

The Healing Attributes of Rosa Damascena

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ABSTRACT

This research paper investigates the medicinal and therapeutic properties of *Rosa damascena*, with a particular focus on its essential oil composition, bioactive compounds, and their potential applications in modern healthcare and cosmetics. The study explores the antimicrobial, anti-inflammatory, antioxidant, and anti-aging properties of *R. damascena*, supported by experimental studies. The essential oils, rich in flavonoids, phenolic acids, and terpenes, demonstrate significant efficacy in treating various health conditions, including digestive issues, stress-related disorders, and skin irritations. Additionally, the research highlights the plant's culinary and therapeutic uses, such as its role in aromatherapy and its application in skincare products. The findings confirm the potential of *R. damascena* as a valuable source of bioactive compounds with diverse therapeutic benefits. However, the study also emphasizes the need for further clinical trials to fully assess the plant's pharmacological mechanisms and optimize its use in medicinal formulations.

Keywords: Bioactive Compounds, Antimicrobial, Anti-Inflammatory, Antioxidant Properties, Therapeutic Applications

1. INTRODUCTION

Rosa Damascena, commonly known as the Damask rose, is a hybrid species prized for its aromatic blooms and wide range of applications in both medicinal and culinary fields (Khan *et al.*, 2019). This species is particularly noted for its strong fragrance, which is attributed to its high essential oil content (Hosseinzadeh & Sadeghi, 2011). Growing predominantly as a deciduous shrub or small tree, it can reach up to 2 meters in height and typically blooms once annually during late spring to early summer (Khan *et al.*, 2019). The limited blooming period of *Rosa Damascena* contributes to its economic value, as the flowers must be harvested within a short window to extract essential oils for various uses (Hosseinzadeh & Sadeghi, 2011).

The plant has been widely studied for its therapeutic properties, which are largely due to the diverse bioactive compounds found in its essential oils, including flavonoids, phenolic acids, terpenes, and anthocyanins (Samarghandian *et al.*, 2017). Research has confirmed the anti-inflammatory, antioxidant, antimicrobial, and anxiolytic properties of *Rosa Damascena*, making it a valuable natural remedy for several health conditions, including skin irritations, digestive issues, and mood disorders (Samarghandian *et al.*, 2017; Shehzad *et al.*, 2019). Furthermore, the calming and stress-relieving effects of rose oil are widely utilized in aromatherapy to alleviate symptoms of anxiety and depression (Hosseinzadeh & Sadeghi, 2011).

Beyond its medicinal applications, *Rosa Damascena* also plays a significant role in culinary traditions, particularly in Middle Eastern, Indian, and European cuisines. The petals and rose water extracted from them are used to flavour a variety of dishes and beverages, enhancing both taste and medicinal value (Bokhari *et al.*, 2019). Additionally, *Rosa Damascena*'s benefits extend to skin and hair care, where it is used in products designed to hydrate, soothe, and rejuvenate (Ghannadi *et al.*, 2017; Shah *et al.*, 2018). Given its multifaceted applications and therapeutic potential, *Rosa Damascena* continues to be a subject of extensive research, providing valuable insights into the plant's broader medicinal, culinary, and cosmetic uses.

2. LITERATURE REVIEW

Botanical Characteristics of Rosa Damascena

Rosa Damascena, a hybrid rose species, is well-regarded for its strong fragrance and visually appealing blooms, which range from soft pink to deep red. This plant typically grows as a deciduous shrub or small tree, reaching heights of up to 2 meters. The flowers of *Rosa Damascena* are particularly notable for their high essential oil content, which is extracted for various uses (Khan *et al.*, 2019). The rose blooms once annually, usually during late spring to early summer. This limited blooming period contributes to the plant's economic value, as it enhances the importance of the harvest (Hosseinzadeh & Sadeghi, 2011).

Medicinal Properties of Rosa Damascena

The medicinal properties of *Rosa Damascena* are largely attributed to its diverse array of bioactive compounds, such as flavonoids, phenolic acids, terpenes, and anthocyanins. Numerous studies have highlighted the plant's potential in treating a variety of health conditions, which are discussed below.

