Myrrh

Commiphora myrrha (Nees) Engl.

**Synonyms**

Commiphora molmol, Commiphora madagascariensis, gum myrrh, myrrha, Somali myrrh

**Family**

Burseraceae

**Botany and origins**

The name myrrh is derived from the Arabic and Hebrew word mur, which means bitter.¹

Myrrh is the resinous exudation, or gum, collected from the myrrh bush, botanically known as Commiphora myrrha, either when it is wounded or from natural fissures. There are several Commiphora species from which the myrrh resin is produced. The resin flows out as a thick pale yellow liquid and turns reddish brown as it dries and hardens. The bush which is a native of northeastern Africa and southern Arabia has sturdy knotted branches, trifoliate leaves and small white flowers.²

To increase the yield and production, incisions are made into the bark. Lumps of the gum often fall to the ground and become contaminated with sand, other lumps are peeled off the trunk, and these usually make a better grade of myrrh. However, myrrh cannot be evaluated just by its appearance. Lumps of high odour value may have poor appearance because they have fallen to the ground.²

Myrrh resin consists of rounded or irregular tears or agglutinated masses of smaller and larger tears of a moderate yellow to dark or reddish brown colour. The lumps are usually covered with a lighter-coloured or yellowish dust.²

**Method of extraction**

Myrrh essential oil is steam distillation from the myrrh resin. A myrrh absolute is prepared from myrrh resinoid. The resinoid is a very dark, reddish-orange-brown, viscous mass and is very difficult to pour at room temperature.²

**Characteristics**

Myrrh oil is a pale yellow to pale orange coloured liquid. It has a warm-spicy odour with a sharp-balsamic, slightly medicinal top note. Arctander states that the sweetness increases to a deep, warm-spicy and aromatic dryout which is unique and difficult to replicate. However, the oil lacks tenacity.²

**Chemistry**

Myrrh essential oil contains 1.5–17% (usually ca. 8%) volatile oil composed of heerabolene, limonene, dipentene, pinene, eugenol, cinnamaldehyde, cuminaldehyde, cumin alcohol, m-cresol, cadinenene, curzerene (11.9%), curzerenone (11.7%), dihydropyrocurzerenone (1.1%), furanoeudesma-1,3-diene (12.5%), 1,10(15)-furanodiene-6-one (1.2%), lindestrene (3.5%), and furanogermacrane among others.¹

**Adulteration**

The resin from opopanax and other Commiphora species are blended with myrrh resin to extract the essential oil.²

**Pharmacopoeias and standards**

The purity, composition and physico-chemical properties...
of myrrh are defined in several standards and monographs.

- ESCOP 2003 Monographs
- European Pharmacopoeia.

**History and Traditional Uses**

**History**

Myrrh is one of the oldest known aromatic substances which is mentioned as far back as 4,000 years. It was an ingredient of incense used for religious ceremonies and fumigations by the ancient Egyptians. It is also used in the famous Egyptian perfume ‘kyphi’ and was an important ingredient in embalming. It was reputed to reduce wrinkles and preserve a youthful complexion. Egyptian women used myrrh in their facial preparations. It has a slightly cooling effect on the skin, and so would be especially useful in a hot dry climate.

Myrrh never enjoyed the same level of popularity of frankincense throughout the Roman Empire; however, the price of myrrh was always much higher than frankincense.

Myrrh's therapeutic properties are frequently mentioned in the old and new testaments, the Koran, and in Greek and Roman texts. Myrrh was one of the gifts presented 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.

Matthew 2:11 (King James Version)

It was presented at the death of Christ:

> … and brought a mixture of myrrh and aloes, about hundred pound. Then took they the body of Jesus, and wound it in linen clothes with spices, as the manner of the Jews is to bury.

John 19:39-40 (King James Version)

Frankincense has been associated with Christ’s divinity and myrrh with his persecution and death.

In the Song of Solomon, a love poem, the constant reference to myrrh suggests that it was for the incomparable financial value of myrrh that the writer used them to compare with the beauty of the maiden.

> A bundle of myrrh is my beloved to me, he shall lie all night betwixt my breasts.

Song of Solomon 4:13 (King James Version)

> 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.

