

**“DAMASK ROSE”- AYURVEDIC & MODERN ASPECT****Verma Surabhi<sup>1\*</sup>, Mitra Shuchi<sup>2</sup> and Sharma Usha<sup>3</sup>**

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**ABSTRACT**

Rose is best known ornamental plant fully fledged for their flowers in. Rose is a common name given to the prickly shrubs and climbing vines of the Rosa genus in the Rosaceae family. More than 200 species and thousand of cultivated variety of the rose have been identified. Out of these Damask Rose (*Rosa damascene*) is abundantly used due to the existence of rich aromatic compounds in it. It is a hybrid of Rose, resulting from *Rosa gallica* and *Rosa moschata*. Further DNA study has shown that a third species, *Rosa fedtschenkoana* is associated with the Damask Rose. Rose concrete, Rose oil and Rose water are subsidiary products of Damask Rose which amplify its importance. Rose water and rose oil also have a massive range of medicinal

properties like: anti bacterial, anti microbial, anti oxidant, anti inflammatory, anti anxiety, hypnotic effect, analgesic effect, uv protection and abundantly used in aromatherapy due to rich aromatic compounds. In this article, brief review on Ayurvedic categorization, Synonyms, Vernaculars, Botanical description, Chemical composition, Therapeutic remarks and Pharmacological activities of Damask Rose will be discussed.

**KEYWORDS:** Damask Rose, Ayurvedic categorization, Botanical description, Chemical composition, Pharmacological activities.

## INTRODUCTION

Medicinal flowers are the neighborhood background with international importance.<sup>[1]</sup> They may be properly defined within the earliest clinical writing of 3000BC and their use goes back well earlier than recorded records.<sup>[2]</sup> The knowledge of medicine has collected over hundreds of years due to peoples inquisitive nature so that these days we own many powerful method of insuring health care the history of natural medicine is as antique as human civilization.<sup>[3]</sup> Herbs have always been the most important form of medicine in India and currently they are becoming popular during the evolved world, as humans strive to live healthful inside the face of continual stress and population, and to treat illness with drug treatments that work in concert with the frame's personal defense. Medicinal flowers additionally play important role within the lives of rural people; particularly in farflung parts of growing nations with few facilities.<sup>[4]</sup> Conventional medicinal drug might also had been used for hundreds of year with the aid of communities who have located them to be efficacious via experience.

Damask rose is the most significant species of Rosaceae family. Rosaceae are well recognized ornamental plants and have been referred to as the "king of flowers"<sup>[5]</sup> This plant is grown all over the world including Iran, Europe, Bulgaria, Turkey and India.<sup>[6]</sup> The flowers are distinguished for their fine fragrance, and are commercially used for rose oil and to make rose water.<sup>[7]</sup> The essential oil of the *R. damascena* flower is valuable and is used in perfumery.<sup>[8]</sup> It is exciting and heartening to the mind, creating a sense of delight. It is anti bacterial, anti microbial, anti oxidant, anti inflammatory, anti anxiety, hypnotic effect, analgesic effect, uv protection and abundantly used in aromatherapy due to rich aromatic compounds.<sup>[9]</sup> Damask rose (*Rosa damascena* Mill.) is the most important species of the *Rosa* genus used to produce rose oil, water, concrete and absolute which are precious and essential base materials for the perfume and cosmetic industry (sAyci et al., 2005). The fresh damask rose petals hold a very small quantity of essential oil. 3,000 kg of rose petals can be required to get 1 kg of rose oil (Baser, 1992). The rose bushes produce daily a large number of blooming flower buds and full-blown flowers, which are picked by hand and subjected to steam distillation within the same day (Dobrevna and Kovacheva, 2010).<sup>[10]</sup>

**Latin Name-** *Rosa damascene*, **Family-**Rosaceae, **Classical Name-**Shatpatri, Taruni

**Vernacular Name**<sup>[11]</sup> **Sanskrit-**Shatpatri, Sumna, Susheeta, Shivballabha, Saumyagandha, Shatdala, Suvratta, Shatpatrika, **Hindi-** Gulab, **Bengla-**Golap, **Marathi-**Gulabochephool,

**Gujrati-**Moshmi Gulab, **Karnataki-**Chevde, **Sembtigi,** **Telugu-**Gulabi, **Farasi-**Gulesurkh, **Arabi-**Jaranja been, **English-** Cabbage flower.

