Available online on 15.04.2021 at <http://jddtonline.info>

Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

© 2011-21, publisher and licensee JDDT, This is an Open Access article which permits unrestricted non-commercial use(CC By-NC), provided the original work is properly cited



Open Access Full Text Article



Review Paper

Trigonella foenum graecum (Methi): An important botanical drug of Unani system of medicine for the management of gynecological disorders

Shamim Ansari^{1*}, Wajeeha Begum², Haqeeq Ahmad³¹ Reader & HOD Dept. of Ilmul Qabalat, (Obstetrics) Hakim Syed Ziaul Hasan Govt. Unani Medical College, Bhopal 462 003 (Madhya Pradesh) India² Prof. & HOD Dept of Ilmul Qabalat wa Amraz-e-Niswan, (Obstetrics & Gynecology) National Institute of Unani Medicine, Kottigepalya, Magadi Main Road, Bengaluru-91 Karnataka, India³ Ph.D Scholar Dept. of Ilmul Advia (Pharmacology), National Institute of Unani Medicine, Kottigepalya, Magadi Main Road, Bengaluru 560 091 Karnataka, India

Article Info:



Article History:

Received 12 Feb 2021
 Review Completed 23 March 2021
 Accepted 30 March 2021
 Available online 15 April 2021

Cite this article as:

Ansari S, Begum W, Ahmad H, *Trigonella foenum graecum* (Methi): An important botanical drug of Unani system of medicine for the management of gynecological disorders, Journal of Drug Delivery and Therapeutics. 2021; 11(2-s):167-174
 DOI: <http://dx.doi.org/10.22270/jddt.v11i2-s.4805>

*Address for Correspondence:

Shamim Ansari, Reader & HOD Dept. of Ilmul Qabalat, (Obstetrics) Hakim Syed Ziaul Hasan Govt. Unani Medical College, Bhopal 462 003 (Madhya Pradesh) India

Abstract

Hulbah (methi) is a botanical drug used in traditional system of medicine and claimed to be effective in the management of gynecological disorders. In this study the aim is to review the role of *Hulbah* in the management of gynecological disorders (like *Warm-e-Rahim*, *Warm-e-Unq-ur-Rahim*, Cervicitis, galactogogue, dysmenorrhea uterine tonic, emmenagogue, labour pain, *Mudirr-e-boul*, *Mudirr-e-Haiz*, *Mushile Wilaadat*, *Salabat Rehm*, *Warm-e-Rehm*, *Quruhal Rahim*) as mentioned in Unani literature. A review of literature on *Hulbah* was undertaken using the bibliographic database viz. Pub Med, Google Scholar, Science Direct and Scopus. The search was conducted using the terms '*Hulbah*', 'Methi', '*Trigonella foenum-gracum*', 'Fenugreek' and 'Hu Lu Ba'. Further, books published in Urdu and English were used to compile the information as representative literature in Unani medicine. The result of review enumerated that *Hulbah* as such and as an ingredient in various formulations has been used for the management of gynecological disorders since ancient times mainly by the practitioners of traditional medicines. Literature of Unani medicine clearly indicated that *Hulbah* and its different formulations are safe in gynecological disorders. Sufficient information in respect of Antiarthritic effect, Antibacterial and Antifungal activity, Hypolipidemic effect, Anthelmintic activity, Estrogenic activities, Effect on polycystic ovarian syndrome, Anti-inflammatory and analgesic activities etc., of *Hulbah* are available. *Hulbah* and its formulations have been claimed by Unani medicine to be useful in the management of gynecological disorders. Modern scientific reports though scarce, also suggest the possibility of such an effect.

