

PROPHETIC MEDICINE AND HERBS IN ORAL CARE A REVIEW OF LITERATURE

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ABSTRACT

Prophetic medicine comprises the teaching of the prophet Mohammad with regards to nutrition, hygiene, sickness, cure and prevention of the ailments. “Whenever the Prophet (ﷺ) would visit an ill person, he would said: ‘[O Allah,] make the harm go away, Lord of mankind, and heal him, You are the Healer, there is no healing except your healing, a healing that does not leave any sickness. Healing with the Medicine of the Prophet (PBUH) is the remedy for well-being, good health and soul. Prophetic medicines promote healing, prevention and cure of ailments. The review article is an effort to explore detailed analysis of prophetic medicines and natural herbs in oral care. The article is focused on the uses of miswak, honey, black seed, olives, senna and idhkhir for oral therapeutic uses. The studies, experiments and research have demonstrated that the prophetic medicines and herbs provide benefits in oral care. However, the research conducted on some herbs are limited to in vitro studies, thus further studies are required to be carried out on animals or humans to achieve accurate results. Furthermore, other herbs mentioned in prophetic medicines like tannumah (aloes), daghabis (dill seed), dates, cortus, need to be explored and further studied for therapeutic use in oral care.

Keywords : Prophetic medicine, Herbs, oral care, dentistry

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1. INTRODUCTION

Prophetic medicine and natural herbs can be very effectively used in therapeutic manner for oral health care. It will provide a pathway for holistic approach in dentistry. The traditional medicines and herbs used by prophet Mohammed(PBUH) in earlier years, had a deep spiritual as well as scientific solutions and cure of diseases. Studies are conducted to understand the use of prophetic medicines and other herbs mentioned in Hadiths, from a wellness perspective.

The WHO Global Oral Health Status Report (2022) estimated that oral diseases affect close to 3.5 billion people worldwide, with 3 out of 4 people affected living in middle-income countries. Globally, an estimated 2 billion people suffer from caries of permanent teeth and 514 million children suffer from caries of primary teeth.³ As per the statistics, addressing oral diseases and finding a preventive and holistic dental cure is very crucial. Unfortunately, there are lack of researches conducted on prophetic herbs and medicines, which could be very effective in maintaining and curing dental ailments. Also, there are lack of natural/ herbal products commercially available for oral/ dental care.

The review article is a compilation of herbs used by prophet Mohammed (PBUH), from an oral care perspective. It focuses on the few scientific researches carried out on miswak, honey, black seed, olive, senna and idhkhir. The article will provide a guidance in dental outlook through prophetic medicines and natural herbs, which can eventually provide holistic and herbal approach in dentistry.

2. DISCUSSION

2.1 Miswak

"My father told me: 'I heard 'Aishah say, (narrating) from the Prophet (ﷺ): "Siwak is a means of purification for the mouth and is pleasing to the Lord."⁴ Whenever the Prophet got up at night, he used to clean his mouth with Siwak⁵ Miswak is a traditional chewing stick prepared from the roots, twigs, and stem of *Salvadora persica* and has been used as a natural method for tooth cleaning in many parts of the world for thousands of years. Clinical effects of miswak include anti-plaque, anti-gingivitis, anti-cariogenic, promotion of gingival wound healing, whitening properties, orthodontic chain preservation, and biocompatibility with oral cells⁶

Salvadora persica is also known as Arak (in Arabic) and Peelu (in Urdu). Its frequent use as a toothbrush (miswak) is highly recommended by Prophet Muhammad. With a long history in folk medicine for centuries, *Salvadora persica* was used in oral hygiene, food, cosmetics, fuel, and even as a medicine⁷

Chewing sticks may play a role in the promotion of oral hygiene, and further evaluation of their effectiveness is warranted, as stated in the 2000 World Health Organization (WHO) Consensus Report on Oral Hygiene (WHO, 2000) ⁸

In vitro study investigated the aqueous and methanol extracts of *S. persica* miswak for antimicrobial activities against seven isolated oral pathogens (*S. aureus*, *Streptococcus mutans*, *Streptococcus pyogenes*, *Enterococcus faecalis*, *Lactobacillus acidophilus*, *Pseudomonas aeruginosa*, and *Candida albicans*) using two methods. Both antimicrobial assays showed that the aqueous extract inhibited all isolated microorganisms and was more efficient than the methanol extract, which was resisted by *L. acidophilus* and *P. aeruginosa*. The strongest antibacterial activity was shown by the aqueous extract against *E. faecalis*.

