

Ayurveda in dental practice and its role in the management of dental diseases: A narrative review

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ABSTRACT

Nowadays, there are more and more common diseases that can be a severe health risk, add to the financial load, and lower people's quality of life. Due to the fact that oral disorders can be mainly avoided by following Ayurvedic regimens, the integrative science of Ayurveda has recently attracted attention on a global scale. Natural phytochemicals that have been extracted from plants and employed in traditional medicine are still being sought after as alternatives to manufactured chemicals. During hundreds to thousands of years of use, the botanicals used in the Ayurveda material medicine have been shown to be secure and efficient. The investigation of plants used in conventional medicine could result in the creation of fresh preventive or therapeutic approaches to oral health. Techniques for maintaining dental hygiene according to Ayurveda are secure, efficient, affordable, and simple to use, typically free of adverse effects, and have long-lasting effects. These are self-care techniques that are simple to use at home. The current literature review focuses on the use of several ayurvedic medicines to treat dental disorders.

Keywords: Ayurveda, Dental Pain, Oral Cancer, Oral Diseases.

Globally, oral illnesses continue to be a serious health issue. Although other illnesses including oral and pharyngeal malignancies and oral tissue lesions are also of major concern, dental caries and periodontal diseases are among the most significant global oral health issues. [1] The quality of life that goes beyond the duties of the craniofacial complex is directly related to oral health, which is essential to overall health. It has long been known that certain bacteria species that make up the oral cavity's microbiota are involved in certain oral illnesses. The increase in illness prevalence (especially in developing countries), increased pathogenic bacterial resistance to antibiotics and other medications, opportunistic infections in immunocompromised individuals, and financial concerns in developing nations have all contributed to the global demand for alternative prevention and treatment options and solutions for oral diseases that are safe, effective, and affordable. [2]

Despite the fact that a number of chemical substances are readily available in the market, these can change the oral microbiota and have unfavourable side effects like vomiting, diarrhoea, and tooth discoloration. Additionally, periodontal disease prevention and therapy for a number of oral disorders have had only limited success with conventional medicines in modern day practice. As a result, efforts to find replacements to current goods are ongoing, and natural phytochemicals—chemicals extracted from plants and utilised in traditional medicine—are seen as promising substitutes for synthetic chemicals. [3] Consequently, the goal of treatment methods should be to identify a course of treatment that is safe, biocompatible, practicable, and affordable with the fewest side effects.

One of the most well-known ancient medical systems that has endured and thrived for decades is ayurveda. The vast knowledge of nature-based medicine, the relationship between the structure and function of the human body and nature, and the elements of the cosmos that interact and have

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an impact on living things ensure that this system will continue to thrive for centuries to come. The field's researchers, practitioners, and experts, who are charged with preserving and fostering the future development of conventional medicine systems still have a lot of opportunities to investigate [4].

The self-healing science of Ayurveda is based on the idea that every cell is fundamentally an expression of pure intellect [5]. In this Indian traditional style of medicine, the use of herbal remedies is equally vital to the self-healing idea. Between 70–80% of the world's population, mostly from herbal sources, relies on non-conventional medicines for their healthcare, according to the World Health Organization [6].

The rising adverse effects of synthetic drugs, the lack of a cure for many chronic conditions, the high expense of new medications, microbial resistance, developing disorders, etc. have all raised public interest in complementary and alternative medicine [7]. The present paper focuses on the efficacy of ayurveda in the management of oral and periodontal diseases in particular.

