

# Frankincense

By Salvatore Battaglia



## BOTANICAL NAME

*Boswellia* spp.

Frankincense has always had a very special spiritual connection with humankind:

*The first perfume was incense, its earliest uses bound up in religious rites. ... With their complex aromatic layering, these substances are a vehicle for spiritual exaltation. ... The burning of aromatics opens the door between the mundane and the supernatural, an elevation of consciousness that has been incorporated into the rituals and belief systems of many religions. Indeed, incense has permeated spiritual practice as thoroughly as spiritual practice has permeated human life.<sup>1</sup>*

## BOTANY AND ORIGINS

Frankincense, also known as *olibanum*, is a natural oleo-gum-resin formed from the physiological exudate from the bark of various *Boswellia* species. For many years there has been so much confusion and little clarity about the various types of frankincense.

The most commonly used species are:

- *Boswellia sacra* - from Oman, Yemen and southern Saudi Arabia
- *Boswellia carterii* Birdwood - from Somalia
- *Boswellia frereana* Birdwood - from Somalia
- *Boswellia papyrifera* - from western Ethiopia
- *Boswellia serrata* - from western India.<sup>2</sup>

The major sources of frankincense are *B. serrata* (India), *B. sacra* (Oman) and *B. carteri* (Somalia).

The trees originate from the mountainous areas of western India, southern Arabia and northeastern Africa. The trees are not cultivated, and the collection of the resin is made where the trees are most abundant. Nowadays, the major frankincense producing countries are Somalia, Yemen, India and Ethiopia.<sup>3,4</sup>

Tisserand suggests that *B. carterii* and *B. sacra* are the same plant; however, this has been disputed by some.<sup>4</sup>

DeCarlo states there are two types of *Boswellia* that grow in Somalia – *Boswellia sacra* (syn *B. carterii*) and *Boswellia frereana*.<sup>5</sup>

It appears that *B. frereana* originates from Somalia with small amounts coming from Oman. *B. papyrifera* is found in Eritrea, Yemen, India, Ethiopia, Kenya and Somalia. Tisserand states the frankincense oils with higher  $\alpha$ -pinene levels (50-80%) probably indicate *B. frereana*, while lower concentrations (10-50%) indicate *B. sacra*. He states there may also be a  $\alpha$ -thujene chemotype for *B. sacra*.<sup>4</sup>

---

DeCarlo states the best frankincense occurs on trees growing in the narrow strip of Oman's desert plateau that borders the mountains of the former South Yemen, where the trees have ideal soil conditions and tropical sun accompanied by heavy dew from the monsoons.<sup>5</sup>

The Arabic name for *B. sacra* includes numerous variants of *mogar*, whereas the Somali name is *mohar* and the most common name is *mohar madow*. In Somali, *B. frereana* is called *yagar*.<sup>6</sup>

Most of the resin is produced from *B. papyrifera*. However, there is very little oil in the resin of this species so it is not commonly used for producing frankincense essential oil.<sup>4</sup>

The oleo-gum-resin is tapped from the incision made on the trunk of the tree. A milky-white liquid appears, which then solidifies into amber or orange-brown crystals of resin. The gum resin is then graded according to flavour, colour, shape and size. The age, appearance, moisture level and odour characteristics determine the quality of the oil.<sup>7</sup>

The method for harvesting frankincense has not changed much in the past several thousand years. Incisions are made in the bark of the trunk or branches, where the secretory tissues occur; the resin exudes and is collected when it hardens sufficiently.<sup>6</sup>

Cropwatch lists several *Boswellia* species that are listed in the IUCN Red List of Threatened Species 2008. *B. sacra* is the only frankincense species on the list which is of commercial importance.<sup>8</sup>

---

## METHOD OF EXTRACTION

Frankincense essential oil is produced from the steam distillation of the resin of various *Boswellia* species. A resinoid absolute of frankincense is also produced for the perfume industry by solvent extraction.<sup>4</sup>

---

## CHARACTERISTICS

The essential oil of *B. carterii* is colourless to yellowish-green or amber-green with a diffusive, fresh-terpene-like, almost green-lemon-like aroma. It has a slight peppery note with a rich, sweet-woody, balsamic undertone.<sup>3</sup>

The *B. serrata* essential oil has a slightly more spicy note compared to the *B. carterii*, while *B. sacra* essential oil has more of the fresh terpene-like, almost green-lemon like aroma.

