

## Aromatherapy from a Naturopathic Standpoint

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### Resumen

La aromaterapia en el manejo de diversas condiciones y patologías es considerada como uno de las prácticas más utilizadas en el campo de la naturopatía y es una terapia que se ha expandido rápidamente a nivel mundial. Esta revisión provee una evaluación crítica de los artículos publicados entre el 2002 y 2022 y libros que datan del 1977 que todavía son utilizados en las prácticas de aromaterapia clínica.

*Palabras clave: Aromaterapia, Naturopatía, Aromaterapia Clínica, Ciencias Naturopáticas*

### Abstract

Aromatherapy in the management of diverse ailments and pathologies is one of the most used practices in the naturopathic field and is a fast-growing therapy worldwide. This review provides a critical appraisal of articles published from 2002 to 2022 and books dating back to 1977 that are still used in the clinical aromatherapy practices.

*Keywords. Aromatherapy, Naturopathy, Clinical Aromatherapy, Naturopathic Science*

## Introduction

The National Association for Holistic Aromatherapy (NAHA) defines aromatherapy as the use of natural plant extracts, such as essential oils, hydrosols, and carrier oils, in various ways to heal the body, mind and spirit. It promotes and harmonizes emotional, physical, and spiritual health through the application of these extracts and describes it as both a science and an art (NAHA, n.d). Essential oils on a mental level can enhance the well-being and mood, promote relaxation, and improve concentration and focus. In a Physical level they have antiseptic properties, relieve pain and lower inflammation, have a cleansing action, boost immunity, and influence hormones. On a spiritual level, it can promote spiritual pursuit, enhance mindfulness, energy, and chi (Curtis & Johnson, 2016). According to the National Institutes of Health National Center for Complementary and Integrative Health, Americans spend more than 30.2 billion annually on this therapy and it is predicted that by 2050, the market will grow in spending to \$5 trillion (Farrar & Farrar, 2020).

A single essential oil can contain as much as 100 chemical components, which gives the oil its properties along with their aroma. Each oil component divides into two further categories: oxygenated compounds and terpenes. Oxygenated compounds are stronger smelling and long-lasting compared to terpenes and include alcohol, which are antibacterial, antiseptic, and ketones, which regenerate cells. Terpenes, on the other hand, have a range of properties, but spoil quickly when it's exposed to air (Curtis & Johnson, 2016).

## History and Today

The use of aromatic plants has been applied to not only perfume but also to heal the body. Ancient Egyptians revered scents for their cosmetics, medicinal, religious, and embalming practices while the ancient Greeks used them for their massages and baths. Ancient Romans saw scents as a status symbol, spreading the knowledge of these aromatic plants throughout their Empire which led to the use of them during Medieval Europe (Urtnowska-Joppek & Collegium Medicum, 2018). The modern-day terminology of aromatherapy or *aromathérapie* was created by the French perfumer and chemist, René-Maurice Gattefossé in 1937, when he burned his hand in his laboratory, plunged it in a vat of lavender, and healed without any scarring. This was the event that inspired Dr. Jean Valnet as he treated his patients' injuries in the military hospital, Margaret Maury who created Holistic Aromatherapy, and Robert Tisserand, who wrote the first book on aromatherapy in English and global specialist in aromatherapy, among others (Urtnowska-Joppek & Collegium Medicum, 2018).

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**THE NATIONAL ASSOCIATION FOR HOLISTIC AROMATHERAPY (NAHA) DEFINES AROMATHERAPY AS THE USE OF NATURAL PLANT EXTRACTS, SUCH AS ESSENTIAL OILS, HYDROSOLS, AND CARRIER OILS, IN VARIOUS WAYS TO HEAL THE BODY, MIND AND SPIRIT.**

Table 1: *Chronology of Aromatherapy*

| Era/Year         | Cultural Therapy   | Reference                                |
|------------------|--|--|
| Neolithic Period | Man discovered that plants such as olive, castor, and sesame contained fatty oil which could be extracted by pressing that could be rubbed on the body and hair.   | Farrar & Farrar (2020); Tisserand (1978) |
| Ancient Egypt    | Essential oils were used for cosmetic, medicinal, and spiritual purposes. Cedarwood oil was used for mumification, and Egyptians were familiar with the art of floral extraction.  | Farrar & Farrar (2020); Tisserand (1978) |
| 1240BC           | In Jewish traditions, Moses was given instructions on how to create holy oil and holy incense.   | Tisserand (1978)                         |
| Iraq             | A skeleton was found 30,000 years ago with concentration of extracted plant essential oils   | Farrar & Farrar (2020)                   |
| India            | Ayurveda's need to regain balance by internal purifications utilized nutrition, herbology, massage therapy with oils, yoga, and meditation.  | Farrar & Farrar (2020)                   |
| China            | Traditional Chinese Medicine contends that essential oils resonate with yuan qi (source qi).   | Farrar & Farrar (2020)                   |
| Ancient Greece   | The invention of perfumes is attributed to the gods and men derived their knowledge of them from the nymph Aeone. Most of the oils were scented with flowers, and principally roses. Theophrastus wrote specific uses and formulas of aromatics, Hippocrates wrote about aromatic baths, Pedanius Dioscordes wrote <i>De Materia Medica</i> covering 700 plants, including aromatics | Farrar & Farrar (2020); Tisserand (1978) |
| Arabia           | Ibn Sina used aromatics such as senna, camphor, and cloves for medical treatment. Inhaled henbane was used as an anesthetic, and medical aromatherapy emerged officially in the third century.   | Farrar & Farrar (2020)                   |
| Germany          | Hieronymus Braunschweig wrote his book on the distillation of oils from plants that included 25 oils.  | Farrar & Farrar (2020)                   |
| England          | Shirley Price authored <i>Aromatherapy for Healthcare Professional</i> and is known for clinical use of essential oils.  | Farrar & Farrar (2020)                   |
|                  | Robert Tisserand authored <i>The Art of Aromatherapy</i>   |  |

