
UNNAB (ZIZIPHUS SATIVA GAERTN.): BRIDGING TRADITIONAL UNANI KNOWLEDGE WITH MODERN PHARMACOLOGICAL EVIDENCE

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ABSTRACT

Unnāb (*Ziziphus sativa* Gaertn.), belonging to the family Rhamnaceae, is an important medicinal and fruit-bearing plant traditionally used in the Unani system of medicine. Its fruits are valued for their nutritional and therapeutic properties and are traditionally used particularly in respiratory, inflammatory and digestive conditions. The present review summarizes the available information on the botanical characteristics, traditional uses, *Mizaj*, phytochemical constituents and pharmacological activities of *Unnāb*. Reported pharmacological studies demonstrate a broad spectrum of activities, including antioxidant, anti-inflammatory, antimicrobial, immunomodulatory, hepatoprotective, gastroprotective, anxiolytic, anticancer, antidiabetic, anti-allergic, anthelmintic and wound-healing effects. These findings provide experimental support for several traditional therapeutic applications of *Unnāb*. However, much of the available evidence is derived from in-vitro and experimental studies, while clinical evidence remains limited. Further standardized

pharmacological, toxicological and clinical investigations are therefore warranted to establish its therapeutic efficacy, safety and scientific relevance in Unani medicine.

KEYWORDS: Jujube, Respiratory diseases, Muṣaffī-i-Khūn, Antioxidant, Unani medicine.

INTRODUCTION

Ziziphus sativa Gaertn. (jame al mufradate aghzia wa) belongs to the family Rhamnaceae and is commonly known as Unnāb, Common Jujube or Jujube berry. *Ziziphus sativa* Gaertn. is currently treated as a synonym of *Ziziphus jujuba* subsp. *jujuba*. (1,2) The plant is a small, spiny, deciduous or evergreen shrub/tree and produces fleshy, edible fruits that are widely valued for their nutritional and medicinal importance. (3,4) The fruits are generally ovoid to oblong, with a smooth or wrinkled surface when dried, yellowish to reddish-brown pulp and a single hard stone. (5)

Ziziphus jujuba is native to parts of China and is now cultivated or introduced in several regions of Asia, including India, Pakistan and Iran. (1) The plant is adaptable to a wide range of climatic conditions and its fruits are consumed both fresh and dried. (3,4) Owing to its nutritional composition and traditional medicinal importance, *Ziziphus* species have been used as food as well as medicinal plants in various traditional systems of medicine. (3,4)

In Unani medicine, the fruit of *Ziziphus sativa* is known as Unnāb and has been traditionally used as both a food and medicinal drug. (6,7) Unnāb is an important ingredient of several Unani preparations, including Sharbat-e-Unnāb and the traditional decoction containing Unnāb, Sapistān and Behīdāna. (6) Classical and contemporary Unani sources describe its use particularly in respiratory complaints and conditions associated with inflammation and irritation of the respiratory tract. (6) Unnāb has also been described in Unani literature in relation to Fasād-e-Khoon and Hiddat-e-Khoon, reflecting its traditional therapeutic importance. (6)

Phytochemical investigations of *Ziziphus jujuba* have demonstrated the presence of several classes of bioactive constituents, including flavonoids, saponins, alkaloids, triterpenoids, phenolic compounds, polysaccharides, amino acids and vitamins. (3,4) These phytoconstituents have been associated with various biological activities reported for the plant. Experimental and pharmacological studies have investigated the antioxidant, anti-inflammatory, antimicrobial, hepatoprotective, immunomodulatory, antidiabetic and gastrointestinal protective properties of *Ziziphus jujuba*. (3,4)

The combination of its long-standing traditional use, nutritional value, diverse phytochemical composition and reported pharmacological activities makes Unnāb an important medicinal plant for further scientific investigation. (3,4)

TAXONOMICAL CLASSIFICATION (8)

- **Kingdom:** Plantae
- **Division:** Magnoliophyta
- **Class:** Magnoliopsida
- **Order:** Rosales
- **Family:** Rhamnaceae
- **Genus:** Zizyphus
- **Species:** jujube

VERNACULAR NAMES (1,8-13)

