

# Rose

By Salvatore Battaglia



## BOTANICAL NAME

The two major species of rose used for essential oil production are:

*Rosa x damascena* Mill.  
*Rosa x centifolia* L.

## FAMILY

Rosaceae

## SYNONYMS

*Rosa damascena* is commonly known as Damask rose, Bulgarian rose, Turkish rose or otto of rose.

*Rosa centifolia* is commonly known as rose Maroc, cabbage rose, rose de mai, French rose, attar of rose or rose absolute.

Hazrat Inayat Khan (1882-1927) compares the rose with the soul:

*The soul can be likened to the rose; as a rosebud blooms, so the soul unfolds itself, for the rosebud to bloom five conditions are required – fertile soil, bright sun, water, air and space; and the same five conditions are required for the unfoldment of the soul.<sup>1</sup>*

He goes on to describe the fragrance of a rose as the spiritual personality of the rose:

*... the soul becomes like a rose, and begins to show the rose quality. Just as the rose consists of many petals held together, so the person who attains to the unfoldment of the soul begins to show many different qualities. These qualities emit fragrance in the form of a spiritual personality. The rose has a beautiful structure and the personality which proves the unfoldment of the soul has a fine structure: in manner, in dealing with others, in speech, in action<sup>1</sup>*

It is no wonder that Worwood describes the scent of rose otto as one of gentleness and apparent perfection.<sup>2</sup> Fischer-Rizzi also describes the rose has a symbol of completeness stating all parts of the rose are formed to perfection.<sup>3</sup>

## Botany and origins

The Rosaceae is a large family of some 115 genera and about 3,200 species with the genus *Rosa* L. containing approximately 150 species.<sup>4</sup> While there are thousands of rose varieties, there are three varieties which are typically used for rose oil production. They are:

- Damask rose from *Rosa damascena*
- Cabbage or May rose produced from *Rosa centifolia*
- *Rosa gallica*.<sup>4</sup>

The *Rosa* species are small prickly shrubs up to 1.2 to 2.4 m high. It is considered a native of Europe and Western Asia.<sup>5</sup>

It has been suggested the Mediterranean *R. gallica* is one of the species from which modern rose cultivars are derived. *R. gallica* is a vigorous spreading shrub to 1.5m, with dense foliage and few thorns. It has fragrant, semi-double light red flowers with yellow stamens.<sup>4</sup>

The birthplace of the cultivated rose, *R. damascena*, was probably Northern Persia or Faristan on the Gulf of Persia. It then spread across Mesopotamia, Palestine and across to Asia Minor and Greece.<sup>6</sup>

The European name for the Damascus rose dates from the Crusades, but it is now incorporated in its botanical name. Cultivation of *R. damascena* and production of rose oil was introduced to Bulgaria, then part of the Turkish Empire in the fifteenth century.<sup>4</sup>

Commercial rose growing to produce rose oil was well established in the Kazanlik region of Bulgaria by the end of the seventeenth century. It is the Bulgarian rose oil which today is still considered the most prized of all rose oils. The Bulgarian rose industry is confined to one mountain district, having for its centre the town of Kazanlik.<sup>6</sup>

Under communism, Bulgaria collectivised all rose plantations and nationalised the distilling and marketing of the oil. Between 1938 and 1948 the area under rose cultivation fell from 6300 ha to 2000 ha. Since the fall of communism, the Bulgarian rose plantations have returned to private ownership.<sup>4</sup>

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The major rose oil producing countries are France, Bulgaria, Morocco, Turkey, Italy and China.<sup>5,7</sup>

### Method of extraction

Three main products are obtained from roses: an essential oil, a concrete and an absolute. The essential oil is obtained by steam distillation of the whole flowers, the concrete by solvent extraction of the leaves and flowers and an absolute by further extracting the concrete.<sup>4</sup>

The three products vary from different cultivars or species and also vary from the same cultivar or species grown in geographically separate areas. Weiss states that the term 'rose otto' is generally accepted to apply to the oil distilled from *Rosa damascena* and it should be prefixed by the country of origin.<sup>4</sup>

Rose otto from *R. damascena* that is produced in India, China, Morocco differs from Bulgarian and Turkish otto and should be sold as rose oil followed by the country of origin, i.e. rose oil Morocco. However, rose oil produced in Morocco and France from *R. centifolia*, in Egypt from *R. gallica* and in China from *R. rugosa* is also incorrectly often sold as rose otto. Weiss explains that experienced perfumers can readily identify them.<sup>4</sup>

The flowers are generally picked manually. In order to minimise loss of oil, harvesting needs to be done between 5 and 10 am as this is the period that the flowers are open and the oil content is highest.<sup>4</sup>

