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Exploring the Medicinal Value of Hulba (*Trigonella foenum*) in Unani: An Integrative Review

Dr. Shaistha Banu*, Prof. Ayesha Tabasum, Dr. Akshara Shikari*, Dr. Kaneez Fatma*, Dr. Syed Shuaib Pasha***

P.G Scholar, Dept. of *Amraze Jild wa Tazeeniyat* (Skin & Cosmetology), Govt. Unani Medical College & Hospital, Bangalore, India.
*HOD, Dept. of *Amraze Jild wa Tazeeniyat* (Skin & Cosmetology), Govt. Unani Medical College & Hospital, Bangalore, India.

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ABSTRACT

Background: Fenugreek (Trigonella foenum) known as *Hulba* has been used traditionally for both dietary and medicinal purpose since centuries in Unani Medicine. It is utilized as a single drug or as a component in compound formulations to address a variety of health conditions. **Objective:** This review aims to highlight the therapeutic applications of Hulba and provide a comprehensive analysis of its pharmacological activities. **Method:** A thorough literature search was conducted using databases such as Pubmed, Google Scholar, ScienceDirect and SCOPUS with search terms including "Hulba", "Trigonella Foenum", "methi", "fenugreek", "ethnobotanical studies", "phytochemical studies" and "pharmacological studies". Traditional perspectives were obtained from classical unani literature including *Muheet Azam, Khazainul Advia, Maghzan ul Mufradat, and Jamiul Advia wal Aghziya.* Ethnobotanical references were consulted from Indian Materia Medica, The Unani Pharmacopeia and Standardisation of Unani Drugs alongside Urdu and English research reports and original articles on *Trigonella foenum*. **Results:** The plant is recognized for its effectiveness in *Hazaz* (dandruff) and also effective in treating phlegmatic and melancholic disorders. Pharmacological studies indicate its anti-inflammatory, antifungal, antioxidant, antimicrobial, antidiabetic, hypolipidemic, hepato-protective properties. **Conclusion:** Despite its versatility and significance in Unani system of medicine, current scientific studies are inadequate to fully validate *Hulba's* pharmacological potential. Further research focusing on Unani mechanisms of action is necessary to substantiate its therapeutic claims with robust scientific evidence.

Keywords: Hulba, Trigonella Foenum Linn., Fenugreek, Methi, Unani medicine.

BOTANICAL NAME: *Trigonella Foenum Graceum.* [1,2,3]

INTRODUCTION:

Hulba is an *Arabic* word.[1,4] It is extensively used in various parts of the world as herb, food, spice, and traditional medicine.[5]

Trigonella foenum-graecum L., grown vastly in various parts of Europe, Asia and Africa.It was already known by the ancient Egyptians and Greeks and hence first documented in Egyptian literature around 1500 BC in *Ebers papyrus*.[5,6]

In Unani literature it is named as *Teelas, Sheelan, Taalas, Fareeqa* and *Shamleet*. It is also known as *Qarnus Sur* and *Qarnul Unz* in *Arabic*.[7,8,9,10,11,12]

The drug *Tukhme Hulba* is the seeds of *Trigonella Foenum Graceum* and the genus name *Trigonella* is in reference to its triangular shaped flowers, and in Latin to a tiny triangle. The species *foenum-graecum* is named denoting *Greek hay* or *Greek grass*, symbolizing it as the common crop used as cattle fodder in Greece.[13] The Greek name of the plant is *"telis"*, which means green.[1,10] Presently the genus comprises of 62 species, only the *Trigonella Foenum Graceum* being the most well-known and commercial potent drug.[14]

Hulba is a short living 30-60 cm tall aromatic annual plant mostly found in upper Gangetic plains, Punjab and Kashmir. It is also widely cultivated in other parts of India and North African countries. It belongs to the second largest family of flowering plant i.e *Fabaceae* or *Leguminosae*.[2,15] It widely consists of 600 genera and about 12000 species.[1,16]