**Synonyms**<sup>[12]</sup> **Taruni-** Being saras in nature, **Shatpatri-** It has many petals, **Karnika-** Its petals are bigger in size like ear, **Charukeshara-** It has beautiful keshar, **Laksha-** Being lohitarvna, **Gandhadhya-** Being aromatic.

**Table 1: Categorization as per ayurvedic text.**

S. no.	Text	Category
1.	<i>Ashtanga Nighantu</i> <sup>[13]</sup>	<i>Viprakeerna Prakran</i>
2.	<i>Dhanvantari Nighantu</i> <sup>[14]</sup>	<i>Aamradi Varga</i>
3.	<i>Shodhal Nighantu</i> <sup>[15]</sup>	<i>Aamradi Varga</i>
4.	<i>AbhidhanRatnmala</i> <sup>[16]</sup>	<i>Tiktaskandha</i>
5.	<i>Siddha Mantra</i> <sup>[17]</sup>	<i>Doshaghna Varga</i>
6.	<i>Madanpal Nighantu</i> <sup>[18]</sup>	<i>Karpura Varga</i>
7.	<i>Raj Nighantu</i> <sup>[19]</sup>	<i>Karveeradivarga</i>
8.	<i>Kaiyadeva Nighantu</i> <sup>[20]</sup>	<i>Aushadhi Varga</i>
9.	<i>Bhavaprakash Nighantu</i> <sup>[21]</sup>	<i>Pushpa Varga</i>
10.	<i>Sarasvati Nighantu</i> <sup>[22]</sup>	<i>Ulapa Varga</i>
11.	<i>Shaligram Nighantu</i> <sup>[23]</sup>	<i>Pushpa Varga</i>
12.	<i>Nighantu Adarsh</i> <sup>[24]</sup>	<i>Padmakadi Varga</i>
13.	<i>Priya Nighantu</i> <sup>[25]</sup>	<i>Saradi Varga</i>
14.	<i>P.V. Sharma</i> <sup>[26]</sup>	<i>Haridyadi Varga</i>

### Botanical description

The damask rose is a deciduous shrub. It is considered as an important type of old rose, also important for its outstanding place in the genealogy of many other types. Height of Damask rose is usually 2.2 m (7ft.3in.). The stems are densely armed with strong, curved prickles and rigid bristles. The leaves are pinnate and five or rarely seven leaflets are found. Roses are light to moderate pink or light red in colour. The bush has an informal shape.<sup>[27]</sup>

### Varieties

Two Varieties of Damask rose are found<sup>[28]</sup> 1. Summer Damask, 2. Autumn Damask.

### Cultivation

Damask roses will abide approximately every type of soil excluding chalk, as long as it has a pH of 5.5 to 7.5<sup>[29]</sup> Planting is made ideally from September to march, in frost free conditions, especially with stripped roots.<sup>[30]</sup>

### Distribution

This plant is developed in everywhere throughout the world including Iran, Europe, Bulgaria, Turkey and India.<sup>[31]</sup> The significant development zones of *R. damascena* in Iran are Kashan, Fars and Azerbaijan, among them Kashan is the most popular one.<sup>[32]</sup> In India, the major rose flower developing states are Maharashtra, Tamil Nadu, Karnataka and West Bengal.<sup>[33]</sup>

### Chemical composition

**Rose water:-** Citronellol, Geraniol, Nerol, Phenyl ethyl alcohol, Linalool, Cis rose oxide, Trans rose oxide.<sup>[34]</sup>