Flowers must be promptly transported to the distillery before being distilled. Weiss explains that storing bagged flowers in clean cold water retains the oil content and quality for up to 3 days. Temperature above 25°C during storage can decrease flower content by half and also increase citronellol and stearoptene but decrease the nerol and geraniol content. The oil in the petals actually increases after picking due to enzymatic activity.<sup>4</sup>

A mature rose field can yield 5 to 8 tons of fresh roses per hectare. A rose field can be productive for as long as 20 to 30 years.<sup>8</sup>

Baser states rose otto is can be produced by village-style or large factory style distillation. The village-type distillation involves using stills that have a 300 litre capacity. On the other hand, larger factory style distillation involves 3,000 litre or larger copper or stainless steel stills. This results in two distinct rose oils with unique characteristics; however, most of the commercially available Turkish rose oil is the factory produced oil.<sup>9</sup>

Rose oil is produced by a two-stage distillation process. It is a common practice to redistill the distilled water, a process known as cohobation. The yield of cohobation oil is several times high than that from the first distillation of the flowering material. The oils from the two distillations are then blended. The phenylethyl alcohol in otto of rose is derived almost exclusively from cohobation water.<sup>7</sup>

According to Grieve, 4,000 kg of flowers yield 1 kg of rose oil, of which one-third comes from the first distillation, and the remaining two-thirds are a result of redistilling the waters.<sup>6</sup>

Generally, 1 kg rose oil can be obtained from 3,000 – 4,000 kg of rose petals. The rose oil yield from rose petals is therefore very low (0.03 – 0.04%).<sup>10</sup>

The essential oil content of the rose petals collected in cooler season is higher than that of the petals collected in warmer season. In one study, rose oil content was 0.04% in May and 0.03% in June. It is also necessary to pick the roses in the

earlier hours of the morning in order to ensure a higher yield. For example, roses picked at 5.00am contained essential oil as high as 0.06%, whereas roses picked at 3.00pm contained only 0.014%.<sup>10</sup>

While the yield of rose oil varies considerably it has been reported that anywhere from 30 to 60 roses are required to make one drop of rose oil.

Rosewater is the aqueous portion of the steam distillation after rose oil has been removed.

Rose absolute is obtained by solvent extraction. Holmes refers to the solvent extraction process as 'dry-cleaning' the plant. Solvent extraction produces a more complete plant extract. However, Holmes suggests contact with the solvent, which is usually petroleum ether, may result in minute traces of solvent in the final absolute. From an energetic perspective this may devitalise the essential oil through contact with a 'dead chemical substance'.<sup>11</sup>

Wabner suggests rose absolute produced by solvent extraction is superior to the distilled rose otto because rose otto actually contains synthetic constituents that are not found in nature. He proved this by doing a headspace analysis of a live rose and comparing the constituents with that of rose absolute of the same flower and rose otto of the same flower. While the chemical constituents of the rose absolute and live rose were the same, rose otto oil contained several constituents such as rose oxide and damascenone that are by-products of distillation.<sup>12</sup>

### Characteristics

Arctander states *R. centifolia* is excellent for the extraction of rose oil by solvent extraction. Rose absolute obtained from the concrete of *R. centifolia* flowers is also referred to as rose de mai absolute.<sup>4</sup>

Rose de mai absolute is an orange-yellow to brown-orange viscous liquid with a sweet, deep-rosy, very tenacious odour. The spicy notes are usually less pronounced, while the honey-like notes are similar to that of *R. damascena*.<sup>7</sup>

Arctander explains Bulgarian producers had originally insisted on only producing rose otto oil, however, it is now possible to obtain a rose absolute from *R. damascena* flowers from Bulgaria. The rose absolute from *R. damascena* is an orange-yellow to brown-orange viscous liquid with a rich, warm, spicy-floral and very deep rose odour with a pronounced honey undertone.<sup>4</sup>

It is very diffusive when it is diluted or used at very low concentration of a few percent or even less in a perfume base.<sup>7</sup>

Bulgarian rose otto is a pale yellow to yellowish green oil. Fresh oil is often green due to the presence of azulenes which gradually decompose over time. When cooled to a temperature below 20°C, rose otto separates into white or colourless blades of crystals, stearoptene. Stearoptene is odourless and constitutes 15-25% of the oil. When cooled below 16°C the oil further congeals to a translucent soft mass.<sup>1</sup> When it is heated with the warmth of the hands the oil will liquefy.<sup>4</sup>

The odour of Bulgarian rose otto is warm, deep-floral, slightly spicy and immensely rich, truly reminiscent of red roses.<sup>7</sup>

Rose otto obtained from *R. centifolia* is colourless to pale yellow, sometimes with a greenish tinge when fresh. It has a deep, sweet, warm, rich, but less spicy odour than Bulgarian or Turkish rose otto oils.<sup>4</sup>

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## Chemical composition

Rose is one of the most complex essential oils known. It contains more than 300 chemical compounds, of which the greater part is still unidentified.

