Propolis as a Natural Remedy
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Abstract:
Propolis is substance consists of resins, balsams, bee wax essential oils, and other organic compound collected from plants buds and exudates by honey bees. It is used in medical and dental field, for example, repairing of surgical wounds, dental sockets after extractions, direct and indirect pulp capping, antiplaque, dentine hypersensitivity, it is available in forms as capsules, lozenges, tincture or cream, and can be used internally and externally. It is hard breakable when cold and soft flexible and very stick when warm.

Key Words: Dentinal hypersensitivity, propolis, socket

Introduction
Propolis from the Greek means Pro-Before Polis-City that is defense before the city or defender of the city. The city here is the city or colony of bees where propolis plays a vital role in both protecting the colony from invasion from the outside as well from the infection within. This sticky resinous material is collected by bees from the buds and barks of trees and plants such as chestnuts, poplar, and fir trees. The bees take the resin back to their hives and work on it, producing a glue-like substance with which they fill the cracks, smooth over the interior of the nest, strengthen comb attachment and to cover and embalm intruders and other objectionable objects in the hives that are too large to carry out. The compound is used by certain strains of bees to reduce the size of the entrance to make the hive more defensible, hence, the deviation of the name propolis thus the bees hive are known to be the most sterile environment in nature.¹ Propolis is the powerhouse of nutrient.

Literature Review
In recent years, there has been an increasing interest in evidence-based complementary and alternative medicine. Propolis is substance consists of resins, balsams, bee wax essential oils, and other organic compound collected from plants buds and exudates by honey bees. The mixture of essential oils and wax mixed with bee glue (the salivary secretion), contains also amino acids, minerals, ethanol (alcohol), vitamins A, B complex, E, pollen and the highly active biochemical substances known as bioflavonoids. The largest single ingredients are resin (55%) collected from plants and trees (particularly poplar), wax accounts for 30% and pollen for 5%. It is a powder and relatively small amounts (8-12 oz.) Are produced in a hive each year. Propolis is a prime source of histamine and serotonin substances needed to help the body cope with allergies. Scientific researches starting in the 1960s confirm what folk tradition has known about benefits of propolis. Propolis is available as capsules, lozenges, tincture or cream, and can be used internally and externally.¹

Propolis is a lipophilic material that is hard and breakable when cold but soft, flexible, and very stick when warm; it possesses an enjoyable aromatic smell and different coloration, including brown, green, and red.²³

In terms of chemical composition, it is generally composed of 50% resin, 30% wax, 10% essential oils, 5% pollen, and 5% other substances which include minerals and organic compounds such as phenolic acids (cinnamic and caffeic) or their esters, flavonoids (flavones, flavanones, flavonols, and dihydroflavonols chalcones), terpenes, aromatic aldehyde and alcohol, fatty acids, stilbenes, and B-steroids.⁴

Analysis of different samples revealed that propolis chemical composition is difficult to standardize because it depends on different photographic characteristic like vegetation, season, and environmental condition of the site of collection, as bees select different plants in different habitat of propolis production.⁴

From ancient to modern times, herbs, and other plant products have been widely used as medicinal agents, first in folk medicine and other activities in many parts of the world and later developed and improved on a scientific basis into drugs that are used in the health system. Propolis is one of the few natural products that has maintained its popularity over a long period. As reviewed, propolis contains broad spectrum of compounds that may be useful for the treatment of different pathological disease.

The chemical composition of propolis varies with the geographic location and type of plants collected from Brazilian propolis is classified into 12 types according to physiochemical
The clinical trial of propolis on female subjects for study using scan electron microscope. It was also compared to saline and was found that propolis occluding the dentinal tubules in 60-120 s application on dentine in sound specimens was found that propolis occluding the dentinal tubules in another study conducted by Margo-Fiho and de Carvalho 1994. In that study, 60% of subjects had no hypersensitivity while 30% had no hypersensitivity while only 19% had moderate hypersensitivity. It was concluded that propolis had positive effect in the control of this phenomena.

In another in vitro study using scan electron microscope. It was found that propolis occluding the dentinal tubules in both 60-120 s application on dentine in sound specimens periodontal involved and recession teeth specimens. Propolis was also compared to saline and was found that propolis occludes more dentinal tubules than saline. The recent clinical study evaluated the efficiency of an ethanolic solution of propolis included in the study. Propolis was applied twice daily on teeth with hypersensitivity. 16-40 years (mean 28 years) were included in the study. Of the subjects had severe hypersensitivity at baseline at first recall, 50% reported slight hypersensitivity at second recall, and 30% had no hypersensitivity while only 19% had moderate hypersensitivity. It was concluded that propolis had positive effect in the control of this phenomena.

