Available online on 15.06.2026 at http://jddtonline.info

Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

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Review Article

Mom Asli (Beeswax): A Review of Its Unani Perspective, Pharmacological Actions, Therapeutic Uses, and Scientific Studies

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Article Info:

Article History:

Received 13 Feb 2026
Reviewed 24 April 2026
Accepted 18 May 2026
Published 15 June 2026

Cite this article as:

Mahmood N, Ali M, Rauf A, Abdullah, Khan Y, Mom Asli (*Beeswax*): A Review of Its Unani Perspective, Pharmacological Actions, Therapeutic Uses, and Scientific Studies, Journal of Drug Delivery and Therapeutics. 2026; 16(6):272-276 *DOI: https://doi.org/10.22270/jddt.v16i6.7812*

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Abstract

Mom Asli (Beeswax) is a natural wax of animal origin produced by honey bees of the genus Apis. Since ancient times, it has been widely utilized in traditional medicine, cosmetics, and pharmaceutical preparations because of its therapeutic and healing properties. In Unani medicine, Mom Asli is regarded as an important medicinal substance possessing anti-inflammatory, analgesic, wound-healing, cicatrizing, and emollient effects. Classical Unani physicians, including Ibn Sina (Avicenna), recommended its use in the management of arthritis, thoracic pain, gastric disorders, hemorrhoids, ulcers, dry cough, and menorrhagia. Chemically, beeswax consists primarily of esters of fatty acids and long-chain alcohols, along with hydrocarbons and other minor constituents. It is characterized by a pleasant honey-like odour, low melting point, and soft consistency. Modern scientific investigations have validated several of its traditional uses by demonstrating anti-inflammatory, antioxidant, hepatoprotective, antimicrobial, anti-hemorrhoidal, and wound-healing activities. Mom Asli is also an important ingredient in numerous Unani formulations, including ointments, creams, pastes, and Qairooti preparations. Despite its extensive use in traditional and contemporary medicine, further experimental and clinical studies are required to explore its therapeutic potential, safety profile, and mechanisms of action comprehensively.

Keywords: Mom Asli, Beeswax, Unani Medicine, Anti-inflammatory Activity, Pharmacological Activities, Traditional Medicine, Wound Healing.

1. INTRODUCTION

Mom Asli (beeswax) is a natural medicinal substance of animal origin secreted by the wax glands of honey bees of the genus Apis. Since ancient times, beeswax has been highly valued for its medicinal, cosmetic, and industrial applications. The ancient Persians reportedly used wax in the embalming of dead bodies, while the Romans prepared death masks and life-sized effigies from beeswax. The term “mummy” is believed to have originated from a Persian word associated with wax. Beeswax was also widely employed as an adhesive material for joining surfaces in early civilizations.[1]

The Greek physician Dioscorides described the preparation of artificial flowers using sheets of rolled beeswax.[1] Likewise, the Greek-Roman physician Galen incorporated beeswax into cooling ointments during the second century AD. The renowned Persian physician Ibn Sina (Avicenna) also recommended beeswax for various therapeutic applications.[1,2]

Ancient scholars proposed several theories regarding the origin of beeswax. Between 344 and 342 BC, Aristotle suggested that beeswax originated from flowers. This theory was later supported by Roman writers and apiculturists, including Varro and Pliny the Elder, and remained widely accepted until the Renaissance period. In 1673, Jan Swammerdam proposed that bees prepared wax from pollen, while Martin John first observed wax scales in 1684. In 1744, the German scientist Hornbostel reported that bees themselves produce wax.[3] Although his findings initially received little attention, subsequent investigations by John Hunter in 1792 and François Huber in 1814 confirmed that bees secrete wax and utilize it for comb

construction.[4,5] Hunter further observed that newly formed combs are white in colour and that pollen is not essential for wax production. Huber subsequently suggested that sugar plays a significant role in wax synthesis.[5] In 1903, Dreyling described the process of wax synthesis in greater detail.[6]