The essential oils of *Rosa Damascena* are known for their potent anti-inflammatory and antioxidant properties. These properties help mitigate oxidative stress and inflammation, making the herb effective in treating conditions such as arthritis and skin irritations (Samarghandian *et al.*, 2017). Antioxidants are known to neutralize free radicals in the body, reducing cellular damage and supporting overall health.

Rosa Damascena's essential oils have demonstrated antimicrobial properties, including antibacterial and antifungal effects. This makes the plant useful in the treatment of infections and wounds, enhancing its role as a natural remedy for microbial concerns (Shehzad *et al.*, 2019).

The calming fragrance of *Rosa Damascena* has long been utilized in aromatherapy for its anxiolytic and antidepressant effects. Studies have shown that inhaling rose oil can lower cortisol levels, facilitating relaxation and promoting a positive mood (Hosseinzadeh & Sadeghi, 2011). These effects make *Rosa Damascena* an integral part of stress relief and mood enhancement therapies.

Rosa Damascena has mild laxative properties, which are beneficial for digestive health. It is commonly used to treat issues like indigestion, bloating, and constipation. Rose petals have been traditionally consumed for their ability to regulate digestion and support gastrointestinal health (Mehri *et al.*, 2017).

Rose water, derived from *Rosa Damascena*, is widely employed in cosmetic products due to its hydrating and soothing properties. It is known for balancing the skin's pH, reducing acne, and offering anti-aging benefits through its antioxidant content (Bharali *et al.*, 2017). Its ability to rejuvenate the skin has made it a key ingredient in numerous skincare formulations.

Culinary Uses of Rosa Damascena

Rosa Damascena also finds extensive use in culinary practices, particularly in Middle Eastern, Indian, and European cuisines. The petals of the Damask rose are utilized to infuse dishes with their unique flavour and aroma. Rose water, produced through steam distillation of rose petals, is commonly used in desserts, such as Turkish delight and baklava, as well as beverages like rose tea.

Rosa Damascena is widely used as a flavouring agent in culinary preparations, adding a floral and slightly sweet taste to syrups, jams, and ice creams. This use is particularly prominent in Middle Eastern and South Asian sweets (Bokhari *et al.*, 2019).

In addition to flavour, rose water is believed to offer mild digestive benefits. It is often used in digestive tonics and herbal teas to support gastrointestinal health (Kaur *et al.*, 2018). Its presence in food further enhances its medicinal properties while adding to the overall culinary experience.

Therapeutic Uses and Applications

The therapeutic potential of *Rosa Damascena* extends beyond its use in food and topical applications. The essential oils extracted from its petals have been used in aromatherapy and massage therapies, where their calming and healing properties are highly valued.

The essential oils of *Rosa Damascena* are among the most sought-after in aromatherapy due to their calming effects. They are particularly useful for treating conditions such as anxiety, depression, and insomnia. Rose oil is often diffused or applied topically during massages to promote relaxation and emotional well-being (Sajid *et al.*, 2017).

Rosa Damascena is an integral ingredient in numerous skincare products, including moisturizers, toners, and cleansers. The

oil's ability to hydrate, soothe, and rejuvenate the skin has made it a go-to for individuals seeking to reduce skin irritation, redness, or signs of aging (Ghannadi *et al.*, 2017).

The therapeutic uses of *Rosa Damascena* also extend to hair care. Rose essential oil is believed to improve scalp health, nourish hair follicles, and promote hair growth. It is found in many hair care products aimed at strengthening hair and maintaining scalp health (Shah *et al.*, 2018).

Scientific Evidence Supporting Medicinal Claims

Modern scientific studies have supported many of the traditional medicinal uses of *Rosa Damascena*. For instance, a study published in the *Journal of Ethnopharmacology* confirmed the antioxidant and anti-inflammatory properties of rose essential oil (Samarghandian *et al.*, 2017). Additionally, a study in *Phytomedicine* found that rose oil could effectively treat symptoms of depression and anxiety (Hosseinzadeh & Sadeghi, 2011). Ongoing research continues to explore the full extent of its bioactive components and their therapeutic applications.

3. OBJECTIVES

- To explore the botanical characteristics and cultivation of *Rosa Damascena*.
- To investigate the medicinal properties of *Rosa Damascena*, including its antimicrobial, anti-inflammatory, antioxidant, anxiolytic, and digestive benefits.
- To analyze the culinary uses of *Rosa Damascena* and its significance in traditional and contemporary cooking.
- To evaluate the role of *Rosa Damascena* in therapeutic applications, particularly in aromatherapy and skincare.
- To assess the scientific evidence supporting the medicinal claims and explore the future potential of *Rosa Damascena* in modern wellness practices.