Direct and indirect pulpal capping
In this field, paste made from alcohol solution of propolis and zinc oxide, exerted the same effects of the zinc eugenol according to study constructed by Lonita et al. 1990. In other hand, the morphological effect of the paste on indirect pulp capping showed formation of secondary dentine shortly after application of the paste, then followed by formation of pulpitis and sclerosis of the pulp.

While in teeth with direct pulp capping secondary dentine developed in pulp chamber rather than other parts of the pulp. This raised the suggestion the paste is more histophilic than calcium hydroxide-based cement by which necrosis is formed in the opening of the chamber. While calcium degeneration happens in the other parts of the coronal pulp.

Antiplaque effect of propolis
Dental plaque is the main cause of dental caries and periodontal diseases which may lead to tooth loss, mechanical remove of, especially inter proximally is a very difficult procedure, this necessitates the use of chemicals instead of mechanical procedure. Many types of herbal tooth brushing reduce plaque formation have been demonstrated nowadays.

Meswak (chewing stick) is one of these examples with its toothpaste effect on plaque formation as well as cariogenic bacteria and periodontal pathogen.

Nowadays, propolis is used in local and systemic diseases. It is available as capsules, lozenges, tincture, and mouth rinse and paste.

Propolis reduces the rate of formation of hydroxyapatite from the transformation of amorphous calcium hydroxide phosphate, and so it has anticalculus and antiplaque effects as toothpaste and mouthwashes. Cause it contains flavonoid and dramatic compounds such as caffeic acid. In comparisons to Miswak and Colgate toothpaste propolis is more effective and safe in decreasing plaque accumulation. Propolis mouthwash is more effective in removal of plaque and gingival inflammation when compared to propolis gum, but more studies are needed to demonstrate the mechanical effect and formation of the gum.

Effect on dentinal hypersensitivity
Dentine hypersensitivity and also termed sensitive dentine and cervical hypersensitivity is dental pain which is sharp in character and of short duration, arising from exposed dentine surface in response to stimuli typically thermal, evaporative, tactile, osmotic or chemical and cannot be ascribed to any other dental disease. A degree of dentine sensitivity is normal, but pain cannot be experienced in an everyday activity like drinking cold drinks; therefore, the term sensitive dentine usually used to refer to dentinal hypersensitivity.

Dentinal hypersensitivity is a relatively common condition, the reported incidence ranges from 4% to 74%, it can affect people of any age although those aged 20-50 years are more affected, female are more affected compared to males, and most common teeth affected are maxillary and mandibular canines on the facial surfaces. The authors have conducted a pioneer study on the effect of propolis on dentinal hypersensitivity in vivo. The clinical trial of propolis on female subjects for 4 weeks was conducted at King Saud University, College of Dentistry, Riyadh. 26 female subjects with age range 16-40 years (mean 28 years) were included in the study. Propolis was applied twice daily on teeth with hypersensitivity was assessed on a visual scale 0-10 and by slight, moderate, and severe classification at baseline, after 1 and 4 weeks. 70% of the subjects had severe hypersensitivity at baseline at first recall, 50% reported slight hypersensitivity at second recall, and 30% had no hypersensitivity while only 19% had moderate hypersensitivity. It was concluded that propolis had positive effect in the control of this phenomena.
of propolis and 5% potassium nitrate, and it concluded that propolis was more effective than 5% potassium nitrate in relieving dentinal hypersensitivity and had more immediate and sustained effect. Some in vitro studies using scan electron microscope have successfully shown that propolis has significant effect in reduction in dentinal permeability, but a very recent study published in 2015 by using the electron microscope in evaluating the effect of desensitizing agents (red propolis extract [RPE], calcium sodium phosphosilicate, arginine calcium carbonate) and the result shows that all three agents shows tubular occlusion although arginine-calcium carbonate present more occlusion following treatment and RPE demonstrated a higher degree occlusion following acid challenge.

Conclusion

The Greeks recognized the healing qualities of Propolis using it for treating wounds as well as “incurable diseases”. For the Egyptians bee has a religious significance and was a symbol for courage.

The Romans also revered the bee and used propolis extensively.

European interest and knowledge of propolis began in John Gerard’s famous Histories of Plants in 1597 where propolis is referred to as a substance “which can provide swift and effective healing for many conditions.”

References