

Exploring the Medicinal and Pharmacological Potential of Habb-ul Aas (*Myrtus communis* Linn) – A Comprehensive Review

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ABSTRACT

Habb-ul-Aas (*Myrtus communis* L.) is a perennial evergreen shrub found in humid and sub-humid regions, belonging to the Myrtaceae family. It has been widely used in the Unani system of medicine for centuries. Various components such as polyphenols, myrtucommulone (MC), semi-myrtucommulone (S-MC), 1,8-cineole, α -pinene, myrtenyl acetate, limonene, linalool, and α -terpinolene contribute to its biological activity. Traditional uses include the treatment of diarrhea, peptic ulcers, hemorrhoids, inflammation, uterine bleeding, leukorrhea, and respiratory conditions. Pharmacological research highlights its antioxidant, anticancer, anti-diabetic, antiviral, antibacterial, antifungal, hepatoprotective, and neuroprotective activities. Due to its astringent and antiseptic properties, it is beneficial in managing uterine prolapse, lax vaginal walls, urinary incontinence, leukorrhea, and menorrhagia. This review systematically explores its pharmacological activities and therapeutic applications in Unani medicine.

Keywords: Habb-ul-Aas, *Myrtus communis*, Unani medicine, Traditional medicine, Pharmacological activities

1.INTRODUCTION:

Habb-ul-Aas (*Myrtus communis* L.), commonly known as myrtle, is an evergreen shrub belonging to the Myrtaceae family, primarily found in Mediterranean regions. It holds significant importance in Unani medicine due to its versatile therapeutic properties. Known for its cooling and drying temperament (*Mizaj*), it has been widely used for centuries in the treatment of various ailments. In classical Unani texts, it is described as an astringent (*Qabiz*), antiseptic (*Muhallil*), and tonic (*Muqawwi*)^{1,2}. It is traditionally used for managing disorders related to the gastrointestinal, respiratory, and reproductive systems. The fruit and leaves of *Myrtus communis* are utilized in different formulations such as *Joshanda* (decoction), *Zimad* (paste), and *Farzaja* (pessary) to treat ailments like diarrhoea, haemorrhoids, leucorrhoea, abnormal uterine bleeding, and uterine prolapse^{3,4}. The essential oil extracted from its leaves is known for its antimicrobial, anti-inflammatory, and expectorant properties, making it beneficial in respiratory conditions such as asthma and bronchitis^{5,6}. Unani scholars emphasize its role in strengthening the uterus and improving gynecological health⁷. Recent pharmacological studies validate its anti-inflammatory, antioxidant, antidiabetic, antifungal, anticancer, hepatoprotective, and neuroprotective effects, further reinforcing its traditional use^{8,9}. This review aims to explore the phytochemical composition, pharmacological activities, and therapeutic applications of *Habb-ul-Aas*, particularly in the Unani system of medicine, highlighting its potential for modern medical research.



FIGURE .1 *Myrtus communis* Linn.

2. Materials and Methods

This review is based on extensive literature from Unani medicine texts, research articles, and experimental studies.

BOTANICAL NAME: *Myrtus Communis* Linn.^{1,2,3,4,5,6}

FAMILY: Myrtaceae^{1,2,3,4,5,6,7}

SYNONYM: *Myrtus acuta*, *Myrtus belgica*, *Myrtus boetica*, *Myrtus italica*, *Myrtus veneris*, *Myrtus nivellei* Batt. & Trab.

SCIENTIFIC CLASSIFICATION:^{1,2,5,6,7,8}

KINGDOM:	<i>Plantae-Plants</i>
SUB KINGDOM:	<i>Tracheobionta-Vascular plant</i>
DIVISION:	<i>Magnoliophyta-flowering plants</i>
CLASS:	<i>Magnoliopsida-Dicotyledon</i>
SUBCLASS:	<i>Rosidae</i>
ORDEER:	<i>Myrtales</i>
FAMILY:	<i>Myrtaceae</i>
GENUS:	<i>Myrtus L</i>
SPECIES:	<i>Myrtus communis</i> Linn (from Greece)

HABITAT & DISTRIBUTION^{6,9,10}: There are around 150 genera and 3,300 species that grow in tropical and temperate regions of the world. It is an evergreen shrub that grows to a height of about 1–5 meters, with a longevity that can exceed 300 years. It is distributed across India, South America, Europe, the north-west Himalayas, Australia, and the Mediterranean region. It is cultivated in gardens for its fragrant flowers, which bloom from May to June and last until August.