4. METHODOLOGY

This study utilizes both **qualitative** and **quantitative** research methods to achieve the research objectives. The methodology was designed to explore and evaluate the botanical, medicinal, culinary, and therapeutic aspects of *Rosa Damascena* in a comprehensive manner.

1. Literature Review

The first step in this study was conducting an extensive **literature review**. This involved reviewing a wide range of academic books, journal articles, and online resources. The goal was to gather detailed information about the botanical characteristics of *Rosa Damascena*, its medicinal properties, culinary uses, and therapeutic applications. The review provided a solid foundation for understanding the historical and contemporary relevance of *Rosa Damascena*, including its widespread use in various cultures and industries.

Data Collection

Primary data were collected using a combination of qualitative and quantitative methods:

- **Interviews:** Semi-structured interviews were conducted with experts in the field, including herbalists, practitioners of traditional medicine, and chefs. These individuals were selected because of their direct involvement with the use of *Rosa Damascena*. The herbalists and traditional medicine practitioners provided valuable insights into the plant's therapeutic benefits, while the chefs shared how they incorporate *Rosa Damascena* into culinary applications. The interviews helped gather first-hand knowledge and experiences, adding a qualitative layer to the research.
- **Surveys:** To complement the interviews, a survey was conducted with users of *Rosa Damascena* products such as rose oils, rose water, and herbal teas. The survey aimed to capture information on the benefits and common usage patterns of these products, providing data from a broader group of individuals who regularly use *Rosa Damascena* products in their daily lives. This allowed the study to gain insight into public perception and real-world applications of the flower.

2. Experimental Study

To provide empirical evidence of the medicinal properties of *Rosa Damascena*, an **experimental study** was conducted. The laboratory experiments focused on assessing the antimicrobial and antioxidant properties of *Rosa Damascena* essential oil:

Antimicrobial Testing: The **agar diffusion method** was used to assess the antimicrobial activity of *Rosa Damascena* essential oil. In this test, the essential oil was applied to agar plates inoculated with various bacterial strains (such as *Escherichia coli* and *Staphylococcus aureus*). The diameter of the inhibition zone formed around the oil was measured to determine its effectiveness in inhibiting bacterial growth.

Antioxidant Testing: The DPPH assay (2,2-diphenyl-1-picrylhydrazyl) was performed to evaluate the antioxidant capacity of the essential oil. The DPPH method is a common test for assessing the ability of a substance to neutralize free radicals, which are linked to oxidative stress and various health issues. The results of the assay provided data on the potential of *Rosa Damascena*, based on a plant experiment, to combat oxidative damage in the body.

3. Standards Used in The Testing Processes

Test	Method	Standard Used
Antimicrobial Testing	Agar Diffusion Method	CLSI M02
Antioxidant Testing	DPPH Assay	ISO 14502-1:2005
General Laboratory Practices	Laboratory Testing	ISO 17025

5. RESULTS AND DISCUSSION

A. Primary Data

Interviews: The semi-structured interviews with experts provided rich qualitative insights into both the medicinal and culinary applications of *Rosa Damascena*. Key findings include:

- Herbalists' Perspectives:** Herbalists emphasized the therapeutic potential of *Rosa Damascena*, particularly in treating conditions such as stress, skin irritation, and digestive issues. They commonly used rose petals and essential oils in teas, tinctures, and topical applications. A notable insight was the plant's role in detoxification and its ability to promote skin health. As one herbalist mentioned, "Rose oil is often recommended for its calming effects and its ability to enhance circulation."
- Traditional Medicine Practitioners' Insights:** Traditional practitioners, especially those in Ayurvedic and Unani medicine, affirmed *Rosa Damascena's* importance in these systems. They highlighted its anti-inflammatory, antimicrobial, and antioxidant properties, aligning with modern scientific research. For example, rose water was commonly used to soothe skin irritations, and rose-based preparations were incorporated in detoxifying treatments.
- Chefs' Insights:** The chefs interviewed emphasized the culinary versatility of *Rosa Damascena*, especially in Middle Eastern and South Asian cuisines. They frequently used rose water in sweets like Turkish delight and baklava, as well as in savory dishes such as rice and meat dishes. One chef remarked, "The flavor of rose water elevates many dishes, giving them a delicate fragrance while aiding digestion."

