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ROSA DAMASCENE: IMPORTANCE OF NATURAL BEAUTY PLANTS: A REVIEW

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ABSTRACT

Rose is a sacred ancient plant with a long history of usage in Iranian traditional medicine and is one of the most important plants in the Rosaceae family. Although rose is used in folklore as rose water or dried rose petals, the majority of rose's applications are in the production of rose water and rose essential oil for use in religious ceremonies, cooking of some dishes and high grade perfumes. Rose essential oil is a valuable industrial commodity with numerous applications. The production of rose essential oil is quite low [0.3e0.4ml/kg]. The chemical makeup of rose essential oil may be affected by ecological, geographical and environmental circumstances, soil composition, harvesting and storage conditions and distillation procedures. The best rose essential oil contains a high concentration of monoterpenes. As a result, developing techniques to increase oil yield while decreasing oil production costs is a significant challenge for the future.

KEYWORDS

Rosa Damascene, Iranian traditional medicine and Monoterpenes.

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INTRODUCTION

Rose as a Natural beauty is a blessing and an indication of a healthy lifestyle for anyone. And every human being desires to keep it as a state of perpetual youth. Cosmetic product application has a long history dating back centuries. Several literary articles demonstrated the use of castor oil as a protective balm, beeswax as a skin cream, rose water, olive oil, belladonna alkaloids [atropine of *Atropa belladonna* L.] as a pupil dilator, and other

ingredients^{1,2}. However, as time passed and medical discoveries allowed for a deeper understanding of scientific skin physiology, a revolution in personal care products occurred and the cosmetics businesses began research on natural herbal plants. Plants are the richest source of antioxidant activity since they live in an environment rich in harmful full-sun rays such as ultra violet radiation. Many novel personal care products with pharmacological activities, such as anti-hyperpigmentation, anti-aging, anti-inflammatory, anti-carcinogenic, anti-allergic, moisturising, pro-collagen, Sun protection factor [SPF] creams, are now accessible over the counter. *Santalum album*, *Aloe barbadensis*, *Curcuma longa*, *Crocus Sativus*, *Azadiracta indica*, and *Rosa damascene* are some medicinal plants with cosmetic properties. *Rosa damascene* is a powerful medicinal herb with a variety of pharmacological and therapeutic properties, including antipyretic, antiseptic, antiemetic, anti-obstructive, analgesic digestive, stomachic, liver tonic, cardiac tonic, brain tonic, general tonic, desiccant, detergent, demulcent, palpitation, headache, constipation, mouth ulcers, and so on. *Rosa damascene* flower is used medicinally for stomach pain, epistaxis, skin itching, throat infection, pain in gums, uterus, eyes, ear, and rectum and so on².

Habitat

Rosa damascene is a tiny shrub that grows to be 1-1.8m tall, and a variety of varieties are grown in gardens. This plant can be found all over the world, including India, Azerbaijan, Kasan and Faras³.

Taxonomical Classification

| | |
|----------------|---------------|
| Kingdom | Plantae |
| Subkingdom | Tracheobionta |
| Super division | Spermatophyta |
| Division | Magnoliophyta |
| Class | Magnoliopsida |
| Subclass | Rosidae |
| Order | Rosales |
| Family | Rosaceae |
| Genus | Rosa L. |
| Species | <i>Rosa</i> |

Vernacular Name and etymology

| | |
|--------|--------------|
| Arabic | Ward-e-Ahmer |
|--------|--------------|

| | |
|-----------|-------------------------------------|
| Bengal | Golap |
| Gujarati | Moshamee Gulab |
| Hindi | Gulab |
| Kannad | Rojahu |
| Malayalam | Rojapuvvu |
| Marathi | Gulab |
| Persian | Gul-e-Surkh |
| Punjabi | Gulab |
| Tamil | Rojapoo |
| Telegu | Gulabi, Roja, Panniru |
| Urdu | Gulab |
| French | Quatre Saisons |
| Spanish | Rosal de damasco, Rosalfino de olor |

CULTIVATION

Rosa centifolia is notably associated with the French city of Grasse, which is recognised as the world's perfume capital. It is commonly grown for its scent. The blooms are gathered commercially for the creation of rose oil, which is widely used in perfumery. The cultivated plants are thus recommended due to their better flower production^{4,5}.