Citronellol is the main constituent of Turkish rose oil. It determines the basic rosy characteristics of rose oil. Higher citronellol leads to increased sweetness. On the other hand, geraniol contributes to strength and fortification of the body note. Nerol not only adds to the rosy note but also to its freshness. When the geraniol content is low, the freshness of nerol manifests itself as slightly citrusy. When the geraniol content is high, the combination of citronellol, geraniol, farnesol and nerol result in a strong, sweet, floral, fresh, rosy characteristics.<sup>8</sup>

The overall strength, sweetness and typical rosy character of rose oil is also determined by the content of nonanal, linalool, citronellyl formate and citronellyl acetate.<sup>9</sup>

Baser also states the eugenol content in village produced oil is higher (1.17-2.25%) whereas factory oils are (0.35-1.27%). On the other hand, the methyl eugenol content in factory oil is higher (2.27-3.10%) in proportion to village oils (1.4-2.65%).<sup>9</sup>

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Ethanol is also a natural ingredient of rose oil. Baser states the village oils typically have a lower content of ethanol (0.00-1.67%), whereas it can range from 0.5-5.2% for factory oils. It is explained that while it is a genuine constituent, higher ethanol content is suggestive of using an appreciable amount of fermented roses. He explains in peak season the influx of roses into the factories is unmanageable and the roses are often left to stand in bags for more than 24 hours before distillation. On the other hand, village style distillation the roses are processed immediately; hence, their ethanol content is lower.<sup>9</sup>

Other typical constituents found in rose otto oil include geranyl acetate, nonanal, citronellyl formate, citronellyl acetate, eugenol, methyl eugenol, cis-rose oxide, a-terpineol, phenylethyl acetate, and linalool. Damscenones and some sulphur compounds are among the minor constituents. Stearoptenes (paraffins) are also natural constituents of rose otto (primarily nonadecane). Stearoptenes are responsible for rose otto solidifying when it is cooled or refrigerated.<sup>8</sup>

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Rose absolute typically contains phenylethyl alcohol, citronellol, geraniol, nerol, eugenol, methyl eugenol, geranyl acetate, benzyl alcohol, nonadecane, nonadecene and farnesol.<sup>13</sup>

The oil composition varies according to the stage of flower development and rose flower parts. For example, the citronellol content in the petals from the centre of the flower is 18.9%, whereas from the outer petals it is 10.1%. The phenylethyl alcohol content is highest in the outer petals. It was also found that the chemical composition of the oil differed over the harvesting period.<sup>4</sup>

## Adulteration

Being so expensive rose oils are commonly adulterated. Lis-Balchin states that many rose oils sold may be completely synthetic.<sup>14</sup>

Rose de mai absolute is frequently adulterated with phenylethyl alcohol. Rhodinol from geranium oil, costus oil, clove bud absolute, palmarosa fractions, Peru balsam oil and synthetic laevo-citronellol are also used as an adulterant.<sup>7</sup>

Bulgarian rose absolute is adulterated with *R. centifolia* absolute and other adulterants such as phenylethyl alcohol, ethyl alcohol, rhodinol from geranium oil and diethyl phthalate.<sup>7</sup>

Rose otto is adulterated with ethyl alcohol, diethyl phthalate, rhodinol from geranium and phenylethyl alcohol.<sup>7</sup>

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## TRADITIONAL USES

### History

No other flower has been exalted in literature and mythology and used for so many sacred purposes as the rose. In both ancient art and literature, the rose was the predominant flower symbol. Its blossom symbolises beauty, love, youth, perfection and immortality.<sup>15</sup>

The word *rosa* comes from the Greek word *rodon* (red), and the rose of the ancients was a deep crimson colour, which probably suggested the Greek fable of its springing from the blood of Adonis.