VERNACULAR NAMES:^{1,2,6,7,8}

Unani Tibbi Name	<i>Habb-ul-Aas, Murad</i>	Arabic	<i>Habb -ul-aas</i>
Persian	<i>Asbiri, Tukhm-e-Murid, Murid</i>	English	<i>Myrtle</i>
Hindi	Vilayiti Mehndi	Urdu	Habb-ul-Aas
Sanskrit	Gandha Malati	Bengali	Sutrosowa
Panjabi	Murad, Vilayiti Mehndi	Greek	Mirtia
South Arabia	Hadass	Russia	Mirt
Tamil	Asham-Tagam.	Italy	Mirto
China	Xiang Tao mu	Turky	Mersin

2.1 BOTANICAL DESCRIPTION^{1,6}

LEAVES: - Leaves are opposite, simple, ovate or oblong- lanceolate, 0.5-2 cm long, entire, acute, glossy, dark green. pinnately veined, short petiole and glabrous. with oil glands on both surfaces. The leaves and flowers are strongly scented.

FLOWER: - The flowers are solitary emerging in the leaf axil. colour is white. star-like, with five petals, five sepals and a tufted mass of stamens.

FRUIT: - The berries are globose or sub- globose in shape and measure from 5-9 mm. Berries are internally divided into three sections which contain various irregular shapes and sizes of seeds which are 5-16 in number.

SEEDS: - Seeds are reniform, bright, off-white coloured, and resinous.

2.2 MAHIYAT (MORPHOLOGY):^{6,7,8}

There are two varieties:

- **Bustani:** Resembles a pomegranate tree, has white fragrant flowers, green unripe fruit that turns black, rounded and thick green leaves, and contains 3–10 small, smooth, white seeds.
- **Sahrayi:** Smaller, with yellowish-striped, broad, pointed leaves, and red ripe fruit.
- **MIZAJ (TEMPERAMENT)**^{1,6,7,8}: Cold 1° And Dry 2° or Cold 2° Dry 2°
- **HASASE MUSTAMELA (PART USED)**¹: Fruit, Leaves, Seed & Seed Oil
- **AF'AL (ACTIONS)**^{6,9}

Berries are used as an antiseptic, astringent, carminative, emmenagogue, demulcent, desiccant, analgesic, hair tonic, haemostatic, anti-inflammatory, brain tonic, nephroprotective, and antidiabetic. The pharmacological actions of the leaves include astringent, antiseptic, hypoglycaemic, laxative, analgesic, haemostatic, hair tonic, and stimulant. The root contains antibacterial properties.

➤ **ISTEMAL (THERAPEUTIC USE):**

- *Abzan* with *Joshanda e Aas* is beneficial in *khurooje rehm wa meq'ad*, *sailane rutubate rehm*³ *quruh-al-rahim*, *bawaseer-al-rahim*, *istehaza*, *inzilaq-ur-rahim*.^{3,9,10}
- *Joshanda e Berg e Aas* is used as *nutool* (irrigation) in *waja ul mufasil* (Arthralgia) and bone fracture.⁸
- *Joshanda* of its fruit is beneficial to bathe new-borns with reddened skin,⁶
- *Joshanda* of both leaves and fruits is useful in sore washing.⁶
- *Joshanda* of its fruits mixed with olive oil are used to prevent perspiration.⁶
- Its *Joshanda* strengthens the roots of the hair and prevent their loss and to make hair blackish.⁶
- *Joshanda e Aas* is used in vaginal lavage, enemas and respiratory diseases (*zeeq un nafas*).⁶
- *Joshanda e Aas* is beneficial in *Bawaseer* (Haemorrhoids).¹⁰
- It is also beneficial in *Kasrat e tamt* (Heavy menstrual bleeding).¹¹
- The extract of *Myrtus communis* L is proved beneficial in Bacterial vaginosis topically.¹²
- *Khaisanda e aas* is beneficial in diarrhoea and dysentery.¹³
- It is also useful in internal ulcerations, deep sinuses and haemorrhages.¹³
- Apart from gynaecological uses, *Aas* is also used in skin disorders like Eczema and Intertrigo.¹³
- With its antiseptic property, *khaisanda or Joshanda e aas* is used as mouth wash in aphthous ulcers.¹³
- In Gynaecological conditions *Aas* can be used in the form of *farzaja* (pessary), *Abzan* (sitz bath), *Humool* (suppository), *Zimad* (paste).^{14,15}
- Due to its anti-inflammatory property, it is proved beneficial in *Istehaza* (Abnormal uterine bleeding).¹⁶
- It is also beneficial in *Zof-e-qalb*, *Ehtebas-e-baul*, *Nafkh-e-shikam*.¹
- **MUZIR (ADVERSE EFFECT)**⁷: Headache, Insomnia, Common cold, Intestine
- **MUSLEH (CORRECTIVE)**⁷: *Sosan*, *Banafsha Taza*, *Nilofar Taza*, *Rasaut*, *Barg e toot*, *Anisoon*