Aromatherapy is used not only in health practices but also in cosmetics and biological regeneration. Properly selected essential oils can alleviate various conditions such as the initial symptoms of a cold in toddlers (Maftuchah, Christine & Hamaluddin, 2020), depression and headaches ((Khenarinezhad, Sharifi Razavi & Bagheri-Nesami, 2019) , dysmenorrhea (Widarti, Itha & Lusiana, 2021), fibromyalgia (Ko, Hum, Tratses & Berbrayer, 2007), neuropathic pain in diabetic patients (Rivaz, Khademiam & Dabbaghmanesh, 2021), promote a better the quality of life in cancer patients (Coquel Bru, Alvear Sedán, Severiche Sierra, Caceres Matta, Vidal Tovar, Ruiz Cabezas, Martínez Zabaleta & García Moreno, 2019), among other pathologies. It can also be used to manage postoperative pain (Kim, Wajda, Cuff, Serota, Schlame, Axelrod, Guth & Bekker, 2006) as well as post-anesthesia (Kim, Ren, Fielding, Pitti, Kasumi, Wajda, Lebovits & Bekker, 2007).

#### *Administration of Essential Oils*

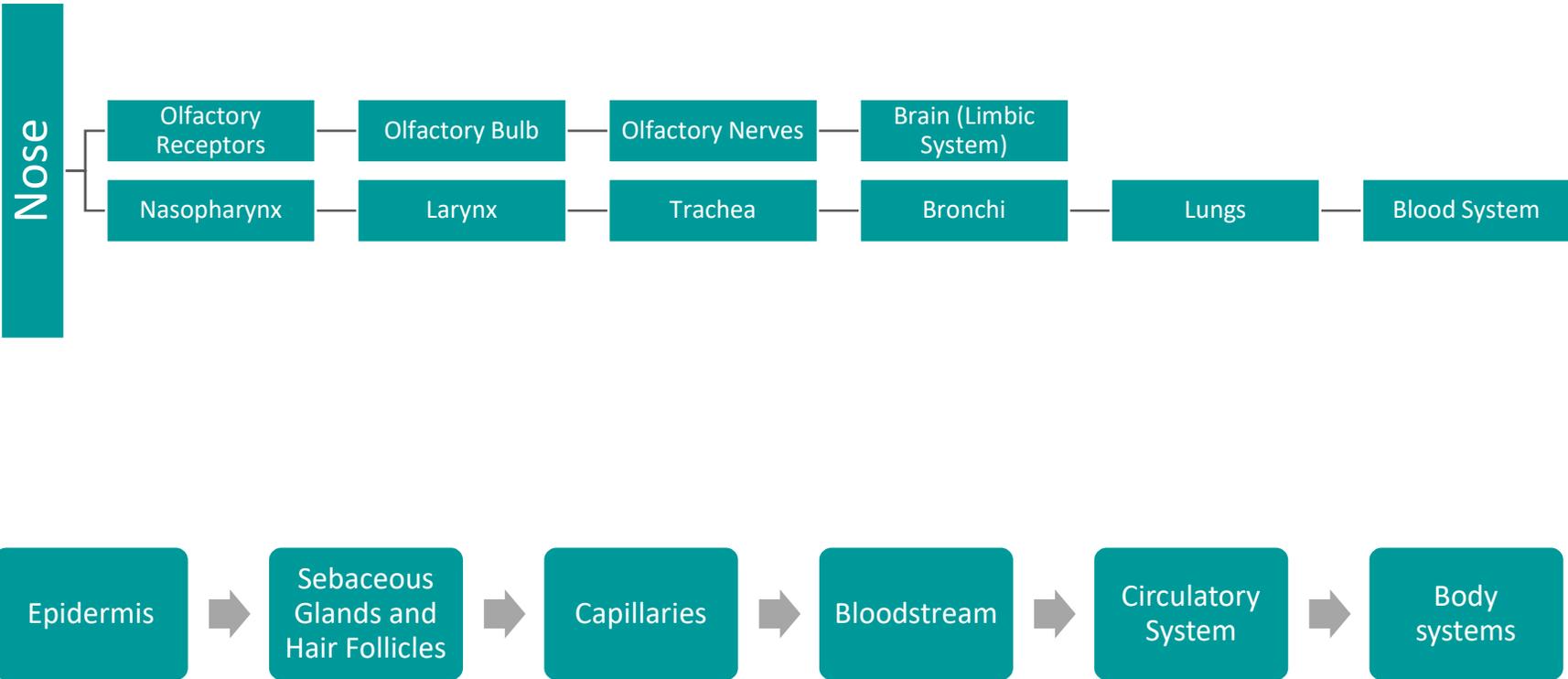
There are four (4) basic methods that are commonly used in the administration of essential oils: topical, inhalation, oral, and internal absorption (Farrar & Farrar, 2020). The topical application can be applied in massage sessions, scented baths, cosmetics, and perfumes, keeping in mind the dilution of the oils with a base oil which are commonly made of seeds and nuts. The oils pass through the epidermis, sebaceous glands, and hair follicles which, in turn, goes straight to the capillaries and bloodstream, leading to the oils running their course through the body systems via circulatory systems (Urtnowska-Joppek, MSC & Collegium Medicum, 2018) as shown in Figure 1.1. It is important to emphasize the need of doing patch tests on the patients