Ayurveda and its principles

Ayurvedic medicine treats the patient as an organic whole and involves the healthful use of medications, foods, and certain practises. [8] According to Ayurveda or other ethnic practises, there are roughly 1250 medicinal plants in India [9] that are utilised. This 5000-year-old medical system suggests using particular plants and minerals as remedies for a variety of ailments. Several hundred to several thousand years of use have established the safety and efficacy of the botanicals used in Ayurveda materiamedica. [10] New preventive or therapeutic approaches for oral health may be developed as a result of research into botanicals used in traditional medicine. [11]

When used to treat all types of chronic conditions, Ayurveda can unquestionably produce trustworthy, effective results when properly used. It needs a solid etiological theory. This theory is based on the idea of "Tridosha," [12] the three doshas of Vata, Pitta, and Kapha, their functions in systems, subsystems, and organ function, and the sequence of events occurring as they are "driven out of balance" in a general sequence known as "Shad kriyakala," [13] the six stages of dosha imbalance. This is the Ayurveda theory's strong suit, allowing it to combat chronic illness—a "Trojan Horse" that transports the

defenders of health into the camp of sickness, as several articles in this issue underscore.

Ayurveda in oral health

65 different types of oral diseases can manifest in seven anatomical sites, according to the Shalyatantra and Shalakyatantra (one of the branches of Ayurveda): eight on the lips, fifteen on the alveolar margin, eight in connection with the teeth, five on the tongue, nine on the palate, seventeen in the oropharynx, and three in a generalised form. [14]

Ayurveda recommends methods like mouth cleaning, extractions, excisions, flap surgeries, etc. for the treatment of various disorders. Ayurveda suggests several daily usage therapeutic treatments for the protection and maintenance of oral health in addition to the treatment of orofacial illnesses. They include tissue regeneration treatments such as DantDhavani (brushing), JivhaLekhana (tongue scraping), and Gandoosha (gargling or oil pulling).

Table 1: Number of diseases present in the oropharyngeal region according to ayurveda

Region	Number of diseases
Lips	8
Alveolar margin	15
Teeth and associated regions	8
Tongue	5
Palate	9
Oropharynx	17
Generalized form	3

Below are some examples of these techniques medically validated positive effects:

- Brushing**(DantDhavani) to stave off illnesses, Ayurveda advises chewing sticks both before and after every meal. Herbal brushes that are nine inches long and around the thickness of a little finger are required by Ayurveda. These herb sticks should have an astringent, acrid, or bitter flavour, such as kashaya, katu, or tikta. To use, crush one end, chew, and then slowly consume. [15] The margosa or azadirachtaindica, sometimes known as neem, is a well-known herbal chewing stick.

Brushing can also be done with fresh stems of the cutch tree (Acacia Catechu Linn.), black catechu, or liquorice (Glycyrrhizaglabra), [16] milkweed (Calotropisprocera), fever nuts (Caesalipiniabouduc), and arjuna trees (Termmaliarjuna) [17]. While some stems have an anti-

bacterial effect, chewing on these stems is thought to cause attrition and levelling of biting surfaces, facilitate salivary secretion, and may help in plaque control. All of the chewing sticks mentioned in ancient Ayurvedic writings (about 200 BC) have therapeutic and anti-cariogenic qualities, according to current research. [18]

2. **Tongue scraping (JivhaLekhana):** The best materials to utilise for tongue scraping are gold, silver, copper, and stainless steel. The tongue's reflex points are stimulated by tongue scraping. Eliminates odour (halitosis). Enhances taste and encourages the release of digestive enzymes. Reduces the growth of millions of bacteria (approximately 500 varieties) the regular use of tongue scrapers significantly improves the removal of anaerobic bacteria and reduces unpleasant odour, according to clinical evidence. [19]
3. **Oil pulling:** Also known as gargling or gingling, is a traditional Ayurvedic practise that entails swishing oil in the mouth for both oral and overall health benefits. It is referred to as Kavala or Gandusha in the Ayurvedic classic CharakaSamhita and is said to treat 30 systemic disorders, including diabetes, asthma, migraines, and headaches. For many years, oil pulling has been widely used as an Indian folk cure to strengthen teeth, gums, and the jaw as well as to prevent decay, bad breath, bleeding gums, throat dryness, and cracked lips. Oils like sunflower oil or sesame oil can be used for oil pulling therapy. Both clinically and microbiologically, oil pulling therapy is particularly successful against plaque-induced gingivitis. [20]
4. **Tissue regeneration:** Amla (Phyllanthusemblica), a well-known herb, is regarded in Ayurveda as a general restorer of oral health. In a decoction, amla works well as a mouthwash. For the long-term benefit of the teeth and gums, one to two grammes per day can be taken orally in the form of capsules. When consumed internally, amla promotes connective tissue growth and repair. The gum tissue is strengthened and collagen is stabilised when bilberries and hawthorn berries are regularly consumed. In addition to promoting anti-cavity action, licorice root also lessens plaque and possesses antibacterial properties. Herbs that are taken internally to strengthen Astidharu, for instance, the skeleton and joints, like yellow dock root, alfalfa leaf, cinnamon bark, and turmeric root, have shown to be beneficial for the long-term health of teeth. [21]

