DESCRIPTION OF GUL-E-SURKH (ROSA DAMASCENA) IN UNANI MEDICINE: A REVIEW

Mohammad Shahabuddin*, Mohammad Idris², Shabir A. Bhat³, M. Adnan¹, Farheen¹,

¹PG Scholar Department of Ilmus Saidla, A&U Tibbia College & Hospital (Delhi University), Karol bagh, New Delhi.
²Professor & Head of Department of Ilmus Saidla & Advia A&U Tibbia College & Hospital (Delhi University), Karol bagh, New Delhi.
³PG Scholar Department of Amraz-e Niswan-wa-Qabalat, A&U Tibbia College & Hospital (Delhi University), Karol bagh, New Delhi.

ABSTRACT

*Rosa damascena* is one of the most important species of Rosaceae family and oldest plants under human cultivation. It is a beloved garden flower and a symbol of affection and honour for a wide range of human events in both celebratory and sombre because of its beauty and fragrance. Due to its specific fragrance, it is widely used in perfumery and cosmetic industry. Apart from aromatic uses of *Gul-e-Surkh*, it is commonly used for medicinal purposes in traditional streams of medicine. For instance, in Unani system of medicine, it has been used for centuries, and is being described in detail in ethnobotanical and Unani classical literature owing to its various therapeutic actions, such as laxative, analgesic, exhilarant, refrigerant, demulcent, astringent (in dry flowers), de-obstructant etc. *Gul-e-Surkh*, is not only used as a single medicinal agent, but a lot of Unani compound formulations and dosage forms are also used in such a way that as active ingredient or part of ingredients to obtain its therapeutic efficacy in a number of disorders/diseases.

KEYWORDS: Unani medicine, Gul-e-Surkh (*Rosa damascena*), Traditional medicine.

INTRODUCTION

The word Gulab consists of two words *gul* and *aab*, derived from Persian and Arabic lexicons meaning flower and water, respectively. According to Ghani and Chughtai, its correct
meaning is Aab-e-Gul or Arq-e-Gul. However, it is usually considered as Gul-e-Surkh in Urdu and Hindi.\[1,28\] Gul-e-Surkh is always appreciated because of its inimitable aroma, different type of uses and beauty. It has immense horticultural importance along with medicinal, cosmetics and research points of view. It belongs to Rosaceae family, includes more than 200 species and 18000 cultivars.\[18\] It is classified into several groups based on the botanical characteristics like hybrid teas, grand floras, polyanthas, floribundas, miniatures, climbing, shrub, old roses. But only some species are scented, such as Rosa damascena, R. gallica, R. centifolia, R. bouboniana, R. chinensis, R. moschata and R. alba.\[22\]. The Rosa damascena, named after Damascus/Damask, a capital city of Syria is one of the most important species because of fragrance of the flower and high content of biologically active ingredients. It attracts considerable attention towards horticulture, biochemistry, perfumery, medicinal and pharmacology.\[30\] It is known as Damask rose because it was originally brought to Europe from Damascus, and, in Iran it is also known as “Gole Mohammadi.” There is strong bond between Damask and Iranian rose because they ascribed this as the flower of Prophet Mohammad (S.A.W). They believe that its nice aroma reminds Prophet Mohammad (S.A.W).\[30\] It was introduced in India by the Unani physicians. It is interesting to mention that Rose does not find a mention in the Ayurvedic classical literature. Later on, it has been borrowed from the Unani sources.

The most important products of R. damascena are rose oil, rose itr, rose water and rose absolute. Rose oil is used mainly in perfumery and cosmetics industry as a base component of many perfumes and in food industry as a flavour additive. Rose water is used in various fairness creams and cleansing of face. The main producer of rose oil is Bulgaria and Turkey followed by Morocco, Egypt, China, Russia, Iran and India.\[35\]

Beside the aromatic effect of rose flower, it also commonly used for medicinal purposes. In the Unani classical literature, several dosage forms indicated for therapeutic uses have been mentioned in pharmacopoeias.

**Vernacular names of Gul-e-Surkh (Rosa damascena)**

Gul-e-Surkh is known by several different name in different languages such as Arabic- Ward-e-Ahmar,\[1,24,28,36\] Persian- Ghul,\[1,28,36\] Urdu- Gulab,\[36\] English- Rose, Otto rose,\[28\] Damask rose,\[20,36\] Hindi- Gulab,\[23,28,36\] Sanskrit- Atimajula, Lakshapushpa,Shatadala,\[28,36\] Bengali- Gola phul,\[28,36\] Gujarati- Gulal-akali,\[36\] Sindhi- Jar
Phal, Marathi- Gulal-akali, Telugu- Gulabi, Roja, Pannuir, Unani- Aod, Jojam etc.

