

# Medicinal and Economic Uses of Rose with Reference to Ancient Civilization

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Throughout the human history, rose has been the symbol of love, purity, devotion, inspiration, beauty, elegance, compassion, spirituality and sensuality. It is thought to have originated in Central Asia and is mentioned in the ancient medical texts of China, India, Persia, Assyria, Egypt, Greece and Rome. Rose has always influenced cultures aesthetically, economically, medically, religiously and spiritually. Much of this association is based on non-scientific folklore such as traditional and anecdotal observation. But rose has attributes with proven benefits for the physical as well as the emotional body. The flowers were prized for their beauty and fragrance, the petals, leaves and hips (the fleshy fruit containing seeds) were made into jams and infusions for food and medicine and oils and salves were used cosmetically.

## Salient Features

### Etymology

The roses proper are in the genus *Rosa* L., so all the roses are known by the term *Rosa* (from the ancient Latin name), probably derived from the Greek root '*rhódon*' (cf. the name of the common ornamental *rhododéndron* "rose tree") meaning rosy or red; Rose, Briar or Brier (English); *Ward*, *Nasrin* or *Nisrin* (Arabic); *Golab* (Urdu). The name's source probably a tongue of Western Asia is today lost. Armenian *Vard* "rose" and the female name *Warda*, popular in the Eastern Mediterranean, have the same origin. The term *attar* for rose oil (also spelt *otto*) goes back to Persian *atar* "perfume" and Arabic *'itr* "sweet smell"

## General Characteristics of Roses

The bisexual flowers are in terminal racemes or cymes of various types and have five sepals, five petals usually many stamens and a superior, or a less commonly inferior, ovary. Roses have distinctive features which have set them apart from other plants. These characteristics include thorny stems, formation of hips and the way in which the leaves grow.

## Wild Vs Hybridized Roses

Wild roses are also known as *Rosa* species. Many wild roses feature the single flower form of usually five petals. It is interesting to note that the wild roses are generally very pale in hue, either white, blush, pale yellow or medium pink. Deep yellow roses were only found growing wild in Asia and deep red roses are native to China. Roses that grow for longer periods from summer to autumn are all native to the eastern regions of Asia. Modern hybridized roses are found in all shades including orange, salmon, pink, yellow, red, lilac, purple, brownish-green and even blue and black. They can also be bicoloured and multicoloured (Moody, 1992). Today, there are about 250 species and tens of thousands of cultivars (Hickey and King, 1997).

## History

Just how far back the history of rose extends is debatable. It is believed that the roses grew in the wild

from prehistoric times, and the fossils thought to be 20 million years old, prove the existence of the rose in this phase of history. It is not possible, however, to prove a direct link to present-day wild roses, even though species are found growing in the same regions as the fossil traces.

#### FOSSILS

Many of the world museums contain fossil remains of roses. Some of the fossils are very old, especially those found in Asia and Miocene deposits of the Baltic provinces. The Oligocene deposits in Colorado (North America) are estimated to be at least thirty five million years old, so it is fair to assume that roses have existed on the earth far longer than man. There is some evidence in ancient writings to suggest that roses were known as far back as 4000 B.C.

#### EARLIEST PICTURE

The earliest known picture of roses is that in the House of Frescoes at Knossos, Crete, which dates back to the 16th century B.C. The island of Rhodes took its name from the flowers, which were portrayed on its coins in 4000 B.C. In Babylon too, the rose was known. Sargon, King of Babylon (2845-2768 B.C.), is reputed to have sent rose trees to his capital at Akkad and in the Assyrian architecture, roses were used on sill carvings in ceremonial buildings.

#### OLDEST LIVING PLANT

The oldest known living rose tree is at Hildesheim Cathedral in Germany. It is said to be over a thousand years old and is a form of *Rosa canina* with an interesting legendary history. This claims that Kaiser Ludwig the Righteous while out hunting one day was separated from his escorts and spent the night in a forest. When he returned to his castle the next day, he found to his grief that he had lost a sacred relic. This was later found beneath a wild rose near his sleeping place, but the tree refused to relinquish the relic and Ludwig vowed to build a chapel near the spot. This was completed in 815 A.D., and Gunther became its first bishop. The tree itself has now become a legend. During the Second World War Hildesheim was bombed but miraculously the old tree survived, although all its top growth was destroyed.