Lis-Balchin describes the scent of frankincense oil as tenacious, however, this depends on the distillation procedure. It can also have a cistus-like, amber-type, balsamic dryout note.<sup>9</sup>

---

## CHEMISTRY

The chemistry of frankincense is very complex. It has more than 20 monoterpenes and 28 sesquiterpenes.

The chemical composition of *Boswellia serrata* from India was reported as follows:

$\alpha$ -thujene (71.74%),  $\alpha$ -pinene (5.22%), thuja-2,4(10)-diene (0.4%), sabinene (5.2%),  $\beta$ -pinene (0.37%), myrcene (0.91%),  $\alpha$ -phellandrene (2.24%), *d*-3-carene (3.86%),  $\alpha$ -terpinene (0.38%), limonene (1.64%),  $\beta$ -phellandrene (0.49%), *cis*- $\beta$ -ocimene (0.6%), *p*-cymene (1.66%), *trans*- $\beta$ -ocimene (0.27%),  $\gamma$ -terpinene (0.79%), terpinolene (0.26%),  $\alpha$ -thujone (0.13%), terpinene-4-ol (0.67%), methyl chavicol (1.37%),  $\beta$ -bourbonene (0.32%), germacrene D (0.17%), valencene (0.13%), kessane (0.12%).<sup>10</sup>

The chemical composition of *Boswellia carterii* from Somalia was reported as follows:

$\alpha$ -thujene (trace - 10%),  $\alpha$ -pinene (30-60%), sabinene (trace - 8%),  $\beta$ -pinene (trace - 14%),  $\beta$ -myrcene (trace - 10%), limonene (2-15%), viridiflorol (trace - 10%).<sup>11</sup>

Hussain et al. report that  $\alpha$ -thujene is often the dominant compound in *B. serrata*, whereas  $\alpha$ -pinene, limonene and  $\beta$ -caryophyllene are the main constituents in *B. carteri* and *B. sacra*.<sup>12</sup>

One study examining the chemical composition of twenty essential oils from various *Boswellia* species including *Boswellia carteri*, *B. neglecta*, *B. sacra*, *B. thurifera* and *B. freana* found a vast qualitative variation in certain constituents. For example,  $\alpha$ -pinene (2-64.7%),  $\alpha$ -thujene (0.3-52.4%),  $\beta$ -pinene (0.3-13.1%), myrcene (1.1-22.4%), sabinene (0.5-7.0%), limonene (1.3-20.4%), *p*-cymene (2.7-16.9%) and  $\beta$ -caryophyllene (0.1-10.5%).<sup>13</sup>

---

## HISTORY AND TRADITIONAL USES

The name *olibanum* is thought to be derived from Latin, *olium libanum*, meaning oil from Lebanon. The name frankincense is derived from the old French word *franc*, meaning free, pure or abundant, and Latin *incensum*, meaning to smoke.<sup>14</sup>

Frankincense played a very important role in the religious and domestic lives of ancient Egypt, Persia, Hebrew, Greek and Roman civilisations. It has always been considered an important ingredient in cosmetics, as an aromatic incense and in religious rituals of these ancient civilisations.

Frankincense is believed to be part of the oldest global supply chain. The Nabataeans, an Arab tribe, monopolised the trade nearly 2,000 years ago and maintained their lucrative competitive advantage for more than five centuries.<sup>5</sup>

The Egyptians obtained frankincense from the land of Punt, believed to have been a region in Somalia. The famous *kyphi*, a renowned scent used by ancient Egypt, was made with frankincense. *Kyphi* was used as an incense and also added to beverages.<sup>15</sup>

In ancient Egypt, a dead king had to be perfumed with incense in order to be accepted by the gods. Incense was considered the scent of the gods and it was believed that acquiring the scent of incense, the king would affirm his basic identity with the gods.<sup>16</sup>