Hulba commonly known as fenugreek, is a leguminous herb found distinctly in two varieties i.e a Dwarf type for dietary and medicinal use and tall growing one which is commonly used as cattle fodder.[5]

Trigonella foenum-graecum is also known as *"Methi"*, and *Trigonella corniculate* is popularly referred as *"Kasurimethi"*. These are the two species of the genus *Trigonella*. *Trigonella corniculata* serves multiple purposes in different regions of Pakistan and India. Its aerial parts are eaten as a leafy vegetable, while the dried form of the plant is commonly utilized as a spice and flavouring ingredient.[14] It is also used as spice for flavouring and enhancing the taste of the food.[14,15]

MATERIALS AND METHOD:

A comprehensive search was conducted to compile all available data on *Hulba*. A literature review was undertaken using bibliographic databases, including PubMed, Google Scholar, ScienceDirect, and SCOPUS. The search was performed using keywords such "Trigonella Foenum", "methi", "fenugreek", "phytochemical studies", and "pharmacological uses".

For Unani literature and related terms, classical texts were consulted, including Urdu translations provided by the Central Council for Research in Unani Medicine (CCRUM), Government of India. The following Unani books were referred to gather all relevant information on Hulba*: Muheet Azam, Khazainul Advia, Maghzan-ul-Mufradat, Bustanul Mufradat, Mufradat-i-Azeezi, Jamiul Advia wal Aghziya*.

Additionally, ethnobotanical literature was reviewed from sources such as Indian Materia Medica, National formulary of Unani medicine, The Unani Pharmacopeia, Standardisation of Unani drugs and Indian Plants and Drugs with their Medical properties and Uses. Research reports and original articles published on *Hulba* in both Urdu and English were also consulted to systematically compile all relevant information. A total of 80 records were initially retrieved. After applying the inclusion criteria (studies published between 1986 and 2025, discussing the pharmacological effects of *T.Foenum*, Unani uses, or phytochemical composition, and published in English or Urdu) and exclusion criteria (irrelevant studies, lack of full text, or duplicated content), 44 articles were selected for detailed review and analysis.

SCIENTIFIC CLASSIFICATION:[1,16]

Kingdom	Plantae
Sub-Kingdom	Tracheobionta
Super Kingdom	Spermatophyta
Division	Magnoliophyta
Class	Magnoliopsida
Sub-Class	Rosidae
Order	Fabales
Family	Leguminosae/ Fabaceae
Genus	Trigonella
Species	T. Foenum Graceum

VERNACULAR NAMES:[1,16,17]

Arabic	Hulba
English	Greek Hay Seed, Bird Foot, fenugreek
Hindi	Methi
Bengali	Meetu
Kannada	Menthe
Sinhala	Uluhal
Tamil	Vandayam
Telugu	Methikura
Malayalam	Vethian
Marathi	Methi
Punjabi	Methiri
Sanskrit	Methika
Persian	Shambelile

HABITAT:

Hulba is an ancient crop of India and Northern Africa, South Europe and Asia and was initially grown as a forage plant across Mediterranean Eurasia, Russia, North Africa, and the Middle East. Over time, its cultivation spread to other parts of the world, particularly the Indian subcontinent and much of South Asia. Often called the 'Queen of Forages.[14] This annual herb is cultivated extensively in places of India like Kashmir, Punjab, and parts of the former Bombay and Madras presidencies.[3,18,19] Its wide distribution shows that it can adapt well to different climates and growing conditions. It grows best in temperate regions with mild winters, low to moderate rainfall, and cool summers.[18]

***MAHIYAT:* (BOTANICAL DESCRIPTION)**[7,8,10,12]

Fig. Hulba seeds

Fig. Hulba Plant

The seeds are hard, pebble-like solid-rhomboidal, yellowish brown to light brown in colour which has a characteristic spicy/ aromatic odour and bitter taste.[9,12] The size measures about 3.0–7.0 mm in length, 2.8–4.0 mm in width, and 2.2–2.5 mm in thickness.[3,20]