#### International Flower

The international nature of the rose is evidenced by the fact that three of the most important hybrids come

from Italy, south Carolina and L'île de la Réunion in the Indian Ocean. It is the national flower of the United States of America and Iran. Several States and a Canadian province have also chosen the rose as their official flower. The district of Columbia has taken the American Beauty Rose. Georgia has chosen the Cherokee Rose. This variety is a white Chinese rose. The wild rose is the official flower of Iowa, north Dakota and Alberta. A series of battles in English history are called the Wars of the Roses. In addition, the rose is the flower for the month of June.

#### Rose Ancestry

The ability of the rose to interbreed has also made the tracing of rose ancestry very complex, indeed, at times impossible. There is much speculation as to the ancestry of various groups and unless genetic testing can be used in the future to determine the exact genes of individual species, some of the mysteries of the rose will remain unravelled forever. The main problem with tracing the history of rose is that much of the early plant material has been neglected and lost over the past two centuries. As breeders developed new and 'better' roses, the original parents fell by the wayside. Now fortunately, old-style roses have regained popularity and this has led to the re-introduction of hundreds of roses into the marketplace.

Although it is in the nature of the genus to interbreed, this characteristic has been freely exploited over the centuries, producing a seemingly stream of new varieties and new flower colours every season. The innumerable cultivars of *Rosa* to be found in gardens are mostly complex hybrids of which the most important ancestors are *R. moschata*, *R. foetida*, *R. gallica*, *R. chinensis*, *R. odorata* var. *gigantea*, *R. multiflora*, *R. wichuriana* all from East Asia (though *R. chinensis* is not known in wild states). Some modern garden roses such as the hybrid Polyantha, include all the seven of these species in their ancestry (Hurst, 1941; Wylie, 1954, 1955). Therefore, the genetic background of the modern roses seems to be narrow as compared with one involved in the genus *Rosa*.

#### Literary Significance

Rose has attracted the people of nearly all the early civilizations of the Northern Hemisphere and many allusions to them occur in the writings and poetry of most northern countries since the most ancient times. Even today, music and verses in dozens of languages celebrate the rose. In his *Herbal* of 1957, Gerard wrote "the rose

deserved the chiefest and most principal place amongst all flowers whatsoever, being not only esteemed for its beauty, virtues, fragrant and odoriferous smell but also because it is the honor and ornament of our English scepter" (Gender, 1977).

#### Religious Importance

The significance of rose is both religious and mythological. The ancient Greeks and Romans set great stores by the flowers. It was prized as the flower of Aphrodite (goddess of love and beauty, arts and creativity) to the ancient Greeks. In Homer's *Iliad* Aphrodite anoints the dead Hector with rose perfume. Rose was also a symbol of secrets held in confidence: The phrase *sub rosa* originated about this period and was linked with Cupid's gift of a rose (the emblem of love) to Harpocrates, the god of silence, as a bribe not to reveal the amours of Venus. Accordingly whenever secret matters were discussed a rose was suspended from the ceiling and what took place beneath it was strictly *sub rosa* (under the rose). Later carvings took the place of living flowers and for some reasons were particularly popular in Victorian times. Incidentally, in the 18th century, Jacobites adopted a white rose as their emblem, for their political leanings and support for Bonnie Prince Charlie had of necessity to be kept secret.

The extravagant use of roses in Roman conviviality – and even debaucheries – incensed the Early Fathers of the Christian Church, who would not allow them to be brought into the churches. Later, they returned to favour when others saw on them the emblem of martyrs, the five petals representing the five wounds of Christ and the white rose the virginity of Mary. To the early Christians, it was the flower of the Virgin Mary, In medieval Christian tradition the scent of rose was associated with the presence of angels. After this, roses were commonly used in England in the Middle Ages for decorating shrines, wreathing candles, for rent payments and in heraldry. Beautiful woodcarvings of roses can be seen in many old English churches and chapels. In medieval times a Sunday in mid-Lent was known as Rose Sunday and even today, a golden Rose blessed by the Pope may be sent as a mark of outstanding potential favour to special personages. The rosary commemorates a chaplet of roses supported to have been bestowed on St. Dominick by the Virgin Mary. Originally, rosaries were strings of beads made from tightly pressed rose petals, which gave out a pleasing fragrance.