who have hypersensitive skin, any dermatological pathology, or allergies.

Inhalations can include direct inhalation via diffuser with steam, aroma stones, oil-scented strips of cloth while indirect inhalations could be the usage of essential oils in scented room sprays, heated candle wax, detergents, and bathroom and floor cleaners. When inhaled, the various aromas penetrate the blood via the lungs, causing physiological and behavioral changes (Herz, 2009). In turn, the limbic system, which controls our emotions and memories, is triggered (Thomas, V. edD, ARNP & CS, 2002) as shown in Figure 1.1.

Oral absorptions of essential oils are provided using gelatin capsules with safe dosages of essential oils that are diluted with base oils (Farrar & Farrar, 2020). Although the U.S. Food and Drug Administration (FDA) records 160 essential oils, oleoresins, and distillates that are considered safe for human consumption on the Generally Recognized as Safe list (GRAS) adding further evidence that some essential oils are harmless when taken orally (CAF, n.d.). It is essential to know which are the accepted essential oils and the required dosages that can be given to the patient. Lastly, the internal absorption of essential oils can be given through a scented mouthwash, scented suppositories, or vaginal douches. Some essential oils are used to flavor prescription medications as well as herbal medicines (Farrar & Farrar, 2020).

Figure 1.1 Routes of Penetration of Essential Oils into the Human Organism



Integrated from Urtnowska-Jopek, MSC & Collegium Medicum (2018) and Tisserand (1978)

*Evidence on the Use of Common Essential Oils*

As mentioned before, essential oils are used every day for their aromatic scents, over-the-counter herbs and added to medications to add a pleasant flavor to bitter medications. Although the usage of essential oils is common in naturopathic and complementary practices, it is essential to learn about the indications and contraindications of each oil that is provided to their patients. The following table is a summary of basic essential oils that are commonly found in naturopathic and complementary practices worldwide.

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**THERE ARE FOUR (4) BASIC METHODS THAT ARE COMMONLY USED IN THE ADMINISTRATION OF ESSENTIAL OILS: TOPICAL, INHALATION, ORAL, AND INTERNAL ABSORPTION (FARRAR & FARRAR, 2020).**



Table 2. Common Essential Oils used in the Clinical Aromatherapy Practice

| Common Name   | Botanical Name                   | Family            | Parts Used                 | Indications  | Contraindications  | References  |
|---------------|----------------------------------|-------------------|----------------------------|--|--|---|
| Allspice      | <i>Pimenta dioica</i>            | <i>Myrtaceae</i>  | Fruits and leaves          | Anesthetic; Analgesic; Antioxidant; Antiseptic; Carminative; Muscle Relaxant; Rubefacient; Stimulant; Tonic  | Nonirritant in dilution, sensitization possible. Potentially toxic with prolonged use. Dilute extremely well (less than 0.25%). Avoid in pregnancy, breastfeeding, and in children under 15 years old. | Curtis & Johnson (2016); Lawless (2022)                   |
| Angelica Root | <i>Angelica archangelica</i>     | <i>Apiaceae</i>   | Roots                      | Anti-infectious; Antispasmodic; Antitussive; Diuretic; Mucolytic; Stomachic  | Photosensitive; avoid use on skin for 12 hours prior to sun exposure. Avoid during pregnancy.  | Curtis & Johnson (2016); Worwood (2016); Lawless (2022)   |
| Bergamot      | <i>Citrus aurantium bergamia</i> | <i>Rutaceae</i>   | Rind of the fruit          | Analgesic; Antidepressant; Antiseptic; Antispasmodic; Carminative; Cicatrisant; Deodorant; Digestive; Expectorant; Febrifuge; Sedative; Vermifuge; Vulnerary   | Phototoxic unless it is bergaptene-free (also known as Bergamot FCF); Do not apply to skin prior to sun exposure.  | Curtis & Johnson 2016; Tisserand 1978                     |
| Black Pepper  | <i>Piper nigrum</i>              | <i>Piperaceae</i> | Peppercorn                 | Analgesic; Antiseptic; Antispasmodic; Antitoxic; Aphrodisiac; Carminative; Digestive; Diuretic; Febrifuge; Laxative; Rubefacient; Stimulant; Stomachic; Tonic  | Nontoxic, nonirritant in dilution. May cause irritation on highly sensitive skin.  | Curtis & Johnson (2016); Tisserand (1978); Worwood (2016) |
| Camphor       | <i>Cinnamomum camphora</i>       | <i>Lauraceae</i>  | Wood, branches, and leaves | Analgesic; Anthelmintic; Antidepressant; Antiseptic; Antispasmodic; Carminative; Diuretic; Febrifuge; Hypertensive; Laxative; Rubefacient; Sedative; Stimulant; Sudorific; Varo-constrictor; Vulnerary | Strong scent, use well-diluted and only the "white" camphor essential oil.   | Curtis & Johnson (2016); Tisserand (1978)                 |