Homer in his Iliad wrote that the body of Hector was anointed with rose before his burial. According to Islam, when Muhammad was taken up to heaven some of his sweat fell to earth from which a rose grew, who smells rose smells Muhammad.<sup>4</sup>

It was prized in Babylon, Assyria, China, Rome and Greece. These cultures were aware of the healing properties of rose. Pliny in his book *Natural History* discusses at great length the scent of rose: the lands and climate which produces the best scented roses, the best season, time of the day and weather for picking a rose in order to preserve its scent, the point in a rose's life when it smells strongest, the perfume of freshly gathered rose as compared to a faded rose, the use of rose perfume and so on.<sup>16</sup>

Pliny explained that the scent of roses could be improved if the bushes are pruned before March and hot water applied to induce flowering. Plutarch explained that interplanting rose plants with garlic would improve the scent of the roses.<sup>4</sup>

Pliny the Elder (23-79 CE) stated rose flowers were useful for health conditions associated with the head, ears, mouth, gums, tonsils, stomach, rectum and uterus. Dioscorides (40-90 CE) wrote of rose's cooling and astringent properties and recommended that a liquor of roses cooked in wine was beneficial for alleviating headaches and ailments of the eyes, ears, gums, anus and womb.<sup>8</sup>

Ancient Rome had an insatiable appetite for roses and rosewater. During festivals and banquets rose petals were strewn over the floor and along the streets. Self-indulgent Romans wore rose garlands at their feasts, as a prevention against drunkenness. To them, the rose was a sign of pleasure, the companion of mirth and wine, but it was also used at their funerals.<sup>17</sup>

Grieve claims the first preparation of rosewater was by Avicenna in the tenth century. According to Grieve, rose oil was first discovered at a wedding feast of the princess Nour Djihan to the Grand Mogul Djihanguyr. A canal circling the whole garden was dug and filled with rosewater. They noticed a scum had formed on the water and was floating on the surface. The scum turned out to be oil that the heat of the sun had caused to separate from the water.<sup>6</sup>

Weiss states that the history of when rose oil were first extracted is unknown; however, he cites the earliest written reference is in the ninth century when production was well established in Iran. Distillation of rose began in Persia in 1612. The production of rose oil quickly became a major industry with local cultivars and finding their way east and west along the Silk Road.<sup>4</sup>

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The term attar is derived from Farsi, *aettr*, meaning fat. In modern Turkish language, attar is known as *gulyagi* from the Farsi *gul* for rose flower.<sup>4</sup>

Rose and rose products were employed extensively in English medicine, notably by the well-known physician, Nicholas Culpeper, who used rose oil as an anti-inflammatory agent.<sup>6</sup>

An ointment of roses was used to soothe headaches, a syrup to 'comfort the heart', and rose leaves mixed with mint were applied externally as a poultice to 'quiet the over-heated spirits'.<sup>6</sup>

### Traditional medicine

Generally, therapeutic remedies containing rose oil have a cooling and soothing influence. It is interesting to note the fields of application of rose oil in ancient medicine are almost identical with those of modern aromatherapy.

Baser et al. state that 3 rose-derived products featured extensively in ancient Islamic medical texts – rose water, rose paste (a thick jam produced by blending roses in sugar or honey) and rose oil (made by steeping roses in sesame seed oil or olive oil left under the sun).

The physician Avicenna was the first to report the therapeutic benefits of the scent of rose on the heart and brain. He wrote it has a calming effect and is beneficial for fainting and for rapid heartbeat. He praised rose water's effect on the mind and spirit, and explained how it enhances comprehension and strengthens the memory. Ibn-Al-Baitar also added how rose water strengthens the mind and brain, sharpens the senses and increases the life force.<sup>8</sup>

In Chinese and Sanskrit manuscripts, rose was highly praised. Li Shih-Chin tells us of a highly fragrant rose, *R. rugosa*, which is cultivated in China:

*Its nature is cooling, its taste is sweet with a slight bitterness, and it acts on the spleen and liver, promoting the circulation of the blood. It is prescribed in the form of an extract for haematemesis, and the flowers are used in all diseases of the liver, to scatter abscesses, and in blood diseases generally... Essence of rose is made by distilling the flowers of Rosa rugosa. Its medicinal action is upon the liver, stomach, and blood. It drives away melancholy.*<sup>18</sup>

### Herbal

In France, rose flower buds and petals are traditionally indicated for symptomatic treatment of mild diarrhoea and topically applied for soothing and alleviating dermatological ailments and as a protective treatment for cracks, grazes, chapped skin and insect bites.<sup>13</sup>

The German Commission E recommends rose flower petals as a herbal tea for mild inflammations of the oral and pharyngeal mucosa.<sup>19</sup>

In Iranian traditional medicine a decoction of flowers is used for treatment of chest and abdominal pain, menstrual bleeding and digestive ailments.<sup>20</sup>

## PHARMACOLOGY AND CLINICAL STUDIES

Many pharmacological studies involving rose oil have been published. A systemic review of these studies will not be attempted. Rather, I have chosen a selection of studies that support the traditional and clinical uses.

There appears to be a growing number of studies confirming that rose oil possesses sedative and anxiolytic properties. What I found most interesting is that the evidence suggests that the most effective way to use rose oil for its sedative and anxiolytic activity is by inhalation.

