



Roses

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I

A Short Timeline of Roses

Thirty-five million years ago: Fossil records indicate the first appearance of roses.

3000 BCE: The first cultivation of roses. Ancient China and Persia are historically believed to be the regions where roses were first cultivated.

1000 BCE: The earliest known written reference to roses growing in a garden is a Sumerian record found at the Mesopotamian city of Ur, in what is now Iraq.

69-30 BCE: Cleopatra carpets the floor of her palace with rose petals.

Roman Empire: Roses are cultivated extensively throughout the Middle East. Roman nobility establish large public rose gardens in the south of Rome.

AD 170: From the tomb of Hawara on Crete comes a wreath that is the oldest preserved rose species.

10th – 17th Centuries: The rose industry is developed and dominated by Persia. In this period Baghdad is famous for its rose gardens.

12th and 13th century: European Crusaders bring back specimens of either *Rosa damascena* or *Rosa gallica* from their travels to the Middle East. Roses become highly valued in monasteries of Old Europe. One of the oldest garden roses, *Rosa gallica officinalis*, the “Apothecary rose,” is considered capable of curing a multitude of illnesses.

1455–1489: War of the Roses. The rose is used as a symbol for the factions fighting to control England: the red rose of Lancaster and the white rose of York.

15th -16th century: Turkish merchants import *Rosa damascena* for cultivation throughout the Balkan countries, establishing the “Valley of Roses” in Bulgaria in the region of Kazanlik, meaning “the place of stills.”

1597: Fourteen varieties of roses are officially recognized in Europe.

1629: Twenty-four varieties are recognized.

1800: The first red rose arrives in Europe from China. Previously, all European roses such as *Rosa damascena* were pink or white.

Mid - late 18th century: Introduction of cultivated roses into Europe from China; by the end of that century there are over 1,000 varieties. Most modern roses can be traced back to this ancestry.

19th century: Centered in the “Valley of Roses,” the Bulgarian rose oil industry reigns as a near-monopoly of the world market.

1867: The modern era of rose hybrids begins with the development of the first hybrid tea rose.

1900: Rose breeders create yellow and orange roses after the discovery of a wild mutant yellow flower.

1960's: Discovery and analysis of trace constituents of rose oil responsible for its fragrance. The rose ketones beta-Damascenone and beta-Damascone become two of the most important chemicals in the fragrance and flavoring industries.

Present: There are over 30,000 varieties of roses.

II The Cultivation, Harvesting and Distillation of Roses

Roses belong to the Rosaceae family, which contains three to four thousand species in about one hundred twenty genera. This botanic family includes apples, pears, strawberries and raspberries. Roses have the most complicated family tree of any known flower species.

Of the thousands of varieties of roses, only a few give the fragrance sought by perfumeries. The pink-red *Rosa damascena* forma *triginipetala* (Damask rose) is the primary species grown in Bulgaria's Valley of Roses. The white *Rosa damascena* var. *alba* is a hardier species that is sometimes planted around the Damask roses. The Damask rose is the most important, as it yields a higher quantity of oil which is considered to be a superior quality. *Rosa centifolia* and *Rosa bourbonica* are cultivated and distilled in India.

Most rose cultivation for distillation purposes is done on small family-owned farms, and is typically part of a diverse intercropping with other crops. This is true in all major rose growing regions including Bulgaria, Turkey, Morocco, and India. For example, the rose farm and distillery I visited in Rajasthan grows roses intercropped with vegetables for the local market and various medicinal and fruit trees such as amla (*Emblica officinalis*) and varieties of mangoes. Because vast quantities of roses are required to produce small amounts of oil, distilleries are cooperatively operated.

In the Valley of Roses, the harvest season begins with the opening of the flowers around the second week of May, and usually lasts three to four weeks. Hot dry weather reduces the yield and length of the season, while cooler moister weather increases them.

The oil content of the flowers is highest around two in the morning. Harvesting begins before sunrise and typically ends in the middle morning. The harvesting should be done while the dew is still on the petals, as there is a considerable loss of volatile oil content in the flowers due to evaporation by the sun's rays.

Bags of roses are transported to the nearest still as quickly as possible, as the flowers begin to deteriorate immediately.

Rose *otto* is the essential oil extracted from *Rosa damascena*. The term otto is thought to be a derivative of the word *attar*, which specifically refers to the Indian method of distilling botanical fragrances into a base of sandalwood oil.

Distillation of rose otto proceeds in two stages. The first distillation produces the first hydrosol and a layer of thick brown oil, which is extremely concentrated and valuable. After separating the oil the hydrosol is then redistilled to extract the remaining oil within it, producing a second hydrosol and oil. The two oils are then blended to produce rose otto, while the hydrosol is sold as rose water.

The fresh rose otto must be aged to bring out its best aroma; this can take up to a year. The fragrance will continue to improve if stored properly.

1,000 kilos of flowers (one metric ton) consists of approximately 400,000 individual flowers. It takes around 3,500 kilos of flowers to produce one kilo of oil. Hence it takes 1,400,000 handpicked blossoms to produce thirty-five ounces of oil. It takes 40,000 blossoms to make one ounce of oil, and sixty-seven blossoms to make one drop of oil.

A well managed rose garden produces from 1,250-1,650 kilos of flowers per acre. Thus, it requires two to three acres of land to produce one kilo of oil. However, the yield of oil depends on the climate, time of the harvest, condition of the flowers and the method of distillation.

Therapeutic Uses of Roses and Rose Oil

Roses and rose oil have a vast number of therapeutic applications and more are emerging through ongoing research. Besides its role as a major ingredient of perfumery, rose oil has a history of medicinal use dating back at least five thousand years, yet some of its most important constituents have only been discovered recently.

