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Aromatherapy: A New Pragmatism in Dentistry [Part-2]

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ABSTRACT

A new and alternative way to reduce anxiety levels in dental clinics is the use of aromatherapy. Aromatherapy uses plant materials and aromatic plant oils, including essential oils and other aroma compounds for improving psychological or physical well-being. Number of studies has been done to prove the therapeutic properties of various essential oils, but very few have been published on their use in dentistry. This review is a continuation of previous article which will provide an overview of remaining essential oils, including their therapeutic properties and applications in dentistry.

Key words: Aromatherapy, Lavender, Eucalyptus, Lemon, Peppermint

INTRODUCTION

Aromatherapy, referred to as Essential Oil therapy, which can be defined as the art and science of utilizing naturally extracted aromatic essences from plants to balance, harmonize and promote the health of body, mind and spirit. It seeks to unify physiological, psychological and spiritual processes to enhance an individual's innate healing process.^[1]

For the treatment of a wide range of complications and conditions, aromatherapy has made a name for itself. A review of the literature reveals that this therapy

attracted a lot of attention in the 20th and 21st centuries as well, and because of its significance, appeal, and widespread use, it is recognised as aroma science therapy.^[2]

Aromatherapy has been used for almost 6,000 years, to improve a person's mood or health and works both physically and emotionally. Aromatherapy is the use of aromatic compounds such as essential oils for therapeutic or medicinal purposes. Aromatic oils are extracted from various parts of plants, herbs, trees, and flowers for medicinal purposes, and over forty different types of oils are available.^[3]

How Aromatherapy Works

The most common explanation of how aromatherapy works is that it acts on the olfactory system, which is intuitively consistent with the practice of aromatherapy. Aromatherapy oils contain volatile molecules that interact with receptors in the nose to produce an electrical signal that causes the brain to perceive smell. This perception includes reactions brought on by the limbic system, which regulates memory and emotion and is thought to be the mechanism by which odours have an impact on mood,

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alertness, mental stress, arousal, and perceived health.^[4]

1. Eucalyptus Oil:

Eucalyptus is a tall, evergreen tree or shrub which belongs to the Myrtaceae family. Although it originally came from Australia and Tasmania, it has already widely spread to other nations. There are roughly 700 species of eucalyptus, and more than 500 of those have leaves that contain volatile oils. Essential oils of various eucalyptus species are used in the pharmaceutical, toiletries, cosmetics, and food industries.^[5] It has rich sources of phytochemical constituents which contain flavonoids, alkaloids, tannin and propanoids.^[6] Eucalyptus essential oils serve a purpose in the pharmaceutical, toiletries, cosmetics, and food industries. The antiseptic, antihyperglycemic, anti-inflammatory, flavouring, and antioxidant characteristics of the oil's molecules account for its wide range of applications.^[7]

Table 5: Scientific aspects of Eucalyptus oil^[8]

Latin name	<i>Eucalyptus obliqua</i>
Family	Myrtaceae
Synonyms	Gum tree, southern blue gum, Tasmanian blue gum, fever tree, stringy bark.
Other species	There are over 700 different species of eucalyptus, of which at least 500 produce a type of essential oil. E. polybractea, E. radiata var. australiana and E. smithii, E. piperita and E. citriodora.
Chemical constituents	Cineol (70-85 per cent), pinene, limonene, cymene, phellandrene, terpinene, aromadendrene, among others.
Parts used	Leaves - In both fresh and dried form

Extraction: Essential oil by steam distillation from the fresh or partially dried leaves and young twigs.^[8]



Therapeutic actions: Analgesic, antineuralgic, antirheumatic, antiseptic, antispasmodic, antiviral, balsamic, cicatrisant, deodorant, diuretic, expectorant, febrifuge, hypoglycaemic, parasiticide, rubefacient, stimulant, vermifuge.^[8]

Applications in Dentistry

- It shows an inhibitory effect on oral pathogens like *Lactobacillus acidophilus*, which makes this suitable to be used as an anticariogenic agent.^[9]
- Eucalyptus oil is an anti-inflammatory germicide that helps soothe receding gums and helps stimulate the growth of new gum tissue.^[10]

Safety/Precautions: Externally non-toxic, non-irritant (in dilution), non-sensitizing. When taken internally eucalyptus oil is toxic and as little as 3.5ml has been reported as fatal.^[8]