**History of Gul-e-Surkh (Rosa damascena)**

Taxonomically, Rosaceae family is credited after Rose. It is one of the ancient families in plant and some fossils of this family (rose) are found in America which is 30 million year old. The origin of Damask rose is the Middle East and Iran also has long history of cultivation and consumption of Rosa Damascena. So Iran also is one of its origins. The evidences indicate that the origin of rose water is in Iran, but origin of its fragrant oil and extracts is Greece. Greeks were known about different type of roses and he assumes that holistic for Dev Jans and Zahra. A fair of “phool walon ki sair ka” organised in ancient Rome with the name of Roosaliya. Ancient Unani, Roman and Arab physicians have been wrote about compound formulations of rose along with its uses. The most ancient rose formulations are gul-e-qand, gulangbeen, gul rogan kham-wa-matbookh, atr-e-gul etc. But now some changes have been occurred in these formulations. Discoridos (circa 1 century AD) wrote about the astringency property of rose petals and uses of its ash as gargle in upper respiratory tract diseases. He also wrote on a compound formulation in the dosage form of zaroor (sprinkle powder).

**Description of Gul-e-Surkh (Rosa damascena)**

**Morphology**

*Rosa damascena* is well-known plant, have beautiful flower with fragrance. It founds wildly and also cultivated. Wild verity of the *Rosa damascena* has more prickle, less petals, and no fragrance than cultivated verity. Different types of rose plant are found according to their colour like red, pink, white etc. In these flower, medicinally usable is that which have more fragrance, more in redness and flower petals are wrapped each other. Dry Persian rose is better than others and about which it is also said that it is not fully flowered.

Four type of rose are mentioned like jori, rari, safaid and jard, in which jori with more fragrance is best in kitab al-fateh authored by abu saeed bin ibraheem al maghribi.

**Habitat**

*Rosa damascena* is chiefly cultivated in Bulgaria, Turkey, Morocco, and Russia on the commercial scale. The plant is native to Iran and appears to have been introduced from there in India in the state Utter Pradesh at Kannauj and subsequently Aligarh, Ghazipur, Ballia Districts. Utter Pradesh is the biggest place for cultivation in India and it is also cultivated in
several parts of India like Rajasthan, Bihar etc. An effort has been made for the introduction of this plant in South India at Tamil Nadu Agricultural University Coimbatore, but plant did not flower there.\textsuperscript{[32]}

**Cultivation of Gul-e-Surkh (Rosa damascena)**

Gul-e-Surkh (Rosa damascena) can be grown on a verity of soils, but it prefers a well drained soil with good humus, having pH up to 9.5. A mild temperate climate is ideal for its growth.\textsuperscript{[32]}

**Macroscopic features of Gul-e-Surkh (Rosa damascena)**

Drug consists of small intact flowers including prickly pedicle and separated floral parts; sepats-5, lanceolate, apex-attenuated, entire, 1.5 to 2.0 cm long and 0.4 to 0.7 cm broad, reddish brown; petals many; stamens many inserted on the disc pistil apocarpus, carpels free but wholly enclosed within calyx tube, covered with hair; ovary inferior; odour pleasant, taste astringent.\textsuperscript{[36]}

**Microscopic features of Gul-e-Surkh (Rosa damascena)**

**Petal:** in surface view; the epidermal cells are rectangular or somewhat elongated and thick walled; walls of the cell are elongated to be zigzag or wavy that may be due to dried petals used for study. Sectional view of the petals shows upper epidermal cells rectangular to squarish or radially elongated, thick walled with yellowish-brown contents; cuticle present mesophyll characterised by compact, polygonal to thick walled parenchymatous cells, their walls wavy showing presence of oral calcium oxalate oval; vascular bundle are found at un specific intervals in the mesophyll, much reduced, delicate vain generally consisting of a few narrow vessels with annular thickenings.\textsuperscript{[36]}

