

Possible Use of Essential Oils in Dentistry

Namrata Dagli¹, Rushabh Dagli²

Contributors:

¹Past Member, Clinical Research and Ethical Committee, Care Institute of Medical Sciences, Ahmedabad, Gujarat, India; ²Associate Professor, Public Health Dentistry, Vyas Dental College and Hospital, Jodhpur, Rajasthan, India.

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In the recent years, there has been an increased interest toward the essential oils. These are secondary metabolites produced by various medicinal plants and possess antibacterial, antifungal, and antioxidant properties.¹⁻³ Number of studies has been done to prove the therapeutic properties of various essential oils, but very few has been published on their use in dentistry. Following are the possible uses of essential oils in dentistry:

1. Oral hygiene adjunct - Essential oil rinses are found to be equally effective in inhibiting plaque. A study carried out by Pizzo *et al.* on plaque inhibitory effect of amine fluoride/stannous fluoride and essential oils showed no significant difference in efficacy of both. As chlorhexidine causes staining of teeth on long term use, essential oils can be used as an alternative to chlorhexidine rinse.⁴ Essential oils have shown to possess antimicrobial activity against subgingival periopathogens too.^{5,6} However, a study done on efficacy of essential oil with and without presence of ethanol concluded that essential oils alone are not very effective.⁷
2. Anxiolytic - Aroma of lavender essential oils is capable of altering emotional states and reducing mild anxiety. It has been reported to be useful in reducing anxiety in dental patients when used in waiting area.^{8,9} It also reduce the pain of needle insertion.¹⁰ Use of aromatherapy with natural essential oil of orange has been shown to reduce salivary cortisol and pulse rate due to child anxiety state.¹¹
3. Wound dressing - According to the study done by Budzyńska *et al.*, better therapeutic effects can be achieved from the wound dressings containing essential oils. Activity was found to be more when stored at 4°C for 7 days.¹² Therefore, they can be used to achieve better healing after oral surgical procedures.
4. In dental implants - Hence many essential oils have been shown to possess antibiofilm activity. They can be used with dental implants. Treatment of dental implant material surfaces with essential oils has shown to inhibit biofilm production.¹³
5. As preservative - Essentials oils showed higher inhibitory activity against tested microorganism strain than extracts and methylparaben. The study by Herman *et al.* suggest use of essential oils as substitute of methyl paraben in cosmetic emulsions. Similarly, it can be used to replace methylparaben, which is used as preservative in various dental products, especially in patients allergic to it.¹⁴ It can be used in LA allergy, but this requires further clinical trials to detect its efficacy as preservative and whether it can be injected in human body or not; as to the best of our knowledge until now any study has not been done in which essential oils are injected in human body.

All these are possible therapeutic benefits of essential oils, but there implication in day-to-day practice requires further research and clinical trials to rule out side-effects. If used properly they may prove very beneficial in dental treatments.

References

1. Baratta MT, Dorman HJ, Deans SG, Figueiredo AC, Barroso JG, Ruberto G. Antimicrobial and antioxidant properties of some commercial essential oils. *Flavour Fragr J.* 1998;13:235-44.
2. Hammer KA, Carson CF, Riley TV. Antimicrobial activity of essential oils and other plant extracts. *J Appl Microbiol* 1999;86(6):985-90.
3. Guleria S, Tiku AK, Koul A, Gupta S, Singh G, Razdan VK. Antioxidant and antimicrobial properties of the essential oil and extracts of *Zanthoxylum alatum* grown in north-western Himalaya. *ScientificWorldJournal* 2013;2013:790580.
4. Pizzo G, La Cara M, Licata ME, Pizzo I, D'Angelo M. The effects of an essential oil and an amine fluoride/stannous fluoride mouthrinse on supragingival plaque regrowth. *J Periodontol* 2008;79(7):1177-83.
5. Morozumi T, Kubota T, Abe D, Shimizu T, Nohno K, Yoshie H. Microbiological effect of essential oils in combination with subgingival ultrasonic instrumentation and mouth rinsing in chronic periodontitis patients. *Int J Dent* 2013;2013:146479.
6. Fine DH, Markowitz K, Furgang D, Goldsmith D, Ricci-Nittel D, Charles CH, *et al.* Effect of rinsing with an essential oil-containing mouthrinse on subgingival periodontopathogens. *J Periodontol* 2007;78(10):1935-42.

7. Pizzo G, Compilato D, Di Liberto B, Pizzo I, Campisi G. Effects of two essential oil mouthrinses on 4-day supragingival plaque regrowth: A randomized cross-over study. *Am J Dent* 2013;26(3):156-60.
8. Lehrner J, Marwinski G, Lehr S, Jöhren P, Deecke L. Ambient odors of orange and lavender reduce anxiety and improve mood in a dental office. *Physiol Behav* 2005;86(1-2):92-5.
9. Bradley BF, Brown SL, Chu S, Lea RW. Effects of orally administered lavender essential oil on responses to anxiety-provoking film clips. *Hum Psychopharmacol* 2009;24(4):319-30.
10. Kim S, Kim HJ, Yeo JS, Hong SJ, Lee JM, Jeon Y. The effect of lavender oil on stress, bispectral index values, and needle insertion pain in volunteers. *J Altern Complement Med* 2011;17(9):823-6.
11. Jafarzadeh M, Arman S, Pour FF. Effect of aromatherapy with orange essential oil on salivary cortisol and pulse rate in children during dental treatment: A randomized controlled clinical trial. *Adv Biomed Res* 2013;2:10.
12. Budzyńska A, Sadowska B, Wieckowska-Szakiel M, Różalska B. *In vitro* efficacy analysis of absorbent dressing modified with essential oils, against *Staphylococcus aureus* and *Candida albicans*. *Med Dosw Mikrobiol* 2013;65(2):77-86.
13. Al-Radha AS, Younes C, Diab BS, Jenkinson HF. Essential oils and zirconia dental implant materials. *Int J Oral Maxillofac Implants* 2013;28(6):1497-505.
14. Herman A, Herman AP, Domagalska BW, Młynarczyk A. Essential oils and herbal extracts as antimicrobial agents in cosmetic emulsion. *Indian J Microbiol* 2013;53(2):232-7.