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

English Herbalist, Joseph Miller certainly gives us a detailed account of Myrrh:

> Myrrh is of an opening, heating, drying nature, resists putrefaction, and is of great service in uterine disorders, opens the obstruction of the womb, procuring the menses, expediting the birth, and expelling the secundines. It is good likewise for old coughs and hoarseness, and the loss of voice, and is very useful against pestilential and infectious distempers, both taken inwardly, and flung upon burning coals and the fume received. Outwardly applied it cures wounds and ulcers, and prevents gangrene and mortifications.

Food, perfumery and flavouring

Myrrh oil is used as a flavour component in many food products, including alcoholic and non-alcoholic beverages, frozen dairy desserts, candy, baked goods, gelatins and puddings and meat and meat products.

Traditional medicine

Myrrh has been used since ancient times as a stimulant, antiseptic, expectorant, antispasmodic, emmenagogue and stomachic. It has also been used for the treatment of cancers, leprosy, syphilitic ulcers, sores, sore throats, asthma, coughs, weak gums, gingivitis and loose teeth.

Myrrh was introduced in Chinese medicine in the seventh century and was used for treating conditions involving bleeding, pain and wounds.

In Egypt, myrrh is used for the treatment of schistosomiasis and several Egyptian investigations have demonstrated antischistosomal activity of oral preparations of myrrh. However, this activity could not be confirmed by other investigators. The European Medicines Agency (EMA) report for myrrh suggests that the potential antischistosomal activity of myrrh remains controversial.

Herbal

Myrrh is commonly used as a tincture (1:5 (g/mL) in 90% ethanol 90%) for stomach problems, alleviating mild gastrointestinal complaints, as a local astringent and an anaesthetic for gingivitis and mouth infections. The tincture is also used topically for the treatment of minor wounds, abrasions, furuncles and skin inflammations.

Myrrh oil is used as a flavour component in many food products, including alcoholic and non-alcoholic beverages, frozen dairy desserts, candy, baked goods, gelatins and puddings and meat and meat products.
Therapeutics
Pharmacology and clinical studies

While the chemistry, pharmacology and uses of myrrh have been extensively reviewed, many of the studies involve the use of the resin or the tincture and not the essential oil. It is for this reason that Lis-Balchin states that there is lack of scientific data to prove that myrrh essential oil alleviates any of the conditions often attributed to the resin.9

The EMA report states that myrrh is a gum-resin with a complicated chemistry. Most of the studies have investigated the components of the volatile oil which is dominated by furano-sesquiterpenes, some of which have pharmacological activity.9

Analgesic activity

Two sesquiterpenes (furanoeudesma-1,3-diene and curzarene) in the resin of myrrh have analgesic effects blocked by naloxone. This indicates that it may have an interaction with brain opioid mechanisms.5

Ethanolic extracts of C. myrrha demonstrated analgesic and anti-inflammatory activities in mice studies, providing evidence to support the traditional use of myrrh for inflammatory pain.10

Anticancer activity

A study found that myrrh and frankincense essential oils exhibited an inhibitory effect on five tumour cell lines: MCF-7, HS-1, HepG2, HeLa and A549. A significant inhibitory effect was noted on cell lines MCF-7 and HS-1 with both myrrh and frankincense essential oil. The anticancer effects of myrrh were markedly increased compared to those of frankincense. In addition the researchers stated that the results indicate that the breast cancer cell line exhibited increased sensitivity to the myrrh essential oil. It was also noted that cell lines were more sensitive to β-elemene compared with frankincense and myrrh. This may suggest that β-elemene is important for the antitumour activity of frankincense and myrrh.11

Anti-inflammatory activity

The anti-inflammatory effect of myrrh was observed in a study in which the oil inhibited interleukin (IL)-6 due to down-regulating PGE2 production, but not via nuclear factor kappaB (kB) inhibition in human gingival fibroblasts.12