To the Arabs of old, it represented the highest

spiritual achievement. Rose fragrance plays some role in most Islamic cultures, it often has cultic significance or is used as a room deodorizer in Arab countries.

#### Traditional Uses

The Romans constructed special warm houses, heated by tubes filled with hot water in order to obtain blooms out of season. At that time roses were used for ceremonial purposes on a scale we can scarcely comprehend today. Not only were they worn on the person in extravagant garlands, but also the floors and couches were strewn with petals. Cups of wine were laced with roses and at one lavish banquet during the reign of Emperor Elagabalus (c. 218-222 A.D.) showers of petals were released through apertures in the ceiling, in such quantities that several guests were unable to extricate themselves and suffocated. In Sybaris (an ancient city of Italy) whose inhabitants were given to luxurious indulgence people slept on mattresses filled with rose petals. In other words, on a bed of roses!

The rose has featured prominently in English heraldry, being represented in one form or another in the badges of Edward I, Henry IV, Edward I, Henry VII, Henry VIII, Edward VI and Queen Elizabeth I. Since 1461, it has been the emblem of Britain following the Wars of the Roses. The Tudor Rose of heraldry is a double bloom with a red outer and white inner row of petals.

Roses in Europe and West Asia were probably cultivated not so much for ornamental as for practical use. Two in particular were valuable in age of unhygienic smells: damask roses were used to make rose water and their origin may go back to Arabia or Persia several centuries B.C. and Gallic roses also met cosmetic needs, because the dried petals retained fragrance for long time. Gallic roses may well have been farmed 3000 years ago.

#### Aesthetic Value

Roses have been appreciated and loved for their aesthetic value since ancient times. The use of roses as ornamental garden plants might have started in China where they were grown in the Imperial gardens as early as the 6th century B.C. Bringing together of different species and varieties in these Chinese gardens led to a whole range of new forms, some of them very different in character from the roses available in the West.

Roses are as varied as the countries from which they come. There are massive blooms the size of saucers

and miniatures, which will slip through a wedding ring. There are climbers, ramblers, shrub roses, miniatures, garden kinds such as hybrid teas, floribundas and many more. The flowers may be single or double in white, red, pink, orange and yellow. Mauve and green roses exist although a true blue still eludes the hybridists. In garden, they may be used for bedding purposes, as ground cover, mixed with shrubs in the borders, trained up trellis or ropes and used to drape walls or mask ugly features. They are also employed as cut flowers for flower arrangements, bouquets, buttonholes, corsage sprays and sundry other adornments like headbands and fans. Those illustrated include a range of modern hybrid teas, some of the more popular old-fashioned roses and the attractive *R. moyesii* 'Geranium' grown both for its sealing wax flowers and brightly coloured fruits.

Rose breeding has even evolved to the point of biotechnological genetic engineering. For example, an Australian company has isolated the blue gene in petunias and has developed, via tissue culture, a 'Delphinium Blue' rose.

Few temperate gardens are without at least one rose and they are also widely grown in the subtropics. The rose is probably the most popular garden plant. During the 19th century a systematic attempt to collect all known roses in one garden was made by Empress Josephine, wife of Napoleon, and her patronage greatly helped the development of further new varieties. She was a vigorous promoter of the fashion for roses from 1799 until her death in 1844 and French growers continued to play a major role. One of the most famous was J.P. Vibert who established a nursery near Paris in 1815, some of his roses are still in cultivation. To a later Frenchman, Guillot, we owe the earliest recognized Hybrid tea and Polyantha.

Botanical expeditions of the 19th century, notably in Asia Minor, China and the Himalayan regions meant that by 1900 nearly all the species of the rose had been discovered. Breeders have used most of them and the world looks forward to the vast opportunities for future rose developments.