2. Lavender Oil:

Lavender is traditionally alleged to have a variety of therapeutic and curative properties, ranging from inducing relaxation to treating parasitic infections, burns, insect bites, and spasm. There is growing evidence suggesting that lavender oil may be an effective medicament in treatment of several neurological disorders. Several animal and human investigations suggest anxiolytic, mood stabilizer, sedative, analgesic, and anticonvulsive and neuroprotective properties for lavender.^[11] In aromatherapy, lavender essential oil is one of the most widely used oils. They have a sedative effect and are known to ease psychological disorders such as stress, anxiety, and depression.^[12] However, studies have

revealed that lavender oil not only helps depression but also relieves insomnia, allergies, gastrointestinal distress, and menstrual cramps.^[13]

Table 4: Scientific aspects of Lavender oil^[8]

Latin name	<i>Lavandula angustifolia</i>
Family	Lamiaceae /Labiatae
Synonyms	L officinalis, garden lavender, common lavender, lavender "Mailette"
Other species	There are at least 28 species in this genus and numerous subspecies and hybrids, e.g., L spica or spicata, L Latifolia, L. delphinensis and L fragrans.
Chemical constituents	Over 100 constituents including linalyl acetate, linalol, lavandulol, lavandulyl acetate, terpineol, cineol, limonene, ocimene, caryophyllene, among others.
Parts used	Above ground parts in flower, or flowers

Extraction:

1. Essential oil by steam distillation from the fresh flowering tops.
2. An absolute and concrete are produced by solvent extraction in smaller quantities.^[8]



Therapeutic actions^[8]: Analgesic, anticonvulsive, antidepressant, antimicrobial, antirheumatic,

antiseptic, antispasmodic, cholagogue, choleric, cicatrisant, deodorant, diuretic, emmenagogue, hypotensive, insecticide, nervine, parasiticide, rubefacient, sedative, sudorific.

Applications in Dentistry:

- Lavender oil provides a soothing anti-anxiety aromatherapy choice and has been suggested for reducing the pain of the injection upon needle insertion.^[14]
- Due to the inhibition of prostaglandins, lavender essential oils can be a prospective replacement for non-steroidal anti-inflammatory drugs in dentistry.^[15]
- It can also be used locally as an ointment for gingivitis.^[15]

Safety/precautions: Non-toxic, non-irritating, non-sensitising.^[8]

3. Lemon Oil

Lemon belongs to the Rutaceae family and it is first originated from Southeast Asia then it is spread to Northeast India, Burma and China. Lemon essential oil is an aromatic compound which is commonly isolated from lemon peel by cold pressing. Lemon oil is widely used in perfume, cosmetic, food and pharmaceutical industries. Numerous papers reported that Lemon oil have antioxidant, antifungal and antimicrobial, anticancer, and anti-inflammatory activities. The oxygenated compounds such citral are the major contributor to the flavour and aroma of the oil. The antibacterial, antioxidant and anticancer effects are due to its high content of phenolic compounds particularly limonene.^[16]

Table 6: Scientific aspects of lemon oil^[8]

Latin name	<i>Citrus limon</i>
Family	Rutaceae
Synonyms	C. limonum, cedro oil.
Other species	There are about forty-seven varieties such as the Java lemon (C. javanica).

Chemical constituents	Limonene, terpinene, pinenes, sabinene, myrcene, citral, linalol, geraniol, octanol, nonanol, citronellal, bergamotene.
Parts used	Fruit

Extraction: Essential oil by cold expression from the outer part of the fresh peel.^[8]



Therapeutic actions^[8]: Antiseptic, bactericidal, antiviral, carminative; diaphoretic, febrifuge; haemostatic, alterative, antisclerotic; astringent, rubefacient, cicatrising, immune stimulant; diuretic; antirheumatic. Antiscorbutic on ingestion of the juice.

Applications in Dentistry:

- Lemon oil shows antifungal potential against three *Candida* species (*C. albicans*, *Candida tropicalis*, and *Candida glabrata*).^[16]
- By killing bacteria, lemon oil help to avoid dental cavity and receding gums.
- Other characteristics of lemon oil are believed to promote the growth of tissue and can encourage healthier gums.^[17]
- It serves as a natural treatment for many oral disorders, such as oral thrush and bad breath, because lemon essential oil has antibacterial and anti-fungal properties.
- It could also be used to naturally whiten the teeth and avoid dental decay.^[18]
- Lemon oil aromatherapy was found to be effective in reducing dental anxiety in extraction patients at RSND Semarang. ^[19]