Keywords: Methi: *Hulbah*: *Trigonella foenum gracium*: Fenugreek

Introduction

Unani medicines were used in India, Egypt, China and Greece long before the beginning of Christian era.¹ and it is estimated that about 80% of people in the world especially in developing countries use these medicines for their primary healthcare needs.² In past few decades, the demand for herbal medicines has increased manifold due to which drug industry has come into existence producing such medicines on large scale in order to meet the increased demand, thus increasing the chances for adulteration and substitution with inferior drugs and contamination with unwanted constituents. Unani medicines were used since ancient times which prove their efficacy and safety but present era needs scientific validation to accept their wider use. In recent times, the research on herbal medicines have explored their hidden effects in treating a vast majority of diseases.³ thus evaluating these medicines on modern parameters is the need of hour to generate scientific data related to their effectiveness. Modern analytical parameters like

physicochemical, Phytochemicals and chromatographic fingerprint profile can be used to evaluate Unani drugs or their safety and efficacy.⁴

The survey of Unani literature shows that *Hulbah* has a long history of its use as an important drug for the treatment of gynecological disorders including *Warm-e-Rahim*, *Warm-e-Unq-ur-Rahim*, Cervicitis, galactogogue, dysmenorrhea uterine tonic, emmenagogue, labour pain, *Mudirr-e-boul*, *Mudirr-e-Haiz*, *Mushile Wilaadat*, *Salabat Rehm*, *Warm-e-Rehm*, *Quruhal Rahim*. *Hulbah* is commonly known as *Methi* in traditional system of medicine. Its botanical name is *Trigonella foenum gracium*. *Hulbah* as a single drug in powder form or in combination with other drugs has been widely used in Unani medicine for treating gynecological disorders viz. *Warm-e-Rahim*. It is also an important ingredient of several formulations viz. *Dawaul misk*, *Dawaul Luks*, *Qairuti aarad karasna*, *Habbe Khabsul Hadeed*,⁵ *Marham dhakhiliyun Laooq-e-Hulba*, *Laooq-e-Zeeq-un-Nafas*, *Zimad-e-Kibreet* and *Zimad-e-Khanazeer*. Since literature

available on this important drug is very scant therefore, in the present paper an attempt has been made to compile the available information on *Hulbah* and its different formulations so as to bring to light the therapeutic potential of this lesser known drug.

Methodology

A review of literature on *Hulbah* was undertaken using the bibliographic database viz. Pub Med, Google Scholar, Science Direct, Scopus and others internet sources. The search was conducted using the terms '*Hulbah*', '*Methi*', '*Trigonella foenum-gracum*', 'Fenugreek' and 'Hu Lu Ba'. Further, books published in Urdu and English were used to compile the information as representative literature in Unani medicine

Results and Discussion

Description of *Hulbah* in ancient literature

Hulbah is an Arabic word and commonly called as "*Methi*". It is scientifically known as *Trigonella foenum-gracum*, and it belong to the family Fabaceae which is subfamily of Leguminosae. *Methi* is an annual herb. Fenugreek was first described around 1500 BC in Egyptian literature for various medicinal as well as dietary uses. It is one of the most renowned herbs in traditional system of medicine. It is cultivated in every part of India in winter seasons, seeds are also known as *Tukhm Hulba* in Unani system of medicine.

Its botanical name is *Trigonella foenum-gracum*, which *trigonou* is derived from Latin and means "three angled" and *foenum gracium* which means Greek hay is because of its different uses in ancient.^{6, 7} 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.⁸ *Methi* belongs to the family *Leguminosae* the second largest family of flowering plants. And contain 600 genera and about 12000 species.⁹ "Plants are used medicinally in different countries and are a source of many potent and powerful drugs. Medicinal plants are used by 80% of the world population as the only available medicines especially in developing countries.¹⁰ It, has three part leaves, the slender stems bear tripartite, toothed, grey-green obovate leaves, 20-25 mm long.^{11, 12, 13} It is a well-known ingredient of spice blends which prevents ageing, imparts immunity, improves mental function, labour pain and adds vitality to the body. In "*Zakhira Khwarzam Shahi*", Jurjani mentioned that *Hulba* or *methi* is effective in female diseases, especially in *Waram-e-Rahem* and *Quruh-al-Rahem*.¹² Medicinal plants are found to use in different traits like pharmaceuticals, nutraceuticals, cosmetics and food supplements etc. Fenugreek is used to ease child birth as well as it helps to increase the milk flow of mother. Egyptian women are still taking Fenugreek for menstrual pain and tourist use it as *Hulbah* tea to remove stomach problem. *Hulbah* plant is also recommended in dyspepsia with loss of appetite, in diarrhea of puerperal women, and in rheumatism.¹⁴