Herbs used for oral health maintenance and treat dental diseases

There are over 1250 medicinal plants in India. [5] For their pharmacological uses, such as their capacity to treat

wounds and possess anti-inflammatory, antibacterial, and antioxidant capabilities, numerous plants and natural items have been used. [22]

1. **Holy basil:** It aids with dental hygiene and the treatment of a multitude of periodontal issues, including bleeding gums, plaque, toothaches, and pus or soreness in the gums, which can be caused by an overgrowth of oral bacteria. [8]
2. **Amla:** The pyorrhea symptoms, such as bleeding and pus production, are controlled with amalaki powder. Fruit from the Emblicofficinalis plant has cytoprotective, antibacterial, antioxidant, antiresorptive, and anti-inflammatory activity, among other therapeutic qualities. [23]
3. **Guava leaves:** It has a large amount of antioxidant qualities because of its plentiful supply of vitamin C. Moreover, it has been shown to have antiplaque, anti-inflammatory, and analgesic characteristics that are helpful in the treatment of periodontitis. [24]
4. **Aloe vera:** Aloe Vera, sometimes known as the "wonder plant" of Ayurveda, is a member of the Asphodelaceae family. The Aloe Vera Barbadosis species, whose name derives from the Latin word Vera, which meaning truthful, is the most widespread and valuable of all in that genus. [25] The uses of aloe Vera in dentistry is highlighted in table 2.

Table 2: Uses of aloe vera in dentistry

Used over gingival tissues that have been harmed or damaged by sharp objects like toothpicks, dental floss, or toothbrush bristles
To regenerate the lost periodontium due to periodontitis
Chemical burns caused by aspirin-related mishaps.
To aid in healing of extraction sockets and post-implant placement
Acute oral lesions such canker sores, aphthous ulcers, herpes virus lesions, and cracks at the corners of our lips.
The applications also help to relieve gingival abscesses.
Persistent oral conditions AIDS- and leukaemia-related gingival and periodontal issues, benign pemphigus and lichen planus.
To cure geographic tongue, migratory glossitis, and burning mouth syndrome.
Patients wearing partials and dentures that don't fit properly and have painful ridges

5. **Cloves:** Syzygium aromaticum, a tree in the Myrtaceae family, produces cloves as its aromatic flower buds. As a painkiller for dental emergency, cloves are utilised in Indian Ayurveda medicine, Chinese medicine, western

herbalism, and dentistry. To promote peristalsis, raise stomach hydrochloric acid, and act as a carminative, cloves are employed. Moreover, cloves are thought to be a natural anthelmintic. They produce a volatile oil that is used in perfumes and medicine. Cloves are used to treat conditions of the mouth, stomach, intestines, circulation, and lungs. They also have antibacterial, stimulant, and antiemetic (vomiting prevention) characteristics. Clove oil can be applied to painful gums and teeth to reduce discomfort. Gargle with whole cloves to reduce foul breath. [22]