Kohl, a black powder used by Egyptian women to paint their eyelids, is made from charred frankincense.<sup>17</sup>

According to Pliny the Elder, in ancient times, frankincense could only be harvested by specially appointed families. The resin was considered to be divine and gatherers were restricted from impure acts during harvesting of the resin.<sup>6</sup>

---

By the Roman times, transport costs and the high demand for incense far exceeded the supply of frankincense and myrrh. Frankincense and myrrh were considered such precious commodities that their value was similar to that of gold.<sup>18</sup>

More than 3,000 tonne of frankincense was imported by the Romans each year. However, by this stage the original sacred use of frankincense to honour the gods had been transmuted into extravagant, luxurious use for mortals. Nero was said to have burned so much frankincense at the funeral of his wife that it is said to have exhausted Arabia's supply for an entire year.<sup>18</sup>

Frankincense is regularly mentioned in the Bible:

*Thy two breasts are like two young roes that are twins,  
which feed among the lilies.*

*Until the day break, and the shadows flee away, I will  
get me to the mountain of myrrh, and to the hill of  
frankincense.<sup>19</sup>*

Song of Songs 4:5-4:6 (King James Version)

The most famous reference to frankincense is in the Bible when it was given as a gift to the infant Jesus:

*And when they came into the house, they saw the young  
child with Mary his mother, and fell down, and worshipped  
him: and when they opened their treasures, they presented  
unto him gifts; gold and frankincense and myrrh.<sup>19</sup>*

Matthew 2:11 (King James Version)

Stoddart states the burning of incense became very popular with the ancient Hebrews. The rituals associated with burning incense became increasingly complex reaching their peak in the temple of Herod, two decades before the birth of Christ. Incense was always burned when a burnt offering was prepared, most likely to also soften the harsh odour emanating from the slaughtered animals and burning flesh.<sup>1</sup>

However, early Christians scorned the use of incense. He cites Lactantius who said that odours are not required by God and should not be offered to him. Stoddart explains there is little doubt that the revulsion early Christians had to incense resulted from the heavy usage by the Jews, however, Christians soon began to use incense only as a fumigant for sanitary protection such as a burial or if a church building smelt particularly unwholesome.<sup>1</sup>

It is still used in many parts of the Arab world. For example, the Muslim inhabitants of the United Arab Emirates state a dirty smelly body is vulnerable to evil; the scented person is surrounded by angels. They believe that the most useful scent for attracting angels and dispelling evil spirits is frankincense. For this reason, children, houses and mosques are censured weekly with frankincense.<sup>20</sup>

Holmes says that frankincense resin was a very valuable remedy in traditional Greek, traditional Ayurveda and traditional Chinese medicine. He says that Persian physician Ibn Sina (Avicenna) used frankincense for ulcers, tumours, fevers, dysentery and vomiting. In Ayurveda, frankincense is primarily used as a drying, astringent remedy for damp and *Kapha* conditions of the digestive, respiratory and urogenital organs.<sup>21</sup>

Indian frankincense, commonly referred to as *dhoop*, is considered one of the most valued herbs in Ayurveda. It was mainly used to treat arthritis, but also beneficial for diarrhoea, dysentery, ringworm, boils, fevers, skin and blood diseases,

cardiovascular diseases, mouth sores, bronchitis, asthma, cough, vaginal discharges, hair loss, jaundice, haemorrhoids, irregular menses and stimulation of the liver.<sup>7</sup>

Frankincense oil is used in fine perfumery in citrus-based perfumes, incense-like perfumes, oriental, floral and masculine perfumes.<sup>3</sup>

---

## PHARMACOLOGY AND CLINICAL STUDIES

### Anti-inflammatory activity

*B. serrata* is used in Ayurveda for treating inflammatory diseases. A number of researchers have investigated the anti-inflammatory and antiarthritic effects of the boswellic acids found in the gum. It is believed that the mechanism of action may occur via the inhibition of 5-lipoxygenase and leucite elastase. Both these enzymes play key roles in inflammatory and hypersensitivity-based diseases.<sup>22</sup>

I believe frankincense oil may not be as effective as we have made it out to be as it does not contain any boswellic acid. The herbal extract of frankincense gum would be more effective for this purpose as it contains the boswellic acids.