**Mizaj of Gul-e-Surkh (Rosa damascena)**

A lot of controversies are found among the Unani physicians regarding mizaj of Gul-e-Surkh (Rosa damascena) e.g.:  
1. **Cold 1° and Dry 2°**\textsuperscript{[9,23,27,36]}
2. **Murakkabul Qua**\textsuperscript{[24,25,26]}
3. **Moatadil or Cold 1° and Dry 2°**\textsuperscript{[1]}  
4. **Barid-** dried flower has more astringent property than fresh flower.\textsuperscript{[13]}
Parts used
Flower, Flower bud, petals and stamen.[29]

Substitute of Gul-e-Surkh (Rosa damascena)
Banafshan (Viola odorata) and Marjanjosh (Oliganum vulgare).[24,25]

Doses of administration of Gul-e-Surkh (Rosa damascena)
Doses: 5-7 gm.[24,36]

Chemical constituent of Gul-e-Surkh (Rosa damascena)
A lot of components were isolated from flowers, petals and hips (seed-pot) of Rosa damascena including terpenes, glycosides, flavonoids, and anthocyanines. This plant contains carboxylic acid, myrcene, vitamin C, kaempferol and quercetin.

Flower-It also contains a bitter principle, tanning matter, fatty oil, and organic acids.

Essential oil- Essential oil of rose has more than 95 macro and micro-components. Among them eighteen compounds represented more than 95 % of the total oil like β-citronellol, nonadecane, geraniol and nerol kaempferol.

Rose absolute-The major components of rose absolute were citronella, nonadecane, geranene, ethanol and heneicosane.[18,31,36]

Therapeutic uses of Gul-e-Surkh (Rosa damascena)

- Rose is used internally to remove palpitation (khafqan), syncope (ghashi), and cardiac debility (zof-e-qalb) and to strengthen the liver (muqawwi-e-jigar), stomach and intestines (ama).[1,9,24,27,36]
- It is also used as vital organ tonic (muqawi-e-aza-e-raeesa),[1,36] Brain tonic (muqawi-e-dimagh),[1,27] and General tonic (muqawi-e-badan).[36]
- Rose pest is used in hepatitis (warm-e-jigar) as local application.[24]
- Squeeze out the water of rose and used it into conjunctivitis (asoob-e-chashm), ear ache (waza-ul-uzn).[27,36] In headache, its past is beneficial as local application.[1,13,24,27]
- Dry extract of rose is cooked with alcohol and used to treat headache,[37] ear ache (waza-ul-uzn), pain in eye (waza-ul-ain)[23] and beneficial effects in gum.[23,13]
Inhalation of fresh flower of rose is act as exilerent (mufarreh) and tonic for heart (muqawwi-e-qalb) and brain (muqawwi-e-dimagh) but in weak person it produces cold and coriza (nazla-wa-zukam).\textsuperscript{[1,24]}

- Dry rose is strengthen the tooth and gum (muqawwi-e-dandan-wa-lissa) and produce beneficial effects in tooth ache, wound and abrasion healing.\textsuperscript{[1,24,27,36]}
- Mixture of decoction of rose and honey is beneficial for throat pain and hoarseness of voice.\textsuperscript{[1,23]}

- Powder of rose is sprinkled in mouth to treat stomatitis (qula-e-dahan).\textsuperscript{[1,24]}
- Dried powder of rose is sprinkled over bed to reduce/dry the wound of chickenpox.\textsuperscript{[1,23]}
- Wound healed by sprinkling of dried powder of rose.\textsuperscript{[1]}
- It’s germinating the flesh in deep wounds and according to some people local application of rose powder is helpful for expulsion of placenta (masheema).\textsuperscript{[23]}

- Uses of cooked dried flower are beneficial in stay (plkon ki galzat).\textsuperscript{[13,23]}
- External application of rose is also beneficial in wound especially in axillary and groin region wound.\textsuperscript{[1,23,24,27]}

- Rose produces sneeze and in some people also produces cold after inhalation. Its musleh (corrective) is Banafshan and camphor inhalation.\textsuperscript{[1,27]}

- Dry rose is beneficial in epistaxis (nafs-ud-dam),\textsuperscript{[23,27]} diarrhoea (ishal), and dysentery (khooni ishal).\textsuperscript{[9,13,24,27,36]}

- Deride powder of rose is rubbed on the body to prevent excessive sweat and removal of bad smell.\textsuperscript{[1,28,24]}

- Local application of rose as pest has beneficial effect in acute inflammatory condition of skin.\textsuperscript{[28]}