Table 2 continued

| Common Name | Botanical Name              | Family            | Parts Used      | Indications  | Contraindications  | References  |
|-------------|-----------------------------|-------------------|-----------------|--|--|---|
| Carrot Seed | <i>Dacus carota</i>         | <i>Apiaceae</i>   | Seeds           | Calmative; Depurative; Diuretic; Hepatic; Regenerative; Vasodilatory   | Dilutions of less than 2%. Avoid during pregnancy and breast-feeding.  | Curtis & Johnson (2016); Lawless (2022); Worwood (2016) |
| Cedarwood   | <i>Cedrus atlantica</i>     | <i>Coniferae</i>  | Tree Bark       | Antiseptic; Astringent; Diuretic; Expectorant; Sedative  | Nontoxic, nonirritant in dilution.   | Curtis & Johnson (2016); Tisserand (1978)               |
| Chamomile   | <i>Matricaria recutita</i>  | <i>Compositae</i> | Flowers         | Analgesic; Anticonvulsive; Antidepressant; Antiphlogistic; Antiseptic; Antispasmodic; Carminative; Cholagogue; Cicatrisant; Digestive; Diuretic; Emmenagogue; Febrifuge; Hepatic; Nervine; Sedative; Splenetic; Stomachic; Sudorific; Tonic; Vasoconstrictor; Vermifuge; Vulnerary | Nontoxic, nonirritant in dilution.   | Curtis & Johnson (2016); Tisserand (1978)               |
| Cinnamon    | <i>Cinnamomum zylanicum</i> | <i>Lauraceae</i>  | Bark and leaves | Analgesic; Antibacterial; Antifungal; Antimicrobial; Antiseptic; Antispasmodic; Antiviral; Carminative; Circulatory; Depurative; Immunostimulant; Tonic  | Use very diluted (less than 0.5%) and use only the cinnamon leaf oil on the skin, not the bark.<br><br>Avoid if using multiple medications or anticoagulants; hypersensitive skin must do a skin patch | Curtis & Johnson (2016); Lawless (2022); Worwood (2016) |
| Citronella  | <i>Cymbopogon nardus</i>    | <i>Poaceae</i>    | Grass           | Antibacterial; Antifungal; Anti-inflammatory; Antiseptic; Febrifuge; Insect Repellent  | Nonirritant in dilution of less than 15%. Avoid using on hypersensitive skin and during pregnancy.   | Curtis & Johnson (2016); Lawless (2022); Worwood (2016) |

