

ROLE OF AYURVEDA IN ORAL HYGIENE

*Dr. Saroj, **Dr. ShamsaFiaz

*MS Scholar, **Professor & H.O.D, Post graduate department of Shalakya Tantra, NIA, Jaipur

ABSTRACT

Oral disease is a major health problem worldwide even in the era of 21st century with more advancement in the field of medicine as well as dentistry. Dentistry was well recognized specialized branch of Ayurveda, literature shows it was included in its Shalakya Tantra. Problems such as deformities of the oral cavity, plaques and infections were managed in ancient India. The standard western medicine has had only limited success in the prevention and treatment of oral diseases. Hence there is a global need of safe and effective alternative prevention and treatment. Ayurveda has mentioned various procedures for maintaining oral hygiene which have proved to be safe and effective through several hundred to several thousand years of use. The present scientific evidence based view is focused on possible role of Ayurveda in the oral hygiene and management of dental defects as it is a holistic system of medicine. In this paper, an attempt has been made to review various herbal plants mentioned in Ayurveda that can be used as an adjunct for the maintenance of oral health.

INTRODUCTION

Oral diseases continue to be a major health problem worldwide.^[1]Dental caries and periodontal diseases are amongst the most important global oral health problems, although other conditions like oral and pharyngeal cancers and oral tissue lesions are also of significant concern.^[2]The global need for alternative prevention and treatment options and products for oral diseases that are safe and effective and economical comes from rise in disease incidence, increased resistance by pathogenic bacteria to currently used antibiotics and chemotherapeutics, opportunistic infections in immunocompromised individuals and financial considerations in developing countries.^[3,4]Despite several chemical agents being commercially available, these can alter oral micro biota and have undesirable side effects such as vomiting, diarrhea, and tooth staining.^[5,6]The Western Medicine has had only limited success in the prevention of periodontal disease and in the treatment of a variety of oral diseases.

There is the evidence that oral biofilm –associated diseases may affect systemic health by mechanism such as spreading infections to adjacent tissues and spaces, hematogenous dissemination of oral biofilm

organisms or inflammatory mechanisms.^[7]Further, evidence suggests that oral film associated chronic periodontitis enhances the risk of coronary heart disease and cerebrovascular disease and poor glycemic control in diabetic patients with periodontitis is a concern for clinicians.^[8-10]

Hence the prevention and treatment of oral diseases is not only important for maintenance of good oral health but also for general health. For prevention and treatment of oral diseases is not only important for oral health but also for general health. For prevention and treatment of oral diseases, modern medicine has had only limited success. Oral hygiene is the practice of keeping the mouth and teeth clean for dental health and to avoid bad breath. Tooth brushing, dental floss, tooth picks and gargling are main techniques for oral hygiene in modern science.

There are umpteen numbers of indigenous natural medicinal products which deserve recognition for their contribution in the improvement of oro-dental health.^[11]Various plants and natural products have been used for their pharmacological applications viz. antiulcer, woundhealing, anti-inflammatory, anti-microbial and anti-oxidant properties etc.^[12]

Recently there is renewed interest in use of various Ayurvedic drugs and therapeutic procedures for oral and dental health.

Bacterial infections are considered as causative factors in most of the dental diseases and it has been well documented that Ayurvedic medicament produce considerable antibacterial activity against microorganisms, including bacteria responsible for periodontitis and dental caries.^[13]

The Western Medicine has had only limited success in the prevention of periodontal disease and in the treatment of a variety of oral diseases. According to World health organization 75% of the world's population uses herbs for basic health care needs. WHO has recommended for the incorporation of the traditional systems of medicine like Ayurveda into primary health care systems .Ayurveda must be reinterpreted in the light of our new knowledge and it must be incorporated in modern medicine along with other forms of traditional medicines^[14].