- Application of rose water as sitz bath (abjan)/ syrinzing (istinza) is beneficial in rectal prolapse (khooruj-e-maq’ad) and pain in lower intestine.\textsuperscript{[1,27,23,13]}

- \textit{Hukna} is beneficial for the wound of viscera (ahsha) and intestine (ama) by decoction of rose flower.\textsuperscript{[1,27]}

- Pest of rose is put into uterus (rahem) or decoction of rose is used as sitz bath (aabzan) to treat leucorrhoea (sailan-ur-rahem).\textsuperscript{[1,28]}

- Decoction of rose water is useful in erysipelas (surkhbadah).\textsuperscript{[23]}

- In snack bit, rubbing of the rose flower root has beneficial effect.\textsuperscript{[1]}

- Burned rose petals is mixed in surma and used for beautification of eye.\textsuperscript{[23]}

- Rose oil, rose water and rose is strengthen the organs and produce cold effects in every inflammatory condition in head specially in Acute type (surkh kism).\textsuperscript{[1,23]}
- It removes the foul smell of wound and replaced with good fragrance.\textsuperscript{[1]}
- Dry rose removes the smell of sweat, sometimes the powder of Rose, sumbuluttib (Nardostachys jatamansi), murmaki (Commiphora myrrha) and qust (Saussurea hypoleuca) are mixed and used for this purpose.\textsuperscript{[27]}
- Gul-e-gand is used as tonic to heart (qalb), brain (dimagh) and to treat constipation (qabz).\textsuperscript{[24]}
- Arq is used in Palpitation (khafqan), syncope (ghashi) and as tonic for heart and brain.\textsuperscript{[23,24]}
- It’s removed the obstruction (sudda) of stomach (meda) and liver (jigar) and reduces the secretion of stomach.\textsuperscript{[1,23]}
- In case of excess of phlegm in stomach, its use in the form of murabba-e-ward with honey is highly beneficial.\textsuperscript{[21]}
- In case of increase in stomach fluid, use of Gul-e-Surkh with warm water is beneficial.\textsuperscript{[13,23]}
- Gul-e-Surkh is used with Arq-e-Gulab and shakar tabarzad has beneficial effect on acute fever (humma-e-hadah), thirst (atash), and inflammatory condition of stomach (warm-e-meda).\textsuperscript{[23]}
- \textit{Huqna of roghan-e-gul} is beneficial in large intestine and uterine wound.\textsuperscript{[13]}
- A scented qurs prepared by roghan-e-gul and is used for removal of the smell from sweat and produce scent from body.\textsuperscript{[13]}
- Uses of \textit{sharbt-e-gulab} are beneficial for stomach ache (waza-ul-meda) and help in digestion in case of zof-e-meda.\textsuperscript{[13]}
- Uses of extract of rose with honey are beneficial in zof-e-basar.\textsuperscript{[13]}
- Decoction of rose is beneficial for Jaundice (yarqan).\textsuperscript{[13]}
- Grounded rose taken along with \textit{sharbt-e-banafshan} or zoofa is beneficial for asthma.\textsuperscript{[28]}
- Uses of rose flower infusion along with tejab-e-ghandhak inhibit Epistaxis (nafsuddam) and also inhibit the night sweating of tubercular patient.\textsuperscript{[28]}
- Rubbing of fresh flower of rose over piles for some days has beneficial effects.\textsuperscript{[28]}
- Sharbat and Arq of rose are beneficial for all type of fever.\textsuperscript{[28]} It is also used in \textit{hamrah}.\textsuperscript{[13]}

\textbf{Compound formulations of \textit{Gul-e-Surkh} (Rosa damascena)}

In Unani classical literature, Gul-e-Surkh is extensively mentioned as a main ingredient (\textit{juz-e-azam}) in a number of compound formulations. These formulations are devised in such a
way that the maximum therapeutic effect is obtained, and dosage form is to be user-friendly too. These formulations are in practice by the Unani physicians in different kinds of illness. Apart from therapeutic uses, many compound formulations have been devised for cosmetic and other purposes. As many as 58 Unani popular compound pharmacopoeial formulations used routinely in clinical practice are consist of *Gul-e-Surkh* as main/active ingredient or part of the ingredient in formulations:

<table>
<thead>
<tr>
<th>Name of Formulation</th>
<th>Therapeutic Uses</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Arq-e-Gulab</strong></td>
<td>In palpitation, Syncope Abdominal pain, Flatulence Disease of heart and brain</td>
<td>60-84ml$^{2,19}$</td>
</tr>
<tr>
<td><strong>2. Arq-e-Ma-ul-Laham Makoh Kasni Wala</strong></td>
<td>Stomach and Liver disease and as general tonic</td>
<td>125 ml$^{2,10,14,19}$</td>
</tr>
<tr>
<td><strong>3. Ambari</strong></td>
<td>Debility, Weakness of the principal organs like heart, brain and liver, Fainting</td>
<td>10-20 ml twice a day with 3 g Zahbi$^{12}$</td>
</tr>
<tr>
<td><strong>4. Ayarij-e-Shabyar</strong></td>
<td>Headache due to phlegm, hemiplegia, Facial paralysis, arthralgia</td>
<td>5 gms$^{8}$</td>
</tr>
<tr>
<td><strong>5. Dawa-ul-Misk Barid Jawahar Wali</strong></td>
<td>In weakness of the principal organs like heart, brain and liver, Palpitation, Warmth of the hearth</td>
<td>5 gms$^{2,10,6}$</td>
</tr>
<tr>
<td><strong>6. Gul-e-Qand Gulab</strong></td>
<td>Constipation, stomach and brain disease.</td>
<td>48 gms$^{2}$</td>
</tr>
<tr>
<td><strong>7. Habb-e-Asha</strong></td>
<td>In constipation</td>
<td>3-5 gms$^{7}$</td>
</tr>
<tr>
<td><strong>8. Habb-e-Bawaseer Badi</strong></td>
<td>Non bleeding piles</td>
<td>2 pills twice a day$^{12,19}$</td>
</tr>
<tr>
<td><strong>9. Hab-e-Kaboos</strong></td>
<td>Kaboos, Melancholia, Weakness of the brain</td>
<td>5-10 gms$^{7}$</td>
</tr>
<tr>
<td><strong>10. Habb-e-Luknat</strong></td>
<td>In lisp of tongue (Luknat-e-Lisan)</td>
<td>550 to 1 g$^{5}$</td>
</tr>
<tr>
<td><strong>11. Habb-e-Musaffi-e-Khoon</strong></td>
<td>In haemorrhage</td>
<td>Children: One to</td>
</tr>
</tbody>
</table>
12. **Habb-e-Qabiz Qawi**  
Diarrhoea  
150-250 mg

13. **Habb-e-Sammulfar**  
Malarial fever, Neurasthenia  
100-150mg

14. **Habb-e-Sana**  
In constipation, Flatulence, Dyspepsia  
5 to 10 gm

15. **Habb-e-Yarqan**  
Jaundice  
2 pills twice a day

16. **Itrifal Muqawwi Dimagh**  
Weakness of the brain, Catarrh and Headache  
10 gms

17. **Itrifal-e-Sana**  
Melancholia, Chronic Catarrh and constipation  
10 gms

18. **Itrifal Shahtara**  
Itching, Syphilis, Boil, As blood purifier  
12 gms

19. **Itrifal Ustukuddos**  
Hair (Whiteness) and brain disease  
7-12 gms

20. **Jawarish Muqawwi-e-Meda**  
In weakness of the stomach, intestine, Anorexia  
6 gm after meals

21. **Jawarish Amla Sada**  
In weakness of the stomach, brain and heart  
5-10 gms

22. **Jawarish-e-Tabasheer**  
Weakness of the stomach, Vertigo used in Indigestion, Giddiness  
5-10 gms

In weakness of the stomach  
5-10 gms

24. **Jawarish Zaruni Ambari**  
In weakness of the liver  
5gms

25. **Jawarish Zarishk**  
Indigestion, as Appetizer in Palpitation, cold,  
3-6gms

26. **Khameera Abresham Arshad Wala**  
Weakness of the heart, brain  
3-5 gms

27. **Khamira Marwareed Banuskhia-e-Kalan**  
In palpitation, Giddiness in weakness of the heart, intestine.  
3-5 gms

28. **Khamira Murakkab**  
In weakness of the heart  
5 g twice a day
29. *Laooq-e-Anjeer Qawi*  
Hemiplegia, Facial paralysis  
(Bell’s palsy)  
5-10 gm