Turbidity tests showed that both extracts had equal antifungal activity against *C. albicans*. The derivatives of *S. persica* miswak are reported to have pronounced antimicrobial activity, and these heterogeneous components can be extracted using different chemical procedures ⁸

A cross-sectional pilot study among adults in West Africa also reported a decreased rate of caries and plaque in miswak users in comparison with non-users.^{8, 9} In an in vivo study, researcher found that rinsing with *S. persica* miswak extract stimulated parotid gland secretion, thereby raising the plaque pH; this effect can potentially prevent dental caries by reversing the acid challenge of cariogenic bacteria ¹⁰ Effect of miswak on dental plaque, gingiva and periodontitis, A study conducted among two groups of students in Kenya, reported that no additional method was required to remove dental plaque in the group that used toothpaste in combination with chewing sticks.^{8, 11}

Similar study investigating a commercial herbal mouthwash containing *S. persica* miswak extract, significant reductions in gingival bleeding were observed in both test and placebo subjects. However, a significant reduction in the load of cariogenic bacteria was observed only in the test subjects ^{8, 12} *Salvadora persica* miswak is considered to be an affordable and readily available oral hygiene device that can be used by the vast majority of people ^{8, 13}

2.2 Honey

The Prophet (PBUH) said, "Healing is in three things: A gulp of honey, cupping, and branding with fire (cauterizing)." But I forbid my followers to use (cauterization) branding with fire." ¹⁴

The bioactive phytochemical contents of manuka honey (MH) has demonstrated a notable quantity of non-peroxide antibacterial capability (which is missing in other commonly used table honey). Manuka refers to the leaves of the New Zealand tea tree, *Leptospermum scoparium*. High concentrations of methylglyoxal (MGO) in MH are responsible for its non-peroxide antibacterial activity. It is often called "healing honey" due to its positive effects on wounds and stomach ulcers. In Dentistry, Manuka honey has been tested and has provided excellent results. ¹⁵

Manuka honey has been tested in a pilot study, where patients were asked to use a Manuka honey product for 21 days, and they presented a significant reduction in plaque score and gingivitis. The study showed that though honey and its byproduct propolis did not protect the enamel from further erosive challenges, it did not favour the growth and adhesion of cariogenic bacteria.¹⁶

Another study was conducted to examine the effects of manuka honey (MH) mouthwash on plaque, gingival scores, and *Streptococcus mutans*, bacterial load compared with those of chlorhexidine (CHX) and distilled water (DW)¹⁷ The antibacterial and anti-biofilm properties of MH were proven. In addition, BOP (bleeding on probing) scores dropped. The evidence is overwhelming in favour of using MH as a safe agent that might be used in mouthwash formulas. MH is an appropriate molecule for *S. mutans*' antibacterial defence.¹⁷

The studies are limited and further research is required to understand the use of manuka honey in oral care.

2.3 Black cumin/ Black seed

I heard Allah's Apostle saying, "There is healing in black cumin for all diseases except death."¹⁸ Black cumin, nigella or by its scientific name *Nigella sativa*, kalonji (in urdu) belongs to the buttercup family of flowering plants.

Black cumin seed, particularly its essential oil, contains thymoquinone (TQ), thymohydroquinone, thymol, carvacrol, nigellidine, nigellidine, and α -hederin, which are mostly responsible for its pharmacological effects and therapeutic benefits.