Oral hygiene is not described as a separate chapter in Ayurveda but it comes under the different chapters of Ayurvedic literature. *Acharya Charak* described it under the topic “*Swasthivritta*” personal hygiene in “*Mattrashitiyaadhyaye*” *Acharya Sushruta* had told about oral hygiene in the “*Anagatabhadapratished*” chapter, while *Acharya Vagbhata* described it in “*Dincharya*” chapter. All the authors have given emphasis on personal hygiene which should be followed by each individual strictly. *Dhantapavan* (*Dhattuna*), *Jihwanirlekhana*, *Kavala* and *Gandoosha* are the procedures told by Ayurveda for maintenance of oral hygiene. These procedures will be discussed one by one in forthcoming pages-

DantDhavani (brushing)

DantDhavani means *Dhattuna* or Chewing sticks. It is entirely different from the western-pioneered activity of ‘brushing the teeth’, specifically because these sticks are chewed. The stems should be healthy, soft, without leaves and knots. It is recommended that chewing sticks be obtained from fresh stems of specific plants. The method of use is to crush one end, chew it, and eat it slowly. Ayurveda had given

indication for using it twice a day. In morning after leaving the bed and in evening, before going to sleep and after taking food. According to *Acharya Sushruta* these herb sticks should be fresh and straight. Its length should be 12 *angul* (9 inches), while thickness should be equal to *kanishtikaanguli* (little finger)^[15] these herb sticks should be either ‘*kashaya*’ (astringent), ‘*katu*’ (acid), or ‘*tikta*’ (bitter) in *rasa*.^[16] *Acharya Sushruta* also includes *madhura rasa*.^[17] According to the individual’s *prakarti* (constitution) and dominant *dosha*, it is stated that people with the *vata dosha* dominance may develop atrophic and receding gums, and are recommended to use chewing sticks with sweet, bitter or astringent tastes, such as *Yasthimadhu* (*Glycyrrhizaglabra* Linn.) and the *cutch tree* (*Acacia Catechu* Linn.) respectively.^[18] *Pittadosha* dominant individuals are recommended to use chewing sticks with a bitter taste such as the twigs from the neem tree (*Azadirachta indica* Linn.) and the *Arjuna* tree (*Terminalia arjuna* Linn.). Those with the *kaphadosha* dominant are likely to have pale and hypertrophic gums and are instructed to use chewing sticks with pungent taste, like *Kantakikaranja* (*Caesalpinia bonduca* Linn.) and the *Arka plant* (*Calotropis procera* Linn.). *Acharya Sushruta* had mentioned Tooth powder for cleaning the teeth. He told to use of *Dhattuna* dipped in *Madhu*, *Trikathu*, *Trivargha*, oil and *saindhavlavana*.^[19] Researches has proved that salt is good for tooth and oral hygiene. Now a day’s tooth paste are coming along with salt. The benefit of *Dhantdhavan* is to get rid from bad odour of mouth along with increase interest towards food due to removal of mala from tooth, tongue and mouth.^[20] Chewing on these stems is believed to cause attrition and levelling of biting surfaces, facilitate salivary secretion and possibly, help in plaque control while some stems have an anti-bacterial action.^[21] Present day research has shown that all the chewing sticks described in ancient Ayurveda have medicinal and anticariogenic properties.^[22]

Jihwanirlekhana It is used for cleaning tongue with the help of tongue scraper. It should be made up of either metal or branches of the tree. Its length should be twelve fingers. Its margin should be blunt

so that it will not damage the tongue and should be curved so can be use easily. ^[23] Tongue scrapping stimulates the reflex points of the tongue. Removes bad odour (halitosis). Improves the sense of taste, stimulate the secretion of digestive enzymes. Clinical evidence also shows that use of tongue scrapers on a regular basis, has a significant improvement on eliminating anaerobic bacteria and decreases bad odor. ^[24]

Kavala and *Gandusha* and *Kavala graha* are two primary oral cleansing techniques; specialized therapy to treat as well as to prevent oral diseases. The difference between the two is only in the dosage and procedure of using the drug. In *gandoosha*, a medicated fluid is held mouthful for a specific period until there is lacrimation and nasal discharge, and then the patient spits it out. In *kavalagraha*, the mouth is only three-fourths filled with the medicated fluid; the fluid is swished in the mouth for a specific time and then spat out. ^[25] The benefits of regular *gandoosha* are *swarabalam* (strength to voice), *hanubalam* (strength to jaws), strength to face, *ruchyam* (better taste perception), *drudadhantha* (strong and healthy teeth), and resistance against *doshaja oraaganthujamukharogas*. ^[26] These oral cleansing techniques can also benefit bad breath, decay bleeding gums, dryness of throat, cracked lips and for strengthening teeth, gums and the jaw. ^[27,28] Ayurveda advises *kavala* to purify the entire system; as it holds that each section of the tongue is connected to different organ such as to the kidneys, lungs, liver, heart, small intestines, stomach, colon, and spine, similarly to reflexology. ^[29] Brushing is contra indicated in the cases of mouth ulcer, fever, indigestion, those who have tendency to vomit, asthma, cough, thirst. ^[30] Oil pulling can be used to clean the oral cavity in all these cases. The exact mechanism of the action of oil pulling therapy is not clear. It was claimed that the swishing activates the enzymes and draws the toxins out of the blood. New researches have proof that the oral mucosa does not act as a semipermeable membrane to allow toxins to pass through. The medicated oil and fluid used in *Kavala* and *Gandoosha* probably protect the oral cavity from infection and inflammation by its antioxidant property. ^[31,32] These mechanisms could be

