

Essential Oils Quick Summary

Oils requiring dilution for adults:

- Black Pepper
- Cassia
- Cinnamon
- Citronella
- Clove
- Lemon Eucalyptus
- Lemon Myrtle
- Oregano
- Thyme

Source: Book Modern Essentials, 11th edition

Common Photosensitivity Oils:

- Citrus oils: bitter orange, grapefruit, lemon, lime and mandarin
- Angelica root
- Bergamot peel
- Rue leaf

<https://info.achs.edu/blog/what-is-photosensitivity-with-essential-oils>



Antibacterial:

- Clove
- Geranium
- Melaleuca
- Rosemary

Antiviral:

- Clove
- Melaleuca
- Myrrh
- Melissa
- Oregano

Analgesic:

- Rosemary
- Peppermint
- Oregano
- Ginger
- Lemon

Immune Stimulant:

- Frankincense
- Lemon
- Melaleuca
- Oregano
- Thyme

Anti-Inflammatory:

- Basil
- Bergamot
- Copaiba
- Frankincense
- Wintergreen

Antirheumatic:

- Oregano
- Thyme
- Cypress
- Birch
- Clove



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

wood.osu.edu

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information, visit cfaesdiversity.osu.edu. For an accessible format of this publication, visit cfaes.osu.edu/accessibility.



Eucalyptus



Lemongrass



Patchouli



Ylang-ylang



Lavender



Peppermint

A peek into safe use of essential oils

Essential oils have soared in popularity. Here is a primer to help you guide your patients in their safe use.

The basics

Essential oils are highly concentrated aromatic oils of plant origin that are extracted by steam distillation, hydro-diffusion, or pressure.¹ They get their fragrances and therapeutic characteristics from chemical components that include monoterpenes, esters, aldehydes, ketones, alcohols, phenols, and oxides.

Plant species may have different chemovarieties that may produce different clinical effects. These variations of subspecies produce essential oils with different chemical compositions as a result of genetic variation and growth conditions.² Aromatherapy is the practice of using essential oils for therapeutic purposes.¹

It is important to use the Latin name of the parent plant when researching essential oils because multiple essential oils come from plants in the same genus. Different parts of the plant make different oils. For example, in *Citrus aurantium*, neroli is the flower, bitter orange is the fruit peel, and petitgrain is the leaf.

To determine the quality of an essential oil product, look on the label for the Latin name of the parent plant; the part of the plant from which the oil was derived; indication that the oil is for external use only; a warning against its use in undiluted form; a warning to keep the product away from eyes and mucous membranes; and an expiration date or date of manufacture. The presence of this information doesn't guarantee a product is of good quality, but reputable manufacturers should include it.

To make further determinations about quality, it is useful to know the batch identifier, extraction process, and country of origin. Keep essential oils in the refrigerator to slow oxidization, which will affect its potency. Oxidized oils will have an altered smell, and viscosity may change as oils oxidize.

Use caution

Kelly Holland Azzaro, RA, CCAP, LMT, is an aromatherapist with nearly 3 decades of experience. Azzaro is

also past president of the National Association for Holistic Aromatherapy (NAHA), which promotes academic standards in aromatherapy education and practice standards for the profession. According to Azzaro, aromatherapy in the United States consists mostly of inhaling essential oils and massaging them into the skin—not ingesting the oils. Patients can avoid most of the safety risks associated with essential oils by using them externally only. Still, there are dangers.

"People unfortunately will put [a large amount of an essential oil] diffuser unit, which diffuses 500 to 1,500 square feet, in their bedroom, and that could be overpowering for their children or their pets," Azzaro said. "Or they might only need it for an hour before bedtime versus letting the diffuser run all night long. That can cause an issue where they become desensitized over time because they've been using lavender every single night to help with sleep."

Tisserand Institute, an organization that "[translates] new research and scientific findings into comprehensive educational material about the benefits of essential oils" and was founded by leading aromatherapy expert Robert Tisserand, recommends intermittent diffusion, alternating 30 to 60 minutes of diffusion with an equal amount of time of no diffusion.

For massage, "it's important for pharmacists to know that essential oils applied topically need to be diluted in a carrier oil, not put right on the skin,"

Azzaro said. Popular carrier oils include jojoba, coconut, olive, almond, avocado, flaxseed, and argan oils.