### Alzheimer's disease

Baser et al. cites studies found extracts of *Rosa damascena* may be neuroprotective and beneficial in the treatment of Alzheimer's disease. A chloroformic extract of *R. damascena* significantly induced neurite outgrowth activity and inhibited amyloid  $\beta$  (A $\beta$ ). A $\beta$  is believed to be a major pathological cause of Alzheimer's disease. The primary active ingredient in the chloroformic rose extract was a very long, polyunsaturated fatty acid known as VLFA. It displayed strong neurite outgrowth activity.<sup>8</sup>

Another study found that phenylethyl alcohol, the main component of rose, significantly inhibited acetylcholine esterase (AChE) and butyrylcholine esterase (BChE).<sup>8</sup>

### Analgesic activity

A study involving 80 patients with renal colic found that inhaling rose essential oil effectively reduced renal pain. It has been suggested the possible mechanisms for reducing pain by inhalation is by increasing parasympathetic activity and releasing neurotransmitters such as enkephalin and endorphin as well as reducing sympathetic activity and reducing the release of cortisol and noradrenalin.<sup>21</sup>

Massage with rose oil was found to reduce the severity of primary dysmenorrhoea compared to the massage therapy alone.<sup>21</sup>

A study investigated the effect of topically applied rose oil in a randomised controlled clinical trial conducted on 120 women with pregnancy-related lower back pain. All participants were evaluated by Visual Analog Scale and the Roland-Morris Disability Questionnaires to assess pain intensity and its impact on daily activities before and after the intervention. A significant decrease in pain intensity was reported in the rose oil group compared to the plain carrier oil group of no intervention group. However, while rose oil also improved the functional ability of the patients in contrast with no intervention, its effect on function is not significant compared to the carrier oil group. There were also no significant adverse effects reported.<sup>22</sup>

### Antidepressant activity

The inhalation of rose vapour was able to exert an antidepressant action in rats depressed from chronic mild stress. The increase in lipid peroxidation in the cerebral cortex associated with stress was also reduced with inhalation of rose aroma, however, there was no significant influence seen with oral ingestion. It was concluded that rose oil vapour induced protective effects on oxidative stress in depression.<sup>23</sup>

In a study involving 60 male patients, it was found that *R. damascena* oil improved the symptoms of depression and selective serotonin reuptake inhibitor-induced sexual dysfunction

(SSRI-ISD). In another similar study on 50 female patients suffering from depression and SSRI-ISD sexual desire, sexual orgasms and sexual satisfaction increased by rose inhalation.<sup>21</sup>

It has been suggested the antidepressant activity of rose oil has an antagonistic effect on the stimulation of the post-synaptic 5-HT<sub>2</sub> and 5-HT<sub>3</sub> receptors as well as antagonistic effect on the cortico-limbic 5-HT receptors, which may also affect sexual behaviour and could be responsible for increased sexual desire.<sup>21</sup>

### Antiepileptic activity

*R. damascena* essential oil was found to significantly retard the development of seizures and possessed the ability to counteract kindling acquisition in an in vivo study using male rats.<sup>24</sup>

Baser et al. cites a double-blind study involving 16 patients (age 3 to 13 years; 9 girls and 7 boys) with refractory epilepsy who were administered 5mg per kg of 10% rose oil in vegetable oil or placebo 3 times per day. All the children had been under treatment for 3 to 6 weeks. They received either the essential oil or placebo for four weeks and in between these periods, they took only their pre-existing antiepileptic drugs for 2 weeks. The mean frequency of seizures in those using essential oils was significantly lower compared to those receiving placebo. The researchers concluded that rose oil had an anticonvulsant effect and could reduce the frequency of seizures in children who were resistant to anti-epileptic drugs.<sup>8</sup>

### Anti-inflammatory activity

The effect of rose oil and hydro-alcoholic extract of *R. damascena* on rat paw oedema induced by carrageenan was demonstrated. It was found that the essential oil had no anti-inflammatory effect, while the extract could significantly reduce oedema by inhibiting mediators of acute inflammation.<sup>25</sup>

### Antimicrobial activity

In vitro studies have confirmed both rose otto and absolute have wide-spectrum antimicrobial activity against *Escherichia coli*, *Pseudomonas aeruginosa*, *Bacillus subtilis*, *Staphylococcus aureus*, *Chromobacterium violaceum* and *Erwinia carotovora* strains. Rose absolute also showed antibacterial activity against both gram-negative and gram-positive bacteria.<sup>25</sup>

An in vivo study confirmed Bulgarian rose oil had an inhibitory effect on *Helicobacter pylori* bacteria. It was suggested the oil may also be anti-ulcerous, however, in vivo studies are required to confirm the concentration of rose oil required to exert an effect and if the oil could sufficiently penetrate the gastric mucosa to eradicate the bacteria.<sup>26</sup>