Table 2 continued

| Common Name  | Botanical Name  | Family             | Parts Used                | Indications   | Contraindications   | References  |
|--------------|---|--------------------|---------------------------|---|---|---|
| Clary Sage   | <i>Salvia sclarea</i>   | <i>Labiatae</i>    | Flowering tops and leaves | Anticonvulsive; Antidepressant; Antiphlogistic; Antiseptic; Antispasmodic; Aphrodisiac; Astringent; Carminative; Deodorant; Digestive; Emmenagogue; Hypotensive; Nervine; Sedative; Stomachic; Tonic; Uterine | Use very well diluted (less than 0.5%) to avoid skin irritation. Avoid in hypersensitive skin, pregnancy, and on children under 7 years old.  | Curtis & Johnson (2016); Tisserand (1978)                 |
| Clove        | <i>Syzygium aromaticum</i> ,<br><i>Eugenia caryophyllata</i>              | <i>Myrtaceae</i>   | Leaves, stems, and buds   | Analgesic; Antibacterial; antifungal; Anti-infectious; Antineuralgic; Antiseptic; Carminative; Spasmolytic; Stomachic   | Use very well diluted (less than 0.5%). Avoid on hypersensitive or damaged skin, during pregnancy, and children under 7 years old.  | Curtis & Johnson (2016); Lawless (2022); Worwood (2016)   |
| Eucalyptus   | <i>Eucalyptus globulus</i>  | <i>Myrtaceae</i>   | Leaves                    | Analgesic; Antiseptic; Antispasmodic; Cicatrisant; Deodorant; Depurative; Diuretic; Expectorant; Febrifuge; Hypoglycemiant; Rubefacient; Stimulant; Vermifuge; Vulnerary                                      | Nontoxic externally, nonirritant in a dilution less than 20%. Avoid use near nose or face in children under 7 years old, pregnant, or while breast-feeding.<br><br>Eucalyptus radiata is preferable for use with seniors. | Curtis & Johnson (2016); Tisserand (1978); Worwood (2016) |
| Frankincense | <i>Boswellia carterii</i> , <i>B. sacra</i> , <i>B. frereana</i> , et al. | <i>Burseraceae</i> | Resin                     | Antiseptic; Astringent; Carminative; Cicatrisant; Digestive; Diuretic; Sedative; Tonic; Uterine; Vulnerary  | Nontoxic, nonirritant in dilution.  | Curtis & Johnson (2016); Tisserand (1978)                 |
| Geranium     | <i>Pelargonium graveolens</i>   | <i>Geraniaceae</i> | Leaves and green stems    | Analgesic; Antidepressant; Antiseptic; Astringent; Cicatrisant; Diuretic; Hemostatic; Sedative; Stimulant of the Adrenal Cortex; Tonic; Vulnerary   | Nontoxic, nonirritant solution. Sensitization possible.   | Curtis & Johnson (2016); Tisserand (1978)                 |

Table 2 continued

| Common Name | Botanical Name               | Family               | Parts Used        | Indications   | Contraindications   | References  |
|-------------|------------------------------|----------------------|-------------------|---|---|---|
| Ginger      | <i>Zinziber officinale</i>   | <i>Zingiberaceae</i> | Root              | Analgesic; Antiseptic; Antispasmodic; Antitussive; Carminative; Circulatory; Expectorant; Febrifuge; Stimulant; Stomachic; Thermogenic  | Nontoxic, nonirritant in dilution   | Curtis & Johnson (2016); Lawless (2022); Worwood (2016)                   |
| Jasmine     | <i>Jasminum officinale</i>   | <i>Jasminaceae</i>   | Flowers           | Antidepressant; Antiseptic; Antispasmodic; Aphrodisiac; Galactagogue; Parturient; Sedative; Tonic (especially uterine)  | Nontoxic and nonirritant  | Curtis & Johnson (2016); Lawless (2022); Tisserand (1978)                 |
| Juniper     | <i>Juniperus communis</i>    | <i>Coniferae</i>     | Berries           | Antiseptic; Antispasmodic; Antitoxic; Aphrodisiac; Astringent; Carminative; Cicatrisant; Depurative; Diuretic; Emmenagogue; Nervine; Rubefacient; Sedative; Stomachic; Sudorific; Tonic; Vulnerary  | Nontoxic and nonirritant in dilution. Avoid if there is a kidney disorder and during pregnancy.   | Curtis & Johnson (2016); Lawless (2022); Tisserand (1978); Worwood (2016) |
| Lavender    | <i>Lavandula agustifolia</i> | <i>Labitae</i>       | Flowers           | Analgesic; Anticonvulsive; Antidepressive; Antiseptic; Antispasmodic; Antitoxic; Carminative; Cholagogue; Choloretic; Cicatrisant; Deodorant; Diuretic; Emmenagogue; Hypotensor; Nervine; Sedative; Splenetic; Sudorific; Tonic; Vermifuge; Vulnerary | Nontoxic and nonirritant. Can be used without dilution on small areas.  | Curtis & Johnson (2016); Tisserand (1978)                                 |
| Lemon       | <i>Citrus limonum</i>        | <i>Rutaceae</i>      | Peel of the fruit | Anti-infectious; Antimicrobial; Antiseptic; Antispasmodic; Antiviral; Astringent; Calmative; Carminative; Cicatrizing; Circulatory; Depurative; Digestive; Diuretic; Hemostatic; Tonic; Vermifuge   | Nontoxic, dilution of less than 2%, avoid using for 12 hours prior to sun exposure (causes hyperpigmentation in skin). May cause irritation on highly sensitive skin. | Curtis & Johnson (2016); Worwood (2016)                                   |

