

Review Article

Application of Ayurveda in Dentistry

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Abstract

There has been a long tradition of improving an oral hygiene using plant products, in the treatment of various diseases. These plant products have various pharmacological actions like antimicrobial, anti-inflammatory, antioxidant, antianxiety, antinociceptive, etc, after clinical trials are done and due to this Ayurveda is gaining its importance in dentistry. The herbs and essential oils are available in different forms and their preparations are used to treat various mucosal lesions. A comprehensive literature search in PubMed, Google Scholar and contents were screened from 1999 to 2024 by going through the title and abstract and full text reading, a total 44 articles were selected for final review. Thus, this article aims to review the prospects and perspectives of use of Ayurveda in Dentistry as a whole.

Keywords: Ayurvedic; Doshas; Herbs; Essential Oils; Dentistry

Introduction

The definition of Ayurveda is "living in harmony with nature" [1]. It is composite of two Sanskrit terms Ayur (life) and Veda (knowledge) [2]. The system of holistic ethnic medicine originated in India some 3000-5000 years ago. It primarily promotes a lifestyle approach to disease prevention and good health. Herbal mineral preparations are added to the latter method of treating disease after evaluating a patient's Prakriti, as called in Ayurveda. Dentistry was included in the Shalya-chikitsa section [3]. It holds that the three biological humours known as doshas-vata, pitta and kapha-can treat ailments of the mouth as well as other conditions. There are 65 different types of oral diseases in seven anatomic locations according to the Ayurvedic branches of Shalyatantra and Shalakyatantra: 15 on the alveolar margin, 8 on the lips, 8 in relation to the teeth, 5 on the tongue, 9 on the palate, 17 on the oropharynx and 3 in a generalized form [2].

Samhita

The first two ancient Indian medical texts are the Sushruta Samhita and the Charika Samhita [2].

Charak Samhita by Charaka

Charak Samhita was written around 800 BC, which has over 8,400 chapters, is presented as poetry. It is still used today by Ayurvedic doctors for medical education.

Sushruta Samhita by Sushruta

Sushruta Samhita, which was written around 700 BC, contains Ayurvedic definition of blood, the five subdoshas' description of pitta and the marma points, as well as reconstructive surgery and skin grafting methods [4].

Ayurveda also suggests using therapeutic techniques like Jivha lekha, Dant dhavani, Gandoosha and tissue regeneration therapies on a daily basis as preventive measures [1]. Ayurveda is currently practiced widely throughout the Hindustan peninsula (India and its neighbouring countries) and it has garnered a lot of attention recently in economically developed nations

like those in Europe, the US and Japan. There are about 1250 medicinal plants in India [5].

The article is aimed to review the different Ayurvedic practices and herbs and oils used that are beneficial for the maintenance of oral cavity.

Techniques

Jivha Lekhana (Tongue Scraping)

According to an ancient Ayurvedic text, tongue cleaning eliminates unpleasant odours and tastes, by removing the white coating from the tongue, teeth and mouth. It should be made of metal should be blunt and rounded made of gold, silver, copper and stainless-steel [1]. It enhances taste perception and encourages the release of digestive enzymes, eliminates the growth of millions of microflorae [5].

Dant Dhavani, or Brushing

Ayurveda suggests chewing sticks both in the morning and after each meal. Herbal brushes should be of thickness of a person's little finger and about nine inches long. The flavor of these herb sticks should be either "katu" (acidic), "tikta" (bitter), or "kashaya" (astringent). Crush one end, chew it and consume it gradually [6].

Gandusha (Gargling) or Oil Pulling

Gandusha, also known as oil pulling, is an age-old Ayurvedic practice that involves swishing oil around the mouth to promote oral and general health [5]. It can be done with a variety of oils, including avocado, black cumin seed, canola, cedar nut and olive oil, coconut oil and sesame oil [7,8]. It prevents halitosis, bleeding gums, dryness of throat, cracked lips for strengthening the teeth, jaws and gums [5].

Tissue Regeneration Therapies

The well-known Rasayana herb, amla (the fruit of a tree) is considered a general builder of oral health, in Ayurveda. In order to strengthen and stabilize collagen in the gums. Herbs that are frequently used are acemannan, turmeric root, alfalfa leaf, yellow dock root and cinnamon bark [1,9].

