



EXTRACTION AND BENEFITS OF ROSE OIL

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ABSTRACT

Rose oil, derived from the petals of roses such as *Rosa damascena* and *Rosa centifolia*, is a valuable essential oil known for its potent fragrance and therapeutic properties. The oil is extracted using various methods including steam distillation, solvent extraction, and CO₂ extraction, each with its unique process to capture the oil's aromatic compounds.

Steam distillation, the most common method, yields a pure and concentrated oil, while solvent extraction is more cost-effective but may alter purity. CO₂ extraction, a modern technique, offers a clean, high-quality oil without the use of solvents. Rose oil is highly sought after for its numerous uses, including skincare, aromatherapy, and emotional well-being. Its anti-inflammatory and antioxidant properties make it ideal for reducing redness, hydrating skin, and minimizing signs of aging. Additionally, its calming aroma helps reduce stress, anxiety, and symptoms of depression. With its luxurious scent and wide-ranging benefits, rose oil continues to be a cherished ingredient in beauty and wellness practices.

INTRODUCTION

Rose oil, also known as attar of roses or rose otto, is a highly prized essential oil derived from the petals of various species of roses, particularly *Rosa damascena* and *Rosa centifolia*. Renowned for its captivating fragrance, rose oil has been used for centuries in perfumery, cosmetics, and traditional medicine. It is celebrated for its rich, floral aroma and numerous therapeutic benefits, including its soothing, anti-inflammatory, and mood-enhancing properties.

Due to the complex and labor-intensive process of extraction, which requires vast quantities of rose petals, rose oil is one of the most expensive and sought-after essential oils in the world.

Its luxurious scent and health benefits make it a valuable ingredient in high-end skincare and aromatherapy practices.

TYPES OF ROSE OIL

Rose Otto: Typically extracted from *Rosa damascena* and steam distillation. This is the most expensive and purest form of rose oil, extracted through steam distillation. It is typically more concentrated and retains a strong floral scent.

Rose Absolute: Can be extracted from *Rosa damascena* or *Rosa centifolia*. Produced through solvent extraction, rose absolute is often more accessible than rose otto but still delivers a potent fragrance.



METHODS OF EXTRACTION

1. Steam Distillation

Steam distillation is the most common method for extracting essential oils, including rose oil. It is preferred because it yields high-quality, pure oil without the use of chemicals.

Process:

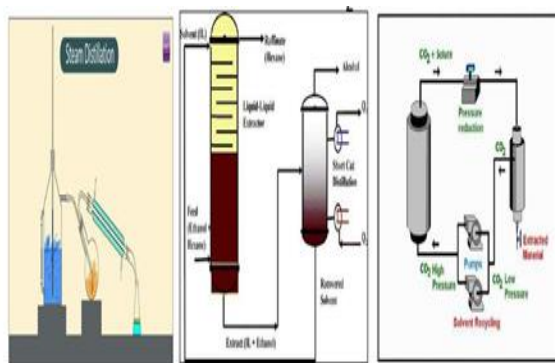
Harvesting: The roses are harvested in the early morning when the petals contain the highest concentration of aromatic compounds.

Preparation: Fresh petals are placed in a large distillation still, and steam is passed through them.

Distillation: The heat from the steam causes the cellular walls of the petals to break down, releasing the aromatic compounds. These compounds are carried along with the steam into a condenser, where the steam cools and turns into water.

Separation: The condensed liquid, now a mixture of water and oil, is collected. Since oil is less dense than water, it floats to the top and is then separated from the water. The remaining water is known as rosewater, which also has significant uses.

Yield: It typically takes around 4 tons of rose petals to produce 1 kilogram of rose oil, making it one of the most expensive essential oils in the world.



2. Solvent Extraction

Solvent extraction is used to produce rose absolute, a highly concentrated form of rose oil. This method is ideal when heat-sensitive compounds need to be preserved, as it doesn't involve the high temperatures required for steam distillation.