Table 2 continued

| Common Name      | Botanical Name                           | Family             | Parts Used              | Indications   | Contraindications   | References  |
|------------------|--|--------------------|-------------------------|---|---|---|
| Lemon Balm       | <i>Melissa officinalis</i>               | <i>Labiatae</i>    | Leaves and flowers      | Antidepressant; Antispasmodic; Carminative; Cordial; Digestive; Febrifuge; Hypotensive; Nervine; Sedative; Stomachic; Sudorific; Tonic; Uterine; Vermifuge          | Nontoxic externally. Sensitization possible. Use well diluted, less than 1%.  | Curtis & Johnson (2016); Lawless (2022); Tisserand (1978) |
| Lemongrass       | <i>Cymbopogon citratus, C. flexuosus</i> | <i>Poaceae</i>     | Chopped grass           | Analgesic; Antifungal; Anti-infectious; Antiseptic; Depurative; Digestive; Diuretic; Febrifuge; Tonic   | Dilution of a 0.5%. Avoid on hypersensitive skin and children less than 7 years old.<br><br>May irritate highly sensitive skin. Avoid during pregnancy or using multiple medications. | Curtis & Johnson (2016); Lawless (2022); Worwood (2016)   |
| Lemon Verbena    | <i>Aloysia triphylla</i>                 | <i>Verbenaceae</i> | Leaves and stalks       | Anti-inflammatory; Antiseptic; Antispasmodic; Carminative; Digestive; Sedative; Stimulant   | Avoid on sensitive skin, pregnancy, and breastfeeding at all costs; photosensitive.   | Curtis & Johnson (2016); Lawless (2022); Worwood (2016)   |
| Mugwort          | <i>Artemisia vulgaris</i>                | <i>Asteracea</i>   | Leaf buds               | Anthelmintic; Antispasmodic; Carminative; Choleric; Diaphoretic; Diuretic; Emmenagogue; Nervine; Orexigenic; Stimulant; Stomachic; Tonic (uterine, womb); Vermifuge | Avoid in pregnancy and if breastfeeding, on children under 7 years old and with epilepsy.   | Curtis & Johnson (2016); Lawless (2022)                   |
| Myrrh            | <i>Commiphora myrrha, C. molmol</i>      | <i>Burseraceae</i> | Resin                   | Antiseptic; Antiphlogistic; Astringent; Carminative; Emmenagogue; Expectorant; Sedative; Stimulant; Stomachic; Tonic; Uterine; Vulnerary                            | Nonirritant in dilution; use extremely well diluted (0.2%) in pregnancy and when breastfeeding  | Curtis & Johnson (2016); Tisserand (1978)                 |
| Neem/<br>Margosa | <i>Azadirachta indica</i>                | <i>Meliáceas</i>   | Pulp of fruit and seeds | Analgesic; Anthelmintic; Antibacterial; Antibacterial; Antifungal; Anti-Inflammatory; Antiviral; Insecticide; Sedative  | May irritate sensitive skin; avoid during pregnancy.  | Worwood (2016)  |

Table 2 continued

| Common Name            | Botanical Name           | Family           | Parts Used        | Indications   | Contraindications   | References  |
|------------------------|--------------------------|------------------|-------------------|---|---|---|
| Neroli, Orange Blossom | <i>Citrus aurantium</i>  | <i>Rutaceae</i>  | Flowers           | Antidepressant; Aphrodisiac; Antiseptic; Antispasmodic; Cordial; Deodorant; Digestive; Sedative; Tonic  | Nontoxic, nonirritant in dilution.  | Curtis & Johnson (2016); Lawless (2022); Worwood (2016)   |
| Orange                 | <i>Citrus sinensis</i>   | <i>Rutaceae</i>  | Rind of the fruit | Antibacterial; Antiseptic; Calmative; Cholagogue; Depurative; Diuretic; Sedative; Stimulant; Stomachic; Tonic   | Nontoxic, nonirritant in dilution.  | Curtis & Johnson (2016); Lawless (2022); Worwood (2016)   |
| Oregano                | <i>Origanum vulgare</i>  | <i>Lamiaceae</i> | Leaves            | Analgesic; Anthelmintic; Antibacterial; Antifungal; Antiseptic; Antiviral; Expectorant; Stimulant   | Dilute less than 1%. Avoid using in pregnancy, breast-feeding, and in children under 7 years old.<br><br>May cause skin sensitivity.  | Curtis & Johnson (2016); Worwood (2016)                   |
| Patchouli              | <i>Pogostemon cablin</i> | <i>Labiatae</i>  | Leaves            | Antidepressant; Antiseptic; Aphrodisiac; Cicatrisant; Deodorant' Sedative; Tonic  | Nontoxic, nonirritant in dilution   | Curtis & Johnson (2016); Tisserand (1978)                 |
| Peppermint             | <i>Mentha piperita</i>   | <i>Labiatae</i>  | Flowering herb    | Analgesic; Antiseptic; Antispasmodic; Astringent; Carminative; Cholagogue; Cordial; Emmenagogue; Expectorant; Febrifuge; Hepatic; Nervine; Stomachic; Sudorific; Vasoconstrictor; Vermifuge | Use diluted less than 2%. Avoid use in cardiac fibrillation and near the nose in children under 7 years old.<br><br>Avoid during pregnancy and while breast-feeding. Avoid using undiluted in hydrotherapy. | Curtis & Johnson (2016); Tisserand (1978); Worwood (2016) |