In a study, *Nigella sativa* oil incubated dental pulp mesenchymal stem cells, when isolated from third molars of human patients (15–20 years of age) presented clear and compact calcium granules, indicating potential osteogenic differentiation and increased calcium concentration. Another study showed that when a clinical trial was conducted on healthy patients for evaluation of topical *nigella sativa* application on delayed dental implant, showed increased bone density after 6 months.¹⁹

In a study, the black seed oil extracts were found to have a bactericidal effect against *S. mutans* and an effect on inhibiting the adherence of *S. mutans* to the surface of the teeth.

The black seed oil was effective in inhibiting the adherence of *S. mutans* to the tooth surface at 10% concentration. The black seed oil ethanolic extract has 10% MBC(minimum bactericidal concentration) against *S. mutans*²⁰

Oral ulcerations are common painful lesions that are related to various conditions ranging from minor local trauma to significant systemic conditions, such as hematological, gastroenterological, dermatological, and immunological diseases and malignancies.

Few animal study results showed a significant healing process enhancement with NS treatment, and a marked anti-inflammatory activity and differences in the rate of epithelization between the NS and control groups. The authors justified the results by asserting that the NS oil

accelerated the healing of ulcers, because it inhibited the growth of pathogenic organisms at the site of the ulcers, which retards the healing process.²⁰

Studies have shown that *Nigella sativa* oil showed increased calcium concentration in teeth, seeds of NS when applied to dental implants, have increased bone density after 6 months.

The NS helps in pulpal diseases, One of the in vitro studies showed the NS aqueous extract showed a maximum inhibition zone on *Enterobacter cloacae* at 100% concentration compared to other plants. The NS aqueous extract had antibacterial effects on *Streptococcus oralis*, *Streptococcus anginosus*, *Staphylococcus epidermidis* and *Enterococcus durans*.²⁰

The results of different studies have revealed that the plant has a potential therapeutic effect for oral and dental diseases, but the studies are limited to in vitro or animal study. Further studies and research are required to understand the efficiency of black seeds in oral care.

2.4 Olives

"The Prophet (ﷺ) said: Eat of its oil and use it (the olives), for indeed it is from a blessed tree."

²¹ Dental erosion is defined as the loss of dental hard tissue through chemical etching and dissolution by acids of nonbacterial origin. Its frequency results from the exposure of acid to the tooth surface. The acids may be either intrinsic (gastric acids) which are regurgitated into the mouth or extrinsic acids which are commonly found in foods and drinks.²²

Few studies are conducted on the use of olive oil in preventing tooth erosion. One of the in vitro study conducted in bovine teeth, concluded that, immersion of bovine teeth in olive oil for 6 hours and then exposed to citric acid for 15 min offer protection against dental erosion, more than when teeth immersed in olive oil for 48 hours, but lesser than when treated with fluoride varnish for 48 h in different times' exposure to citric acid.²²

Another study conducted on Bovine enamel and dentin specimens concluded that, Olive oil offers protection against enamel and dentin erosion when applied as 2% emulsion or 2% olive-oil-containing mouth rinse, but is not effective when applied as pure oil (100%). However, 2% olive oil emulsion is less effective in reducing erosion compared to the fluoride solution.²³

An ex-vivo study on the extracted human teeth is more justified, as the structure of teeth and concentration of different minerals and saliva role may differ greatly from the bovines one. This could be considered as a baseline data, and future in vivo experiments are recommended.

2.5 Senna

"The Messenger of Allah (ﷺ) said to me: 'What do you use as a laxative?' I said: 'The Shubrum (spurge – Euphorb).' He said: (It is) hot and powerful.' Then I used senna as a laxative and he said: 'If anything were to cure death, it would be senna. Senna is a cure for death.'²⁴

Senna (botanical name *Cassia angustifolia*) is a plant best known for its medicinal properties. It comprises of dianthrone glycosides (compounds consisting of sugar molecules bound to other molecules), as well as mucilage (a thick, gluey substance), tannins and flavonoids. In addition to its use as a safe and effective laxative, senna also has many other health benefits. One of the glycosides present in senna, emodin has many therapeutic benefits including as an anti-inflammatory, antispasmodic, and the ability to inhibit or destroy viruses.²⁵