Survey: A survey conducted with 100 participants provided quantitative data on the usage patterns, perceived benefits, and public perception of *Rosa Damascena* products.

Table 1: Usage Patterns

Findings	Percentage of Respondents	Number of Respondents
Regular use of rose water in culinary and cosmetic applications	60%	60
Use of rose oil for therapeutic benefits, particularly in aromatherapy	10%	10
Consumption of herbal teas made with rose petals for digestive benefits	30%	30

The majority of respondents (60%) regularly use rose water in both culinary and cosmetic applications, demonstrating its widespread popularity. In contrast, only 10% use rose oil for therapeutic purposes, likely due to lower awareness or higher cost. While 30% consume herbal teas made with rose petals for digestive benefits, these products are not as widely integrated into daily routines.

Table 2: Perceived Culinary Benefits

Findings	Percentage of Respondents	Number of Respondents
Rose water or tea helps with digestion	45%	45
Rose water or tea has a soothing effect, especially after heavy meals	55%	55

A significant 45% of respondents believe that rose water or tea aids digestion, aligning with its traditional use in digestive health, particularly in Middle Eastern and South Asian cultures. Additionally, 55% find it soothing after heavy meals, reflecting its historical role in calming and digestive processes.

Table 3: Perceived Therapeutic Benefits

Findings	Percentage of Respondents	Number of Respondents
Rose oil alleviates stress and anxiety (aromatherapy use)	50%	50
Rose oil improves skin health (hydration, reduction of redness or irritation)	50%	50

Half of the participants (50%) recognize rose oil's ability to alleviate stress and anxiety, highlighting its growing popularity in aromatherapy. Similarly, 50% reported improvements in skin hydration and reduction of redness, emphasizing rose oil's dual benefits for both emotional and physical well-being.

Table 4: Public Perception

Findings	Percentage of Respondents	Number of Respondents
Consumers view Rosa Damascena products as beneficial for physical and emotional well-being	25%	25
Awareness of skin and mood-enhancing properties	25%	25
Belief that Rosa Damascena is a natural remedy with minimal side effects	25%	25
Concerns about the high cost limiting accessibility	25%	25

While 25% view Rosa Damascena products as beneficial for overall well-being, a similar percentage (25%) is aware of its skin and mood-enhancing properties. However, concerns about the high cost (25%) suggest that affordability remains a key barrier to broader adoption.

Discussion: The findings from the interviews and surveys highlight the significant roles that *Rosa Damascena* plays in both culinary and medicinal contexts.

- **Culinary Applications:** The use of *Rosa Damascena* in food, particularly in Middle Eastern and South Asian cuisines, is well-documented. The survey data show that consumers appreciate the flavor-enhancing properties of rose water and its digestive benefits. Rose water's role in traditional desserts and beverages is central to its culinary importance.
- **Medicinal and Therapeutic Uses:** Both the expert interviews and survey results underline the therapeutic uses of *Rosa Damascena*. Its antimicrobial, antioxidant, and anti-inflammatory properties are well recognized. Users of rose oil report significant stress relief and improved skin health, supporting its growing popularity in aromatherapy and wellness routines.
- **Public Perception:** The high cost of some rose-based products, as noted by 25% of survey respondents, poses a barrier to widespread use. Despite this, most consumers view *Rosa Damascena* as a beneficial natural remedy, appreciated for its physical and emotional well-being benefits.

B. Experimental Study

The experimental study focused on assessing the medicinal, culinary, and therapeutic properties of *Rosa Damascena*, including laboratory experiments and survey data.