Moussaieff et al. found that incensole acetate from *B. carterii* inhibited the formation of cytokines secreted by T cells and macrophages that stimulate an immune response.<sup>23</sup>

### Antimicrobial activity

Lis-Balchin states frankincense's antibacterial effects are strong; however, it has poor antifungal effects.<sup>9</sup>

Several studies have confirmed that frankincense has pronounced activity against a range of bacteria.<sup>24,25</sup>

The results of another study found twenty samples of frankincense essential oil displayed poor to moderate activity against a reference *S. aureus* strain.<sup>13</sup>

Another study reported the antibacterial properties of frankincense may be attributed to the presence of phenolic acid in boswellic acid.<sup>26</sup>

### Antitumour activity

Almost all the research on frankincense and cancer is related to boswellic acid, found in the resin – not the essential oil. Frankincense extract contains about 50% boswellic acid and there has been extensive research on the antitumoral activity of boswellic acid.<sup>27</sup>

Many researchers have identified boswellic acid found in the frankincense resin extract as having very strong anti-inflammatory and antitumor activity. Researchers found more than 50% of the myeloid leukaemia cells underwent apoptosis for 24 hours after treatment with 20 µg/mL boswellic acid isolated from *Boswellia carterii* resin.<sup>28</sup>

Another researcher examined the effects of acetyl-11-keto-β-boswellic acid (AKBA) on pancreatic cancer. The results of the study demonstrate that AKBA can suppress the growth and metastasis of human pancreatic tumours in an orthotopic nude mouse model that correlates with modulation of multiple targets.<sup>29</sup>

---

I believe frankincense oil may not be as effective as we have made it out to be as it does not contain any boswellic acid. The herbal extract of frankincense gum would be more effective for this purpose as it contains the boswellic acids.

Boswellic acid is only found in the resin and is no traces of it are found in the essential oil. As Tisserand points out:

*...boswellic acid is much too heavy a molecule to be volatile so it would be impossible to find it in the essential oil. Boswellic acid has a molecular weight in the range of 450-500. However volatile molecules all have molecular weight below 300.*<sup>27</sup>

It is irresponsible for anyone to claim that frankincense essential oil has antitumour activity as it does not contain any boswellic acid.

### **Bronchial asthma**

Lis-Balchin cites a double-blind, placebo-controlled study in which bronchial asthma was reduced in 70% of 40 patients treated with the gum resin at 300 mg three times daily for six weeks.<sup>9</sup>

### **Immunomodulation**

Frankincense essential oil exhibited a strong immunostimulant activity (90% lymphocyte transformation) when assessed by a lymphocyte proliferation assay.<sup>30</sup>

One study reported that extracts from the gum resin of *Boswellia serrata* and some of its constituents including boswellic acids are immunomodulators and should be considered in some chronic inflammatory diseases including rheumatoid arthritis, bronchial asthma, osteoarthritis, ulcerative colitis and Crohn's disease.<sup>31</sup>

Twenty-six bioactive compounds from *Boswellia serrata* were tested against SARS-CoV-2 by using computational studies and then subjected to molecular docking against one of the proteins of SARS-CoV-2. Some of the compounds were identified as having the potential to inhibit Mpro activity. It was recommended that further in-vitro experimentation is required to validate the use of these frankincense compounds as a potent drug against COVID19.<sup>32</sup>

---

## **ACTIONS**

### **Actions commonly cited in aromatherapy**

Analgesic, antidepressant, antiseptic, astringent, carminative, cicatrisant, cytophylactic, expectorant, sedative, vulnerary<sup>14,33,34,35,36</sup>

### **Actions supported by clinical studies**

Antidepressant, antiseptic, expectorant, sedative

---

## **COMMENT**

I agree with Lis-Balchin who states because there is so much variation in the chemical composition of frankincense depending on the source of the resin it is very difficult to make generalisations about its bioactivity.<sup>9</sup>

Most of the pharmacological and clinical studies involving frankincense involve boswellic acid. Many of the therapeutic actions attributed to frankincense are due to the boswellic acid. As the essential oil does not contain any boswellic acid we cannot confirm with confidence many of the aromatherapeutic properties that are often assigned to the essential oil.

