

A pastille combining myrrh tincture, peppermint oil and menthol to treat the upper airway

Tuğba Öktemer¹, Kağan İpçi², Nuray Bayar Muluk³, Cemal Cingi⁴

¹Department of Otorhinolaryngology, Özel Polatlı Can Hospital, Ankara, Turkey

²Department of Otorhinolaryngology, Ankara Kuru Hospital, Ankara, Turkey

³Department of Otorhinolaryngology, Faculty of Medicine, Kırıkkale University, Kırıkkale, Turkey

⁴Department of Otorhinolaryngology, Faculty of Medicine, Eskişehir Osmangazi University, Eskişehir, Turkey

Abstract

Myrrh and borax (combined in a tincture) can be used as a mouthwash. Myrrh gum is used to treat indigestion, ulcers, colds, coughs, asthma, lung congestion, arthritis pain, and cancer. Myrrh has been shown to exert analgesic effects on mice in which pain was induced. Myrrh is used as an astringent, antiseptic (to treat inflamed lesions of the throat and mouth), and antispasmodic to treat cancer and infectious disease. In this paper, we review the literature on myrrh tinctures, peppermint oil, and menthol.

Keywords: Myrrh tincture, peppermint oil, menthol, anti-inflammatory, expectorant.

Özet: Üst havayolları için mür tentürü, nane yağı ve mentol kombinasyonu içeren bir pastil

Mür ve boraks içerek tentürler gargara solüsyonu olarak kullanılmaktadır. Mür sakızı, sindirim güçlüğü, ülserler, soğuk algınlığı, öksürük, astım, akciğer konjesyonu, artrit ağrısı ve kanser için de kullanılır. Mür, ağrıya tabi tutulan farelerde, ağrı kesici etkiler göstermiştir. Antiseptik olarak ağız ve boğaz inflamatuvar lezyonlarında kullanılır. Boğaz ve ağız iltihaplı lezyonlara uygulanır ve antispazmodik olarak kanser ve enfeksiyon hastalıklarının tedavisi için kullanılır. Bu yazıda mür tentürü, nane yağı ve mentol açısından literatür gözden geçirilmiştir.

Anahtar sözcükler: Mür tentürü, nane yağı, mentol, anti-inflamatuvar, ekspektoran.

Myrrh

Myrrh, an aromatic resin, is produced by a number of small thorny trees in the genus *Commiphora*.^[1] It is an essential oil termed an *oleoresin*. The resin is used as a component of perfumes, incense, and medicinals.^[2,3] The gum termed “Yellowish Myrrh” coagulates very rapidly and acquires a glossy finish.^[4]

Myrrh is an antiseptic and it is often added to toothpastes, mouthwashes, and gargles.^[5] It is also used to treat minor skin injuries, such as abrasions. Myrrh is also employed as an analgesic, and is recommended to treat toothache.^[6] It is also used in tooth powders. Tinctures of myrrh and borax are commonly employed as mouthwashes. Horse tinctures, used to heal wounds, contain myrrh. The

Somalian form of myrrh is termed Arabian myrrh or “Meetiga”. Myrrhs described as “Pliny” or “Jewish” are liquid myrrhs. These had many historical applications, but are currently unavailable. They were used to treat cancer, lung congestion, coughs, asthma, and ulcers.^[7]

History

Myrrh has medicinal uses,^[8,9] being an antiseptic, astringent, and antitussive. It also aids wound healing and wound care.^[9] Myrrh is employed to treat headaches, gout, throat disorders, and indigestion,^[10] infectious diseases, such as syphilis and leprosy,^[11] mouth infections, paediatric coughs, and to prevent the development of dental plaque.^[9] In East Africa, myrrh is used to treat snake bites.