MORPHOLOGY

The plant is shrubby and grows to a height of 1.5-2 metres. The leaves are greyish green in colour, compound, imperipinnate and have 5-7 leaflets that are ovate-lancelets. Flowers vary in colour, but are usually pink, fragrant and have numerous petals. They are fleshy hips that contain little, pendulous seeds. They have overlapping petals and are spherical in form^{5,6}.

Plant description

Rose is a perennial climbing shrub with strong hooked prickles. The stem is branching, thorny, woody and erect. Compound, imparipinnate, and petiolate leaves. Flowers are hermaphrodite, perigynous, and come in red, white and pink colors⁷. Flowers are stalked, pinkish in colour, with sepals, petals and stamens linked to the pedicle with thalamus and the stalk is light green, slender and coated with many prickles and hairs. Sepals 5, free, 1.3-2.4cm long, uneven, with creamish green to yellowish green glandular hairs.

Petals are many, pinkish yellow, 1.5-4.2cm long, and 1.3-2.5cm wide, with smooth rounded to subcordate margins. Stamens are numerous, free, uneven, dorsifixed, dark brown, the filament is 0.3-0.5cm long, the carpels are free, the ovary is inferior, the styles are lateral, hairy, free and the stigma is terminal^{8,9}.

Microscopic view

Sepal's has single-layered epidermis on both surfaces, numerous long, unicellular hairs, and mesophyll composed of round to oval, thin-walled, parenchymatous cells and vascular bundles¹⁰. Petals have papillose lower epidermis with no cuticle and single-layered upper epidermis with thin striated cuticle, followed by mesophyll with oval to polygonal, elliptical, thin-walled, parenchymatous cells and a number of vascular bundles distributed throughout. Powder; light brown in colour, epidermal petal pieces consisting of thin-walled, sinuous cells that form papillae, Xylem vessel with spiral thickenings long, pointed, uniseriate, unicellular hair and stalked capitate glandular hairs^{11,12}.

Chemical constituents

Citronellol, 4-amino-furazan-3-carboxylic acid, and 2-trifluoromethylbenzoic acid are all found in rose. -Pinene, -Pinene, -Myrcene, -Terpinene, -ocimene, undecanoic acid isopropyl ester, 2-amino-propionic acid, N-butyl-2-decanamine¹³⁻¹⁵.

Taste

Astringent

Parts used

Flowers, Flower buds, petals, stamens, oils and extract

Dosage

3 to 5grams

Adverse Effects

Harmful for sexual power, cold and cough

Correctives

Pimpinella anisum L.

Substitute

Viola odorata

Products of Rose

Rose Water

Rose oil

Dried Flower

Rose Hip

Traditional uses of Rose

Rosa damascene flower decoction was used for heart strengthening, antiseptic eye washing, mouth wash, skin glowing, chest and abdominal pain, menstruation problems, laxatives and sleeplessness, among other things^{16,17}.

Rose and honey mixture is used for gargling and it is very effective for throat problems

Paste of rose petals on face is used for pimples and clear facial skin

The root of rose is beneficial against hemorrhage and diarrhea

Rose oil with vinegar, local application is beneficial in headache and cures insomnia

Local application on head and its inhalation and instillation in nose also relieves headache and act as a relaxant

Oral intake of its cures bilious dysentery, gastritis and intestinal wound

Local application is beneficial in stomatitis, oral thrush, and blephritis

The Plant has traditionally been used to treat vitiated VATA, PITTA, inflammation, burning feeling, conjunctivitis, cough, skin illness, heart impairment, fever and general weakness. Generally, rose products are used to manufacture various cosmetic preparations such as creams, lotions, and other cosmetic purposes. It is moisturising when combined with vegetable glycerin. It was also used for perfumery in toiletries, lozenges, and toothpaste. Desserts, pastries, and cakes include rose water¹⁸.

The flower buds are commonly used to treat heart problems, as well as as a tonic and aperient. Gulkand prepared from the petals has mild laxative qualities and can be used to treat sore throats and swollen tonsils. Flowers decoction was used in traditional Iranian medicine to alleviate chest and stomach pains, monthly bleeding, and digestive problems [mild laxative for constipation]. It is well-known as a cardi tonic substance that helps to strengthen the heart. Ave Sina [Famous Iranian Scientist] isolated rose essential oil in the 10th century and used it to treat various diseases. Rose

water has long been used as an antibacterial agent for eye washing and mouth disinfection, as well as an antispasmodic agent to relieve abdominal pain, bronchial and chest congestion^{19,20}. Dried rose water decoctions were used as diuretics and were prescribed for treating fever, breast soreness, and menstrual difficulties. Rose petals were boiled with sugar or honey in Iranian traditional medicine and used to cool the mind and body. Rose hips have been prescribed as a blood purifier and are frequently consumed by Iranians with bread²¹.