It has been known for over a hundred years that the main constituent of rose oil's over two hundred seventy five compounds is citronellol. In the 1960's and 70's researchers began reporting the trace constituents of rose oil, with beta-Damascenone being the most important.

Although Damascenone constitutes only a minor percentage of rose oil, it contributes the maximum percentage of fragrance. Citronellol, although it can be found in concentrations as high as thirty-eight percent of the oil, has only four percent of relative odor units, or fragrance presence in the oil. On the other hand, Damascenone has over seventy percent of the perceivable odor units of the oil, with only .1 percent concentration in the oil. (An "odor unit" value is determined by dividing the concentration of a component [in ppb] by the component's detection threshold level [in ppb].)

Beta-Damascenone and another rose ketone, beta-Damascone, are two of the most important chemicals in the fragrance and flavoring industries. Citronellol and Damascenone are responsible for many of the rose oil's therapeutic properties.

In Ayurvedic terms roses and rose oil are considered *sattvic*, meaning that they have a compassionate quality that harms no one; *tridoshic*, meaning that they benefit all body types; *pitta pacifying*, meaning that they have cooling and anti-inflammatory properties; *ojas building*, meaning that they rejuvenate immunity by building nutritional essence; and supportive to *shukra*, meaning that they increase semen and reproductive fluids.

Ayurvedic medicine uses rose oil both topically and orally for treating a variety of inflammatory conditions, either as a single remedy or prepared with other herbs or minerals. An infusion of petals is a mild remedy for pitta symptoms such as headaches, throat inflammation and hangovers. Pearl *pisti* is a cooling anti-inflammatory compound prepared by triturating rose oil with pearl powder and then exposing the mixture to the rays of the full moon.

Rosewater can be used safely for inflammation and infections of the eyes such as conjunctivitis, and as a douche for vaginal infections and inflammation. It is helpful as a mouthwash for gingivitis, and safe for children while teething. Rose honey has also been used traditionally for reducing inflammatory conditions.

The anti-inflammatory effects of rose are possibly due to beta-Damascenone's anti-spasmodic effects on vascular tissue, which has been found to have potency in the same range as papaverine. (1)

Rose oil has been found to be a potent inhibitor of *Helicobacter pylori*, and is thought to exert a sanitizing effect in the gut. Its antibiotic effect extends to plants as well and is a potential agent for controlling infections in commercial crops such as tomatoes. (2) Aromatherapy writers advise applying rose oil undiluted on shingles for its antiviral properties.

Aromatherapy writers have stated that rose oil has a pronounced effect on the circulatory system, that it promotes circulation, cleanses the blood, relieves heart congestion, and tones the capillaries. One study validating this claim found that a capsule containing sixty-eight milligrams of Bulgarian rose oil, 30,000 IU vitamin A and 250 milligrams sunflower seed oil administered twice daily before meals for one hundred ten days had a marked hypolipidemic effect and reduced arterial hypertension. The remedy was tolerated well, with no side effects or contraindications for its use. (3)

Roses and rose oil have a long history of symbolic association with love, devotion, passion and spirituality, a paradox expressed by its sensual flower protected by thorns. Sacred scents such as rose that are evocative of spiritual and erotic moods have always been used for their uplifting effects on the heart and emotions. Rose oil in particular has a long history of use as a gentle but potent antidepressant. It seems particularly beneficial for sensitive people who are emotionally overwhelmed, and for those suffering grief and sadness. It reduces anxiety and melancholy. Being the queen of flowers, as well as an extremely precious oil, it supports higher self esteem.

Rose oil is used in Ayurveda as a rejuvenating aphrodisiac. Rose attar, which is prepared by distilling rose petals into a base of sandalwood oil, is considered a specific remedy for depletion of semen that works by relaxing the adrenals and sympathetic nervous system; it is used in massage for this purpose.

Rose oil has traditionally been viewed as having anti-stress properties with calmative, relaxant and mood-enhancing effects. It is used as a mild sedative that is soothing to the nervous system, and considered valuable for conditions of nervous stress that affect the circulatory and digestive. Rose oil inhalation produced an anxiolytic-like effect similar to diazepam in adult male rats. (4) The pharmacologically active constituents that produced rose oil's anti-anxiety-like effect have been determined to be 2-phenethyl alcohol and citronellol. (5) Inhalation of rose oil decreases sympathetic activity and adrenaline concentrations in normal adult subjects. (6)

Roses have numerous beneficial effects in the digestive system, and offer many nutritional benefits as well. The petals are mildly laxative, and used in syrups for constipation. The fruits of many species are rich in vitamins and minerals, especially vitamins A, C and E, flavonoids and other bioactive compounds. Rose oil has high concentrations of the essential lipid linoleic acid, which has been found to have anti-tumor effects.

Gulkand, rose petal jam, is an exquisite Ayurvedic nutritive tonic made from fresh rose petals, sugar cane juice and rejuvenating herbs. It is used as a cooling tonic that treats malnutrition, liver weakness, anemia, chronic fatigue, biliousness and acidity, and a wide variety of other deficiency conditions. It can be used by all constitutional types, and is especially good for vata and pitta.

Rose oil is one of the least toxic of the essential oils, which makes it ideal for massage and skin care; it is safely used in dilution for baby oil. Rose oil is a valuable ingredient of cosmetics. It has a healing influence for every skin type, especially infected, inflamed, dry, and sensitive skin (pitta and vata). Rosewater is an excellent for the same types of skin problems. Rosehip seed oil, extracted from the seeds of *Rosa mosqueta*, is one of the best anti-inflammatory emollient oils for dry and inflamed conditions of the skin such as eczema.

References

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