSSION

The reference related with bees wax is scattered in Ayurvedic classics. So, systematic compilation works are needed for proper information. Even though Ayurvedic pharmaceuticals are using this wax but genuinity testing is very rare. So according to international standards, tests have to be conducted.

#### CONCLUSION

There is no doubt that bees wax has so many medicinal properties especially skin protective action. So for better results, Ayurvedic pharmaceuticals especially in cosmetic area can make use of bees wax instead of chemical waxes. This is also important to make sure the quality and genuinity of bees wax for standard formulations. If good quality is using better therapeutic action will be obtained.

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