Fenugreek seeds, when sown in well-prepared soil, germinate within three days. The seedlings develop into plants that may grow erect, semi-erect, or branched, reaching a height of approximately 30 to 60 cm.[16,19] The single stem of the plant is often glabrous, twisted or has dispersed tomentum. The leaves are oval, serrated pinnately compound, consisting of alternate trifoliate leaflets. These leaflets usually measure 2–5 cm in length, though they may occasionally reach up to 10 cm. They are typically lanceolate or obovate in shape, measuring around 2.0–2.5 cm, and are oblanceolate with faintly toothed (obscurely dentate) margins.[1,16] The flowers are white to yellowish-white in colour, axillary in position, and ranges 0.8 to 1.8cm in diameter and occur solitarily in a sessile arrangement. The calyx is slender, elongated, and covered with fine hairs on the outer surface, displaying a pale green coloration.[107]The fruits are leguminous pods measuring 3–15 cm in length, laterally compressed, smooth, and enclosed at the base by a persistent calyx. Each pod contains 10–20 seeds that are rhomboidal and pebble-like in shape, with a plain surface and yellow coloration. It is also known as 'ox horn' or 'goat horn' because its two seed pods project in opposite directions from the nodes of the stem base and resemble an ox or goat horns.[1,15,16]

***HASASE MUSTAMELA* (Parts used):**

Seeds, pods and Leaves[1,17,21]

***MIZĀJ* (Temperament):**

Leaves: Ḥārr 2^0 *Yābis* 1^0 (Hot 1^0 Dry 1^0)[1,20]

Ḥārr 2^0 *Yābis* 2^0 [1,20]

Seeds: Ḥārr 3^0 *Yābis* 3^0 [12]

Mucilage *Ḥārr* 1^0 *Raṭb* 1^0 [12]

***NAFA-I-KHAAS:* (Main Action)**[1,3]

Muḥallil-i-Awrām (resolvent), *Muqawwī-i-Bāh* (aphrodisiac), *Mudirr-i-Baul* (diuretic), *Mudirr-i-Haiz* (emmenagogue), *Munaffith-i-Balgham* (expectorant)

***AF'ĀL* (PHARMACOLOGICAL ACTIONS):**[3,11,20]

Jālī (detergent), *Muḥallil-i-Awrām* (resolvent), *Munḍij* (concoctive), *Mulaṭṭif* (attenuant), *Mudirr-i-Laban* (galactogogue), *Muqawwī-i-A'ṣāb* (nervine tonic), *Muqawwī-i-Bāh* (aphrodisiac), *Munaffith-i-Balgham* (expectorant), *Mudirr-i-Ḥaiz* (emmenogogue), *Kāsir-i-Riyāḥ* (Carminative), *Mulayyin* (Laxative)

***MUZIR* (TOXICITY):**[1,7,8,9,10,20]

Dard-i-Sar (headache), *Ghashī* (syncope), *Khusiyatur Reham* (ovaries). *Muzir* for hot temperament individuals

***MUṢLIḤ* (CORRECTIVE):**[1,7,8,9,10,20]

Sikanjabeen, Anisoon (Pimpinella Anisum), Berg-e-Kasni (Cichorium Intybus Linn.) Anaar (Punica Granatum), Ghee

***BADAL* (SUBSTITUTE):** [1,7,8,9,10,20]

Tukhme Katan (Alsi) (Linum Usitassisimum), Akleel-ul-Mulk (melilotus officinalis), Nakhuna (Trigonella Uncata)

***MIQDAAR* (DOSE):**

3-7gms[7,8,11,12]

4-6 gms[1]