6. **Eucalyptus:** The eucalyptus, a tall Australian native tree, produces a potently antiseptic essential oil that has been used medicinally for a very long time. The eucalyptus is sometimes referred to as the "fever tree" because its leaves have traditionally been used to reduce fevers. On sore, inflamed gums, eucalyptus oil can be applied for momentary relief. [26]
7. **Peppermint:** It has been used as one of the earliest home treatments to heal stomach, intestinal, and muscle ailments as well as to increase circulation. The flowering tops and leaves are now used to cure nausea, diarrhoea, convulsions, colic, and fever. It is one of the first known home medicines and has been used to treat the muscles, intestines, and stomach as well as to increase circulation. These days, colic, fever, convulsions, and especially nausea and diarrhoea are treated with the leaves and blooming tips. Menthol, methyl acetate, tannic acid, and vitamin C are all components of peppermint. If you soak a cotton ball in peppermint oil and place it in a cavity or rub it on your tooth, the pain will be relieved. Gum irritation can be treated with peppermint mouthwash. [22]
8. **Turmeric:** *Curcuma longa's* rhizome, commonly known as turmeric (haldi), is a flavourful yellow-orange spice. The plant is 3 feet tall and has lance-shaped leaves and spikes of yellow flowers that develop from an underground stem or a mushy rhizome. The rhizome's orange pulp serves as the raw material for turmeric's therapeutic powder. The curcuminoids that make up turmeric mostly consist of curcumin (diferuloyl methane), demethoxycurcumin, and bisdemethoxycurcumin. As curcumin is nontoxic and has a wide range of medicinal qualities, including antioxidant, analgesic, anti-inflammatory, antibacterial action, and anticarcinogenic activity, it has been widely utilised in ayurvedic medicine for millennia. [27] Table 3 describes the additional benefits of turmeric in dental therapy

Table 3: Benefits of using turmeric in dental therapy

Property	Benefits
Antibacterial activity	Turmeric and its constituent parts have been identified to possess antibacterial activity against particular micro-organisms such as ascomitans & MRSA.
Anti-cancer property	Several research using animal models have shown that curcumin has anti-carcinogenic properties. It has also shown a variety of cancer-inhibitory properties in in vitro settings, including the activation of apoptosis. [28]
Oral mucositis treatment	With its anti-oxidant and free radical scavenging activity, curcumin is a well-known radio sensitizer and chemo preventative drug that has demonstrated its radio protective potential in in vitro investigations. Hence, oral mucositis is immediately relieved.

CONCLUSION

One of the most significant issues in public health is oral illness, which is on the rise in emerging nations. Bacterial infections and poor oral hygiene are the main causes of oral illnesses. In Ayurvedic literature, the process and the medications helpful for dental health are extremely well explained. The presence of potentially bioactive chemicals in medicinal plants contributes to their antibacterial action by lowering the bacterial load in the mouth cavity and preventing the development of plaque, dental caries, and ulcers. The naturally occurring ayurvedic medications must thus be utilised in future studies to promote oral health and prevent oral disorders in order to make advantage of this information.

REFERENCES

1. Petersen PE. The World Oral Health Report 2003: Continuous improvement of oral health in the 21st century: The approach of the WHO Global Oral Health Programme. *Community Dent Oral Epidemiol.* 2003;31(Suppl 1):3–23
2. Badria FA, Zidan OA. Natural products for dental caries prevention. *J Med Food.* 2004; 7:381–4.
3. Prabu GR, Gnanamani A, Sadulla S. Guaijaverin: A plant flavonoid as potential antiplaque agent against *Streptococcus mutans*. *J Appl Microbiol.* 2006; 101:487–95.
4. Jaiswal YS, Williams LL. A glimpse of Ayurveda - The forgotten history and principles of Indian traditional medicine. *J Tradit Complement Med.* 2016 Feb 28;7(1):50–53.
5. Lad V. *Ayurveda, the Science of Self-Healing: A Practical Guide.* 2nd ed. New Delhi: Lotus Press; 1987.