Proper dilution is key to safe topical use of essential oils. According to the Tisserand Institute, using an average dropper, 30 drops is equal to 1 mL. For 15 mL of base oil, create a 5% concentration with 22 drops of essential oil; 4% concentration with 18 drops of essential oil; 3% concentration with 13 drops of essential oil; 2% concentration with 9 drops of essential oil; 1% concentration with 4 drops of essential oil; and a 0.5% concentration with 2 drops. Concentrations above 2.5% should be used very carefully, preferably in consultation with a NAHA-approved aromatherapist.

Skin stuff

Some essential oils are known dermal irritants, with severity depending on concentration. According to NAHA, these should not be used on any inflammatory or allergic skin condition and should always be properly diluted in vegetable oil.

Dermal irritants include bay (*Pimento racemosa*), cinnamon bark or leaf (*Cinnamomum zeylanicum*), clove bud (*Syzygium aromaticum*), citronella (*Cymbopogon nardus*), cumin (*Cuminum cyminum*), lemongrass (*Cymbopogon citratus*), lemon verbena (*Lippia citriodora*), oregano (*Origanum vulgare*), tagetes (*Tagetes minuta*), and thyme chemotype thymol (*Thymus vulgaris*).

Patients should also be aware that some essential oils will make them more sensitive to the sun and ultraviolet rays like those encountered in a tanning bed. Anyone who has applied photosensitizing essential oils should avoid the sun or tanning salon for at least 24 hours.

The National Association for Holistic Aromatherapy (NAHA) recommends avoiding the following during pregnancy, labor, and breastfeeding:

- Aniseed (*Pimpinella anisum*)
- Basil chemotype estragole (*Ocimum basilicum*)
- Birch (*Betula lenta*)
- Camphor (*Cinnamomum camphora*)
- Hyssop (*Hyssopus officinalis*)
- Mugwort (*Artemisia vulgaris*)
- Parsley seed or leaf (*Petroselinum sativum*)
- Pennyroyal (*Mentha pulegium*)
- Sage (*Salvia officinalis*)
- Tansy (*Tanacetum vulgare*)
- Tarragon (*Artemisia dracunculoides*)
- Thuja (*Thuja occidentalis*)
- Wintergreen (*Gaultheria procumbens*)
- Wormwood (*Artemisia absinthium*)



Chamomile



Sage



Vetiver



Fennel



Geranium



Rosemary



Tea tree

According to NAHA, photosensitizing oils include Angelica root (*Angelica archangelica*), bergamot (*Citrus bergamia*), cumin (*Cuminum cyminum*), expressed lemon (*Citrus limon*), expressed lime (*Citrus medica*), expressed bitter orange (*Citrus aurantium*), and rue (*Ruta graveolens*).

Consult the experts

Studies have demonstrated the effectiveness of essential oils in patients experi-

encing pain or anxiety associated with medical treatment. Lavender oil is a standout—it was associated with lower anxiety in patients undergoing an intrathecal device insertion.³

Patients with cancer who received inhaled aromatherapy with lavender reported less pain when undergoing needle insertion into an implantable central venous port catheter.⁴ Aromatherapy massage with lavender oil was shown to be effective in reducing pain from knee

osteoarthritis.⁵ And post-tonsillectomy patients ages 6 to 12 years who underwent inhaled aromatherapy with lavender used less acetaminophen in the 3 days following their surgery.⁶

But caution is imperative when using any essential oil. For example, Azzaro noted that wintergreen, while common, “is contraindicated for people who are on blood-thinning medications or taking a lot of aspirin because it has methyl salicylate.” And a study concluded “that concomitant intake of aniseed [essential oil] preparations and drugs that act on [the central nervous system] should be avoided due to potential herb–drug interactions,” although further study was advised.⁷

Azzaro urges pharmacists to consult the resources on NAHA’s website, www.naha.org, and to direct patients to the site’s “Find an Aromatherapist” tool.

“When it comes to specific health issues, it’s best that they work with somebody who’s trained so they know if there are any problems. Something might be good for migraines, but it might not be good for a specific person,” she said. “With children it’s even more of an issue, although there are some essential oils that can be used with children, as well as hydrosols, which are much gentler than essential oils.”

Azzaro also recommends hydrosols as a safer alternative to essential oils for older adults, pets, and those with complex health conditions.

The Tisserand Institute at www.tisserandinstitute.org is another good resource for both pharmacists and patients.

