

Ayurveda in Dentistry: A Review

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Abstract:

Ayurvedic medicine was considered to be world's oldest medical system, which was originated in India dating back over thousands of years. There was a long history regarding plants for the improvement of dental health and oral hygiene. To study various plants and their products as effective medicines in the treatment of various ailments since ancient times. Data were performed in PubMed Central and Cochrane library using MeSH Terms - Dentistry, Herbal Medicine, Periodontitis. A total of 142 relevant articles were found in 2013 and 2014 followed by case reports. Various studies have mentioned the uses of herbs, which are found to be statistically significant in treatment and management of oral diseases. Current researches showed that herbal extracts are effective because of the interaction with specific chemical receptors within the body. Nowadays, there has been a sudden increase in the use of herbal extracts or plant products as an alternative approach to modern day medicines.

Key Words: Ayurveda, herbal plants, oral health, traditional medicine

Introduction

Primitive medicine is timeless. Globally, in most of the countries part the traces of primitive medicine still persist. In India, snake bites are still cured by "Mantras." Some disease are interpreted as punishment for past sins, but it is well-documented in literatures that "traditional healers" are found everywhere.¹

It is known that medicine is as old as life itself. For the survival of the species against the diseases, all the living things must

develop the way to combat the disease phases. Man is most superior and higher among animals hence explores remedies for illness in plants and herbs.²

The medical system is truly Indian in origin and is developed in terms of "Ayurveda" which combines the Sanskrit word "Ayur" (life) and "Veda" (Science of knowledge). The written source of the ancient books known as "The Vedas." Srila Vyasadeva wrote down the Vedas for the first time, which include a branch called as the Ayurveda. Ayurveda originated over 5000 years ago in the magnificent Himalayas, and it is initially practiced in Tamil - speaking areas of South India.²

The purpose of Ayurvedic Medicines was to coordinate and maintains the body, mind, and spirit. This balance is believed to lead happiness and health and prevent illness.³

Charak Samhita - by Charaka⁴

Charak Samhita, which dates back to approximately 800 BC, a major compendium in context to Ayurvedic medicine. This Samhita is presented as poetry, and contains more than 8,400 chapters. Nowadays, ayurvedic physicians still use Samhita for medical training.

Sushruta Samhita by Sushruta⁴

Sushruta Samhita, which dates back to approximately 700 BC, which includes seminal contents such as the Ayurvedic definition of blood, and the five sub-doshas description of pitta and the marma points and also includes skin grafting technique and reconstructive surgery.

The present review aims to discuss various plants and their application and significance in dentistry.

Materials and Methods

Study selection was conducted to evaluate the different uses of Ayurveda in the treatment and implementation of dental health and oral hygiene. Literatures on advance research on the effect of herbs in dentistry including original articles and paper in PubMed database were taken into the study for review from 2013 to 2014. The choice of keywords was to collect relevant datas without relaying on electronic means alone to refine the search results with this combination total of 142 abstract appeared. For each retraction, a total of 13 articles were retrieved for review. Reported data were analyzed and represented in the form of a table for current review.

Results

Overall, 142 relevant articles were found in the year 2013. Of these 75 were literature review, 31 were clinical studies, 20 were conducted in animals, and 16 were retrospective studies (Table-1).⁵⁻¹⁸

Discussion

Traditional Chinese Medicine (TCM) uses about 5000 plant species while India uses about - 7000. However, still TCM is well-established in the international market when compared to the Indian market. The reputation of Indian herbal medicines market is worth around - US \$1 billion worldwide, as against the global market for herbal medicines, which is in the region of

US \$62 billion, while Chinese herbal medical market is worth around - US \$19 billion. Still India has enormous resources for herbal medicines. Herbal medicines have been used for many years, but its application in dentistry has not been explored fully. If this happens successfully, India could gain a significant competitive edge in the global market, especially in the cosmetics and medicines.¹⁹ The major problem in acceptability of Ayurveda and its products is a lack of proper standardization technique and unpreparedness to accept global challenges. Ayurveda needs immediate and extensive reorientation to gain credibility. Hence, researchers should be encouraged to conduct more studies to prove the effectiveness and safety of natural dental products.²⁰

Specific strategies of WHO for promotion of traditional medicine (TM)

WHO is mainstreaming (TM) in health systems that cover every potential of TM. It involves the use of herbal medicines, as well as the use of animal parts, minerals, and other complex factors (in pharmaceutical processes).²¹ These include:

- 01 - Regulation of herbal medicine
- 02 - Classification of herbal medicines
- 03 - Standardization of herbal medicine
- 04 - Rational use of herbal medicine
- 05 - Pharmacovigilance program for herbal medicine
- 06 - Consumer guidelines of herbal medicines
- 07 - Fellowship at collaborative centers.