Safety/precautions: It may cause dermal irritation or sensitisation. Use in low dilution (1%); photo-toxic due to bergapten, do not expose skin to sunlight after application.^[8]

4. Peppermint Oil:

Peppermint oil is the essential oil obtained from the flowering aerial parts and leaves of the peppermint, *Mentha piperita* L. Peppermint oil is a colourless to pale greenish yellow, clear mobile liquid that is fresh, minty, cooling, green, and sweetish in odour, with variations depending on its origin. The main producing countries of this oil are the United States, India, Russia, and China.^[20]

Table 7: Scientific aspects of peppermint oil^[8]

Latin name	<i>Mentha x piperita</i> ^[20]
Family	Lamiaceae
Synonyms	Lamb mint, Brandy mint, Lam mint, Pudhina
Other species	<i>M. arvensis</i> L. var. <i>piperascens</i> malinvaud, <i>M. piperita</i> L. var. <i>piperita</i> and <i>M. spicata</i> L.,
Chemical constituents	Menthol, menthone, limonene, isomenthone, 1,8-cineole, >-pinene, menthyl acetate, neomenthol, menthofuran, and A-pinene ^[20]
Parts used	Leaf, whole plant

Extraction: Steam distillation^[8]



Applications in Dentistry:

- Peppermint is one of the most widely used essential oils in oral care products, widely due to the antibacterial, antifungal, and biofilm-inhibiting properties.^[21]
- Peppermint oil has the ability to inhibit biofilm formation in the oral cavity in addition to providing a therapeutic benefit treating periodontitis, gingivitis, and halitosis.^[21]
- Peppermint oil can also increase salivation, which is useful because dry mouth may result in halitosis.^[22]
- In addition, menthol is effective in soothing the pain through increasing the stimulation threshold of cells and decreasing synoptic stimulations and thereby peppermint oil aromatherapy reduces anxiety in dental patients.^[23]

Therapeutic actions^[8]: Digestive stimulant, carminative, hepatic, cholagogue; nervine antispasmodic, tonic mucolytic, expectorant, febrifuge: anti-inflammatory: diaphoretic antiseptic, antimicrobial, vasoconstrictor, cephalic, astringent; emmenagogue, uterine tone vermifuge.

Safety/precautions^[8]: Avoid in pregnancy, lactation and for children under 3 years. Non-toxic, non-irritating. Possible sensitisation in some due to menthol.

CONCLUSION

The concept of the therapeutic use of aromatic essential oils is supported by aromatherapy that can produce a positive physiological effect through the sense of smell. Aromatherapy is a low-cost and efficient method of relieving anxiety in dental settings. It is a safe and favourable therapy that should be used in routine dentistry for a high-quality practice.

REFERENCES

1. Hedao, Sameer & Chandurkar, Payal. (2019). A review on aromatherapy. *World Journal of Pharmaceutical Research*. 8. 635-651. 10.20959/wjpr20197-15023.
2. Babar Ali, Naser Ali Al-Wabel, Saiba Shams, Aftab Ahamad, Shah Alam Khan, Firoz Anwar, Essential oils used in aromatherapy: A systemic review, *Asian Pacific Journal of Tropical Biomedicine*, Volume 5, Issue 8, 2015, Pages 601-611, ISSN 2221-1691, <https://doi.org/10.1016/j.apjtb.2015.05.007>.
3. Purohit, Abhishek et al. "Is aromatherapy associated with patient's dental anxiety levels? A systematic review and meta-analysis." *Journal of dental anesthesia and pain medicine* vol. 21,4 (2021): 311-319. doi:10.17245/jdapm.2021.21.4.311
4. Brennan, S.E., McDonald, S., Murano, M. et al. Effectiveness of aromatherapy for prevention or treatment of disease, medical or preclinical conditions, and injury: protocol for a systematic review and meta-analysis. *Syst Rev* 11, 148 (2022). <https://doi.org/10.1186/s13643-022-02015-1>
5. H. N. B. Marzoug, M. Romdhane, A. Lebrihi et al., "Eucalyptus oleosa essential oils: chemical composition and antimicrobial and antioxidant activities of the oils from different plant parts (stems, leaves, flowers and fruits)," *Molecules*, vol. 16, no. 2, pp. 1695–1709, 2011
6. Vipin Kesharwani, Shashank Guota, Nikhil Kushwaha, Roohi Kesharwani, Dilip KM Patel. A review on therapeutics application of eucalyptus oil. *Int J Herb Med* 2018;6(6):110-115.
7. Tyagi AK, Bukvicki D, Gottardi D, Tabanelli G, Montanari C, Malik A, Guerzoni ME. Eucalyptus essential oil as a natural food preservative: in vivo and in vitro antiyeast potential. *Biomed Res Int*. 2014; 2014:969143. doi: 10.1155/2014/969143. Epub 2014 Aug 7. PMID: 25177704; PMCID: PMC4142273.
8. Pitman, V. (2004). *Aromatherapy: A Practical Approach*. United Kingdom: Nelson Thornes.
9. Dagli, Namrata et al. "Essential oils, their therapeutic properties, and implication in dentistry: A review." *Journal of International Society of Preventive & Community Dentistry* vol. 5,5 (2015): 335-40. doi:10.4103/2231-0762.165933
10. Agarwal, R. & Thangavelu, Lakshmi. (2013). Eucalyptus oil in dentistry: A mini review. *International Journal of Drug Development and Research*. 5. 58-61.
11. Gorji, A. Lavender and the nervous system. *Evid. Based Complement Alter. Med.*, 681304 (2013).