Correspondence: Cemal Cingi, MD, Department of Otorhinolaryngology, Faculty of Medicine, Eskişehir Osmangazi University, Eskişehir, Turkey
e-mail: ccingi@gmail.com

Received: September 5, 2015; **Accepted:** October 12, 2015

Online available at:
www.entupdates.org
doi:10.2399/jmu.2015003011
QR code:



Mechanisms of Action

Myrrh is produced by members of the *Commiphora*, a genus in the family *Burseraceae*, and is an aromatic gummy resin. The components are gum, resin, volatile oils, and bitter materials.^[12] Myrrh exerts anti-inflammatory and cytotoxic effects in humans,^[13] and anti-inflammatory effects in animals.^[12] Myrrh exhibits analgesic effects in mice, reducing pain perception.^[14] The antiseptic properties of myrrh are useful in the treatment of throat and mouth inflammation. Myrrh is also employed to treat fascioliasis and schistosomiasis.^[15]

In Ethiopia and Somalia, myrrh resin, which includes volatile oils, polysaccharides, and terpenoids, is produced by the tree *Commiphora myrrha*. This myrrh exhibits antimicrobial and anti-inflammatory activities. Myrrh tinctures are used as gargles. Myrrh-containing mouthwashes are used to treat throat ulcers.

Studies on the Antimicrobial Effects of Myrrh

Myrrh (furanodiene-6-one, methoxyfuranoguaia-9-ene-8-one) exhibits antibacterial activity against *Pseudomonas aeruginosa*, *Escherichia coli*, and *Staphylococcus aureus*, and antifungal activity against *Candida albicans*. An anesthetic activity against mammalian nerve cells has also been shown.^[16] A 50 g myrrh/honey mixture was used to treat the diabetic ulcers of a 65-year-old male; the ulcers healed after 4 weeks.^[17]

Gingival Effects

The effects of oil of myrrh on human gingival fibroblasts and epithelial cells have been investigated. Myrrh oil inhibited prostaglandin E2 production by fibroblasts after stimulation by interleukin-1 β . No significant effect on epithelial cells was evident.^[18]

Tinctures Containing Combinations of Menthol, Peppermint Oil, and Myrrh

Menthol

Menthol is an essential oil synthesized by the peppermint tree and has analgesic, antiseptic, antispasmodic, and cooling effects. Menthol is also used to treat bacterial, fungal, and viral infections.^[19]

Myrrh Tinctures

Mucosal circulation in the throat and bronchial tract is stimulated by myrrh. In swollen tissues, myrrh exhibits

anti-inflammatory, antioxidant, and antimicrobial effects. It is used to treat tonsillitis and gingivitis, and is an expectorant.^[19] Myrrh tinctures trigger regeneration of cells and tissues.^[20]

Peppermint Oil

Peppermint oil exerts a topical cooling effect, relaxes the skin, and reduces pain. Peppermint oil is well-absorbed by the skin and reduces muscle cramps.^[19] The oil produced by *Mentha pipertita* and *M. arvensis* var. *piperascens*,^[20,21] is used to treat muscle pain, headaches, and stomach problems.^[22] The oil has antimicrobial, antioxidant, anti-edema, and analgesic activities.^[23]

Respiratory benefits

Peppermint oil is an expectorant and can be delivered as a vapor.^[21,25] The oil is beneficial to patients with tuberculosis, reducing inflammation and preventing recurrence.^[24] In asthmatic patients, rosmarinic acid in the oil may also be therapeutic.^[21]

Pain relief

Peppermint oil provides pain relief. Muscle pain is reduced upon massage with the oil, as is headache.^[21]

Antimicrobial and anti-plasmid activities

Peppermint oil exerts antimicrobial effects on the Gram-positive *Staphylococcus epidermidis* and the Gram-negative *E. coli*. Both peppermint oil and menthol also exhibit antiplasmid activities; the materials eliminate drug-resistance plasmids from bacteria.^[21,25]

Treatment of herpes infections

Topical application of peppermint oil has a beneficial effect on herpes simplex virus (HSV) infection. The lipophilic oil penetrates the skin^[21] and kills both HSV and the acyclovir-resistant HSV-1. Plaque formation is reduced in vitro.^[21]

Dental health

Peppermint oil extract is an effective mouthwash, preventing biofilm development,^[26] and can be added to toothpastes.^[20]

Stress and nervous problems

Peppermint oil has an energizing effect and is useful in treating stress and agitation. The oil exerts a psychostimulatory effect in mice.^[21]

Is Peppermint Oil Safe?