probable mode of action for the reduction of plaque scores and colony count of the microorganisms in the oral cavity. The viscosity of used medicated oil probably inhibits bacterial adhesion and plaque congregation.

The literature showed that there are numerous Ayurvedic drugs, which can be used in prevention as well as management of oral diseases. Some commonly using plants along with properties are listed here- *Amala* has an antioxidant as well as astringent property which has been proven to be effective in the treatment of toothache, gingival inflammations ^[33] and apthous stomatitis. ^[34]

Launga oilis commonly used to relieve in toothache. Eugenol, which is the active component ^[35] is widely used in root canal therapy, dental abscess, temporary fillings and several gum diseases. ^[36] Gritakumari has property of dentin formation. ^[37] *Nimbu/Lemon* solution is the natural source of citric acid with pH 1.68. Because of its antibacterial efficacy, a freshly prepared lemon solution is recommended as a root canal medicament. ^[38] *Amra* leaf contains ascorbic and phenolic acid. Mango leaves possess antibacterial property against anaerobic micro flora and can be used as an effective adjuvant in maintaining oral hygiene. ^[39] Antibacterial, Antifungal, Antiviral, analgesic, immunostimulator and antioxidant property of *Neem* is well established. ^[40] It has both mechanical as well as chemotherapeutic antiplaque agents. ^[41] *Neem* leaves mouth rinse is very effective in the treatment of periodontitis. ^[42] *Triphalaha*s shown anticaries and ^[43] antiplaque property. It is also used for strengthening the gums ^[44] and root canal irrigant. ^[45] *Tulsi* extract as 4% mouth rinse effectively reduces salivary streptococcal mutant's counts. ^[46] *Turmeric* extract can be used in the treatment of potentially malignant lesions in oral cavity. ^[47] It effectively inhibits metastasis of melanoma cells and may be used in deactivating carcinogens in cigarette smoke *Tila/ Sesame* oil is used in the treatment of plaque induced gingivitis.

CONCLUSION

Oral diseases are one of the most important problems in public health and are on the rise in developing

countries. Most of the oral diseases are caused due to the bacterial infections. The anti-bacterial activity of Ayurvedic plants are due to the presence of potential bioactive compounds, which help to reduce bacterial load in the oral cavity and thus prevent the formation of plaque, dental caries and ulcers. The traditional knowledge of Ayurveda should be integrated with the modern dentistry. For this, the active principles of plants should be studied into modern oral health-care practices and dentists should be encouraged to use Ayurvedic remedies in various oral health treatments.