At present, beeswax possesses considerable commercial and medicinal importance. Approximately 25–30% of global beeswax production is utilized in cosmetic products, 25–30% in pharmaceutical preparations, around 20% in candle manufacturing, and the remaining 10–20% in various industrial applications.[7] In cosmetics, beeswax is commonly incorporated into cold creams, moisturizing creams, depilatory creams, hair creams, hair conditioners, lip balms, lip glosses, lotions, lipsticks, mascaras, eye shadows, and deodorants because of its emollient, protective, and emulsifying properties. In pharmaceutical formulations, beeswax serves as a binding agent, consistency enhancer, drug carrier, and controlled-release excipient in the preparation of pills, capsules, ointments, salves, and topical preparations.[1]

The extensive traditional use of Mom Asli in Unani medicine, together with increasing scientific evidence supporting its pharmacological activities, highlights its significance as a valuable natural therapeutic agent. Therefore, the present review aims to provide a comprehensive overview of the Unani perspective, pharmacological actions, therapeutic applications, and scientific studies related to Mom Asli (beeswax).

2. VERNACULAR NAMES [8–13]

Language	Vernacular Name
Unani	Qairoos, Bairoos
Arabic	Shama
Persian	Mom asli
Hindi	Mom
English	Beeswax

Chemical Formula: $C_{15}H_{31}COOC_{30}H_{61}$

3. DESCRIPTION

Beeswax *(Cera alba*), known as *Mom Asli* in Unani medicine, is a natural wax produced by honey bees of the genus *Apis*. It is secreted by worker bees through specialized wax glands located on the ventral surface of abdominal sternites 4–7. The wax is released in the form of small scales from eight wax-producing mirror glands. Efficient wax secretion occurs when the hive temperature is maintained between 33°C and 36°C.[14]

3.1 Physical Properties

Freshly secreted beeswax is transparent and nearly colourless. However, after being processed by worker bees and mixed with pollen and other hive materials, it gradually becomes opaque and acquires a yellow to brown colour. The wax scales are approximately 3 mm wide and 0.1 mm thick, and about 1100 scales are required to produce one gram of wax.

Beeswax possesses a relatively low melting point ranging from 62°C to 64°C. Exposure to temperatures above 85°C may result in discoloration, whereas its flash point is approximately 204.4°C. The density of beeswax at 15°C ranges from 958 to 970 kg/m^3.[14,15]

The odour of beeswax is characteristically pleasant and honey-like, while its taste is mild and agreeable. Any unpleasant odour or taste may indicate deterioration or contamination by foreign materials.[15]

Natural beeswax is brittle at low temperatures but becomes soft, pliable, and easily mouldable at ordinary temperatures. Its fracture is dry and granular in appearance. The specific gravity of beeswax at 15°C ranges from 0.958 to 0.975. It softens readily upon handling and melts between 62°C and 66°C, whereas solidification occurs between 60.5°C and 63°C.[14]

3.2 Chemical Properties

Chemically, beeswax consists predominantly of esters of fatty acids and long-chain alcohols. The principal constituents include esters of palmitic, palmitoleic, and oleic acids combined with long-chain aliphatic alcohols containing 30–32 carbon atoms. Triacontanyl palmitate and cerotic acid are among its major components.

Based on geographical origin and chemical composition, beeswax is broadly classified into European and Oriental types. The saponification value is generally lower in European beeswax and comparatively higher in Oriental beeswax.[14,16] In addition to esters, beeswax contains hydrocarbons, free fatty acids, free alcohols, and trace amounts of aromatic compounds that contribute to its characteristic aroma and physicochemical properties.

3.4 Temperament (Mizaj)

According to classical Unani literature, Mom Asli (beeswax) possesses a characteristic temperament (*Mizaj*) that has been described by various Unani scholars. These temperamental properties form the basis of its therapeutic applications in Unani medicine.