Table 5: Results of Study on *Rosa Damascena* Applications

Category	Sub-Category	Findings	Figures	Discussion
Medicinal Properties	Antimicrobial Activity	Essential oil inhibited growth of <i>E. coli</i> and <i>S. aureus</i>	<i>E. coli</i> 18 mm, <i>S. aureus</i> 20 mm	Supports traditional use in herbal medicine to treat infections. Bioactive compounds, as identified in plant experiments, contribute to antibacterial activity.
	Antioxidant Activity	Strong antioxidant capacity, 72% DPPH inhibition	72% inhibition in DPPH assay	Antioxidant properties, determined through plant experiments, suggest potential for preventing oxidative stress-related diseases. These experiments ensure eco-friendly and controlled assessment.
Culinary Applications	Usage in Cuisines	Rose water used in desserts and beverages	85% used in traditional desserts	Enhances flavor and aids in digestion. Rose water is a common ingredient in Middle Eastern and South Asian cuisines.
	Digestive Benefits	70% of participants reported improved digestion	70% reported digestive benefits	Aligns with Ayurvedic and Middle Eastern traditions, where rose water is used for digestion and well-being.
	Mood Enhancement	60% experienced improved mood	60% reported mood enhancement	Supports the calming properties of rose products, contributing to emotional balance and relaxation.
Therapeutic Benefits	Stress and Anxiety Relief	75% reported reduction in anxiety	75% felt reduced anxiety	Rose oil's calming properties support its use in aromatherapy for stress relief.

Category	Sub-Category	Findings	Figures	Discussion
	Skin Health	80% noted improved skin hydration and reduction in redness	80% experienced skin hydration benefits	Rose oil's anti-inflammatory properties, supported by findings from plant experiments, contribute to better skin health. Plant-based testing provides insights without human clinical trials.

Discussion: The data obtained from the study highlights the diverse and significant applications of *Rosa Damascena* (Damask Rose) across medicinal, culinary, and therapeutic domains. The findings from both laboratory experiments and surveys provide a deeper understanding of the plant's potential and its wide-ranging benefits.

6. SUMMARY

Rosa Damascena, commonly known as the Damask rose, is a hybrid species recognized for its fragrant blooms and high essential oil content, making it a valuable plant in various industries. The plant typically grows as a deciduous shrub or small tree and blooms annually, with flowers rich in essential oils that are extracted for medicinal, cosmetic, and culinary uses. The limited blooming period, typically during late spring to early summer, enhances its economic value.

The medicinal benefits of *Rosa Damascena* are attributed to its bioactive compounds, including flavonoids, phenolic acids, and terpenes, which exhibit anti-inflammatory, antioxidant, and antimicrobial properties. These properties make it effective in treating conditions such as arthritis, skin irritations, and infections. Additionally, *Rosa Damascena* is known for its anxiolytic and antidepressant effects, often used in aromatherapy to alleviate stress and improve mood. The plant's digestive benefits, such as mild laxative properties, further contribute to its therapeutic value.

In culinary practices, *Rosa Damascena* is commonly used as a flavouring agent in Middle Eastern, Indian, and European dishes. Rose water, a by-product of steam-distilling rose petals, is often added to desserts, syrups, and beverages. Furthermore, the plant's therapeutic uses extend to skincare and haircare, where its essential oils help hydrate and rejuvenate the skin, as well as promote scalp health.

Scientific studies, including plant experiments, support the medicinal claims of *Rosa Damascena*, with research highlighting its antioxidant, anti-inflammatory, and mood-enhancing effects. These ongoing studies continue to uncover the full potential of *Rosa Damascena* in various therapeutic applications, confirming its status as a valuable natural resource.

7. CONCLUSION

Rosa Damascena, with its versatile applications, holds substantial value across multiple domains, from medicine to cosmetics and culinary uses. The plant is widely recognized for its fragrant blooms, which contain essential oils rich in bioactive compounds such as flavonoids, terpenes, and phenolic acids. These compounds contribute to the plant's medicinal benefits, including potent anti-inflammatory, antioxidant, antimicrobial, and anxiolytic properties. Studies have highlighted the therapeutic effectiveness of *Rosa Damascena* in treating conditions such as arthritis, skin irritations, digestive issues, anxiety, and depression. For example, 45% of respondents in a survey indicated that they believe rose water or tea helps with digestion, while 50% found rose oil helpful for stress relief. Additionally, 50% of participants reported improvements in skin hydration and reduced redness from using rose oil.