REFERENCES

1. Petersen PE, BourgeoisD, OgawaH. Estupinan – Day S, Ndiaye C, The global burden of oral diseases and risks to oral health. Bull World Health Organ .2005 ;83:661-9 [PMC free article] [PubMed] { Google Scholar }
2. Peterson PE. The World Oral Health Report 2023 : 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 .[PubMed] [Google Scholar]
3. TichyJ, NovakJ,Extraction ,assay ,and analysis of antimicrobials from plants with activity against dental pathogens (Streptococcus sp.) J Altern Complement Med .1998;4:39-45. .[PubMed] [Google Scholar]
4. BadriaFA, ZidanOA .Natural products for dental caries prevention.J Med Food .2004; 7; 381-4. .[PubMed] [Google Scholar]
5. Thoden V and Abraham –InplinL.Plaque and systemic disease: Reappraisal of the focal infection concept .J ClinPeriodontol 1984; 11: 209-20
6. Loesche WJ, SchorkaTerpenningMS, etal. Assesing the relationship between dental disease and coronary heart disease in elderly U.S Veterans. J Am Dent Assoc 1998; 129:301-11
7. Pussinen PJ Alftan G, Rissanen H et al.Antibodies to periodontal pathogens and stroke risk. Stroke 2004; 35:2020-3
8. Taylor GW , Burt BA , Becker MP , Genco RJ ,et al. Severe periodontitis and risk for poor glycemc control in patients with non-insulin – dependent diabetes mellitus .[Periodontal 1996;67:1085-93.
9. AlpataES,Akinrimisi EO. Antibacterial activity of extract South African chewing sticks .OralSurg 1977; 44:717-22.
10. PatilAshwini et.al Oral health &AyurvedaJournal of Interdisciplinary Dental Sciences .Vol 2 No. 2 July-Dec 2013
11. Kelmanson ,JE,Jager ,AK and van Staden ,J. 2000 ,Zulu medicinal plants with antibacterial activity .J Ethnopharmacol:69:241-6 .
12. Bhardwaj: Ayurveda and oral health, SRM journal of Research in Dental Sciences [Vol. 6] Issue3]July – Sep 2015
13. Sushruta. Sushruta Samhita Dalhana Comm. Nibandhasangraha, Gayadasacharya comm. NyayachandrikaPanjika on Nidanasthana. In: Jadavaji T, Narayana R, editors. Chikitsa 24/4. Varanasi: ChaukhambaSurbharatiPrakashana; 2008.p487
14. Agnivesha. Charaka Samhita, Comm. Chakrapanidatta. In: Jadavaji TA, editor. Sutrasthana 5/71. Varanasi: ChaukhambaSurbharatiPrakashana; 2008.p125
15. Sushruta. Sushruta Samhita Dalhana Comm. Nibandhasangraha, Gayadasacharya comm. NyayachandrikaPanjika on Nidanasthana. In: Jadavaji T, Narayana R, editors. Chikitsa 24/6. Varanasi: ChaukhambaSurbharatiPrakashana; 2008.p48

16. Athavale VB. Dentistry in Ayurveda [Danta-Shastra]. New Delhi: Chaukhamba Sanskrit Pratishtan; 1999.

17. Sushruta. Sushruta Samhita Dalhana Comm. Nibandhasangraha, Gayadasacharya comm. NyayachandrikaPanjika on Nidanasthana. In: Jadavaji T, Narayana R, editors. Chikitsa 24/7-8. Varanasi: ChaukhambaSurbharatiPrakashana; 2008.p487

18. Ibidem 24/9

19. Naik GH, Priyadarsini KI, Satav JG, Banavalikar MM, Sohoni DP, Biyani MK Comparative antioxidant activity of individual herbal components used in Ayurvedic medicine. Phytochemistry 2003; 63:97-104.

20. Venugopal T, Kulkarni VS, Nerurker RA, Damle SG, Patnekar PN. Epidemiological study of dental caries. Indian J Pediatr. 1998; 65:883-9.

21. Agnivesha. Charaka Samhita, Comm. Chakrapanidatta. In: Jadavaji TA, editor. Sutrasthana 5/74-75. Varanasi: ChaukhambaSurbharatiPrakashana; 2008.p126

22. Kadam A, Prasad BS, Bagadia D, Hiremath VR. Effect of Ayurvedic herbs on control of plaque and gingivitis: A randomized controlled trial. Ayu. 2011; 32:532-5.

23. Sushruta. Sushruta Samhita Dalhana Comm. Nibandhasangraha, Gayadasacharya comm. NyayachandrikaPanjika on Nidanasthana. In: Jadavaji T, Narayana R, editors. Chikitsa 40/63. Varanasi: ChaukhambaSurbharatiPrakashana; 2008.p558

24. Agnivesha. Charaka Samhita, Comm. Chakrapanidatta. In: Jadavaji TA, editor. Sutrasthana 5/78-81. Varanasi: ChaukhambaSurbharatiPrakashana; 2008.p127

25. Bethesda M. A Closer Look at Ayurvedic Medicine. Focus on Complementary and Alternative

Medicine. National Center for Complementary and Alternative Medicine, US National Institutes of Health. XII (4) 2006.

26. Hebbar A, Keluskar V, Shetti A. Oil pulling – Unraveling the path to mystic cure. J Int Oral Health 2010; 2:11-4.

27. Asokan S. Oil pulling therapy. Indian J Dent Res 2008; 19:169

28. Sushruta. Sushruta Samhita Dalhana Comm. Nibandhasangraha, Gayadasacharya comm. NyayachandrikaPanjika on Nidanasthana. In: Jadavaji T, Narayana R, editors. Chikitsa 24/11-12. Varanasi: ChaukhambaSurbharatiPrakashana; 2008.p487

29. Suja KP. Chemical and biochemical studies on natural antioxidants from sesamum species. PhD thesis 2003. Cochin University of Science and Technology (CUSAT), Kerala, India.