Frankincense oil has always had a very special spiritual connection with humankind. The resin has been incorporated into the rituals and belief systems of many religions. The essential oil is often recommended to quieten the mind and assist in meditation, prayer and spiritual practices.

---

## **AROMATHERAPY USES**

### **Clinical aromatherapy**

#### **Immune system**

Price & Price regard frankincense oil as being a very effective immunostimulant essential oil.<sup>33</sup>

Mojay states frankincense strengthens the immune system and is especially useful in cases when the immune system is weakened because of stress and depression.<sup>34</sup>

#### **Musculoskeletal system**

Frankincense oil is recommended topically for the relief of joint pain and muscular aches and pains.<sup>33</sup>

#### **Palliative care**

Price & Price state frankincense oil can be very helpful for palliative care. When we are confronted with our mortality we may turn inwards and question our innermost thoughts, beliefs and values in an attempt to make sense of what is happening. Essential oils such as frankincense can provide spiritual support, bringing comfort and peace in the form of deep relaxation. This allows patients to focus on their spirituality.<sup>33</sup>

#### **Psychological**

Price & Price state frankincense oil is well known for its effects on the human psyche and it is recognised as being beneficial for nervous depression.<sup>33</sup> Mojay states frankincense's most important sphere of action is the nervous system. He explains it is able to relax and yet revitalise, making it excellent for treating both nervous tension and nervous exhaustion. He refers to frankincense as an important essential oil for alleviating depression.<sup>34</sup>

Frankincense oil has been recommended for nervous tension, stress-related conditions, restlessness, grief, anxiety, mental confusion, nervous depression and sensory overstimulation.<sup>21</sup>

Holmes believes the scent of frankincense primarily stimulates two cerebral centres:

- the raphe nucleus to release serotonin and GABA for the calming effect
- the hippocampus and amygdala to release various neurotransmitters for mental stimulant effect.<sup>21</sup>

He suggests the sesquiterpenes in frankincense contribute to the oils calming action, while the monoterpenes may be the basis for the oil's mental stimulant action.<sup>21</sup>

---

---

## Respiratory system

Frankincense oil has traditionally been used to treat respiratory conditions such as asthma, bronchitis and catarrhal conditions.<sup>34</sup>

Frankincense oil has anticatarrhal and expectorant properties that make it beneficial for treating bronchitis and asthma, especially associated with nervous tension.<sup>35</sup>

Davis has found frankincense essential oil helpful for people with asthma because it slows and deepens breathing.<sup>36</sup>

## Skin care

Frankincense oil is well known in skin care for its wound-healing properties. It is also recommended for treating dry and mature skin, scars and wrinkles.<sup>14,35</sup>

Frankincense oil has been recommended for the treatment of non-suppurating sores, wounds, chronic ulcers, swollen gums, bleeding, boils, carbuncles and abscesses.<sup>21</sup>

## Energetics, psyche and subtle uses

### Energetics

Holmes states frankincense oil has unique energetic qualities because of the oil's complex aroma which he describes as spicy, sweet, woody and green.<sup>21</sup>

He explains the spicy component of the aroma causes energy to rise and disperse, whereas the sweet, woody and green aromas have the effect of causing energy to go down and stabilise.<sup>21</sup>

The sweet woody and green note exerts a more calming, grounding and balancing effect that reduces excessive energy. This accounts for frankincense's use for nervous tension, anxiety and mental confusion. On the other hand, the spicy aspect of frankincense is generally uplifting and tonifying. This is why the oil is often recommended to alleviate fatigue, grief, depression and poor mental focus.<sup>21</sup>

Mojay states frankincense is able to smooth the flow of stagnant *Qi* whenever there is stress that leads to irritability, restlessness and insomnia.<sup>34</sup>

In terms of the Five Elements, frankincense is often associated with the Earth Element. Frankincense oil has a strong harmonising effect on the Intellect (*Yi*).<sup>34</sup> When our *Yi* is out of balance we may experience obsessive thoughts and repetitive thought patterns, we tend to worry excessively and our thinking is confused and we find it difficult to make logical connections between ideas or to order thoughts in logical patterns.

