

Apitherapy: Healing By Nature

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ABSTRACT

Background: Honeybees are gifted with natural ingredients which have tremendous amount of healing properties. Since ages, these commodities are used for various purposes, due to its constituents which aids in averting infections and encouraging good health. Due to its healing properties, it is accepted worldwide. People are accepting organic management of oral diseases in the modern era. Henceforth, this paper is an overview of the bee's products and its significance in dentistry.

Keywords: Apitherapy, honey, oral diseases.

INTRODUCTION

Therapy used to heal diseases by using honey bee products is called "Apitherapy". Since 125 million years bees have become one of the perpetual species. This triumph is due to its composition and implementation of the particular products that bees manufacture. Such as: honey, beeswax, venom, propolis, pollen and royal jelly^{1,2}.

According to Dr. Stefan Stangaciu, Apitherapy is defined as, the art and science of treatment and holistic healing through the honey bee and her products for the benefit of mankind and all the animal kingdom.³ Since golden times, people use natural products in their daily life. Amongst all, honey is the most frequently used remedial agent and is well catalogued in the world's oldest data^{4,5}. The remedial use of ingredients extracted from honeybees is known as Apitherapy. According to Dr Stefan Stangaciu, 'apitherapy' or 'bee therapy' (from the Latin word 'apis' which means bee) is defined as, 'the art and science of treatment and holistic healing through the honey bee and her products for the benefit of mankind and all the animal kingdom.'⁶

HISTORICAL PERSPECTIVE

Bygone times have documented the important role of honey in our day to day life. Earlier, Egyptians used apitherapy to treat arthritis. Honeybee played a major role for thousands of years. The Veda (a book of Hindu scriptures) and the Bible describes honey as a very useful natural product. Ancient Egyptians are also amused by the various use of honey. In the form of art, they showed honey bee on vases, ornaments, and also used honey to embalm the dead. Philosophers (460-367 BC) recorded honey in treating dry and chapped skin along with sores and boils. Ancient Greek athletes also mentioned honey as a health stimulant. Propolis is described in the book "Natural History" by Pliny, a Roman scholar, as a remedy for pain and swelling. He also suggested that both honey and cider vinegar boosts up the immune system and encourages health. Also, John Gerard, in 1597 praised the therapeutic power of propolis in, The History of Plants (Stangaciu, 1999). Honey has well known antibiotic power. Henceforth, in this era of contemporary arising of new approach to

Received: Oct. 7, 2016; Accepted: Dec. 2, 2016

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medical management, apitherapy has gained its importance once again.⁷⁻¹⁰

CHEMICAL COMPOSITION

The carbohydrates is the prime constituent of honey. It comprises of:

- a number of enzymes
- free amino acids (most abundant is proline).
- trace amounts of vitamin B, Vit C
- antioxidants like flavonoids.
- Minerals¹¹

CLINICAL SIGNIFICANCE IN DENTISTRY

1. Oral infections: A study showing a clinical trial was published, of the placing of honey in the socket prior wound closure of impacted third molars. This revealed less intensity of pain, decreased postoperative complications and to a smaller extent of swelling in the honey treated group than in the untreated control group¹². Another study by Elbagoury EF, Rasmy S¹³ mentioned that natural honey as antibacterial agent against anaerobic bacteroides present in dental abscess and osteomyelitis.

2. Mouth ulcers: Gendrolis A et al described gelled honey as a superior remedial agent in case of erosion of the gum and jaw bone succeeding surgery with bone grafting to treat the destruction to the jaw due to any foreign object or trauma, which was indifferent to any routine management. The gelled honey was framed into the injured area and was kept in the desired position by asking the patient to wear a mouth guard over it. This fastened the healing of the area within a span of a month. Other mode of application is in the form of spray specially used to manage upper respiratory tract disease treatment and prevention. The spray is prepared, and concentration of ethanol as extragent 70% and 15% of honey is determined; and the preparation is called propomel¹⁴.