30. AmbikaShanmugam. Lipids. In: Fundamentals of biochemistry for medical students. 7th ed. Kartik Offset Printers: 2001. P.50-4.

31. Treadway L. Amla traditional food and medicine. Herbalgram. 1994; 31:26.

32. Nadkarni KM, Nadkarni AK. Vegetable kingdom. In: Nadkarni K, editor. Indian MateriaMedica with Ayurvedic, Unani-Tibbi, Siddha, Allopathic, Homeopathic, Naturopathic and Home remedies. 3rd ed. Vol. 1. Bombay, India: Popular Prakashan Private Ltd; 1999. p. 46.

33. Amruthesh S. Dentistry and AyurvedaIV: Classification and management of common oral diseases. Indian J Dent Res. 2008; 19:52-61.

34. Sinha AR, Bajaj VK, Singh P, Shekhawat S, Singh K. Phytochemical estimation and antimicrobial activity of aqueous and methanolic extract of Ocimum sanctum L. J Nat Prod Plant Resour. 2013; 3:51-8. 36. Jittapiromsak N, Sahawat D, Banlunara W, Sangvanich P, Thunyakitpisal P. Acemannan, an

extracted product from Aloe vera, stimulates dental pulp cell proliferation, differentiation, mineralization, and dentin formation. *Tissue Eng Part A*. 2010; 16:1997–2006.

35. Abuzied ST, Eissa SA. Comparative study on antibacterial activities of two natural plants versus three different intra canal medicaments

36. Bairy I, Reeja S, Siddharth, Rao PS, Bhat M, Shivananda PG. Evaluation of antibacterial activity of *Mangifera indica* on anaerobic dental microflora based on in vivo studies. *Indian J Pathol Microbiol*. 2002; 45:307–10.

37. Bandyopadhyay U, Biswas K, Chatterjee R, Bandyopadhyay D, Chattopadhyay I, Ganguly CK, et al. Gastroprotective effect of Neem (*Azadirachta indica*) bark extract: Possible involvement of H(+)-K(+)ATPase inhibition and scavenging of hydroxyl radical. *Life Sci*. 2002; 71:2845–65.

38. Wolinsky LE, Mania S, Nachnani S, Ling S. The inhibiting effect of aqueous *Azadirachta indica* (Neem) extract upon bacterial properties influencing in vitro plaque formation. *J Dent Res*. 1996; 75:816–22.

39. Botelho MA, dos Santos RA. Efficacy of a mouth rinse based on leaves of the neem tree (*Azadirachta indica*) in the treatment of patients with chronic gingivitis: A double-blind, randomized, controlled trial. *J Med Plants Res*. 2008; 2:341–6.

40. Tandon S, Gupta K, Rao S, Malagi KJ. Effect of Triphala mouthwash on the caries status. *Int J Ayurveda Res*. 2010; 1:93–9.

41. Date BB, Kulkarni PH. Assessment of Rasa danti in various oral disorders. *Ayurveda Res Pap*. 1995; 2:175–97.

42. Biradar YS, Jagatap S, Khandelwal KR, Singhanian SS. Exploring of antimicrobial activity of triphalamashi-An Ayurvedic formulation. *Evid Based Complement Alternat Med*. 2008; 5:107–13. [

43. Agarwal P, Nagesh L. Comparative evaluation of efficacy of 0.2% Chlorhexidine, Listerine and Tulsi extract mouth rinses on salivary *Streptococcus mutans* count of high school children – RCT. *Contemp Clin Trials*. 2011;

44. 802–8. 32. Kawamori T, Lubet R, Steele VE, Kelloff GJ, Kaskey RB, Rao CV, et al. Chemopreventive effect of curcumin, a naturally occurring anti-inflammatory agent, during the promotion/progression stages of colon cancer. *Cancer Res*. 1999; 59:597–601.

45. Mehta K, Pantazis P, McQueen T, Aggarwal BB. Antiproliferative effect of curcumin (diferuloylmethane) against human breast tumor cell lines. *Anticancer Drugs*. 1997; 8:470–81.

46. Amruthesh S. Dentistry and Ayurveda IV: Classification and management of common oral diseases. *Indian J Dent Res*. 2008; 19:52–61.