- **Arabic:** Sinpo-i-Jilani
- **Persian:** Sailana
- **Hindi:** Jhadbairi, Ber
- **English:** Jujube, Common Jujube, Chinese Date, Asian Jujube, Jujube Fruit
- **Sanskrit:** Rajabadari
- **Punjabi:** Beri
- **Bengali:** Kul
- **Gujarati:** Bordi
- **Unani:** Unnab

HABITAT (5,8)

The Common Jujube (*Zizyphus sativa*) is widespread in a vast part of temperate and subtropical Asia ranging from the Mediterranean in the west to Mongolia and subtropical China in the east. It exists in Turkestan, Japan, where it is subsponaneous. Its cultivation has spread to the South of the Caspian, to Turkestan and to Asia Minor, as well as to certain regions of Transcaucasia. Its importance is even greater in China, where it is the most widespread of all cultivated fruit trees. Its fruits occupy the first place among those consumed by the Chinese people, where it plays a great role because of the food value of its fruits.

BOTANICAL DESCRITPION (1, 9-14)

Unnab is the edible, drupaceous fruit of a tree resembling the olive and *Ber* trees in height. The tree bears small, yellowish flowers and small, alternate, oval-shaped leaves that may be serrated or smooth-edged, and glabrous or hairy underneath. The fruit itself features a smooth, glossy, orange-red skin and a hard woody core enclosing a small kernel. Its semi-fleshy, sugar-rich pulp dries quickly into thin, brittle, irregular pieces with a taste ranging from sweet to slightly sour and astringent. Depending on the variety, fruits range from large and high-quality types like *Waquqi* to elongated date-like forms with thinner seeds.



Figure: Plant and Dried Fruits of *Unnab* (*Ziziphus sativa* Gaertn.)

MIZAJ (9-12)

The temperament (*Mizaj*) of *Ziziphus sativa* (Unnab) has been described differently in classical Unani literature. It is described as Mu'tadil (moderate) in some classical sources, while Garm-o-Tar (Hot and Moist) (1) is mentioned in other Unani sources.

PART USED (9-12)

The fruit of *Ziziphus sativa* (Unnab) is used medicinally.

DOSE: 5–7 Dāna (fruits).

NAFA-E-KHAS (9-14)

Dāfi '-i-Khashūnat-i-Ḥalaq wa Ṣadr (reliever of throat and chest roughness)

Muṣaffī-i-Khūn (blood purifier)

PHARMACOLOGICAL ACTIONS (1, 9-14)

The drug is traditionally described as *Musakkin-i-Hiddat-i-Khoon wa Safra* (refrigerant of blood and bile), *Musaffi-i-Khoon* (blood purifier), *Munjiz-i-Akhlat-i-Ghaliza* (concoctive of viscous humours), *Mulayyin-i-Sadr* (soothing agent for the chest), and *Munaffis-i-Balgham* (expectorant). It is also considered useful as *Dafi'-i-Su'al wa Rabw* (antitussive and antiasthmatic) and *Dafi'-i-Khashunat-i-Halaq wa Sadr* (relieving roughness of the throat and chest).

In addition, Unnab is described as *Mulayyin* (laxative), *Muda'if-i-Bah* (anaphrodisiac), *Muqallil-i-Mani* (reducing seminal discharge), *Mundamil-i-Quruh* (cicatrizant), and *Dafi'-i-Alam-i-Kuliya wa Masana* (relieving renal and vesical pain). It is also traditionally used for *Sozish-i-Baul* (burning micturition), and is described as *Mukhaddir* (sedative/anaesthetic), *Musaffi-i-Saut* (voice-cleansing), *Musakkin-i-Atash* (thirst-quenching), *Mushil-i-Akhlat-i-Raqiq* (purgative of thin humours), *Dafi'-i-Hikka* (antipruritic), *Habis al-Dam* (styptic), and *Muqawwi-i-Mi'da* (stomachic).