Applications in Dentistry

Various clinical studies, trials and human researches have been done on each Ayurvedic herbs or essential oils for their applications in the dental field [10-35]. Based on these researchers have shown that the reviewed herbs and essential oils can be effectively used as the treatment modalities for oral lesions since they are good enough proof as the dental therapeutics.

Ajwain (Trachyspermum Ammi)

Indications: Halitosis, alleviates dental pain, obturating material, oil pulling, antioxidant, dental caries.

Available forms: Powder, oil, mouthwash, chewing seeds

Allium (Allium Sativum)

Indications: Dental caries, periodontal diseases, removes smear layer, recurrent aphthous stomatitis, herpes labialis, leukoplakia, oral lichen planus, oral submucous fibrosis, oral candidiasis

Available forms: Aqueous extracts, mouthwashes, oil, tablets, pastes, gel

Aloe Vera (Aloe Barbadensis Miller)

Indications: Gingivitis, recurrent aphthous stomatitis, oral lichen planus, wound healing after periodontal surgery, alveolar osteitis, denture adhesive, burning mouth syndrome, pulpotomy of primary tooth, obturation, dental caries, intracanal medicament, disinfection of irrigation units and gutta percha cones, chemical burns due to aspirin, angular cheilitis, around dental implants, sore gums, oral candidiasis

Available forms: Juice, oil, ointment, lip-balm, mouthwashes, hydrogel, toothpastes, salicept patch

Amla (Emblica Officinalis)

Indications: Dental pain, scurvy, aphthous ulcers

Available forms: Juice, oil, pickles, murabba, chyavanaprash, powder, mouthwashes, capsules

Ashwagandha (Withania Somnifera)

Indications: Intracanal medicament vehicle, bone regenerative materials for implant, prevents carcinogenesis, endo-perio lesions, dental caries

Available forms: Powder, capsules, tinctures, extract, paste

Cranberry (Vaccinium Macrocarpon)

Indications: Dental caries, antiadhesion, periodontitis, anticancer, oral candidiasis

Available forms: Extract, mouthwashes, capsules

Curry Leaves (Murraya Koenigii)

Indications: Dental caries, gingivitis, analgesic, anticandidal, anticancer, antioxidant, anti-inflammatory, radiotherapy, chemotherapy, bone health

Available forms: Mouthwashes, leaf extract, methyl alcohol extract, aqueous, ethanol extract

Ginger (Zingiber Officinale)

Indications: Dental pain, sialagogue, oral candidiasis, anticancer, herpes simplex infection, antimicrobial, denture stomatitis, aphthous ulcers, xerostomia, dental caries, pretreatment before radiotherapy, intracanal medicament, gingivitis

Available forms: Ethanol, aqueous extract, oil, capsules, tinctures, juice, powder, paste, mouthwash, muco-adhesives

Green Tea (Camellia Sinesis)

Indications: Dental caries, halitosis, influenza virus, HIV 1, HSV, Epstein- Barr and adenoviruses, oral candidiasis, periodontitis, Oral squamous cell carcinoma

Available forms: Extract, mouthwash

Licorice Root (Glycyrrhiza Glabra)

Indications: Dental caries, periodontal diseases, oral candidiasis, aphthous ulcers, herpes simplex virus, xerostomia, oral lichen planus, halitosis, oral mucositis, oral squamous cell carcinoma, oral submucous fibrosis, endodontics, oral mucositis.

available forms: extract, mouthwashes, bioadhesive hydrogel patches, Gel

Lycopene (Solanum Lycopersicum)

Indications: Oral Cancer, Oral Leukoplakia, Oral submucous fibrosis, Oral lichen planus, Periodontal diseases, anticandidal

Available forms: Capsules

Marigold (Tagetes Erecta)

Indications: Intracanal medicament, root canal irrigant, treatment and prevention of periodontitis, dressing material post-surgery, irrigating solution after extraction, collagenogenic, antibacterial, analgesic, oral leukoplakia, oral mucositis, angular cheilitis, oral lichen planus, antioxidant, anti-inflammatory

Available forms: Mouthwash, irrigant, gel, extract

Neem (Azadirachta Indica)

Indications: Dental caries, anticandidal, antiplaque, root-canal irrigant, gingival bleeding, sore gums