30. *Majoon Chobchini*  
In Arthritis, Gout, Sexual debility,  
5 gms

31. *Majoon Dabeedul Ward*  
In Hepatitis, Gastritis, Metritis,  
5 gms

32. *Majoon-e-Gul*  
In Hepatitis  
5 to 10 gms

33. *Majoon-e-Hafiz-ul-Janeen*  
Habitual abortion  
5 gms

34. *Majun Injeer*  
In chronic constipation  
10 g HMS

35. *Majun Musaffi-e-Azam*  
Furuncles, Boil, Itching,  
Syphilis, Arthralgia, Arthritis  
6 gms

36. *Majoon-e-Ushba*  
Itching, arthritis, syphilis  
12 gms

37. *Mufarreh-e-Musvi*  
In weakness of heart, Palpitation  
5 gms

38. *Mufarreh Shekhlul Rais*  
Palpitation, In weakness of heart  
5 gms

39. *Malerian*  
Malarial fever, weakness of spleen,  
Spleenomegaly  
Adult - 6 ml& Chil. - 3 ml

40. *Nawed-e-Nau*  
Habitual abortion,  
Weakness of uterus and intestine  
6 gms

41. *Qabzeen*  
Constipation  
4 tab. at bedtime

42. *Qurs-e-Hummaz*  
Hepatitis, Diarrhoea  
3 to 5 gms

43. *Qurs-e-Istisqa*  
Dropsy  
5 to 10 gms

44. *Qurs-e-Gul*  
Obstructive jaundice,  
chronic fever  
3 to 5 gms

45. *Qurs-e-Gulnar*  
Chronic Diarrhoea,  
Hemorrhagic Diarrhoea,  
5-10 gms

46. *Qurs-e-Kafoor Lulvi*  
Hyper pyrexia, Phthisis (*Sil*),  
Pulmonary tuberculosis, Diarrhoea  
2-4 gms

47. *Qurs-e-Mastagi*  
Vomiting, Hiccough  
3 to 5 gms

48. *Qurs-e-Mullayin*  
Chronic constipation  
2 tab with warm water at bedtime

49. *Qurs Kafoor*  
Tubercular fever, Hyper pyrexia  
4 tab.(each 775 mg)
Pharmacological Study

Pharmacological effects on nervous system

Several studies have been undertaken on *R. damascena* to evaluate its effects on the central nervous system (CNS). The ethanolic extract of rose flower has shown to have a potent depressant activity on CNS in mice. Other effects are reported to possess hypnotic, anticonvulsant, anti-depressant, anti-anxiety, analgesic effects, and nerve growth.\(^{[18]}\)

Hypnotic effect

The ethanolic, aqueous, and chloroform extracts of rose were used for hypnotic effect in mice. The ethanolic and aqueous extracts (500 and 1000 mg/kg, respectively) significantly increased the pentobarbital induced sleeping time in mice but the chloroform extract has not shown to have hypnotic effect.

Another study also proved the hypnotic effects of rose using three fractions, namely ethyl acetate, aqueous and n-butanol. Among these three fractions, ethyl acetate has the excellent hypnotic effect. However, hypnotic effect of the extracts and fractions have been proved, but the exact mechanism is still unknown. *R. damascena* contains several components like flavonoids and terpenes. The experimental evidences indicate that these compounds possess hypnotic effect.\(^{[18]}\)
Analgesic effect
The analgesic effect of *R. damascena* is also reported. In a study, the effect of aqueous, ethanolic and chlorphorm extracts in mice was evaluated and only ethanolic extract showed analgesic effect. The analgesic activity of hydroalcoholic extract and essential oil of *R. damascene* was also evaluated in mice. The essential oil of rose failed to show any analgesic effect. However, hydroalcoholic extract has a potent analgesic effect. It is indicated that the non-hydrophilic ingredients of rose may be responsible for analgesic effect.[18]

Anticonvulsant effect
The essential oil of *R. damascena* delays the start of epileptic seizures and decreases the duration of tonic-clonic seizures (stage-iv) in acute pentylenetetrazole (PTZ)-induced seizure in rats. It also prolongs the latent periods before tonic-clonic generalized seizure in chronic model of pentylenetetrazole PTZ-induced seizure.[18]

Effect on respiratory system
The ethanolic and aqueous extracts significantly reduce number of cough induced by citric acid in guinea pigs. The exact mechanism of antitussive effect of *R. damascena* is not known. However, this effect may be due to presence of tachykinin inhibitory substance content mediating both bronchodilatory and antitussive effects.[18]