- **BADAL(SUBSTITUTE):**⁷ *Izkhar, Balchadh*
- **MIQDARE KHURAK(DOSAGE):**^{6,7,9} 3-5gm and 10 masha
- **MURAKKABAT (COMPOUND FORMULATIONS):**^{1,6,17,18,19} *Jawarish Jalinoos, Jawarish Tabasheer, Jawarish Muqawwi meda, Sunoon Mujalli Dandan, Sharbat Habb-ul-Aas, Majoon Sangdana Murg, Majoon Masik-ul-bowl.*

3. Results and Discussion

3.1 CHEMICAL CONSTITUENTS:^{1,6,9,11,12,17,18,19}

Myrtus communis contains a variety of bioactive compounds, including polyphenols, flavonoids, alkaloids, tannins, and essential oils. The concentration of these compounds varies across plant parts. For instance, leaves contain 0.8-1.5% essential oils, while berries have a flavonoid content of approximately 5-7%. Myrtucommulone and semi-myrtucommulone, two acylphloroglucinols, exhibit strong anti-inflammatory and antimicrobial properties. Additionally, 1,8-cineole and α -pinene contribute to its expectorant and bronchodilator effects.

Berries are used as an antiseptic, astringent, carminative, emmenagogue, demulcent, desiccant, analgesic, hair tonic, haemostatic, anti-inflammatory, brain tonic, nephroprotective, and antidiabetic. The pharmacological actions of the leaves include astringent, antiseptic, hypoglycaemic, laxative, analgesic, haemostatic, hair tonic, and stimulant. The root contains antibacterial properties.

3.2 PHARMACOLOGICAL STUDIES:

Myrtus communis exhibits diverse pharmacological effects, mainly due to its bioactive compounds such as myrtucommulone, flavonoids, and essential oils.

Anti-inflammatory²⁰

Myrtucommulone inhibits nuclear factor-kappa B (NF- κ B) activation, reducing the expression of pro-inflammatory cytokines like interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF- α). Additionally, it suppresses cyclooxygenase-2 (COX-2) and lipoxygenase (LOX) pathways, leading to decreased prostaglandin and leukotriene synthesis.

Antifungal²¹

Myrtus communis exhibits strong antifungal properties, mainly due to its essential oils rich in α -pinene, 1,8-cineole, and myrtenyl acetate. These compounds disrupt fungal cell membranes, inhibit spore germination, and reduce fungal growth. Studies have shown its effectiveness against *Candida albicans*, *Aspergillus niger*, and *Trichophyton* species, making it a potential natural antifungal agent.

Antioxidant and hepatoprotective Activity :²²

Myrtus communis has strong antioxidant effects due to its phenolic compounds, flavonoids, and essential oils. These compounds scavenge free radicals, enhance antioxidant enzymes like superoxide dismutase (SOD) and catalase (CAT), and prevent lipid peroxidation. This activity helps protect cells from oxidative damage, reducing the risk of neurodegenerative and cardiovascular diseases. *Myrtus communis* L. exhibits hepatoprotective effects by reducing oxidative stress and liver enzymes.

Antimicrobial activity²³

The plant's essential oils, particularly α -pinene and 1,8-cineole, disrupt bacterial cell membrane integrity and inhibit the quorum-sensing mechanism in pathogens, thereby reducing bacterial virulence and growth.

Anti-diabetic activity:²⁴

Myrtus communis extracts modulate glucose metabolism by enhancing insulin sensitivity through activation of peroxisome proliferator-activated receptor gamma (PPAR- γ). It also inhibits α -glucosidase and α -amylase enzymes, delaying carbohydrate digestion and glucose absorption in the intestine.

Anti-cancer activity:²⁵

The ethanol extract of *Habb ul aas* has significant inhibitory effect on both aryl hydroxylase (AHH) and 3H-benzo(a) pyrene binding to rat liver microsomal protein. Essential oils of *habb ul aas* exhibited anticancer effect in 2 human cell lines HL-60 and NB-4, and also proved more effective on Ehrlich Ascites Carcinoma Cells in both *invitro* and *in vivo* study.

Neuroprotective Activity:²⁶

The flavonoids present in *Myrtus communis* exhibit antioxidant effects by scavenging free radicals and reducing oxidative stress-induced neuronal damage. Additionally, they modulate cholinergic neurotransmission, improving cognitive function.

4. CONCLUSION: Further clinical validation is essential. Future studies should focus on randomized controlled trials and molecular research to confirm traditional claims and expand therapeutic applications.

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