Process:

Harvesting: Like steam distillation, the roses are harvested in the morning.

Solvent Use: The petals are submerged in a solvent, such as hexane or ethanol, which dissolves the aromatic compounds.

Separation: After the solvent has absorbed the oils and other compounds, the solution is filtered, and the solvent is removed through evaporation. The result is a waxy substance called "concrete."

Purification: The concrete is then further treated with alcohol, which dissolves the fragrant oil. The alcohol is then evaporated, leaving behind pure rose absolute.

Yield: Solvent extraction yields a higher quantity of oil compared to steam distillation, making it a more cost-effective method, although some purists believe the process affects the purity of the oil.

3. CO2 Extraction

A more modern method, CO2 extraction, uses carbon dioxide under high pressure to extract rose oil. This technique is increasingly popular as it produces a clean, high-quality oil without the use of harsh solvents or high temperatures.

Process:

Supercritical CO2: At high pressures and low temperatures, CO2 becomes supercritical, meaning it has properties of both a gas and a liquid. This supercritical CO2 is passed through the rose petals, dissolving the aromatic compounds.

Depressurization: The CO₂ is then returned to its gaseous state, leaving behind the rose oil without any residue of solvent.

Yield: CO₂ extraction is efficient and produces a high-quality oil with a balanced aroma, making it an increasingly preferred method, especially for high-end products.

USES OF ROSE OIL

1. Aromatherapy: Rose oil is commonly used in aromatherapy to reduce stress, anxiety, and depression. Its calming and uplifting aroma can promote emotional well-being.

2. Skincare: Rose oil has anti-inflammatory and antioxidant properties, making it useful for skin care. It helps soothe irritated skin, reduce redness, and hydrate dry skin. It's also used in anti-aging products to help reduce the appearance of fine lines and wrinkles.

3. Perfume and Fragrance: Due to its rich and long-lasting scent, rose oil is a popular ingredient in perfumes and fragrances. It adds a sweet, floral note that blends well with other essential oils.

4. Massage Oil: When diluted with a carrier oil, rose oil can be used in massage to promote relaxation and reduce muscle tension. Its aroma enhances the experience, and its skin-soothing properties add extra benefits.

5. Hair Care: Rose oil is sometimes added to hair products to moisturize and strengthen hair, as well as to improve scalp health. It can help with dandruff and add shine to the hair.

6. Mood Enhancer: Inhaling rose oil or using it in diffusers can lift mood, reduce symptoms of depression, and promote relaxation. It is often used to create a romantic or soothing atmosphere.

7. Wound Healing: Rose oil has antimicrobial and anti-inflammatory properties, which may help

in the healing of cuts, burns, or other minor skin injuries when applied topically in diluted form.

8. Menstrual Relief: Rose oil can help alleviate menstrual cramps and symptoms of PMS. It can be applied in a diluted form to the abdomen or used in aromatherapy for relief.

9. Immune Support: Rose oil is believed to have antibacterial and antiviral properties, which may help strengthen the immune system when used in aromatherapy or applied topically.

CONCLUSION

Rose oil, extracted from the petals of various rose species, is a highly prized essential oil known for its therapeutic properties and luxurious fragrance. The extraction of rose oil, primarily through steam distillation or solvent extraction, is a meticulous process that captures its potent qualities. Though it takes thousands of rose petals to produce a small amount of oil, the benefits it offers are numerous. Rose oil is revered for its ability to promote skin health, soothe inflammation, and improve complexion. It has strong anti-inflammatory and antioxidant properties, making it effective in reducing redness, preventing signs of aging, and healing scars. Moreover, its calming aroma provides emotional relief, reducing stress, anxiety, and symptoms of depression through aromatherapy. In conclusion, rose oil is not only a powerful beauty and skincare ingredient but also a valuable tool for emotional well-being. Its wide-ranging benefits, from enhancing skin vitality to uplifting mood, make it a versatile and cherished essential oil in natural healing and wellness practices.