Table 2 continued

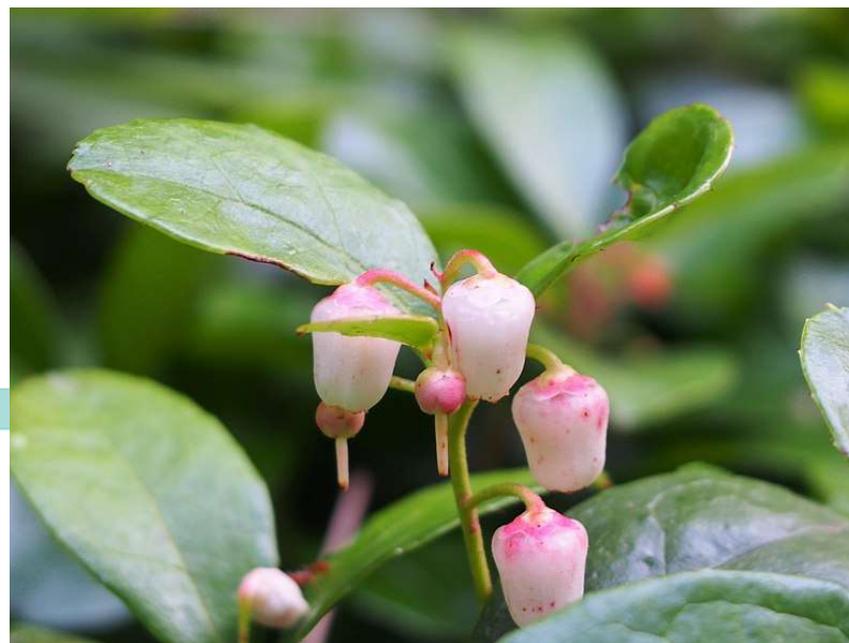
| Common Name | Botanical Name                                  | Family           | Parts Used                 | Indications  | Contraindications  | References  |
|-------------|---|------------------|----------------------------|--|--|---|
| Pine        | <i>Pinus sylvestris</i>                         | <i>Pinaceae</i>  | Twigs and buds             | Anti-Infectious; Antimicrobial; Antiseptic; Decongestant; Diuretic' Expectorant; Pectoral; Tonic   | Nontoxic, nonirritant in dilution. Only use the variety <i>Pinus sylvestris</i> because other varieties may be toxic or irritant.<br><br>May cause skin irritation on highly sensitive skin or skin prone to allergic reaction. Best avoided by those with respiratory problems. | Curtis & Johnson (2016); Lawless (2022); Worwood (2016)   |
| Rose        | <i>Rosa damascena</i> ,<br><i>R. centifolia</i> | <i>Rosaceae</i>  | Flowers                    | Antidepressant; Antiseptic; Antispasmodic; Aphrodisiac; Astringent; Choleric; Depurative; Emmenagogue; Hepatic; Laxative; Sedative; Splenetic' Stomachic; Tonic (heart, stomach, liver, and uterus)                                      | Nonirritant. Absolute is nontoxic; essential oil should be used in dilutions of less than 1% due to methyleugenol content.   | Curtis & Johnson (2016); Tisserand (1978)                 |
| Rosemary    | <i>Rosmarinus officinalis</i>                   | <i>Labiatae</i>  | Flowering tops of the herb | Adrenal Cortex Stimulant; Analgesic; Antiseptic; Antispasmodic; Astringent; Carminative; Cholagogue; Choleric; Cicatrisant; Digestive; Diuretic; Emmenagogue; Hepatic; Hypertension; Nervine; Stimulant; Stomachic; Sudorific; Vulnerary | Nonirritant in dilution. Avoid near the nose in children under 7 years old and during pregnancy.   | Curtis & Johnson (2016); Tisserand (1978); Worwood (2016) |
| Sage        | <i>Salvia officinalis</i>                       | <i>Lamiaceae</i> | Dried leaves               | Antibacterial; Antifungal; Anti-inflammatory; Antiseptic; Antispasmodic; Antiviral; Astringent; Cholagogue; Cicatrizing; Expectorant; Digestive; Diuretic; Emmenagogue; Mucolytic; Stomachic; Tonic                                      | Use very well diluted (less than 0.5%). Avoid using during pregnancy and when breastfeeding. Do not use if subject to seizures, epilepsy, or high blood pressure.<br><br>Avoid using on children under 15 years old. It is toxic if ingested.                                    | Curtis & Johnson (2016); Lawless (2022); Worwood (2016)   |