Regulatory act for herbal medicines²¹

WHO has always emphasized on rules and regulations time to time for the practice of TM, as well as its global appraisal, among the member countries. From literatures, it is well-documented about the evolution of Ayurveda from Indian subcontinent. Hence, Indian Government has already recognized Ayurveda to be practiced as the official system of medicine. In India rules for practice and education of Ayurveda have been laid in 1970 by the Indian Medicine Central Act whereas herbal medicines of Ayurveda are governed by Drugs and Cosmetics Act 1940 (Chapter IV A).

Classification²¹

According to WHO guidelines, four categories of herbal medicines can be classified on the basis of their evolution, origin, and forms of current usage.

Category 1: Indigenous herbal medicines

Historically, this category of herbal medicines is used in a local community or region and was very well-known by the local population through ages in context to composition, treatment, and dosage.

Category 2: Herbal medicines in systems

This category was well-documented and was used for a long time based on their theories and concepts that are duly accepted by the respective countries.

Table 1: Uses of various herbs and their significant effect in dentistry.

Plant (scientific name)	Uses
Ajowan (<i>Trachyspermum ammi</i>)	It significantly reduce cariogenic properties of <i>Streptococcus mutans</i> adherence on tooth surface, as well as biofilm formation
Aloe vera (<i>Aloe barbadensis</i>)	Aloe vera gel at optimum concentrations in toothpastes or mouthwashes could be useful for prevention of dental caries and periodontal disease
Clove (<i>Syzygium aromaticum</i>)	Crude clove extract has the potential to influence plaque-inducing properties of <i>Streptococcus mutans</i> strain by affecting cell adhesion, cell-surface hydrophobicity, and glycosyltransferase activities
Green tea (<i>Camellia sinensis</i>)	It possess antimicrobial properties which prevents the adhesion of <i>Streptococcus mutans</i> , <i>Porphyromonas gingivalis</i> , and <i>Streptococcus sobrinus</i>
Haritaki (<i>Terminalia chebula</i>)	Haritaki mouthwash inhibit effect of <i>Streptococcus mutans</i> and possesses antibacterial effect on the salivary bacteria, which is an essential prerequisite for an ideal mouth rinse
Honey (<i>Propolis</i>)	It is used for the treatment of aphthous ulcers, candidiasis, acute necrotizing ulcerative gingivitis, gingivitis, periodontitis, and pulpitis
Liquorice (<i>Glycyrrhiza glabra</i>)	Both extracts and constituents of licorice incorporated into oral hygiene products such as mouthwash, toothpaste, gel, and chewing gum validate the beneficial effects in recurrent aphthous ulcers, oral candidiasis, denture stomatitis, periodontal diseases, which include gingivitis and periodontitis and dental caries
Mango (<i>Mangifera indica</i>)	It plays an efficient role in the management of periodontitis
Miswak (<i>Salvadora persica</i>)	It possesses plaque inhibiting and antibacterial properties against several types of cariogenic bacteria which are frequently found in the oral cavity
Neem (<i>Azadirachta indica</i>)	Neem mouth rinse is highly efficacious and demonstrated as a significant reduction of plaque and gingivitis and also indicated in the treatment of periodontal disease therapy
Pomegranate (<i>Punica granatum</i>)	It possesses antimicrobial activity against both bacteria and fungi due to the presence of hydrolysable tannins and polyphenols specifically gallic acid in pomegranate extracts
Triphala (<i>Myrobalan plums</i>)	It possesses good antibacterial property as it cures periodontal disease without any side effects or toxicity
Tulsi (<i>Ocimum sanctum</i>)	It act as COX-2 inhibitor hence have significant effect on toothache, periodontal disorders, candidiasis, lichen planus, leukoplakia, and oral submucous fibrosis, pemphigus, aphthous ulcerations
Turmeric (<i>Circuma longa</i>)	It possesses antioxidant, analgesic, anti-inflammatory, antifungal, antiseptic, and anticarcinogenic activity

For example - Ayurveda, Siddha, and Unani.

Category 3: Modified herbal medicines

Herbal medicines that are described above in Categories 1 and 2, except that they have been modified with respect to their shape, dose, administration mode and composition, and these medicines have to meet the national regulatory requirements in safety and efficacy.