### Antiviral activity

The antiviral effect of a combination of rose and melissa (ratio of 1:2) on herpes zoster and herpes simplex has been confirmed. According to Wabner & Wurdack, the oil is to be applied pure without dilution, two or three times a day for several days.<sup>15</sup>

### Anxiolytic activity

The effect of rose oil inhalation on the elevated plus-maze test was investigated in adult male rats and compared with the effect of diazepam administered intraperitoneally 30 minutes before testing. Inhalation of rose oil produced an anxiolytic-like effect similar to diazepam.<sup>27</sup>

Another study found that 2-phenethyl alcohol and citronellol, two constituents in rose oil, produced the same anti-conflict effect in mice when compared with rose oil. Further studies indicated the effect of rose oil was not antagonised by

flumazenil, a benzodiazepine antagonist. It was suggested that rose oil may have a pharmacological activity similar to non-benzodiazepine anxiolytic drugs.<sup>28</sup>

A clinical trial involving animals found rose oil exhibited antianxiety effect. It was concluded that rose oil has a pharmacological activity similar to non-benzodiazepine anxiolytic drugs.<sup>29</sup>

### CARDIOVASCULAR ACTIVITY

Wabner cites a study which demonstrated rose oil can reduce high blood pressure and arrhythmia of the heart.<sup>22</sup>

### Hepatoprotective activity

Rose oil had considerable hepatoprotective effect against the toxic action of ethanol in an in vivo study involving rats. A histological and electron microscope investigation found an active regeneration of the hepatocytes and rapid proliferation of Kupffer cells.<sup>30</sup>

### Menopausal symptoms

A study investigated the effects of aromatherapy massage on menopausal symptoms in Korean climacteric women. A blend of rose, jasmine, lavender and geranium essential oils in a base of sweet almond and evening primrose oil. The aromatherapy massage was performed once a week for 8 weeks. The aromatherapy group reported significantly lower menopausal symptoms, however, it could not be determined whether the benefits were from the essential oils or from the massage. It was concluded that further studies should be done.<sup>31</sup>

### Neuropharmacology

An in vivo study examined the effects of *R. damascena* oil on withdrawal signs of naloxone-precipitated morphine in mice. The results of the study indicated rose oil significantly reduced signs of withdrawal compared to the control group. It was concluded that GABAergic activity induced by flavonoids from *R. damascena* essential oil can alleviate signs of morphine withdrawal, however, further studies are required to better understand this mechanism.<sup>32</sup>

Damask rose oil had protective effects against aluminium-induced neurotoxicity in an in vitro study using immortalised hypothalamic neuronal cells.<sup>33</sup>

### Sedative activity

One study investigated the effects of *Rosa damascena* on human autonomic parameters and emotional responses in healthy subjects after transdermal absorption. Five autonomic parameters were measured – blood pressure, breathing rate, blood oxygen saturation, pulse rate and skin temperature. Emotional responses were assessed by rating scales.<sup>34</sup>

Compared to the placebo, rose oil caused significant decreases of breathing rate, blood oxygenation saturation and systolic blood pressure, which indicated a decrease of autonomic arousal. At an emotional level, subjects in the rose oil group rated themselves as more calm, more relaxed and less alert than subjects in the control group. It was concluded this provides some evidence for the use of rose oil in aromatherapy for the relief of depression and stress.<sup>34</sup>

An in vivo study found inhalation of rose oil significantly inhibited the increase in plasma corticosterone in rats. The results suggested chronic stress-induced disruption of the skin barrier can be limited or prevented by rose oil inhalation, possibly through its inhibitory effect on the HPA axis.<sup>35</sup>

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A randomised controlled study investigated the effects of *R. damascena* on the sleep quality of 60 patients hospitalised in coronary care unit. The patients in the control group received routine care, while the patients in the experimental group received routine care with rose. The sleep quality was assessed using the Pittsburgh Sleep Quality Index. It was confirmed that *R. damascena* significantly improved the sleep quality of patients hospitalised in coronary care unit.<sup>36</sup>

### Properties

Antidepressant, antiphlogistic, antiseptic, antispasmodic, antiviral, aphrodisiac, astringent, bactericidal, choleric, cicatrisant, depurative, emmenagogue, haemostatic, hepatic, laxative, sedative (nervous system), stomachic, tonic (heart, liver, stomach, uterus)<sup>37,38,39</sup>

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## AROMATHERAPY USES

### Psychological

It is referred to as a gentle but potent antidepressant.<sup>40</sup> Rose oil may be used as a sedative for the nerves; it is useful for the treatment of palpitations, irritability and insomnia. It helps to release anger, despair and frustration.<sup>11</sup>