THERAPEUTIC USES (1, 9-14)

An infusion (*Nuqū'*) or decoction of dried Unnab fruits is traditionally used in various thoracic and respiratory disorders, including *Amrāḍ-i-Ṣadr* (thoracic diseases), *Amrāḍ-i-Ri'atain* (pulmonary disorders), *Dammā* (asthma), *Su'āl Yābis* (dry cough), *Khashūnat-i-Halaq* (throat irritation), and *Baḥḥat al-Ṣawt* (hoarseness of voice). It is also described as beneficial in conditions associated with *Hiddat-i-Khūn* (excessive blood heat), *Ghalayān-i-Khūn* (agitation of blood), and *Safrā* (yellow bile), and is traditionally considered useful for promoting purification of the blood.

In Unani medicine, Unnab is also employed in various dermatological disorders, including *Dā' al-Ṣadaf* (psoriasis), *Nār Fārsī* (Persian fire/erysipelas-like skin condition), *Jarb wa Hikka* (scabies and pruritus), *Qūbā* (ringworm/dermatophytosis), *Buṣūr* (skin eruptions), and *Fasād-i-Dam* (blood dyscrasia). These traditional applications are primarily associated with its *Musaffi-i-Khūn*, *Musakkin-i-Hiddat-i-Khūn*, and *Dāfi'-i-Hikka* properties.

MUZIR (Toxic Effects) (9,10,14)

It may be harmful to *Meda* (stomach) and *Bah* (sexual potency).

MUSLEH (Correctives)

Its adverse effects may be corrected by the use of

- *Shahad* (Honey) (9,14)
- *Gulab* (Rose) (9)
- *Nabat Safed* (10,11,14)
- *Munaqqa* (Raisin) (11)

BADAL (Substitute) 14

Sapistan may be used as a substitute for Unnab.

COMPOUND PREPARATIONS (9,10,12-14)

- *Sharbat Unnab*,
- *Shrabat ejaz*,
- *Laoq sapistan*,
- *Sharbat Musaffi Khoon*

CHEMICAL CONSTITUENTS (9,10,15,16)

Phytochemical investigations have demonstrated that *Ziziphus* fruits contain a diverse range of nutritional and bioactive constituents. The major phytochemical groups reported include alkaloids, flavonoids, phenolic compounds, saponins, triterpenoids, polysaccharides, tannins and pectin. The fruit also contains important nutritional components such as proteins, carbohydrates, sugars, lipids, dietary fibre and mucilage.

Among the phenolic constituents, various phenolic acids and flavonoids have been identified, while tri terpenic acids constitute another important group of bioactive compounds. The fruit is also a source of ascorbic acid (vitamin C) and other vitamins, including vitamin A, thiamine and riboflavin. In addition, important minerals such as calcium, phosphorus and zinc have been reported.

The presence of these diverse phytoconstituents provides a plausible chemical basis for the nutritional and pharmacological properties traditionally attributed to Unnab. Modern analytical investigations have further demonstrated considerable chemical diversity in *Ziziphus jujuba* fruit, including flavonoids, alkaloids, phenylpropanoids and organic acids.

PHARMACOLOGICAL STUDIES

Modern pharmacological investigations have established various therapeutic properties of the drug, including antioxidant, anticancer, anxiolytic, immunostimulant, anti-inflammatory,

antiulcer, antiallergic, anthelmintic, hepatoprotective, anti septic, and anti-obesity activities, with several other potential biological actions currently under exploration.

Table 1. Summary of Modern Pharmacological Activities Reported for *Ziziphus jujuba* Mill.