Dental caries occurs when the biofilm microbiota that normally resides in the oral cavity in homeostasis change to an acidogenic, aciduric, and cariogenic population. Dental caries is a common chronic infection resulting from tooth-adherent cariogenic bacteria, which metabolise sugars to produce acid, demineralizing the tooth structure over time. Two species *Streptococcus mutans* and *Streptococcus sobrinus* are the principal agents of enamel caries. *Lactobacillus* and *Actinomyces* are also associated with caries.²⁶

The *Streptococcus*, *Staphylococcus*, *Escherichia*, *Corynebacterium*, and *Candida* genera are among the main etiological agents of medical and dental diseases like dental caries, aggressive periodontitis, endodontic lesions

One of the studies conducted by Photodynamic therapy (PDT), which combines photophysical and photochemical mechanisms, this study was conducted to evaluate the in vitro potential of *Senna* spp. extracts as photosensitizers for antimicrobial photodynamic therapy (aPDT) against microorganisms of dental and medical interest cultured in suspension and biofilm.

Three plant extracts (*Senna splendida*, *Senna alata*, and *Senna macranthera*) were evaluated as photosensitizers for aPDT.

According to the methodology of this in vitro study, aPDT mediated by plant extracts from *Senna macranthera*, *Senna splendida*, and *Senna alata* is an effective alternative to eliminate *Cultibacterium acnes*, *Candida albicans*, *Staphylococcus aureus*, and *Staphylococcus mutans*, mainly the *S. alata* plant extract, which presents excellent anti-microbiological results and satisfactory cytotoxicity.²⁷

2.6 Idhkhir

The Messenger of Allah (ﷺ) gave Fatimah a trousseau of a velvet garment, a waterskin and a leather pillow stuffed with idhkhir fibres.²⁸ Idhkhir or Lemon grass belongs to the family Poaceae and genus *Cymbopogon*. Common names: lemon grass, barbed wire grass, citronella grass, Tanglad, Hierba luisa. Scientific name: *Cymbopogon nardus*, *Citrus*

It has a plethora of medicinal uses; antibacterial, antifungal, antioxidant, antiseptic, astringent, anti-inflammatory, analgesic, antipyretic and carminative property.²⁹ Dental plaque is an archetypical biofilm composed of a complex microbial community. It is the aetiological agent for major dental diseases such as dental caries and periodontal disease.³⁰

Studies have shown that essential oil of lemon grass is effective in busting through the tough biofilm that *Candida* hides behind and hence it can be used as a mouthwash and

toothpaste to remove biofilm, which ultimately forms plaque³¹ Many studies are conducted for its use as an effective mouthwash and toothpaste

Study was conducted on the subjects consisted of 45 individuals (Male: 26, Female: 19) with chronic periodontitis. The mean age of the subjects was 43.52 ± 4.63

In this study, both antimicrobial and antioxidant activities were achieved by using 0.25% lemongrass essential oil in the mouthwash formulation.²⁹

In the study, the efficacy of lemongrass (*Cymbopogon flexuosus*) essential oil and its bioactive part citral against dual-species biofilms formed by *Staphylococcus aureus* and *Candida* species was evaluated in vitro. It demonstrated that lemongrass essential oil and citral were highly effective for eradicating the dual-species biofilms by hindering the interactions between *C. albicans* and *S. aureus* as well as breaking the matrix compositions of biofilms.³²

Study was conducted to compare the anti-plaque and anti-gingivitis efficacy of a 0.25% lemongrass oil mouthwash to that of 0.2% chlorhexidine mouthwash. The antioxidant activity of lemongrass oil is because of its contents such as citral (neral and geranial) and citronellal. In the study, both antimicrobial and antioxidant activities were achieved by using 0.25% lemongrass essential oil in the mouthwash formulation.²⁹

3. CONCLUSION

The studies, experiments and research have demonstrated that the prophetic medicines and herbs provide benefits in oral care. However, the research conducted on some herbs are limited to in vitro studies, thus further studies are required to be carried out on animals or humans to achieve accurate results. Furthermore, other herbs mentioned in prophetic medicines like tannumah (aloes), daghabis (dill seed), dates, cortus, need to be explored and further studied for therapeutic use in oral care.

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