

Naturopathy and Endodontics - "A Synergistic approach"

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ABSTRACT: Endodontic treatment involves removal of infected tissue and microorganisms from within the root canal space to prevent further infection of the periradicular tissues as well as to allow healing of these tissues. This critical process involves the use of some chemical substances for disinfection of the root canal space. Studies have shown that contemporary chemical agents do not achieve complete disinfection, and have other disadvantages like weakening of the tooth structure, predisposing to fracture of the tooth. Recently, there has been a growing trend to seek natural remedies as part of dental treatment. This may be termed as ethnopharmacology or phytotherapy. This paper aims at providing a review that focuses on the natural agents and procedures that have been evaluated in endodontics.

KEYWORDS: Endodontics, Alternative dentistry, Naturopathy, Aryurveda, Homeopathy, Aromatherapy, Hypnosis.

INTRODUCTION

Since antiquity, herbs and spices are derived from medicinal plants rich in minerals and organic matter remain the mainstay of about 75-80% of the world's population for health care and gaining popularity in developed and developing countries.¹ Herbs have medicinal property due to presence of different active principles like alkaloids, volatile essential oils, glycosides, resins, oleoresins, steroids, tannins, terpenes and phenols.² In recent years there is an exponential growth in the field of herbal medicine because of their natural origin, easy availability, efficacy, safety and less side effects. Oral Health sector has undergone tremendous advancement and has seen the rise of many new trends. An ever increasing number of people are taking interest in field of alternative and complementary medicine. This type of dentistry combines dental knowledge with procedures from a variety of medical systems that are designed to improve a person's oral health. The approach is not confined to only one area of a person's body, but it takes into consideration patient's overall health. A dentist uses physiologic and electronic methods to locate areas of chronic disease. He then uses alternative traditional techniques like aryuveda, homeopathy, aromatherapy³, hypnosis etc for treatment. Use of these traditional methods is useful in not only treating the cause, but also positively stimulates the entire body with an advantage of being safe, biocompatible and non toxic.

AYURVEDA AND ENDODONTICS

Ayurveda is one of the oldest systems of medicine from India. It is nearly 5000 years old. Ayurvedic herbs have nature's own power of remedies. The right herb in the right combination keeps the body system in harmony. Many herbal extracts have a potential use in endodontics. They can be used with minimal incidences of complications.

- I. **TRIPHALA:** This is an ayurvedic rasayana consisting of Amulaki (*Emblica officinalis*), Bibhitaki (*Terminalia bellirica*) and Halituki (*Terminalia chebula*).⁴ Its fruit is rich in citric acid, which may aid in removal of smear layer thereby acting as chelating agent and also found to be alternative to sodium hypochlorite for root canal irrigation.⁵
- II. **PROPOLIS:** This is prepared from resins collected by bees from trees of poplars and conifers or from flowers of genera clusia. It also contains viscidone.⁶ It is used as intracanal medicaments,⁷ root canal irrigant⁸ and storage media for avulsed teeth to maintain viability of periodontal ligament.⁹
- III. **AZADIRACHTA INDICA:** It is known as Indian neem/margosa tree.¹⁰ This product has been proved to be effective against *E-faecalis* and candida albicans. Its antioxidant and antimicrobial properties makes it a potential agent for root canal irrigation as an alternative to sodium hypochlorite.¹¹

- IV. **GREEN TEA:** It is a tea made solely from the leaves of *Camellia sinensis*. The antimicrobial activity is due to inhibition of bacterial enzyme gyrase by binding to ATP B sub unit.¹² Green tea exhibits antibacterial activity on *E. faecalis* planktonic cells. It is also found to be a good chelating agent.⁵
- V. **SALVADORA PERSICA SOLUTION (*Miswak - Siwak*):** Its chewing sticks contain trimethyl amine, salvadorime chloride and fluoride in large amounts.¹³ Fifteen percent alcoholic extracts of it has maximum antimicrobial action. It can be used as a substitute for sodium hypochlorite and chlorexidine as root canal irrigant.^{14,15}
- VI. **GERMAN CHAMOMILE:** It is used as a table tea and flower of chamomile plant contain a wide variety of active chemical components (chamazolene, capric acid and caprylic acid chlorogenic acid). It is used for removal of smear layer and found to be more effective than NaOCl.¹⁶
- VII. **TEA TREE OIL:** This is a native Australian plant with terpenin- 4-ol as a major component, responsible for antibacterial and anti fungal properties. It is used as root canal irrigant, but less effective compared to EDTA and NaOCl.¹⁶
- VIII. **GARLIC (*Allium Sativum*):** The main active component of garlic is allicin. It is antibacterial and has immune regulatory functions. Allicin destroys cell wall and cell membrane of root canal bacteria.¹⁷ This is used as irrigant alternative to NaOCl.
- IX. **LEMON SOLUTION:** Lemon solution (pH 2.21) is a natural source of citric acid (pH 1.68) with lower acidity. Citric acid, a chemical product has some irritating effect compared to natural lemon solution. Fresh lemon solution is used as root canal medicament because of its wide antibacterial efficiency including *E. faecalis*.¹⁸
- X. **ALOE VERA GEL:** Aloe leaves contain clear gel and green part of the leaf that surrounds the gel is used to produce juice or dried substance. It contains aloins and barbadoins as main chemical constituents. Aloe Vera gel has inhibitory effects on *S. pyogenes* and *E. faecalis* because of anthraquinone.¹⁹ Its bactericidal activity is found to be less than Ca(OH)₂.²⁰
- XI. **PSORALEA CORYLIFOLIA:** This is found to be effective against *E. faecalis*.²¹ It acts by causing injury to cell membrane and inhibiting DNA polymerase.
- XII. **TURMERIC:** Massing the aching teeth with ground turmeric eliminates pain and swelling.²²