Unani Temperament	Description	References
Moatadil	Equable / Balanced temperament	8, 9, 13, 17
Har-Ratab	Hot and Wet temperament	10, 11

3.5 PHARMACOLOGICAL ACTIONS (AF'AAL)

The following pharmacological actions of beeswax have been described in Unani medicine:

S. No.	Unani Term	Pharmacological Action	References
1	Muhallil-e-Waram	Anti-inflammatory	8–13, 17
2	Musakkin-e-Auja'a	Pain sedative / Analgesic	13, 17
3	Mulayyin-e-A'asab	Nerve relaxant / Nervine aperient	8–13,
4	Mundamil-e-Qurooh	Wound healer	9, 11
5	Munbit-e-Laham	Promotes growth of muscle fibres	8, 13
6	Mujaffif-e-Qurooh	Ciccative / Drying agent for wounds	9, 17
7	Kasir-e-Riyah	Carminative	10,17
8	Dafey-e-Hikkah	Anti-pruritic	9,17
9	Dafey-e-Jarab	Anti-scabies	17
10	Nafey-e-Bawaseer	Relieves piles	9, 13, 17
11	Nafey-e-Zaheer	Relieves dysentery	9, 13, 17
12	Nafey-e-Kasrat-e-Tamas	Relieves menorrhagia	9, 17
13	Nafey-e-Waj-ul-Mafasil	Relieves arthritis and joint pain	9, 12,13
14	Nafey-e-Waj-us-Sadar	Relieves thoracic pain	9, 12,13
15	Nafey-e-Waj-ul-Meda	Relieves stomach ache	9, 12–13
16	Nafey-e-Khushoonat-e-Halaq	Relieves sore throat	9, 17
17	Dafey-e-Jaraseem	Anti-bacterial	18

3.6 THERAPEUTIC USES (MAHALL-E-ISTEMALAT)

According to Ibn Sina (Avicenna), Mom Asli (beeswax) possesses important therapeutic properties, including *Talyeen* (aperient action), *Tahleel-e-Auram* (anti-inflammatory and resolvent action), and *Indemal* (healing property).[2] In Unani medicine, it is commonly prescribed for the management of *Waj-ul-Mafasil* (arthritis), *Waj-us-Sadar* (thoracic pain), *Waj-ul-Meda* (stomach ache), and *Bawaseer* (hemorrhoids).[8–13,17] It is also used in the treatment of *Sual-e-Yabis* (dry cough), *Buht-us-Saut* (hoarseness of voice), *Qarha-e-Medi* (peptic ulcer), and *Kasrat-e-Tamas* (menorrhagia).[17]

4. SCIENTIFIC STUDIES

Several experimental and clinical studies have demonstrated the pharmacological potential of beeswax and its derivatives, thereby supporting many of its traditional therapeutic uses.

Anti-inflammatory Activity

Mendoza et al. (2013) reported that D-002, a mixture of beeswax alcohols administered at doses ranging from 50 to 400 mg/kg, effectively prevented cartilage injury, pannus formation, structural cartilage damage, and inflammatory changes in rats with monosodium iodoacetate-induced osteoarthritis.[19]

In another study, the same investigators observed that oral administration of D-002 (50–400 mg/kg) significantly reduced formaldehyde-induced paw and ankle oedema in rats, indicating marked anti-inflammatory activity.[20] These findings suggest that beeswax alcohols may possess therapeutic value in the management of osteoarthritis and other inflammatory disorders.

Antioxidant and Hepatoprotective Activity

Anilkumar et al. (2007) evaluated the antioxidant and hepatoprotective effects of beeswax-derived polyphenols in Wistar rats subjected to carbon tetrachloride (CCl_4)-induced oxidative stress.[21]

Polyphenols extracted from beeswax using 80% methanol were administered orally at doses of 100 mg/kg and 200 mg/kg body weight for 14 days. Treatment significantly enhanced the activities of antioxidant enzymes, including catalase, glutathione peroxidase, superoxide dismutase, and glucose-6-phosphate dehydrogenase. Furthermore, levels of lipid peroxidation markers, such as malondialdehyde and lipid hydroperoxides, were markedly reduced. These findings indicate that beeswax polyphenols possess significant antioxidant and hepatoprotective properties and may protect against oxidative stress-induced hepatic injury.