***MURAKKABAT* (COMPOUND FORMULATION):** [1,7,8,9,20]

La'ūq-i-Hulba, La'ūq-i-Zeequnnafs, La'ūq-i-Habbul Sanobar, Habb-i-Khabsul Hadeed Qairooti Araḍ Karasna, Marham Dakhiliyoon, Dawā' al-Misk, Ḍimād-i-Khanazeer, Ḍimād-i-Kibreet

CHEMICAL COMPOSITION:[1,17,22]

Fenugreek seeds are rich in Fiber, gum, iron, vitamin A, B, C and free amino acids like aspartic acid, glutamic acid, leucine, *hydroxyisoleusine*, tyrosine and phenylalanine), sulfur-containing amino acids (cysteine and methionine), sapogenins. It is composed of Alkaloids like *trigonelline, trigocoumarin, trimethyl coumarine* and *nicotine acid*), Flavonoids like *quercetin, luteolin, vitexin, 7,4-dimethoxy flavanones*, Glycosides such as *C-glycosidic* and *O-glycosidic* bond. *Quercetin-3-O-rhamnoside* (quercitrin), *vitexin-7-Oglucoside* (*afroside*), and *apigenin-6-C-glucoside* (isovitexin), proteins, saponins, steroids, tannins, triterpines, essential oils, galactomannans. Stem contains diosgenin and trigoforin. It is a rich source of minerals and electrolytes like potassium (K)(603mg/100gm), magnesium (Mg) (42mg/100gm), calcium (75mg/100gm), zinc (2.4mg/100gm), manganese (0.9mg/100gm), copper (0.9mg/100gm) , sodium (Na), iron (Fe)(25.8mg/100gm), phosphates (P), Sulphates (S) and Chloride (Cl). The volatile oils of seeds consists of pyridine alkaloids, flavonoids along with nearly 20–30% of proteins that are high in lysine and tryptophan.

***ISTEMAAL* (Therapeutic Uses):**[1,3,7,8,9,11,12,23]

Ḥazāz(dandruff), *Inteshar-al shar* (hairfall), *Ashob-e chashm* (Conjuctivitis), *Su'āl muzmin* (Chronic cough), *Zeequn nafs/Rabw* (Broncial Asthma), *Iḥtibās-i-Ḥaiz* (Amennorhea), *Ḍu'f al-Bāh* (Sexual debility), *Ḍu'f-e-A'ṣāb* (Nerve debility), *Waja' al-Mafāṣil* (Arthritis/Arthralgia), *Ṣar'a* (Epilepsy), *Istirkhā'*(Flaccidity), *Istisqā'* (Ascites), *'Iẓam al-Tihal* (Spleenomegaly), *Bawāsīr* (Haemorrhoid), *Niqras* (Gout), *Waram al-Raḥim* (Metritis), *Ẓāhir* (Dysentery).

USES: [1,3,7,8,9,11,12,23]

1. Internal Uses:

- Seeds are used in colic, flatulence, dysentery, diarrhoea, dyspepsia with loss of appetite, chronic cough, throat pain, dropsy and enlargement of spleen and liver.
- The powder of roasted *Hulba* seeds as infusion in *Ẓāhir* (dysentery).
- The *Hulba* seeds are given for the nursing mother as a lactational aid.
- The *Joshānda* (decoction) of *Hulba* seeds with *Shahed* (honey) for *Bawāsīr* (Haemorrhoid).
- It is useful in *Amraz-al-Kabid* (Diseases of Liver) especially in *Waja'al-Kabid* (Hepatalgia), *Balghami* disorders like *Su'āl-i-balghami* (productive cough), Respiratory diseases and otalgia.
- *Joshānda* of *Berg-e-Hulba* mixed with *sirka* (vinegar) in *Qurūḥ-i-Am'ā'* (intestinal ulcers).