**Rose oil:-** Citronellol, Nonadecane, Geraniol, Nerol, Phenyl ethyl alcohol,  $\beta$ -ionone, Cis rose oxide, Trans rose oxide,<sup>[35]</sup> kaempferol.<sup>[36]</sup>

**Rose Absolute:-** Phenyl ethylalcohol, Citronellol, Nonadecane, Geraniol, Ethanol, and Heneicosane.<sup>[37]</sup>

### Petals flavonoid glycoside

quercetin galloylhexoside, quercetin-3-O-rutinoside, quercetin-3-O-galactoside, quercetin-3-O-glucoside, quercetin-3-O-xyloside, kaempferol hexoside, kaempferol disaccharide, quercetin disaccharide, quercetin-3-O-rhamnoside, kaempferol 3-O-glucoside, kaempferol hexoside, kaempferol galloylhexoside, kaempferol pentoside, kaempferol pentoside, kaempferol deoxyhexoside, quercetin acetyldisaccharide, kaempferol acetyldisaccharide, quercetin, kaempferol (Schieber et al., 2005).

Iranian sample was characterized by high amounts of ecosane (29.88 %), citronellol (25.59 %) and docosane (14.07 %) (Mirza et al., 2007). Bulgarian rose oil was reported to have citronellol (30.31 %), geraniol (16.96 %), phenyl ethyl alcohol (12.6 %), nerol (8.46 %), hexacosane (3.7 %), nonacosane (2.7 %), ecosane (1.65 %), farnesol (1.36 %) and citronellyl propionate (1.38 %) (Babu et al., 2005). Three oxidized acyclic monoterpenes, 8-hydroxygeraniol, 8-hydroxyneryl and 8-hydroxylinalool were determined by using GC-MS technique from the petals of *R. damascena* (Hui, 2011).

### Buds

Flavonoid glycoside- kaempferol-3-O- $\beta$ -D-glucopyranosyl(1 $\rightarrow$ 4)- $\beta$ -Dxylopyranoside, named roxyloside A along with isoquercitrin, afzelin, cyanidin-3-O- $\beta$ -glucoside, and quercetin

gentiobioside (Kwon et al., 2010). Citronellyl-2-O- $\beta$ -D-glucopyranosyl- $\beta$ -D-glucopyranoside (citronellyl  $\beta$ -sophoroside) was isolated as an aroma precursor of citronellol from flowers of *R. damascena* var. *bulgaria*. (Oka, 1998).

### Water and Methanol extracts

Quercetin, kaempferol, 3-substituted kaempferol and 2-Phenylethanol-O-(6-Ogalloyl)- $\beta$ -D-glucopyranoside. (Mahmood et al., 1996).

### Methanolic extract

Rose oxide precursor (S)-3,7-dimethyl-5-octene-1,7-diol and monoterpene diols, 3,7-dimethyl-7-octene-1,6-diol, 2,6-dimethyl-1,7-octadiene-3,6-diol, (2E,5E)-3,7-dimethyl-2,5-octadiene-1,7-diol, (2E)-3,7-dimethyl-2,7-octadiene-1,6-diol, (2Z,5E)-3,7-dimethyl-2,5-octadiene-1,7-diol, (2Z)-3,7-dimethyl-2,7-octadiene-1,6-diol, (Z)-2,6-dimethyl-2-octene-1,8-diol, (E)-2,6-dimethyl-2-octene-1,8-diol, (Z)-2,6-dimethyl-2,7-octadiene-1,6-diol, (E)-2,6-dimethyl-2,7-octadiene-1,6-diol, (2E,6E)-2,6-dimethyl-2,6-octadiene-1,8-diol, (2E,6Z)-2,6-dimethyl-2,6-octadiene-1,8-diol, 2,6-dimethyloctane-1,8-diol, 2,6-dimethyl-7-octene-1,6-diol, (E)-3,7-dimethyl-2-octene-1,8-diol, (Z)-3,7-dimethyl-2-octene-1,8-diol, 3,7-dimethyloctane-1,7-diol, 2,6-dimethyl-7-octene-2,6-diol, 3,7-dimethyl-6-octene-1,3-diol and (2E)-3,7-dimethyl-2,6-octadiene-1,4-diol. (Knapp et al., 1998).