Anti-hemorrhoidal Activity

Noori et al. (2006) demonstrated that a topical formulation containing honey, olive oil, and beeswax was safe and clinically effective in the treatment of hemorrhoids and anal fissures.[22] Following four weeks of treatment, patients experienced significant reductions in pain, bleeding, and pruritus, suggesting beneficial anti-hemorrhoidal effects.

Wound-Healing Activity

Moustafa et al. (2015) investigated the wound-healing efficacy of a topical preparation containing honey, beeswax, and olive oil in dogs with deep second-degree burn wounds.[23]

The healing effects of the formulation were compared with those of silver sulfadiazine (SSD) cream and untreated controls. The treated group exhibited faster wound contraction, reduced inflammation and exudation, and a shorter healing period. Complete wound closure occurred significantly earlier in animals treated with the honey–beeswax–olive oil mixture than in the SSD-treated and control groups. The authors concluded that topical application of this combination effectively accelerates burn wound healing and tissue regeneration.[23]

5. THERAPEUTIC DOSAGE (MIQDAR-E-KHOORAK)

Route of Administration	Dosage	References
Internal use	500 mg – 1 g	11–13
External use	12 g	11

6. ADVERSE EFFECTS (MUZIR ASRAAT) Muqallil-e-Ishteha (Anorexia), Masdood-e-Masaam (Obstruction of skin pores)[12,13]

7. CORRECTIVES (MUSLEH) *Zeerah wa Shaker, Roghan-e-Kunjad* (Flaxseed oil)[12,13,17]

8. SUBSTITUTE (BADAL): *Zift wa Zait, Roghan-e-Gul wa Murdarsang, Ard Baqla.*[12,13,17.]

9. FORMULATIONS (MURAKKABAT)

Marham Kafoor, Marham Quba, Marham Dakhilyoon.[24] Marham Ral, Marham Kharish Jadeed.[25] Marham Hina, Marham Bawaseer.[26] Marham Khanazeer.[27] Zamad Jaleenoos [24,27] Zamad Bawaseer[24], Jiyofresh Cream, Acne Pimple Remover Cream[26] Qairooti Ard Baqla, Qairooti Ard Jau, Qairooti Ard Krisna[27]

10. CONCLUSION

Mom Asli (beeswax) is an important medicinal substance in Unani medicine and has been extensively utilized in both oral and topical formulations for the management of inflammatory conditions, joint disorders, thoracic pain, gastric ailments, ulcers, and hemorrhoids. Classical Unani scholars have described numerous therapeutic properties of beeswax, including anti-inflammatory, wound-healing, soothing, and analgesic effects.

Contemporary scientific studies have provided substantial evidence supporting these traditional claims by demonstrating the anti-inflammatory, antioxidant, wound-healing, anti-hemorrhoidal, and hepatoprotective activities of beeswax and its derivatives. These findings validate the therapeutic significance of Mom Asli in both traditional and modern healthcare systems. Nevertheless, further experimental, pharmacological, and clinical investigations are required to elucidate its mechanisms of action, establish its safety profile, and explore its full therapeutic potential. Such studies may facilitate the development of novel evidence-based formulations and broaden the clinical applications of beeswax in contemporary medicine.

Acknowledgment: The authors are highly grateful to the Principal and Librarian of Deoband Unani Medical College Hospital and Research Centre, Deoband, for providing access to library resources, relevant literature, and internet facilities necessary for the completion of this review work. The authors also express their sincere gratitude to the authors, editors, and publishers of the books and journals consulted during the preparation of this manuscript.

Declaration of Competing Interest: The authors declare that there is no conflict of interest regarding the publication of this article.

Authors' Contributions: All authors contributed equally to the conception of the study, literature review, data collection, manuscript drafting, critical revision, and final approval of the manuscript.

Funding Source: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Ethical Approval: Not applicable.

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