Peppermint oil is safe at low levels in adults, but should be used only on the recommendation of a physician:^[21,27,28]

- Pregnant and nursing females – The oil reduces milk production and must be used sparingly near the end of pregnancy;^[29]
- Infants and children (under 7 years of age) – The oil must not be used;^[30]
- Diabetics – The oil may increase the extent of hypoglycemia;^[20]
- Gastro-oesophageal reflux disease (GERD) and hiatal hernia – The oil relaxes the lower oesophageal sphincter;^[20]
- Gallbladder disease – The oil may trigger inflammation of the gallbladder;^[20]

Notably, antacids readily degrade peppermint oil.^[20]

A New Formulation Containing Menthol, Myrrh Tincture, and Peppermint Oil

A new pastille (Vocalzone) containing menthol, myrrh tincture, and peppermint oil is available.^[19] Vocalzone is thus a blend of natural ingredients. The pastilles sooth the vocal cords. The menthol relieves throat irritation and the peppermint oil has an aromatic effect. Myrrh exerts anti-inflammatory effects on mucous membranes and can be used in gargles and mouthwashes.^[19]

Humidification to Treat Laryngeal Problems

Upper airway infections causing a cough or rhinitis may also be associated with dysphonia or hoarseness.^[31,32] Such symptoms are observed in both the acute and chronic stages of laryngitis and may persist for 7–10 days. The symptoms are additional to odynophonia, dysphagia, dyspnea, post-nasal discharge, and a sore throat.^[31,33]

Breathing of humidified air helps to moisten the upper airway and eliminate secretions. Voice rest should be recommended.^[31] Antihistamines and corticosteroids may exert drying effects on the larynx.^[31] Patients should be advised not to smoke.^[31]

Our Suggestion

We suggest that Vocalzone is indicated for treatment of both acute and chronic laryngitis (the latter is often associated with acute attacks). Further studies are required to evaluate the effects of menthol, myrrh tincture, and peppermint oil on more patients.

Conflict of Interest: No conflicts declared.

References

1. Rice PC. Amber: golden gem of the ages. 4th ed. AuthorHouse: Bloomington, IN; 2006. p. 321
2. Froman W. Biblical facts about wine. Is it a sin to drink wine? AuthorHouse: Bloomington, IN; 2005. p. 307.
3. Wikipedia. Myrrh. [Internet] [cited 2015 Oct 31]. Available from: <https://en.wikipedia.org/wiki/Myrrh/>.
4. Neumann C, Lewis W. The chemical works of Caspar Neumann, M.D. 2nd ed. Vol. 3. London: J. and F. Rivington; 1773. p. 55
5. The World Agroforestry Centre (ICRAF). Species information. [Internet] Nairobi: ICRAF; [updated 2009 Jan 15; cited 2011 Sept 30]. Available from: www.worldagroforestrycentre.org.
6. International Centre for Science and High Technology & United Nations Industrial Development Organization (ICS-UNIDO). *Commiphora myrrha* (nees). [Internet] Trieste: ICS; [cited 2011 Sept 30]. Available from: <http://archive.is/zR0hQ/>.
7. Al Faraj S. Antagonism of the anticoagulant effect of warfarin caused by the use of *Commiphora molmol* as a herbal medication: a case report. *Ann Trop Med Parasitol* 2005;99:219–20.
8. Evans WC. Trease and Evans' pharmacognosy. 13th ed. London: Balliere Tindall; 1989.
9. Michie CA, Cooper E. Frankincense and myrrh as remedies in children. *J R Soc Med* 1991;84:602–5.
10. Greene DA. Gold, frankincense, myrrh, and medicine. *N C Med J* 1993;54:620–2.
11. Leung AY. Encyclopedia of common natural ingredients used in food, drugs, and cosmetics. New York, NY: John Wiley; 1980.
12. Su S, Wang T, Duan JA, et al. Anti-inflammatory and analgesic activity of different extracts of *Commiphora myrrha*. *J Ethnopharmacol* 2011;24;134:251–8.
13. Tipton DA, Lyle B, Babich H, Dabbous MKh. In vitro cytotoxic and anti-inflammatory effects of myrrh oil on human gingival fibroblasts and epithelial cells. *Toxicol In Vitro* 2003;17:301–10.
14. Dolara P, Luceri C, Ghelardini C, et al. Analgesic effects of myrrh. *Nature* 1996;379 (6560):29.
15. drugs.com: myrrh. [Internet] Auckland, New Zealand: Drugsite Trust; [cited 2015 Oct 31]. Available from: <http://www.drugs.com/npp/myrrh.html/>.
16. Dolara P, Corte B, Ghelardini C, et al. Local anaesthetic, antibacterial and antifungal properties of sesquiterpenes from myrrh. *Planta Med* 2000;66:356–8.
17. Lotfy M, Badra G, Burham W, Alenzi FQ. Combined use of honey, bee propolis and myrrh in healing a deep, infected wound in a patient with diabetes mellitus. *Br J Biomed Sci* 2006;63:171–3.
18. Tipton DA, Hamman NR, Dabbous MKh. Effect of myrrh oil on IL-1beta stimulation of NF-kappaB activation and PGE(2) production in human gingival fibroblasts and epithelial cells. *Toxicol In Vitro* 2006;20:248–55.
19. Myrrh (bola), *Commiphora myrrha*. [Internet] [cited 2015 Oct 31]. Available from: <http://www.ageless.co.za/herb-myrrh.html/>.
20. Peppermint oil: a potent oil with the power of menthol. [Internet] [cited 2015 Nov 3]. Available from: http://articles.mercola.com/herbal-oils/peppermint-oil.aspx#_edn20/.