S. No.	Pharmacological activity	Plant part / preparation	Experimental model / study	Major finding	Ref.
1	Antioxidant	Fruit pulp extract	In vitro antioxidant assays	Significant antioxidant activity was observed; phenolics, flavonoids, ascorbic acid and maslinic acid contributed to the activity.	17
2	Hepatoprotective	Fruit pulp extract	CCl ₄ -induced liver injury model	Protected liver tissue against CCl ₄ -induced oxidative injury; activity was associated with maslinic acid.	17
3	Anti-inflammatory	Fruit ethanolic extract	Carrageenan-induced paw oedema in rats	Significantly reduced carrageenan-induced paw oedema.	18
4	Anti-inflammatory / immunomodulatory	Standardized fruit water extract	LPS-stimulated RAW 264.7 macrophages	Suppressed IL-1 β and IL-6 expression and inhibited NF- κ B activity.	19
5	Immunomodulatory	Fruit polysaccharides	Macrophage and mouse models	Enhanced macrophage phagocytosis and immune responses and influenced spleen/thymus indices.	20
6	Antimicrobial	Fruit extract	Bacterial and fungal models	Demonstrated activity against several Gram-positive, Gram-negative and fungal organisms.	21
7	Anti diarrhoeal	Fruit ethanolic extract	Castor-oil and <i>E. coli</i> -induced diarrhoea models	Demonstrated significant antidiarrhoeal activity.	18
8	Anxiolytic	Seed ethanolic extract	Elevated plus-maze and black-and-white tests in mice	Increased open-arm exploration and demonstrated anxiolytic activity.	22
9	Sedative / hypnotic	Seed ethanolic extract	Hexobarbital-induced sleeping and locomotor	Prolonged sleeping time and reduced locomotor activity at	22

S. No.	Pharmacological activity	Plant part preparation	Experimental model / study	Major finding	Ref.
			activity tests	higher doses.	
10	Anticancer antiproliferative	Fruit extracts	Human breast cancer cell lines MCF-7 and SKBR3	Inhibited cancer-cell proliferation and induced apoptosis.	23
11	Antitumour	Fruit extract	KG-1 and NALM-6 acute-leukaemia cell lines	Reduced cell viability and promoted apoptosis through modulation of Bax, Bcl-2 and caspase-3.	24
12	Anti hyperglycaemic	Fruit triterpenoids	L6 skeletal-muscle cells	Triterpenoids enhanced glucose uptake through a GLUT4-dependent mechanism.	25
13	Anti-allergic / anti-anaphylactic	Fruit ethanolic extract	Rodent allergy and mast-cell models	Reduced eosinophilia, mast-cell degranulation and anaphylactic responses.	26
14	Anti-allergic	Fruit extract / cAMP	Allergic rhinitis and RBL-2H3 mast cells	Reduced IgE/histamine responses and inhibited β -hexosaminidase release.	27
15	Gastroprotective antiulcer	Stem-bark aqueous extract	HCl/ethanol-induced gastric ulcer in rats	Produced significant protection against gastric mucosal injury.	28
16	Anthelmintic	Stem-bark methanolic and aqueous extracts	<i>Pheretima posthuma</i> model	Demonstrated significant anthelmintic activity compared with piperazine citrate.	29
17	Wound-healing	Fruit ethanolic extract	NIH-3T3 fibroblast scratch assay and rat model	Promoted wound closure and reduced inflammatory response.	30
18	Wound healing / skin repair	Fruit-derived soluble glucans	Keratinocyte scratch assay	Promoted skin-cell migration and wound closure.	31
19	Wound-healing anti-inflammatory	Leaf ethanolic extract ointment	Rat wound-healing model	Accelerated wound healing and demonstrated anti-inflammatory activity.	32
20	Antioxidant hepatoprotective	Fruit pulp / maslinic acid	Experimental oxidative liver injury model	Demonstrated antioxidant-associated protection against hepatic oxidative	17

S. No.	Pharmacological activity	Plant part preparation	Experimental model / study	Major finding	Ref.
				injury.	

CONCLUSION

Ziziphus sativa (Unnab) is an important medicinal plant with a long-standing history of therapeutic use in Unani medicine. In Unani practice, it is traditionally valued for its soothing, anti-inflammatory and restorative properties and is used particularly in respiratory, digestive and inflammatory conditions.

The reviewed pharmacological evidence demonstrates antioxidant, anti-inflammatory, antimicrobial, immunomodulatory, hepatoprotective, gastroprotective, anxiolytic, anticancer, antidiabetic, anti-allergic and wound-healing activities, providing scientific support for several of its traditional therapeutic applications. However, much of the available evidence is based on in-vitro and experimental studies, while clinical evidence remains limited.

Overall, Unnab represents a promising medicinal resource in Unani medicine. Further standardized pharmacological, toxicological and clinical studies are required to validate its traditional therapeutic applications, establish safety and efficacy, and strengthen its integration into evidence-based healthcare.

Declaration by Authors

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