SAFETY AND DRUG INTERACTIONS²³

Herbal products are normally considered safe. The literature has revealed few reports concerning the adverse effects of these natural products commonly used in endodontics.

HERB	USES	POSSIBLE SIDE EFFECTS	INTERACTS WITH	INTERACTIONS
ALOE LATEX	Laxative, demulcent; topical for wound healing, burns and skin conditions	Abdominal pain, diarrhea, and electrolyte imbalances	Corticosteroids	Cardiovascular hyperactivity
CHAMOMILE	Reduce flatulence and diarrhea, stomach upset; treat travel sickness; produce mild sedation; treat the common cold, fevers, cough; increase appetite.	Unknown	Aspirin Benzodiazepines	Increased risk of bleeding Increased sedation
GARLIC	Lower cholesterol and triglycerides; prevent colds, flu and other infectious diseases	Smelly breath and body odor; dermatitis; bleeding; flatulence; burning of the mouth, throat, and stomach; nausea	Aspirin, acetaminophen, general anesthetics	Increased risk of bleeding
GINGER	Reduce nausea (antiemetic); treat and prevent motion sickness; increase appetite; reduce stomach acidity	Diarrhea; increased bleeding time	Aspirin	Increased risk of bleeding
GREEN TEA	Prevent cancer; counter aging; treat arthritis; weight loss	sleeplessness, irregular heartbeat, dizziness, vomiting, diarrhea, headache	Oral Atropine	Decreased drug effect
ORANGE OIL	flu and other infectious diseases	Unknown	Aspirin	Increased Bleeding

AROMATHERAPY IN ENDODONTICS

Aromatherapy makes use of pure oil essences from plants and flowers that act as hormone-like stimulants to improve a patient's health balance. They are natural and gentle Oils like lavender, bergamot, sandalwood, and basil are beneficial in their power to soothe, relax, and calm.²⁴

HOMEOPATHY AND ENDODONTICS

Homeopathy is used by dentists as a natural approach to their practice. The therapy is a safe and natural alternative that is non-addictive and effective with both adults and children. Homeopathic remedies are used to improve the psychological or emotional condition of patients without the drugging effects of conventional tranquilizers. The three main remedies considered by holistic dentists include: Aconite (foxglove), Gelsemium (yellow jasmine) and Argentum nitricum (silver nitrate). Clinical experience has also demonstrated that many homeopathic remedies have been found to be effective for conditions especially dental caries, dental abscess, oral lesions, post-extraction bleeding and even medications to treat the anxious and nervous child.²⁵

ROLE OF HYPNOSIS IN ENDODONTICS

When hypnosis is used, patients are able to relax

their bodies and minds by concentrating on suggestions of relaxation. The patient is fully aware of what is happening during their treatment and no drugs are used. Its use is mainly suggested for apprehensive patients. It may banish fear and make other anaesthesia unnecessary. The patient surrenders critical faculties rather than will power. Patients have terminated trances when the suggested situations become uncomfortable or threatening.²⁶ Many dentists employ specialist hypnotherapists to provide treatment that is highly effective and cannot cause any harm or produce any side effects.

CONCLUSION

Naturopathy is an emerging field in dental medicine that supports the life process. It is an aesthetic, relatively nontoxic, biocompatible treatment modality. However there is scarce information on the quality, Safety and greater efficiency of these products for use in endodontics. As most of the studies are carried invitro, more of these compounds should be subjected to animal and human studies to determine their effectiveness, side effects, toxicity and drug interactions. The knowledge and understanding of natural approach of treatments is still an ongoing process and further research should be carried out in this regard.