It opens the heart and soothes feelings such as anger, fear and anxiety. Rose comforts in times of sorrow, dissolves psychological pain, refreshes a sad heart, and opens doors to love, friendship, and empathy.<sup>3</sup>

### Reproductive system

Rose oil is valuable for the treatment of gynaecological problems. Maury comments that rose oil has an astonishing effect on the female sexual organs as a purifying and regulating agent.<sup>41</sup>

Rose oil is considered a tonic of the uterus.<sup>39,40</sup> It regulates menstruation and relieves menstrual cramps and excessive menstrual bleeding.<sup>33,37,39,40</sup>

Rose is recommended for functional infertility.<sup>11</sup> It is beneficial when it is difficult to predict ovulation dates because of an irregular cycle.<sup>40</sup>

### Skin care

Rose oil has excellent emollient, softening and hydrating properties, which accompanied by its stimulating and antiseptic qualities makes it ideal for all skin care, especially for mature, dry or sensitive skin.<sup>3,37,38,40</sup> Rose oil has a tonic and astringent effect on the capillaries and can be used for the treatment of broken capillaries, redness and inflammation of the skin.<sup>37,40</sup>

Rosewater is also used in skin care for its soothing and mildly astringent properties.

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## ENERGETICS

Rose oil is classified as *cool* and *moist* in nature, and is recommended for clearing *heat* and inflammation and for alleviating anxiety and depression. It may be beneficial for hot conditions involving the *Liver* and *Gall Bladder* that result in tension, irritability, headache and constipation.<sup>39</sup>

According to the principles of the Five Elements, rose oil helps to balance the Fire Element and nourish the Heart. It helps to nourish *Yin deficiency* and calm the *Heart* and the *Shen*.

Whenever we have *Yin deficiency* and the *Shen* is agitation, we may experience fatigue, insomnia, mental restlessness, nervous tension, anxiety, worry, depression, palpitations and headaches.

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## PERSONALITY

Worwood states the spirit of *Rosa damascena* epitomises the gentleness of the female spirit. She suggests rose otto is perfection personified. She explains rose otto personalities have the wisdom to know there are far greater things in the universe than them and that humans do make mistakes. They love cooperation and cannot understand why everyone does not operate on the same level as they do.<sup>2</sup>

Mailhebiau refers to rose as a miracle of nature:

*... to simply smell it will refine our sensitivity, take us into an unknown world and disperses the shadows of our worries, anxieties and sorrows. It shows us love, not only human love which is a gift as it is - possibly the finest- from existence, but spiritual love, and we would even say divine, were this term not over-used.*<sup>42</sup>

According to Worwood, the character of rose absolute represents passion of the spirit with a deep, hypnotic personality - vivacious and alive. She explains rose absolute personalities are very charming people who tend to be very emotional and expressive people. They are very creative. They are very erotic and fully aware of their sexuality – and the influence it can have on others. They prefer to work in professions which allows them free rein of their creative expression.<sup>2</sup>

According to Myers-Briggs personality types, the rose otto personality is likely to be an ENFP. ENFPs are outgoing, lively and spontaneous. They are very enthusiastic and their joy for life can be contagious. They have a rich imagination and active mind. Their thoughts are always wandering and their mood constantly changing. They can be inspiring and charismatic leaders. They are always involved or in love, with someone or something new. They know how to establish instant rapport and make people feel comfortable. They love emotional intensity and enjoy expressing their feelings. They can be charming and flirtatious. They relate with warmth to many people and can appear overly enthusiastic, positive and optimistic.

According to Myers-Briggs personality types, the rose absolute personality is likely to be an ESFP. ESFPs are friendly, witty, charming and talkative. They value and nurture their relationships, give generously, without expecting anything in return. They are spontaneous, playful and enjoy everything they do and see. People who share their sense of fun and adventure are their favourite companions. They turn everything into a fun-filled event. They enjoy good things in life – music, dance, food, drink and entertainment. They avoid being alone. They like working in a lively and stimulating atmosphere with friendly, energetic people. They can be good at dealing with the public. They like variety and frequent change of tasks or jobs. They are enthusiastic, high-spirited and have lots of energy.

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## SUBTLE

Rose has since days of antiquity always been assigned to the heart and soul.