6. Jacqui W. Herbal products are often contaminated, study finds. *BMJ*. 2013;347:f6138.
7. Humber JM. The role of complementary and alternative medicine: Accommodating pluralism. *J Am Med Assoc*. 2002;288:1655–6.
8. Sharma S. Ayurveda and health. In: Sharma PS, editor. *Realms of Ayurveda*. 1st ed. New Delhi: Arnold-Heineman Publishers; 1979. pp. 117–34.
9. Chatterjee A, Pakrashi S. History of Indian medicine. In: Chatterjee A, editor. *The Treatise on Indian Medicinal Plants*. 1st ed. Vol. 1. New Delhi: National Inst. Science Communication and Information Resources; 1991. pp. 221–4.
10. Kosta S, Tiwari A. A fusion of ancient medicinal plants with modern conventional therapies on its multifaceted anti diabetic properties. *Pharmacol*. 2009; 1:64–77.
11. Borchers AT. Traditional Asian medicine and oral health. *J Tradit Med*. 2004; 21:17–26.
12. Janssen GW. Ten chronic diseases: *Neth Mag Intergr Sci*. 1989; 35:586–94.
13. Sharma RK, Das B, translators. *CharakaSamhita*. 1-5. Varanasi, India: Chowkambha Sanskrit Series Office; 2006.
14. Chakravorty RC. Head and neck diseases in an ancient Indian surgical text (The Sushruta-samhita) *Med Hist*. 1971;15:393–6.
15. Telles S, Naveen KV, Balkrishna A. Use of Ayurveda in promoting dental health and preventing dental caries. *Indian J Dent Res*. 2009; 20:246.
16. Athavale VB. Dantrogas. In: Athavale VB, editor. *Dentistry in Ayurveda*. 1st ed. New Delhi: Chaukhamba Sanskrit Pratishthan; 1999. pp. 7–11.
17. Naik GH, Priyadarsini KI, Satav JG, et al. Comparative antioxidant activity of individual herbal components used in Ayurvedic medicine. *Phytochemistry*. 2003; 63:97–104.
18. Venugopal T, Kulkarni VS, Nerurker RA, et al. Epidemiological study of dental caries. *Indian J Pediatr*. 1998; 65:883–9.
19. Kadam A, Prasad BS, Bagadia D, et al. Effect of Ayurvedic herbs on control of plaque and gingivitis: A randomized controlled trial. *Ayurved*. 2011; 32:532–5.
20. Asokan S, Emmadi P, Chamundeswari R. Effect of oil pulling on plaque induced gingivitis: A randomized, controlled, triple-blind study. *Indian J Dent Res*. 2009; 20:47–51.
21. Torwane NA, Hongal S, Goel P, et al. Role of Ayurveda in management of oral health. *Pharmacogn Rev*. 2014 Jan;8(15):16–21.
22. Sharma PV. In: *CharakaSamhita: Sutrasthanam*. 23rd ed. Ch. 20, Stanzas 11- 13. Sharma P, editor. Varanasi, India: ChaukambhaOrientalia; 1981: 112–4
23. Sharma PV, Sharma P. *CharakaSamhita: Vimanasthanam*. 23rd ed. Ch 5. Varanasi, India: ChaukambhaOrientalia; 1981(18): 226-40.
24. *PDR for herbal medicines*. ed.1. Montvale, NJ: Medical Economics Company; 1998: 631
25. 99Meena M, Figueiredo NR, Trivedi K. Aloe vera – An Update for Dentistry. *J Dentofac Sci*. 2013;2(4):1-4.
26. Burrow A, Eccles R, Jones AS. The effects of camphor, eucalyptus and menthol vapour on nasal resistance to airflow and nasal sensation. *ActaOtolaryngol*. 1983;96(1-2): 157-61.
27. Chainani-Wu N. Safety and antiinflammatory activity of curcumin: A component of turmeric (*Curcuma longa*). *J Altern Complement Med*. 2003; 9:61-8.
28. Crowell PL. Prevention and therapy of cancer by dietary monoterpenes. *J Nutr*. 1999;129(3):775S- 8.

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