PHARMACOLOGICAL STUDIES

Anti-solar activity of *Rose*

Tabrizi *et al.*, conducted an *in vitro* investigation on *Rosa damascene* extract and prepared several solvent mixes such as acetate: ethanol, water: ethanol, and ether through maceration and soxhletion. The results demonstrated that extracts can effectively absorb UV light in the 200-400nm range. The plant extract was also tested with an oil and water cream base, and the sun protection factor [SPF] was measured, indicating that the extract with cream base had an efficient SPF²⁰⁻²².

Anti -aging activity of *Rose*

Jafari *et al.*, studied *Drosophila* flies and the flies supplemented with *Rosa damascene* extract. The study concluded that the plant reduced flies' mortality without influencing any secondary physiological mechanism. Krishnan *et al.* conducted another study on polyherbal formulations using aqueous extracts of *Rosa damascene* flower, *Clerodendrum paniculatum* leaves, *Murraya Koengii* leaves, and *Annona squamosa* leaves, which exhibit anti-aging properties by increasing collagen content in human dermal fibroblast. The study found that upregulating the Collagen-I gene expression and promoting the formation of collagen matrix had a substantial effect when compared to the usual control medication^{23,24}.

Skin glowing property of *Rose*

Haque *et al.*, conducted a survey on 43 plants from 32 families and 40 genera. These plants are mostly used in herbal cosmetics. According to the research, rose has skin-glow properties.

Antimicrobial activity of *Rose*

Shohayeb *et al.*, studied *Gul-e-Surkh* [*Rosadamsceana* Mill.] petals in water, hexane, and ethanol and fractionated them with ethyl acetate, butanol and chloroform. The extracts were tested for antibacterial activity against eleven gram-positive, gram-negative, acid-fast bacteria, and three fungi. The extracts were found to have moderate broad spectrum antibacterial activity, according to the study^{25,26}.

Relaxant activity of *Rose*

Boskabady *et al.*, conducted an animal investigation on guinea pig tracheal chains to compare the effect of ethanolic extract and essential oil of *Rosa damascene* as a relaxant [bronchodilator] to saline as a negative control and theophylline as a positive control. In both groups, the tracheal chains were constricted by KCl in one trial and by methacholine in another. When compared to the effect of saline, the extract and essential oil of *Rosa damascene* demonstrated comparatively significant relaxing effects.

The roots are useful in intestinal ulcers, rickets, hemorrhages and diarrhea and also astringent in nature.

The leaves are used in treating wounds, ophthalmia, hepatopathy and hemorrhoids.

The flowers has cooling emollient aromatic, cardio tonic, anti-inflammatory, expectorant, aphrodisiac, depurative, febrifuge, intellect-promoting styptic, digestive, carminative, rejuvenating and tonic properties.

It is also useful in asthma, high blood pressure, bronchitis, diarrhea, dysmenorrheal, cough, fever, fluid retention, insomnia, palpitation, and stress and urinary tract infections.

Tea made from petals used as- blood purifier, vertigo, and headache.

Mild sedative, local anesthetics, laxatives, liver protectors, antidepressant, cardio-active.

Rose petals are rejuvenating and prove to be a tonic. Due to small and pleasant fragrance rose petals are used for making essential oils and perfumes.

Used as antioxidant and antitussive.

It inhibits vasoconstriction.

It shows potent antibacterial activity.

It inhibits the growth of leukemia cell line.

Ointment of rose-water, it is commonly known as *Cold Cream*, enjoys deserved popularity as a soothing, cooling application for chapping of the hands, face, abrasions and other superficial lesions of the skin^{27,28}.

BIOLOGICAL AND PHARMACOLOGICAL ACTIVITIES

Antibacterial activity

Rosa centifolia water extract has been shown to have strong antibacterial activity by Hassan Ali *et al*, 2003. It inhibited the growth of bacterial strains such as *M. lysoditicus*, *S. aureus*, *C. pseudodiphtheroid*, *S. dysenters*, *S. typhi*, *E. coli*, and *S. pyogenes*.

Anti-tussive activity

According to Sankar *et al.* (2011), ethanol extracts of *Rosa centifolia* have substantial anti-tussive action. *Rosa centifolia* essential oil has been revealed to have gastro intestinal relaxing activity; thus, the bronchodilatory effect is accountable for its antitussive function and may be attributed to its putative tarchykinin inhibitory component mediating antitussive effect^{29,30}.