Myrrh inhibited LPS-induced productions of inflammatory mediators such as nitric oxide, prostaglandin E2, and tumour necrosis factor-α (TNF-α) but not of (IL)-1β and IL-6 in peritoneal macrophages. The researchers also found that myrrh inhibited LPS-induced activation of c-jun NH2-terminal kinase (JNK) but not of extracellular signal-regulated kinase (ERK) and nuclear factor kB. Myrrh also reduced cecal ligation and puncture (CLP) induced mortality and inhibited CLP-induced production of IL-1β, IL-6 and TNF-α in serum and liver. These results suggest that myrrh may be beneficial in inflammatory diseases such as sepsis.13

Another study confirmed the efficacy of frankincense and myrrh in the treatment of inflammatory diseases. The study evaluated the effects on adjuvant-induced arthritis to explore the underlying mechanisms by analysing the signal pathways evaluated by expression of inflammatory cytokines, c-jun and c-fos and corresponding phosphorylation levels. The researchers concluded that administration of combined frankincense and myrrh suppressed arthritic progression in rats more effectively than single drug treatment.14

Antimicrobial activity

Lis-Balchin states that the antibacterial and antifungal activities of myrrh essential oil were very low.15

Another study stated that eight sesquiterpene fractions extracted from myrrh showed activity against Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa and C. albicans with minimum inhibitory concentrations ranging from 0.18 to 2.8ug/mL.16

Hepatoprotective activity

The oleo-gum-resin of myrrh was found to alleviate the adverse effect of ethanol ingestion in mice studies by enhancing the lipid metabolism and the hepatic antioxidant defence system.17

Wound-healing activity

C. myrrha demonstrated wound-healing activities in mice studies. The leukocyte count was used to monitor the healing progress. Myrrh was found to enhance white blood cell proliferation throughout the healing period, providing evidence to support the traditional use of myrrh for wound healing.18

Actions

Actions commonly cited in aromatherapy

Anticatarrhal, anti-inflammatory, antimicrobial, astringent, balsamic, carminative, cicatrisant, emmenagogue, expectorant, fungicidal, sedative, stimulant, stomachic, tonic, uterine, vulnerary.19,20,21,22
Actions supported by clinical studies
Antimicrobial, antiseptic, cicatrisant, expectorant, vulnerary.

Comment
There is no doubt that myrrh has a long history of therapeutic use. Myrrh was used in the treatment of wounds and mouth infections as far back as the ancient Greeks and Romans. Myrrh has been included and remains in many pharmacopoeias over the centuries. On the basis of myrrh’s long-standing use and experience we can confirm that myrrh is effective for the treatment of minor ulcers and inflammation in the mouth ( stomatitis and gingivitis) and for the treatment of minor wounds and furuncles.9

Clinical studies demonstrating the antibacterial, local anaesthetic and anti-inflammatory activity of myrrh tincture support the use of myrrh for the treatment of wounds and skin inflammations.9

Aromatherapy Uses
Clinical aromatherapy
Antimicrobial
Myrrh is well known for its antibacterial, antifungal and anti-inflammatory actions. The tincture can be used in the treatment of mouth, gum and throat infections.20 The oil can be incorporated into an ointment which is applied externally for the treatment of haemorrhoids, bed sores and wounds.22

Digestive system
Myrrh oil is reputed to stimulate the stomach and digestive system and is a useful remedy for treating diarrhoea, dyspepsia and loss of appetite.20,21

The German Commission E recommends using 5–10 drops of myrrh tincture in a glass of water as a gargle for oral and pharyngeal mucosa.8

Integumentary system
Myrrh oil is used for the treatment of chronic wounds and ulcers. This is due to its antiseptic, astringent and anti-inflammatory properties. It is beneficial for mature skin, wounds that are slow to heal, and for weepy eczema and athletes foot.20,21 It heals cracked and chapped skin and can be added to skin care creams.20,21

Nervous system
Myrrh oil instils a deep sense of calm and tranquillity on the mind.23

Reproductive system
Myrrh is a uterine stimulant and promotes menstruation thus relieving painful periods.21 Holmes says that it stimulates the uterus and promotes the menses and childbirth.23

Respiratory system
Myrrh oil is an excellent expectorant and as such is beneficial in the treatment of coughs, bronchitis and colds.20,21,22