Frankincense also helps to harmonise the Metal Element. It has anticatarrhal and expectorant properties that alleviate respiratory congestions associated with weak *Lung Qi* and it strengthens our *defensive Qi*.

In Ayurveda frankincense oil is perfect for balancing *Vata* dosha and calming excessive *Pitta*.

### Personality

Worwood describes frankincense personalities as displaying an air of mystery and secretiveness. They are often considered eccentric and prefer to use their own initiative to get something done. There is a sense of maturity, confidence and efficiency about a frankincense personality. They seem to have an understanding of the nature of the universe.<sup>37</sup>

While they are not necessarily religious people they love all things spiritual and have a profound love of god in their heart.

They are usually good communicators – clear and eloquent, however, they may be perceived as being blunt.<sup>37</sup>

When they are negative, the frankincense personality can be destructive and bitter. They can be sceptical, cynical and are often inclined to be guilt-ridden, insecure and uncertain. They are liable to suffer from anxiety and stress and be short-tempered and agitated. However, as they are such an enlightened person they are able to realise what is going on and make a concerted effort to change direction – into positivity.<sup>37</sup>

They are typically very steady, upright citizens and will be attracted to jobs that command respect and honour. In their business dealings they have the ability to sense accurately whether a deal will turn out well or if it will be a waste of time. She states they make very good counsellors as their advice is very down to earth and practical.<sup>37</sup>

According to Myers-Briggs personality types, the frankincense personality is likely to be an INTJ. INTJs are very responsible and dependable. They are people of a very few words and tend to be private. They are punctual, precise and fastidious. They have the ability to concentrate and are difficult to distract. They prefer to work alone and dislike distractions. They are modest, unassuming and down to earth. They can be resistant to change. They can make quick critical judgements of others. They are extremely devoted in their relationships.

### Subtle

Frankincense is often recommended to quieten the mind and assisting in meditation, prayer and spiritual practices. For example, Zeck states:

*Frankincense cleanses the aura, is finely attuned to the subtle energies and paves the way to the higher self.*<sup>38</sup>

Worwood describes the subtle qualities of frankincense as elevating, spiritual and meditative. She explains that it holds some of the wisdom of the universe, that which is manifested in the spiritual self. She also recommends using frankincense to help ground us and reconnect us with our body in cases of spiritual shock or loss.<sup>39</sup>

Keim Loughran & Bull state frankincense deepens our breath, calms and focuses our mind and opens our consciousness to make clear, direct contact with the divine. It creates a mindful, meditative state in which we can experience and integrate divine wisdom. Frankincense enhances a meditative state so that we can better receive and integrate healing energy.<sup>40</sup>

Davis explains frankincense will help us cut ties with the past, especially where these may block personal growth.<sup>41</sup>

Mojay compares frankincense to sandalwood:

*...like sandalwood, it is an ideal aid to meditation, contemplation, and prayer, ceasing mental chatter and stilling the mind. Facilitating a state of single pointed concentration, it allows the spirit to soar.*<sup>34</sup>

Mojay states frankincense contains the power to focus our spiritual consciousness:

*We have allowed ourselves to become oppressed by the mundane or tied to the past – indeed, restricted or weighed-down by any form of over-attachment – frankincense can help us break free. This it will achieve through encouraging tranquillity, insight and spiritual self-discipline, allowing the ego-self and trans-personal self to work in unison.*<sup>34</sup>

---

I have always felt that frankincense oil can be used for the lower chakras - base chakra and solar plexus, however, at the same time it helps balance all the upper chakras. Holmes' explanation sheds some light on paradox:

*By promoting both an upward and downward movement of energy, here is an oil that creates connection between the lower and upper body parts, thereby generating a dynamic balance between them. Energetically we can say that frankincense connects the lowest chakra with the middle and upper chakras.<sup>21</sup>*