**Table 2: Therapeutic remarks of different parts of rose.**

S. no.	Parts	Therapeutic remarks
1.	Petals <sup>[38,39]</sup>	Used in aroma therapy Cosmetics Food & Flavoring Antitussive Inhibit growth of Leukemia cell line
2.	Leaves <sup>[40,41]</sup>	Rich source of natural antioxidants Wound Healing Hepato protective Bleeding pile
3.	Roots <sup>[42,43]</sup>	Cytotoxic Antimicrobial Intestinal Ulcer Hemorrhage
4.	Rose hips <sup>[44,45]</sup>	Anti-inflammatory property Diarrhea Relieve Cough

### Pharmacological studies

According to several pharmacological studies *R. damascene* has extensive effects, these are divided into 2 category.

- 1- Experimental Pharmacological Study
- 2- Clinical Pharmacological Study

### Experimental pharmacological study

- 1. Anti bacterial effects:-** Rose absolute and essential oil contained elevated levels of phenolics and exhibited solid antibacterial action against *Escherichia coli* (ATCC 25922), *Pseudomonas aeruginosa* (ATCC 27853), *Bacillus subtilis* (ATCC 6633), *Staphylococcus aureus* (ATCC 6538), *Chromobacterium violaceum* (ATCC 12472) and *Erwinia carotovora* (ATCC 39048) strains.<sup>[46]</sup>
- 2. Anti fungal effects:-** A study were done on 6 essential oil of *rosa* genus developing in Bulgaria, Moldova and China. Some of their compounds fixing against *Aspergillus flavus* and *Aspergillus niger*. The outcomes acquired indicated greater obstruction of *Aspergillus niger* against rose oils in contrast with *Aspergillus flavus*. The most elevated antifungal activity were seen in pure substances as follows in ascending order: geraniol, nerol, citronellol, methyl eugenol, eugenol. Presense of geraniol, nerol and citronellol demonstrate that most of antifungal and superoxide rummaging activity of the essential oils.<sup>[47]</sup>
- 3. Anti oxidants:-** Investigation covered hydrolates, 40% tinctures and 19 essential oils from edible flora. Antioxidant power, polyphenol content, cytotoxicity and DNA damage level had been analysed. Oxidative DNA damage was induced through hydrogen peroxide. Most of the plant acted as chemo preventive agents. Roses, lavender, elderflower, French marigold, heather, horned pansy and cornflower may be particularly useful in protecting human DNA towards oxidative damage. The quality antioxidant and geno protecting residences have been observed in *Rosa* genus.<sup>[48]</sup>
- 4. Anti inflammatory effect:-** The pain relieving impact of *R. damascena* is likewise detailed. In an examination, the impact of hydrosol, ethanolic and chlorphormic extract in mice on hot plate and tail flick was assessed and just ethanolic extract demonstrated pain relieving impact.<sup>[49]</sup>

The pain relieving action of hydroalcoholic extract and essential oil of *R. damascene* in acetic acid, formalin and tail flick tests in mice exhibited that essential oil of the plant neglected to show any pain relieving impact. Be that as it may, hydroalcoholic extract has a powerful pain relieving impact in acetic acid and formalin tests and no impact on tail flick test.<sup>[50]</sup>

5. **Hypnotic effect:-** The aqueous, ethanolic and chloroformic extracts of the *Rosa* were evaluated for their hypnotic impact on mice. It was found that ethanolic and aqueous extracts in doses of 500 and 1000 mg/kg drastically accelerated the pentobarbital precipitated sound sleep time identical to diazepam.<sup>[51]</sup>
6. **Sun protecting ability:-** In this investigation one such characteristic item rose water was assessed for sun securing capacity of the rose water tests (SPF) utilizing in-vitro spectroscopic technique. Rose water shows that because of the nearness of polyphenolic compound saponins and flavavoids rose water give security from the UV radiation and work as sun ensuring operator by restraining the arrangement of free radicals which is the fundamental driver of skin related issues.<sup>[52]</sup>