Energetics, psyche and subtle uses
Energetics
According to traditional Chinese medicine, myrrh is warming and drying.22,23 It is recommended for conditions associated with excess damp such as chronic ulcers and wounds, respiratory tract infections with phlegm and mucous and diarrhoea.23

Energetically, Mojay compares myrrh with frankincense. He explains that the sweet, resinous and earthy base note aroma of myrrh is associated with the Earth element. It, therefore, helps to clear and ground the Yi. Disharmony of the Yi leads to overthinking, worry and mental distraction.22

According to the principals of Ayurveda, myrrh essential oil may aggravate Pitta and help balance excess Kapha. The oil is excellent for Kapha emotions and for people afraid to speak out.24

Personality
Myrrh oil should be considered for someone who is prone to overthinking, worry and mental distraction.22

According to Myers-Briggs personality types, the myrrh 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
Myrrh’s effect on the spirit is like that of frankincense - one of inner stillness and peace, of an awareness free from restlessness and the mundane. Myrrh unites the spiritual with the physical.23

Myrrh is thought to enhance spirituality. It should be used as a meditation aid or before any healing session.19 It can be used to strengthen the base chakra and is particularly valuable for people who feel emotionally or spiritually stuck and want to move forward in their lives.19
Mojay states that myrrh promotes inner stillness and peace. Myrrh strengthening the link between our base chakra and crown chakra. In doing so Mojay explains:

... the dreams and visions of the soul can find a channel for earthly expression, and tap the force they need for their ‘magical’ realization.22

Myrrh helps us get through the challenges in life. It helps us to understand and cope with our physical, emotional and spiritual wounds. It will provide support and protect us. It gives us strength and allows us to connect with our spirituality.25

Keim Loughran & Bull recommend using myrrh whenever we feel exhausted and overwhelmed by our own troubles or the suffering of others or to help us understand, from a spiritual perspective the meaning of emotional challenges.26

**Dosage and Administration**

**Blending**

**Aromatherapy**

To promote wound healing consider blending myrrh oil with essential oils such as everlasting, frankincense or lavender.

To help alleviate catarrhal conditions associated with bronchitis or asthma, consider blending myrrh oil with essential oils such as aniseed, Atlas cedarwood, cajeput, 1,8-cineole-rich eucalypts, fragonia, spike lavender, myrtle, pine or spruce.

To balance the base chakra and to help strengthen the link between the base and crown chakra, you may consider blending myrrh oil with essential oils such patchouli, frankincense, sandalwood and Atlas cedarwood.

**Perfumery**

The sweet, warm balsamic note of myrrh is used in oriental spicy style perfumes. It is also often blended with geranium, patchouli and other heavy floral bases.1

Arctander says that it may be used in small amounts to create heavy-floral, heavy oriental or woody style perfumes. He also states that it is excellent in high-class forest notes and moss notes. He recommends blending it with cypress, juniper berry and petitgrain.2

Guenther states that myrrh oil is most valuable in oriental style perfumes. He explains that its suave, balsamic, heavy odour blends well with essential oils such as opopanax, sandalwood, frankincense, vetiver, patchouli and geranium.27

**Mode of administration**

**Bath**

Full body bath, foot bath

**Topical**

Compress, massage, ointment, skin care

**Inhalation**

Direct inhalation, diffuser, oil vaporiser

**Mouth wash**

As a rinse or gargle, the recommended dose for the treatment of mild inflammations of the oral and pharyngeal mucosa is 5-10 drops of myrrh tincture in a glass of water.8

**Safety Profile**

**General safety**

Myrrh oil is non-toxic, non-irritating and non-sensitising.20

**Contraindications**

Many ancient physicians classified myrrh as an abortifacient. Myrrh oil is contraindicated during pregnancy.19,20,21 Riddle states that there has been no scientific evidence to confirm this.28

However, Tisserand & Young state that myrrh may be fetotoxic due to β-elemene and the furanodiene content. They also state that myrrh is contraindicated (for all routes) during pregnancy and lactation.29

Braun & Cohen also state that the safety of myrrh during pregnancy is unknown and until safety is confirmed it should not be used during pregnancy.10

**Regulatory guidelines**

Myrrh essential oil has GRAS status.
References


6. https://www.kingjamesbibleonline.org


27. Guenther E.