Antimicrobial activity

In vitro

Methanol and aqueous extracts of rose petals inhibited HIV infection by targeting multiple stages of the HIV replication cycle. Kaempferol and its derivatives have antiviral protease and gp120/CD4 effects. The antiviral activity of rose essential oil's primary components, citronellol and geraniol, was proven against HSV-1 and Haemophilus parainfluenzae type 3. Furthermore, rose essential oil was found to have acceptable antibacterial activity against *Xanthomonas axonopodis* spp. *Vesicatoria*, *Chromobacterium violaceum* and *Erwinia carotovora* strains, *Staphylococcus aureus*, *Bacillus cereus*, *Staphylococcus epidermidis* and *Pseudomonas fluorescens*. Rose essential oil was less effective against *Pseudomonas aeruginosa*, *Escherichia coli*, *Proteus vulgaris*, *Klebsiella pneumoniae*, *Candida albicans*, *Enterococcus*

faecalis, *Enterococcus faecium*, and *Salmonella typhimurium*. Bulgarian rose oil has no antibacterial properties. Rose petal alcoholic and aqueous extracts have stronger antibacterial activity than petroleum ether extract. *E. coli* was resistant to rose petal ethanol extract, but more sensitive to its aqueous extract. Ethanol extract was also found to be antibacterial against *methicillin-resistant S. aureus*, *S. typhimurium*, *B. cereus* and *Candida albicans*. The antibacterial activity of rose petal acetone extract against *E. coli* and *B. subtilis* was confirmed. This activity was greater than that of the aqueous extract. The sensitivity of *A. niger* to rose petal ethanol extract was lower. Rose water and rose absolute were found to be antibacterial against *E. coli*, *P. aeruginosa*, *B. subtilis*, *S. aureus*, *Chromobacterium violaceum* and *Erwinia carotovora* strains. Rose absolute and essential oil have better antibacterial activity than rose water and rose extracts. As a result, *R. damascena*, like other sacred medicinal plants, possessed antibacterial properties^{30,31}.

In clinics

A two-week randomised double-blind, placebo-controlled clinical experiment on fifty patients confirmed the efficacy of a herbal mouthwash containing rose extract in the treatment of recurrent aphthous stomatitis. The clinical findings of mouthwash on ulcer pain, size, and number were significantly different from the placebo group. In other words, rose mouthwash outperformed the placebo group. In patients with conjunctivitis, dry eye, acute dacryocystitis, and pterygium or pinguecula problems, the anti-infective and anti-inflammatory properties of ophthalmic preparation containing various herbs in combination with *R. damascena*, were proven. Dried rose dreg [by-product] in the poultry industry reduced the occurrence of pathogen microorganisms such as mesophilic aerobic bacteria, *Enterococci*, *Enterobacteriaceae* and *S. aureus* without affecting broiler performance or feed conversion ratio. Indeed, the antibacterial activity of rose extracts, particularly rose essential oil and absolute, is linked to chemical components such as geraniol,

citronellol, and nerol, as well as synergistic actions between these components¹². Geraniol's antibacterial and antifungal activity have been confirmed against a wide range of microorganisms. In addition, the synergistic action of citronellol, geraniol, and nerol against Gramme positive and Gramme negative bacteria was observed. The antibacterial action of rose extracts, on the other hand, is connected to the chemical components of the extracts and their synergistic or antagonistic effects.

Anticancer activity of Rose

Rose's anti-tumor, anti-carcinogenic, and cytotoxic properties on cancer cells have been confirmed. Geraniol, the major component of *R. damascena*, operates through various ways. It induces apoptosis in cancer cells and increases the expression of the apoptotic protein Bak, arrests the G0/G1 phase of the cell cycle and decreases cdk2 activity, inhibits 3-hydroxy-3-methylglutaryl-CoA [HMG-CoA] reductase and ornithine decarboxylase activity, and ultimately causes cancer cell death³¹.