He also explains frankincense helps integrate the personality by creating connections between the different aspects of our individual self.<sup>21</sup>

This explains why frankincense induces the state of contemplation that religions around the world have engaged in their ceremonies for thousands of years. Frankincense can lead to a state that can be the doorway to transcendent liberation from the physical body.<sup>21</sup>

### Blending tips

- For **inflammation and joint pain** consider blending frankincense oil with essential oils such as black pepper, clove bud, everlasting, ginger, spike lavender, sweet marjoram or rosemary.
- To help **calm and slow down breathing** consider blending frankincense oil with essential oils such as fragonia, neroli or sandalwood.
- To help **alleviate catarrhal conditions** associated with bronchitis or asthma consider blending frankincense oil with essential oils such as Atlas cedarwood, cajeput, fragonia, spike lavender, myrtle, pine or spruce.
- To **promote wound healing** consider blending frankincense oil with essential oils such as German chamomile, everlasting, lavender, myrrh, patchouli or sandalwood.
- To **promote mental clarity, focus and cognitive enhancement** consider blending frankincense oil with essential oils such as bergamot, coriander seed, fragonia, lemon, cold-pressed lime, pine, spruce or rosemary.
- To assist in **meditation and mindfulness practice** consider blending frankincense oil with essential oils such as Roman chamomile, lemon, myrtle, myrrh, neroli, patchouli, pine and sandalwood.
- To help **balance the base chakra** consider blending frankincense oil with essential oils such as black pepper, Atlas cedarwood, ginger, patchouli, sandalwood or vetiver.
- To help **balance the crown chakra** consider blending frankincense oil with essential oils such as Atlas cedarwood, Roman chamomile, lavender, myrrh, neroli or sandalwood.

### How to use

#### Bath

Full body bath, foot bath

#### Topical

Massage, ointment, skin care

#### Inhalation

Direct inhalation, diffuser, oil vaporiser

#### Safety

Frankincense oil is considered non-toxic, non-irritant and non-sensitising.<sup>14</sup> No contraindications known.

---

## REFERENCES

1. Stoddart DM. The scented ape – the biology and culture of human odour. Cambridge University Press, Cambridge, 1990.
2. Lawrence BM. Essential oils 1992-1994. Allured Publishing, Carol Stream, 1995.
3. Arctander S. Perfume and flavour materials of natural origin. Allured Publishing, Carol Stream, 1994.
4. Tisserand R, Young R. Essential oil safety. 2nd edn. Churchill Livingstone, Edinburgh, 2014.
5. DeCarlo A, Ali S. Sustainable sourcing of phytochemicals as a development tool: the case of Somaliland's frankincense industry. Institute for Environmental Diplomacy & Security, The University of Vermont, March 2014. Retrieved from [http://www.uvm.edu/ieds/sites/default/files/Somaliland\\_3\\_27\\_14.PDF](http://www.uvm.edu/ieds/sites/default/files/Somaliland_3_27_14.PDF)
6. Langenheim JH. Plant resins – chemistry, evolution, ecology, and ethnobotany. Timber Press, Portland, 2003.
7. Khan I, Abourashed E. Leung's encyclopedia of common natural ingredients used in food, drugs and cosmetics. 3rd edn. John Wiley & Sons. New Jersey, 2010.
8. Burfield T. Frankincense – a brief catch-up. Retrieved Aug 13, 2016, from [www.cropwatch.org](http://www.cropwatch.org)
9. Lis-Balchin M. Aromatherapy science – a guide for healthcare professionals. Pharmaceutical Press, London, 2006.
10. Southern Cross University. Perfect Potion Boswellia serrata oils - certificate of analysis. 2016.
11. Southern Cross University. Perfect Potion Boswellia carterii oils - certificate of analysis. 2016.
12. Hussain H et al. Chemistry and biology of essential oils of genus Boswellia. Evidence-Based Complementary and Alternative Medicine. 2013;:140509. doi: 10.1155/2013/140509
13. Van Vuuren SF et al. Volatile composition and antimicrobial activity of twenty commercial frankincense essential oil samples. Botany. 2010;76(4):687-691. doi: 10.1016/j.sajb.2010.06.001
14. Lawless J. The encyclopaedia of essential oils. Element Books, Shaftesbury, 1992.
15. Manniche L. An ancient Egyptian herbal. British Museum Press, London, 1993.
16. Classens C. World of sense - exploring the senses in history across cultures. Routledge, London, 1993.