The rose has been called almost 'an index of civilization', and through the succeeding centuries in the East and the West, the range of varieties gradually evolved. When in the 18th century the Chinese garden roses were taken to other lands, the mingling of their genes with the European hybrids brought about a rose revolution, giving gardeners of the world a feast of new colours, new shapes and an extended growing season.

Roses are hardy in cool temperate climates, flower freely and continuously throughout the summer and are

easy to grow. They prefer good heavy loam unlikely to dry out in summer, but light soils can be made rich and moisture retentive by digging rotted manure or compost into the ground before planting. In later year's, mulches of similar material benefit established bushes. The pruning of bush roses (like hybrid tea and floribundas) is undertaken once a year, removing old weak or diseased branches and shortening the rest to an outward pointing bud. The more these are reduced by hard cutting the fewer but finer the flowers. Some of the stronger cultivars such as Peace and Queen Elizabeth can be propagated from cuttings, a method also in use for species, shrub roses and many ramblers and climbers. Hybrid tea cultivars are usually budded on strong growing or diseased resistant stocks of *Rosa canina* the English briar, *multiflora*, *rugosa* or *laxa*. *R. odorata* is used in warm climates as it stands heat better than any of the preceding.

### Products of Roses

Unappealing they may be, yet even prickles can be a pretty adornment as anyone who has seen young shoots on the Wing Thorn Rose will know. What these stories illustrate is the abiding fascination with roses that overrides boundaries of times and places drawing people of many nations to write about roses, to grow them, to depict them in all sorts of ways, and above all to love them. That love is easy to explain if we think of the qualities for which the rose is valued (Moody, 1992).

### Rose Essential Oil

It is extracted from rose petals. Rose Attar (Otto or rose oil) is one of the world's most valuable oils for it is one of the best and oldest scents. The chief species used is *R. damascena* (queen of essential oil) and to a lesser degree is *R. alba* and *R. centifolia*. It takes the petals of 30 damask roses to make one drop of rose Otto (Allardice, 1994). The main centre of production is Bulgaria, which provides three quarters of the world's supply. At present Turkey, Bulgaria and Morocco are the main producers of rose oil, while some small production comes from Egypt, Somalia, China and India (Iqbal *et al.*, 1989).

Legend has it that the Mughul Emperor Jehangir, ordered roses to be floated in every canal running through the royal gardens to celebrate his wedding. His new wife, running her hands through the scented water, was fascinated to notice that fragrant oil clung to her fingers and her husband ordered to bottle it as a tribute to her.

East of Sofia may be found the valley of roses, a place 32 km (20 miles) wide and 160 km (100 miles) long, full of roses. Here some 200,000 people are employed in tending the bushes, gathering the petals and distilling the oil. It takes a ton of petals to yield a pound of *Attar*, and the average production from this area alone is about three tons per season. Most of this is exported to France, where it is frequently 'stretched' with cheaper oils e.g. derived from *Pelargonium capitatum*, the Rose Geranium.

**Rose Water**

It is mainly phenyl ethyl alcohol. It is a major item of production from rose flowers. It is produced by hydro distillation of rose flowers and the distillate is collected over oil of sandalwood. It is used for flavouring tobacco and as a perfume in aggravates. It is also used as a perfume. It is traditionally used for sprinkling at the wedding ceremony, feasts, funerals and religious functions etc.

**Rose Hair Oil**

*Roghan-e-Gul* (rose oil) is a type of hair oil made by modified effleurage process, i.e. by maceration of rose petals with warm sesame seed oil.

**Rose Summer Drinks**

*Punkhuri* is shade dried rose and is used for preparation of cool summer drinks.

**Rose Jam or Rose-hip marmalade and Rose-petal Jelly**

These are popular preserves and Queen Victoria is reputed to have enjoyed a sauce made from sweet briar hips and lemon juice with roast mutton.