Historical background

In Islamic and *Unani* medicine the seed is such a treasured tonic that the "Prophet Mohammed (S.A.W) says "if you know

the value of fenugreek you pay its weight in gold.^{6, 9, 15, 16} Fenugreek was first described around 1500 BC in Egyptian literature for various medicinal as well as dietary uses. It is one of the most valued herbs in Unani, Ayurveda and Siddha system of medicine.¹⁷ The Prophet Mohammad's (SAW) visited one of his blessed companions, *Sa'ad bin Abi Waqqass*, who had contracted an illness during his stay in Mecca, and then requested that a physician examine him. After a diagnosis was made, the Prophet (SAW) said, "He will be fine. Give him the soup of a decoction of dates and fenugreek (*Hulbah*)".^{6, 16} In the Islamic literature, it is mentioned as a Prophetic Medicine and Prophet Mohammad (SAW) mentioned its therapeutic efficacy and potential of cure.

It is stated in books of Hadith that Prophet Muhammad (SAW), said, "Get cure from *Methi (Hulbah)*. Qasim Bin Abdul Rehman narrates that Prophet (SAW) stated that "get cure from *Methi* as consist of 72 properties.^{9, 15} Unani medicine is in use since thousands of years by unani physicians. Dioscorides (70A.D.), Rhazi (850-925A.D.) Ibn Sina (Avicenna) (980-1037A.D.) and Ibn Masoia were mention this herb.(1197-1248A.D.)¹⁸ In 17th century fenugreek seeds were recommended by Haward to help expel the placenta of women after giving birth.⁹

Ibn Sina also used fenugreek and valued it highly. Hippocrates considered fenugreek to be a valuable soothing herb and used it for cough, lung Congestion and upper respiratory complaints. Dioscorides advocated fenugreek for all types of gynecological disorders. Fenugreek has been used since Biblical times to increase the production of milk for nursing. "The Ebers Papyrus of 1500 BC Egypt lists a preparation of fenugreek for the skin".

Hidvegi *et al.*, (1984) report that references to the utilization of fenugreek are found as far back as 1578, detailed information on the plant is given in the famous Herbarium compiled by Melius (1578). Historically, fenugreek is one of the oldest known medicinal plants and even "Hippocrates" thought highly of it. Fenugreek was first introduced in Chinese medicine in the Sung dynasty, AD 1057 and Dioscorides a Greek physician of Anazarbus in Cilicia, father of pharmacology, in AD 65 in his *De-Materia Medica* write that fenugreek is an active component of ointments. Fenugreek was introduced into central Europe at the start of 9th century. Hutchinson (1964) has given detailed description of *Trigonella-foenum*.⁹

Scientific classifications:^{6, 9, 14}

Kingdom: Plantae, Sub-kingdom: Tracheobionta, Super-kingdom: Spermatophyta, Division: Magnoliophyta, Class: Magnoliopsida, Sub-class: Rosidae, Order: Fabales, Family: Leguminosae/Fabaceae and Genus: *Trigonella*

Morphology of Seed:^{11, 14}

The morphology of seed of *Hulbah* is as follows

Appearance: Solid- rhomboidal seeds, 3 to 5 mm long, 2 mm thick. Hard, pebble-like. **Colour:** Yellowish brown or light brown. **Odour:** Spicy and **Taste:** Bitter