REFERENCES

1. Sekar T.M, Ayyanar, Gopalakrishnan M. Medicinal plants and herbal drugs. *Current Science* 2010; 98(12): 1558-1559.
2. Anees T.P. International market scenario of traditional Indian herbal drugs: India declining. *Int. J. Green. Pharm* 2010; 122: 184-190.
3. Leger J. Aromatherapy in dentistry. *Chir Dent Fr.* 1986; 56(343):43-47.
4. Anne McIntyre. Herbal treatment of children: Western and Ayurvedic perspectives. Elsevier Health Sciences. 2005: 278-280.
5. Prabhakar J, Senthil kumar M, Priya M S, Mahalakshmi K, Sehgal PK, Sukumaran VG. Evaluation of antimicrobial efficacy of herbal alternatives (Triphala and Green tea polyphenols), MTAD and 5% sodium hypochlorite against *Enterococcus faecalis* biofilm formed on tooth substrate: An invitro study. *J Endod* 2010; 36: 83-86.
6. Montenegro G, Mujica AM, Peña RC, Gómez M, Serey I & B N Timmermann. Similitude pattern and botanical origin of the Chilean propolis. *Phyton* 2004; 73 :145-54
7. Oncag A, Cogulu D, Uzel A, Sorkun K. Efficacy of propolis as an intracanal medicament against *Enerococcus faecalis*. *Gen. dent.* 2006; 54: 319-22.
8. da silva FB, de Almeida JM, de souse SMG. Natural medicaments in endodontics- A comparative study of the antiinflammatory action. *Braz Oral Res* 2004; 18: 174-179.
9. Martin MP, Pileggi R. A quantitative analysis of Propolis: a promising new storage media following avulsion. *Dent Traumatol.* 2004; 20: 85-9.
10. Ganguli S. "Neem: A therapeutic for all seasons" *Current Science.* 2002; 82: 1304.

11. Bohora A, Hegde V, Kokate S. Comparison of antibacterial efficacy of neem leaf extract and 2% sodium hypochlorite against *E. faecalis*, *C. albicans* and mixed culture- an in vitro study. *Endodont* 2010; 22: 8-12.
12. Gradišar et al. Green Tea Catechins Inhibit Bacterial DNA Gyrase by Interaction with Its ATP Binding Site. 2007: <http://pubs.acs.org/doi/abs/10.1021/jm060817>.
13. Almas K. The antimicrobial effects of extracts of *Azadirachta indica* (neem) and *Salvadora Persica* (Arak) chewing sticks. *Indian J Dent Res* 1999; 10: 23-26.
14. Al- subawi NAK, Abdull- khalik K, Mahmud Y, Taha MY, Abdul A. The Antimicrobial activity of *Salvadora persica* solution (Miswak siwak) as root canal irrigant. *University of sharjah journal of pure & applied science* 2007; 4: 69-91.
15. Almas K. "The Effect of *Salvadora Persica* Extract (Miswak) and Chlorahexidine Gluconate on Human Dentin: A SEM Study". *J Contemp Dent Pract* 2002; 3: 2735.
16. Sader Lahijini MSS, Raoof Kateb HR, Heady R, Yazdini D. The effect of German chamomile (*Marticaria recutita* L.) extract and tea tree (*Melaleuca alternifolia* L.) oil used as irrigants: a scanning electron microscope study. *Int Endod J* 2006; 39: 190-195.
17. Traditional Chinese medicine used in root canal disinfection research. *Pharmacy papers* (Online article). <http://eng.hi138.com/?b106>.
18. Abuzied ST, Eissa SAL. Comparative study on antibacterial activities of two natural plants versus three different intracanal medicaments. (Online article) http://www.kaue.edu.sa/Files/165/Researches/19240_Comparative%20Study%20On.pdf
19. Wynn RL. Aloe Vera gel: update for dentistry. *Gen Dent* 2005; 53(1): 6-9.
20. Maguire H, Torbinejad M, Kettering JD. Use of aloe vera gel as an intracanal medicament. *J Endod* 1996; 22(4): 193.
21. Kastura H, Tsukiyama R, Suzuki A, Kobayashi M. Invitro antimicrobial activity activities of Bukachiol against oral microorganisms. *Antimicrob. Agents Chemother.* 2001; 45: 3009-3013.
22. Chaturvedi TP. Uses of turmeric in dentistry in dentistry an update. *Indian J Dent Res* 2009; 20(1): 107-109.
23. NCCAM, Drugs.com, Journal of the American Medical Association, Journal of Dental Hygiene.
24. Leger J. Aromatherapy in dentistry. *Chir Dent Fr.* 1986; 56(343):43-7.
25. Bhat S S, Sargod S, George D. Dentistry and homeopathy: An overview. *Dent Update* 2005; 33(1):58.
26. Charles F. Bodecker, Loren R et al. Use of hypnosis in dentistry: An overview. *J Am Dent Soc Anesthesiol.* 1958; 5(8): 22-24.

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