Relaxant and anti-depressant activity of Rose

Rose exhibits relaxing activity through activating β -adrenergic receptors, inhibiting histamine H1 receptors, and blocking calcium channels of the tracheal chain, inhibiting KCl-related contraction, and electrical field stimulation. The aqueous and ethanol extracts of *R. damascena* impact the respiratory system of guinea pigs by inhibiting tachykinin and decreasing the number of citric acid-induced coughs, indicating bronchodilators and antitussive actions. Other *R. damascena* subfractions, such as its ethyl acetate fraction, have inhibitory effects on muscarinic receptors and relaxing effects on tracheal smooth muscles. As a result, *R. damascena* can be utilised in clinics as an antitussive medication. More clinical trials are needed to confirm this impact. Animal experiments demonstrated the anti-depressant benefits of *R. damascena* aqueous extract. Rose absolute has antidepressant properties through lowering lipid peroxidation and boosting antioxidants in the cerebral brain. Furthermore, depression is one of the causes of libido. As previously stated, rose essential

oil and rosewater are said to bring happiness, self-confidence, and are sensuous and aphrodisiac agents. Rose essential oil has been shown to improve infertility and libido by raising the diameters of seminiferous tubules, sperm count and motility and testosterone synthesis. Furthermore, delivery of rose essential oil improves sexual dysfunction and depression symptoms in male patients with serious depressive disorders [using selective serotonin reuptake drugs] more than the placebo group from week 2 to week 8. In the real world, people suffering from depression may benefit from rose extracts due to their antidepressant and anti-libido properties^{31,32}.

Antioxidant activity of Rose

Rose petal decoctions, aqueous extracts, essential oils, absolutes, methanol, and ethanol extracts have been found to have antioxidant action in various systems. Rose absolute had better antioxidant activity than rose essential oil and rose water because it included more carotene and *a, b, g-tocopheroles*. *R. damascena* antioxidant activity is not related to anthocyanin levels, but is related to total phenolic and flavonol contents. Rose leaf methanol extract with high levels of []-catechin and epicatechin as phenolic components shown better antioxidant activity than BHT, trolox and BHT. The antioxidant activity of rose essential oil is related to the benefits of formaldehyde inhalation on the reproductive system. In rats, pretreatment with rose essential oil reduced aberrant sperm while increasing sperm counts. Rose hips are used to make herbal teas that are high in antioxidants. As a result, the benefits of Rose in scavenging free radicals establish it as an excellent beverage for improving health. Rose water was used as a refreshing element in cold beverages in Iranian civilizations³³.

Analgesic, anti-inflammatory activities of Rose

Rose ethanol and chloroform extracts have analgesic and anti-inflammatory effects in animal models, however rose essential oil has no analgesic or anti-inflammatory effects. Indeed, the analgesic component[s] detected in ethanol extract were not discovered in rose essential oil. There are

conflicting findings about the positive effects of rose hips in the treatment of patients with knee or hip osteoarthritis. Rose hip powder [10g] for 1 month exhibited no anti-inflammatory or antioxidant effects in rheumatoid arthritis patients, despite the fact that rose hips have been identified as an anti-inflammatory agent by others. Unsaturated fatty acids, triterpenic acids, and unidentified substances, in combination, have an anti-inflammatory impact via inhibiting cyclooxygenase 1 and 2.

Other pharmacological activities of Rose

Rose extracts' hypnotic effects [*ethanol, aqueous extracts and ethyl acetate, aqueous, and n-butanol fractions*] were equivalent to diazepam. The ethyl acetate fraction was shown to have the best hypnotic effects of any extract. The affinity of flavonoids in extracts to benzodiazepine receptors may be related to the hypnotic effects of ethyl acetate fraction. Rose is beneficial to Alzheimer's and dementia sufferers because it inhibits amyloid b production, induces neurite outgrowth, and has anticholinesterase activity. The memory performance of scopolamine-induced memory deficit rats was improved by *R. damascena* ethanol extract. Rose extract's antioxidant properties were responsible for memory enhancement. Because of their anticonvulsant properties, rose essential oil, ethanol and aqueous extracts have been found to have anti-seizure benefits. Flavonoids' affinity for the GABAergic system in the brain has been hypothesised as one of the possible pathways, because flavonoids enhance the impact of benzodiazepines on GABA receptors. *R. damascena* ethanol extract has been demonstrated to be useful in the treatment of digestive issues, in addition to its traditional usage. Rose reduces ileum movements in a dose-dependent manner, most likely by activating b-adrenergic and opioid receptors as well as voltage-dependent calcium channels. Rose essential oil has traditionally been used to treat heart disorders through skin massage. *R. damascena* aqueous extract has been demonstrated to enhance heart rate and contractility in guinea pigs by stimulating b-adrenoceptors and decreasing the