21. Alankar S. A review on peppermint oil. *Asian Journal of Pharmaceutical and Clinical Research* 2009;2:27–33.
22. National Center for Complementary and Integrative Health (NCCIH). Peppermint oil. [Internet] Bethesda, MD: NCCIH [cited 2015 Nov 3]. Available from: <https://nccih.nih.gov/health/peppermintoil/>.
23. Saharkhiz MJ1, Motamedi M, Zomorodian K, Pakshir K, Miri R, Hemyari K. Chemical composition, antifungal and antibiofilm activities of the essential oil of *Mentha piperita* L. *ISRN Pharm* 2012;2012:718645.
24. Davies SJ, Harding LM, Baranowski AP. A novel treatment of postherpetic neuralgia using peppermint oil. *Clin J Pain* 2002;18:200–2.
25. Schelz Z, Molnar J, Judit Hohmann J. Antimicrobial and antiplasmod activities of essential oils. *Fitoterapia* 2006;77:279–85.
26. The power of peppermint: 15 health benefits revealed. [Internet] [updated 2013 Mar 15; cited 2015 Nov 3]. Available from: <http://www.greenmedinfo.com/blog/power-peppermint-15-health-benefits-revealed/>.
27. University of Maryland Medical Center (UMMC). Peppermint. [Internet] Baltimore, MD; UMMC; [updated 2013 Mar 15; cited 2015 Nov 3]. Available from: <http://umm.edu/health/medical/altmed/herb/peppermint/>.
28. Peppermint: health benefits, precautions. [Internet] [updated 2015 Jul 12; cited 2015 Nov 3]. Available from: <http://www.medicalnewstoday.com/articles/265214.php/>.
29. West D, Marasco L. Ten nursing pitfalls. *New Beginnings* 2009; 29:38–40.
30. National Association for Holistic Aromatherapy (NAHA). Exploring aromatherapy. [Internet] Raleigh, NC: NAHA; [cited 2015 Nov 3]. Available from: <http://www.naha.org/explore-aromatherapy/about-aromatherapy/most-commonly-used-essential-oils/>.
31. Shah RK. Acute laryngitis. In: Meyers AD, editor. [Internet] Medscape [updated 2015 Jul 13; cited 2015 Nov 3]. Available from: <http://emedicine.medscape.com/article/864671-overview/>.
32. Ng ML, Gilbert HR, Lerman JW. Some aerodynamic and acoustic characteristics of acute laryngitis. *J Voice* 1997;11:356–63.
33. Postma GN, Koufman JA. Laryngitis. In: Bailey BJ, editor. *Head and neck surgery – otolaryngology*. 2nd ed. Philadelphia, PA: Lippincott-Raven; 1998. p. 731–9.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported (CC BY-NC-ND3.0) Licence (<http://creativecommons.org/licenses/by-nc-nd/3.0/>) which permits unrestricted noncommercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Please cite this article as: Öktemer T, İpçi K, Bayar Muluk N, Cingi C. A pastille combining myrrh tincture, peppermint oil and menthol to treat the upper airway. *ENT Updates* 2015;5(3):128–131.