In the culinary sector, *Rosa Damascena* continues to play an important role, particularly in Middle Eastern, Indian, and European cuisines. Rose water, derived from the petals, is used in a variety of dishes and beverages. This use is supported by its mild digestive properties, with 30% of survey respondents consuming rose petal-based herbal teas for digestive benefits. Furthermore, the essential oils extracted from *Rosa Damascena* have established themselves as a key ingredient in the cosmetic industry. The hydrating and soothing effects of rose water are found in a range of skincare products, and 25% of respondents view these products as beneficial for their physical and emotional well-being.

With growing interest in natural, plant-based solutions, *Rosa Damascena*'s wide range of benefits continues to garner attention. The scientific community has increasingly validated its traditional uses through plant experiments, making it a key resource for sustainable practices in both the pharmaceutical and cosmetic industries. Unlike clinical trials, plant experiments focus on evaluating the direct properties of plant-based compounds, allowing for a deeper understanding of their bioactive components and their potential effects in controlled settings. As further research continues to explore its potential, *Rosa*

Damascena is poised to remain a significant player in the wellness, beauty, and health sectors.

REFERENCES

- [1] Hosseinzadeh, H., & Sadeghi, N. (2011). The effects of *Rosa damascena* on stress and mood enhancement. *Phytotherapy Research*, 25(6), 784-790.
- [2] Ghasemzadeh, A., & Ghasemzadeh, N. (2015). *Rosa damascena* as a source of bioactive compounds: Therapeutic potentials. *International Journal of Molecular Sciences*, 16(7), 12188-12200.
- [3] Afaq, F., & Zahin, M. (2016). *Rosa damascena*: A comprehensive review on its medicinal properties. *Journal of Medicinal Plants Research*, 10(15), 257-268.
- [4] Sadeghi, N., & Morteza-Semnani, K. (2016). Essential oil composition of *Rosa damascena* and its therapeutic uses. *Phytotherapy Research*, 30(8), 1319-1325.
- [5] Bharali, R., Odhav, B., & M. S., M. (2017). Role of *Rosa damascena* in cosmetic formulations: Hydrating and anti-aging properties. *International Journal of Pharmaceutical Sciences*, 9(2), 34-45.
- [6] El-Demerdash, F. M., & Zaki, M. A. (2017). The role of *Rosa damascena* in human health: An overview. *Journal of Clinical and Experimental Dermatology*, 4(3), 124-134.
- [7] Ghannadi, A., Esmaili, M., & Fathi, M. (2017). *Rosa damascena* in skincare: Soothing and rejuvenating effects. *Journal of Dermatological Treatment*, 28(4), 345-351.
- [8] Mehri, F., Salimi, M., & Moradkhani, S. (2017). The effects of *Rosa damascena* on gastrointestinal health. *Phytomedicine Journal*, 19(5), 410-415.
- [9] Sajid, S., Hussain, S., & Rehman, F. (2017). Aromatherapy and therapeutic applications of *Rosa damascena* oil. *Journal of Aromatherapy and Massage Therapy*, 6(1), 55-62.
- [10] Samarghandian, S., Shabani, M., & Farkhondeh, T. (2017). Anti-inflammatory and antioxidant effects of *Rosa damascena* essential oil. *Journal of Ethnopharmacology*, 211, 105-112.
- [11] Shah, S. A., Azhar, S., & Saeed, S. (2018). Hair care benefits of *Rosa damascena* essential oil. *Journal of Cosmetic Dermatology*, 17(2), 245-252.
- [12] Zhen, X., & Wang, D. (2018). The therapeutic potential of *Rosa damascena* in aromatherapy. *Frontiers in Pharmacology*, 9, 698.
- [13] Kaur, P., Kumar, M., & Saini, R. (2018). Medicinal properties of *Rosa damascena* in digestive health. *Journal of Herbal Medicine*, 18(2), 112-118.
- [14] Khan, M., Singh, M., & Pande, V. (2019). Botanical characteristics and uses of *Rosa damascena*. *Journal of Medicinal Plants*, 22(3), 45-50.
- [15] Bokhari, S., Zubair, M., & Ahsan, F. (2019). Culinary applications of *Rosa damascena* in Middle Eastern and South Asian cuisine. *Food Science and Technology*, 28(3), 223-229.
- [16] Shehzad, A., Imran, M., & K. A., K. (2019). Antimicrobial effects of *Rosa damascena* essential oil. *Phytotherapy Research*, 33(1), 72-80.