**Other Products of Roses**

Rosebuds pickled with white vinegar and sugar are pleasant with cold meat and rose wine has a delicate flavour and attractive colour. Other items made from roses include ointment of roses, conserve of roses (for colds), rhubarb and rose-petal jam, rose cold cream, rose pomatum (to combat baldness), candied rose leaves (for decoration). Since the 14th century the dried petals of *R. gallica* and other species have been collected in France for making preserves or placed in the house in dishes as pleasant smelling "Pot Pourri", rose-scented soap and

snuff. Rose petals at one time were used as scented smoke filters for cigarettes, the petals being rolled and employed in the same fashion as today's cork tips. But the costs were so prohibitive that the industry had a short life.

**Medicinal Importance**

In olden times, great medicinal virtue was claimed for them. Dr. Lindley, who wrote a monograph on roses, tells us that one of the most earnest defenders of their medicinal worth has not hesitated to assure the world, that a pharmacopoeia should be formed of roses alone (Synge, 1951). Before the extraction methods were developed for rose essential oil, rose was used in its whole form.

The oil has the following qualities. It is anti-depressant, anti-inflammatory, antiseptic, antispasmodic, anti-tubercular agent, antiviral, antifungal, vulnerary, diuretic, deodorant, astringent, aphrodisiac, bactericidal, choleric, cicatrizing, depurative, emmenagogue, regulator of appetite and sedative. It is also a good tonic for the heart, liver, uterus and stomach. Rose oil is cooling, relaxing and toning. Its effects are similar to bergamot, geranium and jasmine decreasing sympathetic nervous system activity, while at the same time strengthening the parasympathetic nervous system. Rose therefore increases feelings of vitality and creates a sense of well-being.

Different extraction methods of rose oil as a therapeutic agent is the subject of much debate among aromatherapists. Many believe the absolute (solvent extraction process) leaves chemical residues and provides a lower vibration healing energy inappropriate for therapeutic use. Others think solvent extraction is superior because the plant is not exposed to high heat, thereby producing a fragrance more true to the original plant and an end product with a broader range of constituents and therefore, of higher therapeutic value. The distilled rose oil, or rose Otto, is the only one suitable for food and flavouring use.

The toxicology data on rose essential oil suggest that it is very safe. One study on the safety and low oral toxicity of rose oil reported that it has no cumulative effect and does not appear to have any ill effects on the development of the embryo when taken internally (Kirov and Bainova, 1988). Rose is non-phototoxic and non-sensitizing though undiluted it can be a mild skin irritant to some people and it has a low oral toxicity compared to spearmint and citrus oils, both of which are considered safe (Tisserand and Balacs, 1995).

Interestingly, an *in vitro* study showed that

compounds isolated from *Rosa damascena* exhibit anti-HIV activity (Mahmood *et al.*, 1996). London researchers isolated nine compounds from a methanol extract and discovered that the combined effects of different compounds act additively against different stages of virus replication. They do this by binding to various proteins to inhibit HIV infection.

#### Medicinal Use of Rose Water

It has medicinal value almost equal to rose oil. It makes a tasty beverage and was historically used as a quick remedy for hangovers. Rose water has a pleasant and refreshing aroma and its abundance of natural acids makes it an excellent hydrating and anti-inflammatory remedy for skin care (Portarska *et al.*, 1989). It has disinfecting and soothing properties for dry, delicate and mature complexions and makes a good eye compress for dry, inflamed eye conditions and conjunctivitis.

#### Medicinal Use of Rose Oil

It is used for the following disorders:

**Skin:** In skin care the oil is used for broken capillaries, dry skin and eczema, and also for sensitive complexions. Its rejuvenating properties relieve dryness, inflammation, heat, itching and aging of the skin. Softens and improves tone and texture. Rose oil is often included in cosmetic cream for its refreshing and mild tonic effects on sensitive skins. Diluted in distilled water, rose oil may be used to soak compresses for tired or inflamed eyes. A preparation of rose ointment was found useful for cancer patients with radiation-induced burns, inflammation and tissue degeneration. It was also useful in 154 cases where antibiotics were ineffective in treating skin ulcers (Christov, 1969).