References

- Manion C, et al. *Am J Health Syst Pharmacy*. 2017;74(9):e153–62
- www.cancer.gov/about-cancer/treatment/cam/hp/aromatherapy-pdq
- Shahnazi M, et al. *J Caring Sci*. 2012; 1(4): 255–61
- Yayla EM, et al. *Cancer Nurs*. 2019; 42(1): 35–41
- Nasiri A, et al. *Complement Ther Clin Pract*. 2016;25:75–80
- Soltani R, et al. *Int J Pediatr Otorhinolaryngol*. 2013;77(9):157981
- Samojlik I, et al. *Fitoterapia*. 2012;83(8): 1466–73
- Yavari Kia P, et al. *Iran Red Crescent Med J*. 2014;16(3):e14360

Rachel Balick, reporter

Commonly used essential oils and purported effects and warnings¹

Clary sage (*Salvia sclarea*): Used as antispasmodic, aphrodisiac, relaxant; used against menstrual cramps, anxiety, stress, and labor pain. Not recommended in pregnant women until the final stages of pregnancy, as it may induce contractions.

Eucalyptus (*Eucalyptus globulus*): Used as expectorant, decongestant, energizer, “mind clearer”; used against bronchitis, colds, and flu. Not recommended in children younger than 2 years. Eucalyptus oil might decrease how quickly the liver processes some medications.

Eucalyptus (*Eucalyptus radiata*): Used as expectorant and antiviral against colds, flu, and respiratory congestion in children. Eucalyptus oil might decrease how quickly the liver processes some medications.

Fennel (*Foeniculum vulgare, variant dulce*): Used as antimicrobial and digestive aid; used against menstrual irregularities.

Frankincense (*Boswellia frereana*): Used as immune strengthener and cell regenerator; used against inflammatory skin conditions.

Geranium (*Pelargonium asperum syn. graveolens*): Used as antimicrobial; used against premenstrual syndrome, hormonal imbalance, and nerve pain.

Ginger (*Zingiber officinale*): Used as digestive aid, emotional and physical warming agent, anti-inflammatory, and immune modulator; used against GI upset (flatulence, constipation, and nausea) and GI pain.

Helichrysum (*Helichrysum italicum*): Used as cell regenerator, anti-inflammatory, wound healer; used against bruises and swelling.

Lavender (*Lavandula angustifolia*): Used as calming agent, wound healer, cell regenerator, skin care agent, antispasmodic; used against anxiety, burns, insect bites, and itchiness.

Lemon (*Citrus limon*): Used as antiviral, cleanser, uplifting agent, and detoxifier. A 2014 study showed that inhaling lemon essential oil in a carrier oil on a cotton ball relieved pregnancy-related nausea and vomiting.⁸ According to the Tisserand Institute, lemon oil should be used at no greater than 2% concentration to avoid phototoxicity.

Lemongrass (*Cymbopogon citratus*): Used as cleanser, antiviral, antimicrobial, and insect repellent. Concentration should be low to avoid phototoxicity.

Mandarin (*Citrus reticulata*): Used as calming agent.

Neroli (*Citrus aurantium, variant amara*): Used as antispasmodic, antidepressant, nourishing agent, and pregnancy and delivery aid; used against anxiety, premenstrual syndrome, and postpartum depression.

Patchouli (*Pogostemon cablin*): Used as antidepressant, anti-inflammatory, and nervous system soothing agent.

Peppermint (*Mentha piperita*): Used as analgesic, energizer, antispasmodic; useful against nausea and migraines. Not recommended for use in children younger than 31 months, for undiluted topical use, or for oral use other than the enteric-coated dosage form.

Roman chamomile (*Chamaemelum nobile*): Used as antispasmodic, sedative, anti-inflammatory, comforting and soothing agent for children; used against menstrual cramps, anxiety, stress, and insomnia.

Rose (*Rosa damascena*): Used as cell regenerator, emotional nourisher, aphrodisiac; used against stress, anxiety, and premenstrual syndrome.

Rosemary (*Rosmarinus officinalis*): Used as expectorant, energizer, breath expander and deepener, “mind clearer,” circulatory stimulant; used against congestion, bronchitis, flu, and colds.

Tea tree (*Melaleuca alternifolia*): Used as antimicrobial, immune system enhancer, antibacterial, antifungal, and antiviral. Some studies have shown promise as a treatment or deterrent for lice, but more evidence is needed.

Vetiver (*Vetiveria zizanioides*): Used as cooling agent, grounding agent, astringent, calming agent; used against poor circulation and varicose veins.

Ylang-ylang (*Cananga odorata*): Used as aphrodisiac, antispasmodic, antidepressant, and nourishing agent.