Effect on cardiovascular
The aqueous-ethanolic extract from *R. damascena* increases heart rate and contractility in isolated guinea pig heart. The exact mechanism is not known. Recently, a new compound cyanidin-3-O-β-glucoside has been isolated from *R. damascenea* which significantly suppressed angiotensin I-converting enzyme (ACE) activity and improves the cardiovascular function.[18]

Anti-diabetic effect
It has been found that *R. damascena* exerts an anti-diabetic effect. Oral administration of the methanol extract significantly decreased blood glucose after maltose loading in normal and diabetic rats in a dose-dependent manner.[21] It is also reported that its methanol extract inhibites postprandial hyperglycemia similar to that of acarbose. It is found that *R. damascena* is a potent inhibitor of α-glucosidase enzyme which suppressed the carbohydrate absorption from the small intestine, and reduced the postprandial glucose level.[18]
Antimicrobial activity

*R. damascena* has been screened for antibacterial activity, and its potency is quantitatively assessed by presence of zone diameter and compared to streptomycin used as standard. The acetone extract showed the significant antibacterial activity against Gram +ve and Gram –ve bacteria.\[17,18\] Besides, essential oil, absolute, and hydrosol also show these effects. The essential oil and absolute have strong antibacterial activity against *Escherichia coli*, *Pseudomonas aeruginosa*, *B. subtilis*, *Staph. aureus*, *Chromobacterium violaceum* and *Erwinia carotovora* strains.\[18\]

Analgesic and anti-inflammatory effect

The effect of essential oil and hydroalcoholic extract of *R. damascena* was evaluated on rat paw edema induced by carrageenin. Essential oil had no anti-inflammatory effect while the extract could significantly reduce edema which may be acted by inhibiting the mediators of acute inflammation. In addition, *R. damascena* contains vitamin C which has antioxidant and anti-inflammatory effects,\[18,33\] and extract also has potential analgesic effect in acetic acid and formalin test.\[33\]

The laxative Effect

The *R. damascena* extract in rat showed significant laxative effects (increasing faeces water content and the frequency of defecation). The intra-peritoneal (i.p.) injection of extract showed symptoms of constipation (no faeces in 24 hr), it seems the laxative effects is partly due to osmotic infiltration of fluids into intestinal lumen.\[33\]

Antioxidant effects

Sources of natural antioxidant are primarily phenolics compounds that are found in all parts of plants, such as the fruit, vegetables, seeds, leaves, roots and barks. The presence of phenolic compound in ethanolic extract of *R. damascena* has been evaluated and its antioxidant activity is compared with synthetic antioxidant. Antioxidant photochemical neutralizes free radical and reduces the progress of many chronic disease like cardiovascular disease, diabetes and disease associated with ageing.\[16,18\]

Antiulcer activity of Rosa damascena

The methanol extract of rose showed significant anti ulcer activity in pylorus ligation and ethanol induced method. Hence, it can be used as an antiulcer agent.\[34\]
Cytotoxic activity of *Rosa damascena*

A study was done on cytotoxic activity of *R. damascena* on HeLa cell line. It was found that the ethanolic extract of *R. damascena* extract had cytotoxic activity against HeLa cell line.\(^{[26]}\)

Ophthalmic effect

The ophthalmic effect of an herbal eye drop preparation containing different herbs including *R. damascena* in a number of ophthalmic disorders namely, conjunctivitis, conjunctival xerosis (dry eye), degenerative conditions (pterygium or pinguecula), and postoperative cataract patients was studied. The ophthalmic formulations have been conventionally used in the Unani system of medicine since centuries, and reportedly possessed anti-microbial and anti-inflammatory properties. These results showed that the Unani ophthalmic preparations having *R. damascena* as a chief ingredient has a significant role in a variety of infective, inflammatory, and degenerative ophthalmic disorders/diseases.\(^{[18]}\)

CONCLUSION

The *Gul-e-Surkh* is one of the most important species belonging to Rosaceae family. It has been subjected to extensive physiochemical, experimental pharmacological and clinical studies. These scientific studies validated the pharmacological actions and therapeutic uses mentioned in the Unani classical literature. Still, further detailed clinical study is warranted to the full therapeutic potential of this drug in order to establish its medicinal value in current techno-scientific terms.

REFERENCES


14. Hamdard Pharmacopoeia of Eastern Medicine, Hakeem Mohammaed Saed, Sri Satgru publication Indian Book centre Delhi, 1997; 203.