### Clinical pharmacological study

- 1- **Anti inflammatory effect:-** In this study Hydro distillate of *Rosa damascena* flower possesses vast analgesic and anti-inflammatory pastime at doses of 250 mg/kg and 500 mg/kg. using Hot Plate, Tail Flick and acetic acid brought about paw-edema method.<sup>[53]</sup>
- 2- **Anti Anxiety activity:-** Rose oil has physiological and mental unwinding, against uneasiness consequences for humans.<sup>[54]</sup> The level of anxiety was estimated previously and 30 minutes after the mediation utilizing the Spielberger's Anxiety Inventory. Fragrance based treatment with rose essential oil demonstrated mellow contrasts in state anxiety ( $P = 0.41$ ), trait anxiety ( $P = 0.90$ ), and total anxiety ( $P = 0.69$ ).<sup>[55]</sup>
- 3- **Aromatherapy for dysmenorrhoea-** Topical utilization of rose is successful in diminishing the seriousness of menstrual spasms. Aromatic healing significantly affects menstrual spasm or dysmenorrhoea.<sup>[56]</sup>

The double-blind clinical trial was conducted on 95 students. They were haphazardly partitioned into three sweet-smelling oil bunches (i.e. *Rosa Damascena*, *Citrus Aurantium* bloom and almond). Premenstrual Symptoms Screening Tool questionnaire (PSST) was



finished previously and during the first and second month of the intercession. Information were examined. The score of physical indications was diminished in every one of the three groups however it was critical just in the Rosa Damascena group.<sup>[57]</sup>

## DISCUSSION

Rose is well defined medicinal plant in ayurvedic literature. Shatpatri, Taruni are the name which are used for Rose. Damask Rose is used as a perfume due to its sweetie scent, but it has medicinal and gastronomic values, as well. Its derivatives are mainly used in cosmetic products as well as in medicinal products as rose flower is considered to be best among all flowers. This plant is developed in everywhere throughout the world. Main content of rose is phenyl ethyl alcohol, Citronellol, Geraniol, Linalool<sup>[58,59,60]</sup> which is liable for its fragrance. From above mentioned pharmacological properties the presence of phenolic compound, geraniol and flavanoids helps to promote its anti bacterial, anti fungal and UV protection properties respectively. The rose extracts from different solvents shows hypnotic effect and its essential oil can be used as a anti fungal, anti oxidant, anti inflammatory agent. Its looming use in aromatherapy has further enhanced its importance. Cost effectiveness and versatility are the best quality of rose. Rose plays a better role as herbal drug and does not create any hindrance to the cycle of nature. The chemical composition of rose is isolated from GC (Gas Chromatography). Following component were found these are- Phenyl ethanol, Geranyl acetate, Geraniol, Linalool, Benzyl alcohol, Benzaldehyde, Nerol, Citronellyl acetate.<sup>[61]</sup> It also contains tannins, oligomeric proanthocyanides, saccharine matter, mineral salts, salt of mallic acid & tartaric acid, Pectin, Riboflavin, sugars, purgative glycosides (multiflorin A & B). Due to abundance of flavanoids, tannins, antioxidants and vitamins A, B<sub>3</sub>, C, D and E, makes it valuable.<sup>[62]</sup>

## CONCLUSION

Damask Rose is gorgeous and lovely scented flower. Research on major naturally occurring species of Damask Rose can be used to cure number of diseases. It also used as a anticancerous, anti diabetic, anti HIV and anti inflammatory molecules. Various research has been done on Damask Rose compounds which results as beneficial for human health. That's why rose make its own medicinal and valuable position.



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