Table 2 continued

| Common Name | Botanical Name                | Family               | Parts Used                | Indications  | Contraindications   | References  |
|-------------|-------------------------------|----------------------|---------------------------|--|---|---|
| Sandalwood  | <i>Santalum album</i>         | <i>Santalaceae</i>   | Wood                      | Antidepressant; Antiseptic; Antispasmodic; Aphrodisiac; Astringent; Carminative; Diuretic; Expectorant; Sedative; Tonic                      | Nontoxic, nonirritant in dilutions of less than 2%  | Curtis & Johnson (2016); Tisserand (1978)               |
| Star Anise  | <i>Illicium verum</i>         | <i>Illiciaceae</i>   | Fruit                     | Antiseptic; Carminative; Expectorant; Insect Repellent; Stimulant  | Dilution of less than 1%; avoid during pregnancy and breast-feeding. Not suitable for children under 7 years old. | Curtis & Johnson (2016); Lawles (2022)                  |
| Tea Tree    | <i>Melaleuca alternifolia</i> | <i>Myrtaceae</i>     | Leaves                    | Anthelmintic; Antibacterial; Antifungal; Antiseptic; Antiviral; Decongestant; Immunostimulant; Vulnerary                                     | May irritate sensitive skin.  | Curtis & Johnson (2016); Lawless (2022); Worwood (2016) |
| Thyme       | <i>Thymus vulgaris</i>        | <i>Lamiaceae</i>     | Flowering tops and leaves | Analgesic; Anthelmintic; Antifungal; Anti-infectious; Antimicrobial; Antiseptic; Antispasmodic; Antiviral; Immunostimulant; Tonic; Vermifuge | Avoid prolonged use; may cause irritation. Best avoided during pregnancy.   | Curtis & Johnson (2016); Lawless (2022); Worwood (2016) |
| Valerian    | <i>Valeriana officinalis</i>  | <i>Valerianaceae</i> | Root                      | Antimicrobial; Antispasmodic; Calmative; Depurative; Diuretic; Hypnotic; Nervine; Sedative; Stomachic  | Avoid if taking sedatives or antidepressant medications. Best avoided during pregnancy and breast-feeding.        | Curtis & Johnson (2016); Lawless (2022); Worwood (2016) |
| Vanilla     | <i>Vanilla planifolia</i>     | <i>Orchidaceae</i>   | Cured seedpods            | Antidepressant; Calmative; Sedative; Stimulant   | May cause irritation on highly sensitive skin.  | Curtis & Johnson (2016); Lawless (2022); Worwood (2016) |
| Vetiver     | <i>Vetiveria zizanioides</i>  | <i>Poaceae</i>       | Rootlets                  | Antimicrobial; Antiseptic; Antispasmodic; Depurative; Nervine; Restorative; Sedative; Tonic  | Nontoxic and nonirritant in dilution.   | Curtis & Johnson (2016); Lawless (2022)                 |

Table 2 continued

| Common Name | Botanical Name  | Family    | Parts Used | Indications   | Contraindications  | References                                |
|-------------|---|-----------|------------|---|--|---|
| Wintergreen | <i>Gaultheria procumbens</i> , <i>G. fragrantissima</i> | Ericaceae | Leaves     | Analgesic (Mild); Anti-Inflammatory; Antirheumatic; Antitussive; Astringent, Carminative; Diuretic; Emmenagogue; Galactagogue; Stimulant. | Dilute in less than 2%; avoid during pregnancy and breastfeeding; not suitable for young children. Avoid if on anticoagulant medication or sensitive to aspirin. | Curtis & Johnson (2016); Lawless (2022)   |
| Ylang-Ylang | <i>Cananga odorata</i>                                  | Anonaceae | Flowers    | Antidepressant; Antiseptic; Aphrodisiac; Hypotensor; Sedative   | May irritate highly sensitive skin.  | Curtis & Johnson (2016); Tisserand (1978) |



### Adulteration of Essential Oils

As a practitioner of aromatherapy, it is imperative to know that there is a lack of regulation about the chemical composition of essential oils which create a need of accurate characterization of oils from their manufacturers (Dubnicka, Cromwell & Levine, 2020). Investigations have pointed out a significantly under-reported health concern from inhaling toxic contaminants such as Carbitol, Diethyl Phthalate in store brand essential oils.

Italian study using fast GC/MS and HPLC analysis indicate that herniarin isopimpinellin, and 5-hernaniol, normally found in lime oil, was found in lemon oil. The study states that “experimental results shown in this study demonstrate that fast-GC/MS and HPLC remain one of the most effective means to detect these illegal modifications” (Marti, Boccard, Mehl et al., 2014).

Because of shortages and sustainability issues, some companies that create essential oils have added endocrine disruptors, toxic inhalants, among other unnecessary chemicals that affect the original chemical component of essential oils. It is imperative to create technical methods to authenticate the oils for the benefit of those who are applying aromatherapy to their healthcare practice.

### Conclusión

Aromatherapy is used in naturopathic and complementary practices worldwide because it is a cost-effective symptom manager (Farrar & Farrar, 2020) and it is effective in some pathologies. On the flip side, because of how accessible they are, it can also be dangerous and toxic since essential oils can be flammable, phototoxic, adulterized with unwanted chemicals, and can cause oral toxicity and even

death if it is not applied correctly. As healthcare professionals, it is imperative to educate ourselves and be selective for a clinical aromatherapy practitioner course and educate our patients on finding the appropriate essential oil to avoid any contaminations, how to dilute them, the contraindications, and safety precautions while they are applying aromatherapy on themselves.

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