12. Sayorwan W, Siripornpanich V, Piriyaapunyaporn T, Hongratanaworakit T, Kotchabhakdi N, Ruangrunsi N. The effects of lavender oil inhalation on emotional states, autonomic nervous system, and brain electrical activity. *J Med Assoc Thai.*2012; 95:598–606.
13. Preethi, G., Devi, R. G. and Priya, A. J. (2020) "Knowledge, Attitude and Awareness towards Benefits of Lavender Oil", *Journal of Pharmaceutical Research International*, 32(17), pp. 11–18. doi: 10.9734/jpri/2020/v32i1730663.
14. Malcolm, Benjamin J, and Kimberly Tallian. "Essential oil of lavender in anxiety disorders: Ready for prime time?" *The mental health clinician* vol. 7,4 147-155. 26 Mar. 2018, doi:10.9740/mhc.2017.07.147
15. Kajjari, Shweta et al. "The Effects of Lavender Essential Oil and its Clinical Implications in Dentistry: A Review." *International journal of clinical pediatric dentistry* vol. 15,3 (2022): 385-388. doi:10.5005/jp-journals-10005-2378.
16. Benoudjit F., Maameri L., Ouared K., Evaluation of the quality and composition of lemon (Citrus limon) peel essential oil from an Algerian fruit juice industry, *Algerian J. Env. Sc. Technology*, 6:4 (2020) 1575-1581.
17. Białoń M, Krzyśko-Łupicka T, Koszałkowska M, Wiczorek PP. The influence of chemical composition of commercial lemon essential oils on the growth of *Candida* strains. *Mycopathologia*. 2014; 177:29–39.
18. Singh, Inderbir et al. "Essential Oils in Treatment and Management of Dental Diseases." *Biointerface Research in Applied Chemistry* (2021)
19. Devi Farida Utami, Hayuratri Purwalalita Laksmidevi, Maria Belladonna Rahmawati, Arinta Puspita Wati. Effect of Lemon Aromatherapy on the Anxiety Level of Dental Extraction Patients in Rsdn Semarang. *Diponegoro medical journal (jurnal kedokteran diponegoro)*. 2021 Sep 30; 10:373-7
20. de Groot A, Schmidt E. Essential Oils, Part V: Peppermint Oil, Lavender Oil, and Lemongrass Oil. *Dermatitis*. 2016 Nov/Dec;27(6):325-332. doi: 10.1097/DER.0000000000000218. PMID: 27775966.
21. Fayed MAA. Mentha piperita- A promising dental care herb mainly against cariogenic bacteria. *Universal Journal of Pharmaceutical Research* 2019; 4(3): 33-38.
22. Thosar N, Basak S, Bahadure RN, Rajurkar M. Antimicrobial efficacy of five essential oils against oral pathogens: An in vitro study. *Eur J Dent*. 2013;7(Suppl 1): S071-S077. doi:10.4103/1305-7456.119078
23. Akbari F, Rezaei M, Khatony A. Effect of Peppermint Essence on the Pain and Anxiety Caused by Intravenous Catheterization in Cardiac Patients: A Randomized Controlled Trial. *J Pain Res*. 2019 Oct 21; 12:2933-2939. doi: 10.2147/JPR.S226312. PMID: 31695482; PMCID: PMC6814313.

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