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*The rose, queen of flowers! Her fragrance, captured in the essential oil, is the most precious of all heavenly scents. It refreshes the soul; its fragrant poetry brings joy to the heart.*<sup>3</sup>

It is not surprising that many aromatherapists agree that rose oil is effective in all levels of life, for the soul, spirit and body. According to Fischer-Rizzi, rose otto heals the heart. It comforts in times of sorrow, dissolves psychological pain, refreshes a sad heart, and opens doors to love, friendship, and empathy.<sup>3</sup>

Dziubany states Sufis consider the red rose as the highest expression of religious experience. Dziubany cites Sufi mystic, Hazrat Inayat Khan (1882-1927) who compares the rose with the soul:

*The soul can be likened to the rose; as a rosebud blooms, so the soul unfolds itself, for the rosebud to bloom five conditions are required – fertile soil, bright sun, water, air and space; and the same five conditions are required for the unfoldment of the soul.*<sup>1</sup>

He goes on to describe the fragrance of a rose as the spiritual personality of the rose:

*... the soul becomes like a rose, and begins to show the rose quality. Just as the rose consists of many petals held together, so the person who attains to the unfoldment of the soul begins to show many different qualities. These qualities emit fragrance in the form of a spiritual personality. The rose has a beautiful structure and the personality which proves the unfoldment of the soul has a fine structure: in manner, in dealing with others, in speech, in action.*<sup>1</sup>

It is no wonder that Worwood describes the personality of rose otto as one of gentleness and apparent perfection.<sup>2</sup>

Fischer-Rizzi also describes the rose has a symbol of completeness stating that all parts of the rose are formed to perfection.<sup>3</sup>

Mojay states the rose is the symbol of love. The compassion of rose is revealed in its ability to heal emotional wounds. He explains when rejection or loss has injured one's capacity for self-love and nurturing, rose oil brings a sweet, gentle comfort, restoring the trust that makes love possible again.<sup>39</sup>

It is not surprising that associates rose oil to the heart chakra, which is the centre of love, whether that be love for one person or universal love.<sup>34</sup>

It will help the heart chakra to open when grief has caused it to close down. Davis also associates rose with the sacral chakra which is the centre of creativity and sex. She describes rose as a gentle aphrodisiac, which helps to spiritualise sexual relationships.<sup>43</sup>

Keim Loughran & Bull state rose is the oil that teaches us the lessons of love. They explain the extraordinary energy of rose assists us in healing our emotional wounds so we can better give and receive love unconditionally. It is said to help us heal the pain of grief and teaches us how to forgive others when they hurt us. Rose also gently seals and protects our energy field so that we are not affected by negativity.<sup>44</sup>

According to Holmes, it is not surprising that rose has been a symbol for the feminine and feminine qualities, namely love, sexuality and compassion. He explains that rose supports self-esteem, sexuality and nurturing.<sup>11</sup>

The subtle qualities of rose otto and rose absolute are quite different. Worwood best describes the difference between the

two oils. She explains that the etheric realms associate rose absolute with the desires of the human heart while rose otto is likened to the realm of angels.<sup>45</sup>

Rose otto vibrates with the energy of universal love, operating in the light of unconditional love and giving. Rose otto is the quintessential fragrance of love, the love that touches every soul, and it is for the love that touches our very soul, and it is for the awakening of love in us that offers itself.<sup>45</sup>

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## BLENDING TIPS

### Aromatherapy

To alleviate anxiety, nervous tension and stress consider blending rose absolute or rose otto with essential oils such as bergamot, clary sage, Roman chamomile, clary sage, geranium, lavender, mandarin, sweet orange, patchouli, petitgrain, sandalwood, vetiver or ylang ylang.

To alleviate symptoms associated with PMS consider blending rose absolute or rose otto with essential oils such as Roman chamomile, clary sage, geranium, lavender, sweet marjoram or ylang ylang.

To alleviate symptoms associated with menopause consider blending rose otto with essential oils such as cypress, geranium or lavender.

To soothe sensitive skin associated with inflammation consider blending rose otto with essential oils such as German chamomile, everlasting, lavender or sandalwood.

In skin care preparations for mature dry skin conditions, consider blending rose otto or rose absolute with essential oils such as everlasting, frankincense, lavender, myrrh, patchouli or sandalwood.

### Perfumery

Rose de mai absolute and rose otto are extensively used in expensive perfumes, especially in floral bases, chypres and oriental bases. The absolute blends very well with jasmine, neroli and other floral oils. It blends well with essential oils such as bergamot, clary sage, geranium, sandalwood, guaiacwood and patchouli.<sup>7</sup>

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## HOW TO USE

### Bath

Full body bath, foot bath

### Topical

Compress, massage, ointment, skin care

### Inhalation

Direct inhalation, diffuser, oil vaporiser

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## SAFETY

Rose absolute and rose otto are non-toxic, non-irritating and non-sensitising. However, Tisserand & Young state that both rose absolute and rose otto may contain methyl eugenol and set the maximum dermal use level at 0.6% for rose oil that contains 3.3% methyl eugenol.<sup>46</sup>

No contraindications known.

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