3. Chronic periodontitis: Studies carried out by Brazilian researchers revealed that periodontal diseases are convenient to nurse by green propolis. A study was carried out on four patients in a clinic in southeastern Brazil having problems such as: calculus, gingivitis, bleeding, fluid accumulation,

gingival recession, tooth mobility, pus formation, and bone loss. Management comprised of daily tooth brushing with propolis and rinsing with a propolis solution. Propolis was prescribed to be used in the periodontal pockets for a period of one to five weeks. Furthermore, it showed a 95% decline in gingivitis and pus. Due to its easy availability, obtainability and effectiveness in treating periodontal disease propolis has a good patient's compliance. The authors therefore suggests that 10% Brazilian green propolis be used in synchronicity in treating chronic periodontitis.¹⁵

2. Antiplaque: A study was conducted by Koo H et al on the effect of a mouthrinse comprising selected propolis on 3-day dental plaque accumulation and polysaccharide formation. A double-blind crossover study was conducted in 2 settings within a span of 3 days. Six volunteers actively participated in the trial where they completely refused from oral hygiene and rinsed with 20% sucrose solution 5 times a day, to aid in accumulation of dental plaque formation and with mouthrinse (placebo or experimental) twice a day. On the 4th day, the plaque index (PI) of the volunteers was scored and the supragingival dental plaque was analyzed for insoluble polysaccharide (IP). The PI for the experimental group was significantly less than for the placebo group. The experimental mouthrinse reduced the IP concentration in dental plaque by 61.7% compared to placebo ($p < 0.05$). An experimental mouthrinse containing propolis was thus efficient in reducing supragingival plaque formation and IP formation under conditions of high plaque accumulation.¹⁶

3. Oral candidiasis: Green propolis is very efficient against oral candidiasis. It is extracted from honeybees in southeastern Brazil. In one study, twelve volunteers suffering from oral candidiasis were selected and once they cleaned their prosthesis and their oral cavity, they were prescribed to use propolis with a swab four times daily for a week. Another study was conducted where a control group of six patients were given the same treatment with Nystatin, a standard antifungal product. It was concluded that all 18 patients—whether treated with propolis extract or Nystatin—showed a abeyance of the candidiasis lesion in less than three weeks: 11 patients after 7 days, and 6 patients after 15 days.¹⁷

4. Cariostatic agent: *S. mutans* is the most common microorganism, which coheres to teeth and sustains in the acidic environment. Glucosyltransferase (GTFs) present in dental plaque allows adequate binding sites for oral microorganisms, by providing the formation of glucan in situ. Simone et al. in his *in vitro* study proposed two possible pathways of cariostatic effect by propolis. Firstly by terminating acid production of *S. mutans* and followed by hindering the proton translocating F-ATPase activity. It is one of the means by which *S. mutans* increase their influence of acidification¹⁸⁻²⁰

5. Dentinal hypersensitivity:

Mahmoud et al. carried out a study where propolis was used to treat dentinal hypersensitivity and was proven successful. Almas et al. and Sales-Peres et al. carried out *in vitro* studies in which propolis proved efficient to occlude the dentinal tubules, leading to reduction in dentin permeability which is counted to be a reason for its success²¹.

6. Surgical remedial: Honeybees proved to be very efficient as analgesic, anti-inflammatory and ability to promote tissue regeneration through stimulation of angiogenesis, growth of fibroblasts and epithelial cells. It also aids in reducing postoperative complications in various conditions such as:

- socket healing in impacted third molars
- infrabuccal surgical wounds
- dental abscess
- sulculoplasty
- alveolar osteitis and osteomyelitis.²²

ALLERGIC REACTION

It is not often phenomenal and it occurs more often after the external administration into skin or mucous membrane than after oral administration. Allergic reaction to propolis usually occur as contact dermatitis after topical administration. There are some reports of propolis allergy manifested as rhinitis, conjunctivitis, inflammation of the mucous membranes of the mouth. Rare cases of bronchospasm with shortness of breath and wheezing associated with fever, urticaria, headache, nausea are also noticed.²³

CONCLUSION

Use of honey and other bee products in human treatments traced back thousands of years and healing properties are included in many religious texts including the Veda, Bible and Quran. Apitherapy is the use of honey bee products for medical purposes, this include bee venom, raw honey, royal jelly, pollen, propolis, and beeswax. Henceforth, this paper is an overview of nature's another boon to mankind.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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