- 
17. Grieve M. A modern herbal – Vol. I. Dover Publications, New York, 1971.
  18. Lyttelton C. The scent trail – a journey of the senses. Bantam Press, London, 2007.
  19. <https://www.kingjamesbibleonline.org>
  20. Classen C, Howes D, Synnott A. Aroma – the cultural history of smell. Routledge, London, 1994.
  21. Holmes P. Frankincense oil. The International Journal of Aromatherapy, 1998/1999; 9(4): 156-161.
  22. Siddiqui MZ. Boswellia serrata, a potential anti-inflammatory agent: an overview. Retrieved Aug 13, 2016, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3309643>
  23. Moussaieff A et al. Incensole acetate: a novel neuroprotective agent isolated from Boswellia carterii. Journal of Cerebral Blood Flow & Metabolism. 2008; doi: 10.1038/jcbfm.2008.28
  24. Wahab A et al. The essential oil of olibanum. Planta Medica, 1987; 53(4): 382-384.
  25. Al-Saidi S et al. Composition and antibacterial activity of the essential oils of four commercial grades of Omani Luban, the oleo-gum resin of Boswellia sacra FLUECK. Chemistry and Biodiversity, 2012; 9(3): 615-624.
  26. Al-Yasiry ARM et I. Frankincense – therapeutic properties. Advances in hygiene and Experimental Medicine. 2016;70:380-391. doi:10.5604/17322693.1200553
  27. Tisserand R. Frankincense oil and cancer in perspective. Retrieved Mar 3, 2016 from <http://tisserandinstitute.org/frankincense-oil-and-cancer-in-perspective/>
  28. Xia L, Chen D, Han R, Fang Q, Waxman S, Jing Y. Boswellic acid acetate induces apoptosis through caspase-mediated pathways in myeloid leukemia cells. Molecular Cancer Therapeutics, 2005; 4(3): 381-388.
  29. Park B, Prasad S, Yadav V, Sung B, Aggarwal B. Boswellic acid suppresses growth and metastasis of human pancreatic tumors in an orthotopic nude mouse model through modulation of multiple targets. PLoS ONE, 2011; (6)10: e26943. doi: 10.1371/journal.pone.0026943
  30. Mikhaeil BR et al. Chemistry and immunomodulatory activity of frankincense oil. Zeitschrift fur Naturforschung Teil C, 2003; 58(3/4): 230-238.
  31. Ammon HP. Modulation of the immune system by Boswellia serrata extracts and boswellic acids. Phytomedicine. 2010;17(11):862-7. doi: 10.1016/j.phymed.2010.03.003
  32. Roy A, Menon T. Evaluation of bioactive compounds from Boswellia serrata against SARS-CoV-2. Vegetos. 2021;1-11. doi: 10.1007/s42535-021-00318-7
  33. Price S, Price L. Aromatherapy for health professionals. 4th edn. Churchill Livingstone, Edinburgh, 2012.
  34. Mojay G. Aromatherapy for healing the spirit. Healing Arts Press, Rochester, 1999.
  35. Lavabre M. Aromatherapy workbook. Healing Arts Press, Rochester, 1997.
  36. Davis P. Aromatherapy A-Z. 2nd edn. C.W. Daniel Company, Saffron Walden, 1999.
  37. Worwood VA. The fragrant mind. Transworld Publishers, London, 1995.
  38. Zeck R. The blossoming heart – aromatherapy for healing and transformation. Aroma Tours, East Ivanhoe, 2004.
  39. Worwood VA. The fragrant heavens. Transworld Publishers, London, 1999.
  40. Keim Loughran J, Bull R. Aromatherapy and subtle energy techniques. Frog, Berkeley, 2000.
  41. Davis P. Subtle aromatherapy. C.W Daniel Company, Saffron Walden, 1991.