2. External Uses:

- The paste of *Hulba* topically beneficial in shrinked nails and softening the Dubela. resolves inflammation,
- *Joshānda-i-Hulba* is beneficial in *Ḥazāz* (Dandruff) and strengthens the hair.
- Local application of *Hulba* powder mixed with *Bora armani* resolves both internal and external inflammation.
- *Lu'āb Hulba* with *Ravghan-i-Gul* topically is beneficial in fissuring of hands and legs caused due to exposure to heat and cold.
- It acts as complexion enhancer.
- Sitz bath with *Joshānda-i-Hulba* is beneficial in *Waram al-Raḥim* (urethritis), *Waja'al-Raḥim* (uterine pain).

PHARMALOGICAL STUDIES:

Antioxidant effect

The phenolic compounds and flavonoids of fenugreek seeds mainly gives an antioxidant activity. The methanolic extract of it can scavenge the free radicals. It also showed improvement in thiobarbituric acid reactive levels in various tissues of kidney, liver or heart.[23,24,25,26,27]

Anti-inflammatory effect

The main chemical constituents of fenugreek which possess an anti-inflammatory effect are alkaloids, saponins, and flavonoids.[19,28,29,30]

Antimicrobial effect

Seeds consists of toxic oils and other constituents which gives a toxic effect on bacteria, parasites and fungi. Secondary metabolites found in this extract possessed the antimicrobial activity.[25,27,29,30,31]

Antidiabetic effect

Fenugreek seeds consists of greater quantity of trigonelline, fiber**,** 4-hydroxyisoleucine, galactomannon and saponins. The main alkaloid chiefly acts on glycosuria is trigonelline. 4-hydroxyisoleucine is a free amino acid which stimulates glucose dependent insulin secretion from pancreatic islet cells and inhibiting the activity of two intestinal enzyme activity of alpha amylase and 92 signaling involved in carbohydrate metabolism. It mainly gives a insulin trophic activity. Galactomannan reduces postprandial blood glucose level by slowing down the stomach emptying, delaying the uptake of glucose in small intestines.[17,25,26,28,32,33]

Anticarcinogenic effect

The chemical constituents in fenugreek which gives an anticancer activity are phytoestrogens and saponins. A derived compound known as protodioscin and Saponins inhibit cell division in tumor cells selectively and it also can activate apoptotic programs which causes programmed cell death. The extract of the fenugreek plant exhibits the cytotoxic effect *in vitro* against the different types of cancer cells like IMR-32 and HT29 cancer cell line.[17,29,34,35]

Hypocholestrolemic effect

The hypolipidemic effect in fenugreek is mainly due to its high content of soluble fiber, which acts by decreasing the reabsorption of bile acids and increasing excretion of bile acids and cholesterol through defecation thereby delaying the absorption of lipid from the small intestine. The chemical constituents of fenugreek which possess the hypolipidemic activity are saponins, diosgenin, galactomannan, and fiber. Fenugreek seed administration and its extracts lowered the plasma cholesterol, liver cholesterol triglycerides, and LDL cholesterol.[17,29,36]

Hepato-gastro Protective effect

Fenugreek contains about 4-8% of saponins and 1% alkaloids contributing to bitterness, gastric stimulation, increased acidity and increases appetite. The polysaccharides, flavonoids, phytic acid, saponins, and trigonelline found in essential oils of fenugreek showed a significant decrease in reflux esophagitis, gastric ulcer, anticholesteol gallstones.[26,36,37]

Antiobesity effect

The ethanolic extract of *Trigonella Foenum Graceum* seed lowered total cholesterol, triglycerides, LDL cholesterol and higher values of HDL cholesterol by decreasing the hepatic lipid content mediated by diosgenin.[24,28,33,38,39]

Immunomodulatory effect

The ethanolic extract exhibited a significant increase in phagocytic index and haemoagglutinating antibody titre indicating immune-stimulation through humoral immunity in mice thus showing the immunomodulatory effect.[26,40]

Haemopoietic effect

Fenugreek seeds are rich in proteins and essential amino acids, iron and ascorbate.[25,41]