activity of the ACE [angiotensin- I- converting] enzyme. A double blind cross over clinical research on 92 single females verified the efficacy of *R. damascena* extract on primary dysmenorrheal syndrome [PMS]. *R. damascena* extract, which had no negative effects, reduced the average pain density in PMS patients, similar to mefenamic acid. *R. damascena* methanol extract, like other ethnobotanical holy plants like *Trichilia emetica* and *Opilia amentacea*, demonstrated anti-diabetic effects. Methanol extract of *R. damascena* inhibited glycosidase enzyme and reduced glucose absorption from the small intestine. As a result, it lowers postprandial glucose levels and so has anti-diabetic properties. *R. damascena* methanol extract exhibited a moderate effect on total cholesterol, triglyceride and low density lipoprotein levels, as well as plaque development. It has no effect on the levels of high density lipoproteins. As a result, Rose methanol extract has antihyperlipidemic actions by decreasing the activities of pancreatic lipase and HMG COA reductase³²⁻³⁴. Waste rose petals have been investigated as a source of immunomodulating peptic polysaccharids as a byproduct of the rose essential oil industries. More research is needed to confirm the applicability of discarded rose petal as an immunomodulator agent.

MEDICINAL USES OF ROSE PLANT

Roses contain medical characteristics and are hence classified as a medicinal herb. A rose plant's petals, rose hip, stem, leaves, and roots contain a variety of secondary metabolites and nutrients in the form of vitamins and minerals. Extracts from several parts of the rose plant have also been shown to have significant anti-bacterial and anti-fungal activity. There are three primary kinds grown for commercial purposes, mostly for the production of rose essential oil and rose water. *Rosa gallica*, *Rosa centifolia* and *Rosa damascene* are the species. *Rosa canina* is used to make rosehip oil. Rose petals and rose hips are high in vitamins A, B1, B2, B3, B6, C, E, and K, as well as folic acid, potassium, calcium, iron, tannin, and a variety of enzymes. Rose flowers have anti-depressant, anti-spasmodic, aphrodisiac,

and astringent properties, as well as being antibacterial and antiseptic. *Rose hips* tea is also used to alleviate *diarrhoea*. Rose petals have modest sedative, antiseptic, anti-inflammatory and parasite properties. They are also a mild laxative, a heart-supportive tonic, and can help decrease cholesterol. Rose petals' antibacterial characteristics make them an excellent treatment for wounds, bruises, rashes, and incisions, and their anti-inflammatory properties make them an excellent treatment for sore throats or ulcers. They have the ability to stimulate the liver, as well as enhance hunger and circulation. In cases of eye burning, rose petal extract is utilised as eye drops or eye wash. *Rosa indica* is used to treat *diarrhoea*, *asthma*, *leukoderma* and oral inflammation. Rose essential oil creams are used to treat dry skin.

Rose extract or oil is widely used in the cosmetic business as an ingredient in soap, body wash, perfumes and body spray, among other things. According to some research, some chemicals in roses may help to reduce anxiety and promote relaxation³⁴.

Toxicity

The oral LD50 of *R. damascena* and rose absolute in rats was greater than 5g/kg and the dermal LD50 of *R. damascena* in rabbits was greater than 2.5g/kg. In sensitive people, rose essential oil may cause hypersensitivity. The potential toxicity of *R. damascena* infusion in dogs at doses of 90e1440mg/kg/day [0.5e8 times human use] for 10 consecutive days demonstrated neither nephrotoxic or hepatotoxic effects. As a result, at extremely high dosages, it may cause hepatotoxic effects³⁴⁻³⁶.



Figure No.1: Rose

CONCLUSION

Modern research on *R. damascena* has established its antiviral, antibacterial, anticancer, antidepressant, antioxidant, analgesic, anti-inflammatory, anticonvulsant and relaxing and hypnotic properties. Despite the fact that several studies have demonstrated the therapeutic applications of rose *in vitro* and in animal models, additional big preclinical and clinical investigations are required to evaluate its potencies on various patients. In other words, therapeutic applications of rose products receive less attention. There are three

well-known products from the Barij Essence Pharmaceutical Company in Iran. GOL-E-Ghand Majoon is prepared according to traditional prescription and is used as a laxative agent for constipation. GOL-E-SORKH is an antidepressant and aphrodisiac oral drop. Ear ache and hemorrhoid disorders are treated with Gol-EMohammadi oil [rose petal in vegetable oil]. There is a favourable scenario for analysing the potencies of rose in traditional applications and creating new goods based on the findings of these studies.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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