**Digestive system:** The antiseptic and anti-inflammatory properties of rose suit it for the treatment of digestive disorders such as gastroenteritis and gastric ulcers. It can help relieve feelings of nausea and help regenerate damaged intestinal walls.

**Respiratory:** The respiratory benefits include treatment of asthma, coughs and hay fever.

**Reproductive:** Rose also has a strong effect on reproduction and sexuality and is helpful for menopausal women or during heavy periods also in irregular menses, leucorrhoea, uterine disorders and cramps (Lawless, 1995). Rose is traditionally used to treat a number of female reproductive disorders, its astringent tannins, for

instance, help excessive menstrual flow. Although rose is the consummate feminine remedy, it is also reported to increase sperm count in men (Holmes, 1994).

**Sexual:** Frigidity, impotence, nerves. It is very useful in many sensual blends.

**Nervous:** Rose oil's purported effects on depression and anxiety seem wholly anecdotal but upon closer investigation there may be a more tangible basis for this action. Some people speculate that these states are often the result of an overstressed kidney/adrenal system, which may be corrected through the nourishing effect of rose on the hypothalamus area of the limbic system (Chen and Zhang, 1984).

Rose oil can be used in the treatment of a wide range of stress related conditions and can be used for the treatment of depression, impotence, insomnia, frigidity, headaches, nervous tension and stress related complaints. It calms, works against depression and is mood-lifting. Rose oil may be used via face and body 'massage', skin care, baths or vapourize to treat nervousness, sadness or long term stress. While this seems plausible there is little hard scientific evidence to support the theory.

**Circulatory:** The benefits for the circulation include treatment of poor circulation, palpitations, muscles and joints. An extract of *Rosa canina* exhibited superior lipid-reducing qualities when compared with eight other natural polyphenol extracts *in vitro* (Costantino *et al.*, 1992). Potentially, these findings make rose oil a prospective agent for the prophylaxis and treatment of atherosclerosis. A Russian study showed rose oil reduced blood-lipid concentrations in rats. The recommended therapeutic dose is 2-4 mg rose oil/kg body weight. The oral dose of 5 mg/kg body weights was safe (Kirov and Bainova, 1988).

Rose's ability to reduce blood lipids was also confirmed in a Chinese study comparing *Rosa multiflora* root in tablet form to two pharmaceutical drugs, clofibrate and hexanicotol, that reduce plasma lipids. Overall, the rose group showed reduced serum cholesterol, lipoproteins and triglycerides (Chen and Zhang, 1984). A mixture of indigenous Pakistan herbs (*Prunus bokharensis*, *Berberis aristata*, *Nymphaea lotus* and *Rosa indica*) has caused significant decrease in serum cholesterol levels of hypercholesterolaemic rabbits in doses of 1 or 2 g/kg/d, after one week (Kamran and Ahmed, 1992).

**Excretory:** A rose hip tea (*Rosa canina*) showed some benefit against kidney stones in a rat study conducted in Spain. The primary benefits were that two markers of kidney stone risk improved, calcium in the urine decreased and the urinary concentration of citrate

increased when 16 rats were given an infusion of rose hips tea for 12 days (Grases *et al.*, 1992).

### Medicinal Use of Rose Petals

*Gulkand* is prepared from rose petals by mixing one part rose petals with two parts sugar and kept in sun for about a month for maturation. It is used in Unani medicine as a good tonic and mild laxative.

### Medicinal Use of Rose Fruit (Rose hip)

Rose hip syrup has some importance as a tonic, especially for children, for it contains four times as much vitamin C as blackcurrant juice and twenty times that of orange juice (Perry, 1977). *R. roxburghii* is a newly exploited fruit crop in China. Its rose hips contain 5-22 times as much ascorbic acid as do the fruits of *Actinidia chinensis* and 60 times as much super oxide dismutase as do those of apple.

### Medicinal Use of Rose Seed (Achene)

Rose achenes (*Zeera Golab*) are used to prevent oral bleeding and strengthen uterine muscles. In Japanese traditional medicine, a crude drug "Eijitsu" used as purgative is made from pseudocarps or seeds of *Rosa multiflora*.

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