Neuroprotective effect

The bioactive compounds present in fenugreek extracts has potential to reduce the risk of several neurological disorders such as depression, Alzheimer disease and Parkinson disease. The saponins of fenugreek resulted in inhibition of apoptosis and acetylcholinesterase activity by inducing neuroprotective effects.[38,42]

Antidiarrhoeal effect

The aqueous extract and methanol extract of fenugreek possess the antidiarrheal properties.[19,43]

Antifungal effect

The compounds of fenugreek like alkaloids, flavonoids, tannins, terpenoids etc possess the antifungal effect.[30,44]

DISCUSSION:

Trigonella Foenum is a notable medicinal plant in Unani medicine, widely discussed by ancient Unani scholars. Unani practitioners have given significant importance to the method of administration and have developed precise guidelines for its proper use. Interestingly, its therapeutic outcomes are observed only if these principles are strictly implemented. The therapeutic effects of *Hulba* vary depending upon the climatic conditions, regional distribution, and the temperament. Consequently, its efficacy varies depending on these factors. It has been documented that the drug exhibit immunomodulatory, anticancer, anti-inflammatory, antioxidant, antimicrobial, antiobesity, hepato-gastroprotective activity and antidiabetic activities. Despite its traditional use, the efficacy of this drug in dermatological conditions remains underexplored, making targeted research crucial to validate its traditional Unani applications. In addition, exploring the traditional methods of administration recommended by Unani medicine could provide valuable insights for future studies. Phytochemical analysis has revealed that alkaloids, particularly trigonelline, galactomann are among the active constituents of fenugreek. Based on current evidence, *Trigonella foenum* is a versatile medicinal plant traditionally used by diverse indigenous communities across India. In addition to its roots, the leaves and tender shoots are widely employed to manage a variety of pathological conditions. Consequently, this plant holds significant potential as a source for novel drug development and therapeutic applications.

CONCLUSION:

T.foenum is recognized as a multipotent medicinal plant with diverse therapeutic applications in traditional systems, particularly Unani medicine, where it is used for disorders associated with Sawdāwī (melancholic) and Balghami (phlegmatic) temperaments. Contemporary research has partially validated its pharmacological properties such as anti-inflammatory, antioxidant, hepatoprotective, and antimicrobial effects through in vitro and in vivo models. However, the absence of large-scale, randomized controlled trials limits its acceptance in evidence-based practice. Future research should focus on standardized clinical studies to determine the safety, efficacy, optimal dosage, and formulation protocols of *Trigonella foenum*, thereby facilitating its rational incorporation into modern therapeutics.

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Conflicts of interest

The authors declare no conflicts of interest.

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<table>
<tr><td> 
</td><td>**Author**
Dr. Shaistha Banu *
P.G Scholar, Dept. of *Amraze Jild wa Tazeeniyat* (Skin & Cosmetology), Govt. Unani Medical College & Hospital, Bangalore, India.</td></tr>
<tr><td></td><td>**Corresponding Author**
Prof. Ayesha Tabasum **
Professor and HOD , Dept. of *Amraze Jild wa Tazeeniyat* (Skin & Cosmetology), Govt. Unani Medical College & Hospital, Bangalore, India.</td></tr>
<tr><td colspan="2">**Co-Authors**</td></tr>
<tr><td>  </td><td>**Dr. Akshara Shikari,**
P.G Scholar, Dept. of *Amraze Jild wa Tazeeniyat* (Skin & Cosmetology), Govt. Unani Medical College & Hospital, Bangalore, India.</td></tr>
<tr><td></td><td>**Dr. Kaneez Fatma,**
P.G Scholar, Dept. of *Amraze Jild wa Tazeeniyat* (Skin & Cosmetology), Govt. Unani Medical College & Hospital, Bangalore, India.</td></tr>
<tr><td></td><td>**Dr. Syed Shuaib Pasha**
P.G Scholar, Dept. of *Amraze Jild wa Tazeeniyat* (Skin & Cosmetology), Govt. Unani Medical College & Hospital, Bangalore, India.</td></tr>
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