Category 4: Imported products with an herbal medicine base

This category includes all the imported herbal medicines (raw materials and products). The national authority of the importing country should have a safety and efficacy data.

Conclusion

The use of herbal medicine has been successfully applied in dentistry as antiseptic, antioxidants, and analgesic. The natural phytochemicals play an alternative role to antibiotics and also aid in healing of oral infections and thereby improving immunity. However, well-controlled clinical trials are required to validate the use of these traditional therapeutics strategies in the dental field.

References

1. Park K. Park's Textbook of Preventive and Social Medicine. 21st ed. India: Banarsidas Bhano; 2011.
2. Lawrence, Felicity – Aromatic Indian Head Massage. NAHA'S Aromather J 2004;13(2):1-10.
3. Mishra L, Singh BB, Dagenais S. Ayurveda: A historical perspective and principles of the traditional healthcare system in India. Altern Ther Health Med 2001;7:36-42.
4. About Ayurveda. Available from: <http://www.casc.uchc.edu/ayurveda>. [Last accessed on 2014 Mar 08.]
5. Khan R, Zakir M, Khanam Z, Shakil S, Khan AU. Novel compound from *Trachyspermum ammi* (*Ajowan caraway*) seeds with antibiofilm and antiadherence activities against *Streptococcus mutans*: A potential chemotherapeutic agent against dental caries. J Appl Microbiol 2010;109:2151-9.
6. Fani M, Kohanteb J. Inhibitory activity of Aloe vera gel on some clinically isolated cariogenic and periodontopathic bacteria. J Oral Sci 2012;54:15-21.
7. Rahim ZH, Khan HB. Comparative studies on the effect of crude aqueous (CA) and solvent (CM) extracts of clove on the cariogenic properties of *Streptococcus mutans*. J Oral Sci 2006;48(3):117-23.
8. Axelrod M, Berkowitz S, Dhir R, Gould V, Gupta A, Park J, et al. The inhibitory effects of green tea (*Camellia Sinensis*) on the growth and proliferation of oral bacteria 2012;3:1-19.
9. Nayak SS, Kumar BR, Ankola AV, Hebbal M. The efficacy of *Terminalia chebula* rinse on *Streptococcus mutans* count in saliva and its effect on salivary pH. Oral Health Prev Dent 2010;8(1):55-8.
10. Ahuja V, Ahuja A. Apitherapy – A sweet approach to dental diseases – Part II: Propolis. J. Acad Adv Dent Res 2011;2(2):1-7.
11. Messier C, Epifano F, Genovese S, Grenier D. Licorice and its potential beneficial effects in common oro-dental diseases. Oral Dis 2012;18:32-9.
12. Duang XY, Wang Q, Zhou XD, Huang DM. Mangiferin: A possible strategy for periodontal disease to therapy. Med Hypotheses 2011;76(4):486-8.
13. Al Sadhan RI, Almas K. Miswak (Chewing stick): A cultural and scientific heritage. Saudi Dent J 1999;11(2):80-8.
14. Marco AB, Rinaldo AS, Jose GM, Cintia OC, Cláudio AR, Dinalva BQ, et al. Efficacy of a neem mouthrinse (*Azadirachta indica*) in the treatment of patients with chronic gingivitis. J Med Plant Res 2008;2(11):341-6.
15. Dahham SS, Mir NA, Tabassum H, Khan M. Antibacterial and antifungal activity of pomegranate (*Punica granatum*). AEJ Agric Environ Sci 2010;9(3):273-81.
16. Maurya DK, Mittal N, Sharma KR, Nath G. Role of triphala in the management of periodontal disease. Anc Sci Life 1997;17(2):120-7.
17. Duggal P. The trumpet of turmeric. Guident 2013;6(8):64-8.
18. Sumit B, Geetika A. Therapeutic benefits of holy basil (Tulsi) in general and oral medicine: A review. Int J Res Ayurveda Pharm 2012;3(6):761-4.
19. Aneesh TP, Hisham M, Sonal Sekhar M, Madhu M, Deepa TV. International market scenario of traditional Indian herbal drugs. Int J Green Pharm 2009;3(3):184-90.
20. Kohli KR. Current scenario of ayurvedic industry. Health Adm 2006;00:71-73.
21. Chaudhary A, Singh N. Contribution of world health organization in the global acceptance of Ayurveda. J Ayurveda Integr Med 2011;2:179-86.