Available forms: Chewing sticks, ethanolic and aqueous extract, herbal dental cream, toothpaste, mucoadhesive gel, acetone, oil

Noni (Morinda Citrifolia L)

Indications: Endodontic irrigant, dental caries, disinfecting the impression material, gingivitis, periodontitis, osteoinductive, periodontal tissue regeneration, oil pulling

Available forms: Extract, mouthwash, toothpaste, toothbrush, local drug delivery agents, juice

Pomegranate (Punica Granatum)

Indications: Antioxidant, periodontal diseases, dental caries, denture stomatitis, wound healing, antiplaque

Available forms: Extract, juice, gel, mouthwashes, toothpaste

Triphala [Amalaki (Phyllanthus Emblica), Bibhitaki (Terminalia Bellerica), Haritaki (Terminalia Chebula)]

Indications: Dental caries, bleeding gums, gingivitis, prevents demineralization of enamel, root canal irrigant, anticollagenase activity, antioxidant, anticandidal

Available forms: Tablet, choorna, extract, mouthwash

Tulsi (Ocimum Sanctum)

Indications: Dental pain, periodontal disease, dental caries, anticandidal, oral submucous fibrosis, ulcer

Available forms: Extract, powder, mouthwash, toothpaste, glue, oil

Turmeric (Curcuma Longa)

Indications: Periodontal diseases, antiplaque, subgingival irrigant, pit and fissure sealant, anticancer, precancerous lesions, antiviral against coronavirus

Available forms: Mouthwash, paste, gel, oil, concentrate, Self-Nano Emulsifying Curcumin 30 mg (SNEC30)

Peppermint and Peppermint Oil (Mentha Piperita)

Indications: Dental caries, anticandidal, antioxidant, radioprotective, antimicrobial, oral hygiene

Available forms: oil, aqueous extract, alcoholic extract mouthwash

Lavender Oil (Lavandula Angustifolia)

Indications: Adjunct to extraction of third molar, antianxiety, anticandidal, periodontitis, Aromatherapy, peri-implantitis, local anaesthesia preservative, antinociceptive, aphthous ulcers, root canal sealer

Available forms: Extract

Lemongrass Oil (Cymbopogon Citratus)

Indications: Dental caries, candidiasis, periodontitis, gingivitis

Available forms: Mouthwash, aqueous extract, lemon juice, toothpaste

Olive Oil (Olea Europaea)

Indications: Antibacterial, prevents tooth erosion, endodontics, intracanal medicament, gingivitis, oral candidiasis, angular cheilitis, aphthous ulcers, herpes labialis, xerostomia, prior to chemotherapy, prevents enamel demineralization, advanced periodontitis

Available forms: Ozonated olive oil, mouthrinse, emulsions

Teatree Oil (Melaleuca Alternifolia)

Indications: Gingivitis, periodontal disease, AIDS having fluconazole resistant oropharyngeal candidiasis, herpes labialis, oil pulling

Available forms: Mouthwash, solution, gel

Ayurveda and Global Scenario

Based on CII estimates, the Indian Ayurvedic sector is expected to reach a gross market size of \$4.4 billion. This positive outlook is supported by projections that the industry will grow at a strong compound annual growth rate of 16% through 2025 [36]. The Chinese herbal medical market is estimated to be worth US \$19 billion, while the Indian herbal medicine market is valued approximately US \$1 billion globally. The global herbal medicine market is estimated to be worth US \$62 billion. Although herbal remedies have been used for a long time, their potential uses in dentistry are still unexplored. If this is accomplished effectively,

India may acquire a major competitive advantage in the international market, particularly in the pharmaceutical and cosmetics industries [4].

Conclusion

Ayurveda is an age-old Indian system of longevity and health care. Because of promising effects, it is necessary to educate and enlighten dentists about the application, efficacy and safety of Ayurveda. The younger generation is not aware, it is therefore imperative to preserve these ethno-cultural practices before they are lost forever, as younger generations are ill-equipped to identify, collect, preserve and process plant species for medicinal purposes. Natural remedies are a safer, more cost-effective and more readily available alternative treatment option for lower socioeconomic groups in society and dentists should be encouraged to use them in their various oral health treatments.

Conflict of Interest

The authors have no conflict of interest to declare.

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