Vernacular names:^{6, 8, 13, 15, 19, 20}

The Vernacular names of *Hulbah* is mentioned in following table

S.N	Languages	Vernacular names
1	Aasami	Mithiguti
2	Bengali	Meetu
3	Arabic	<i>Hulba</i>
4	Urdu	<i>Methi</i>
5	Dutch	Fenegrick
6	German	Griechischten
7	Kannad	Menta
8	Punjabi	Methiri
9	Spanish	Alnolva
10	Telgu	Methikura
11	Chinese	Hu Lu Ba
12	English	Fenugreek
13	Hindi	<i>Methi</i> ,
14	Malayalam	Vethian
15	Persian	Shambelile
16	Swedish	Bockhornsklover
17	Danish	Bockkelhorns-fro
18	French	Fenugreek
19	Italian	Fieno Greco
20	Marathi	<i>Methi</i>
21	Sanskrit	Methika
22	Tamil	Vandayam

Botanical description

Trigonella foenum gracium is an annual herb with 1-2 feet height. It is an erect, slightly branched, cylindrical, hollow smooth stem and root tapering.²¹



Figure1: *Methi (Trigonella foenum gracium linn.)* leaves and seeds.²⁵

Cultivation and collection^{9, 17, 21, 22}

Hulba is native to South Europe and Asia. The plant is widely cultivated in many parts of India as a pot-herb. It grows in winter season, flowers and fruits appear during February and March. This annual herb is found wild and extensively cultivated in Kashmir, Punjab and some parts of the Bombay and Madras presidencies.

Macroscopic description:^{9, 21}

Trigonella foenum graecum leaves are compound alternate, trifoliolate up to 2-5cm long but sometimes up to 10 cm, leaflets are lanceolate or obovate 2.0 to 2.5 cm long, oblanceolate along obscurely dentate;

Flowers are white are yellowish white in colour. Flowers are axillary, sessile, solitary, calyx long and narrow, hairy on outside and pale green in colour.

Fruits are leguminous, pods 5-8 cm long, laterally compressed smooth, surrounded at the base by persistence calyx, and enclosing 10-20 seeds The seeds are rhomboidal in shape and with a deep yellow color compressed, truncate at both ends, 3.0-7.0 mm in length, 2.8-4.0 mm in breadth and 2.2-2.5 mm in thickness.

Microscopical description

Leaves contains upper and lower epidermal cells with wavy anticlinal walls, striated cuticle and anomocytic stomata, more frequent on the lower epidermis; trichoma's, more abundant on lower epidermis of two types; covering trichoma's, uniseriate with up to six small isodiametric basal cells and an elongated, tapering apical cell, often at right angles to the axis of basal cells; glandular trichoma's, slightly sunken, composed of a short, biseriolate two or four-celled stalk and a biseriolate head of four cells, around which the cuticle form a bladder like covering. Transverse section of seed coat consists of an outer palisade layer. These cells are radially elongated and their tips are pointed and show thickening of outer wall. Parenchymatous layer is 1-2 cells thick followed by 2-3 layers of elongated cells of parenchyma. Epidermis of radicle consist thin walled parenchymatous cells. The aleuronic grains are oval to round in shape.^{9, 15, 23, 24} Fig.1 represent the leaves and seeds of *Methi* mentioned below.

Phytochemical constituent: 6, 11, 18, 19, 26

The Phytochemical constituent of *Hulbah* are mentioned as follows

Alkaloids: Trimethylamine, Neurin, Trigonelline, Choline, Gentianine, Carpaine and Betain.

Amino acids: Isoleucine, 4-Hydroxyisoleucine, Histidine, Leucine, Lysine, Tryptophan and Arginine. **Saponins:** Gracunins, Fenugrin B, Fenugreekine, Trigofenosides A-G.

Sapinogens: Yamogenin, Diosgenin, Smilagenin,

Sarsaspogenin, Tigogenin, Neotigogenin, Tigogenin, Neotigogenin, Yuccagenin and Saponaretin. **Flavonoids:** Quercetin, Rutin, Vetixin and Isovetixin.

Minerals: Copper, potassium, calcium, iron, selenium, zinc, manganese and magnesium. **Vitamins:** Riboflavin, thiamin, folic acids, niacin, vitamin A, B6 and C and Tannins. Others constituents like Coumarins, carbohydrates, lipids, fibers, gum, neutral detergents. The Composition of Fenugreek seed in percentage is shown in Fig. 2 mentioned below.

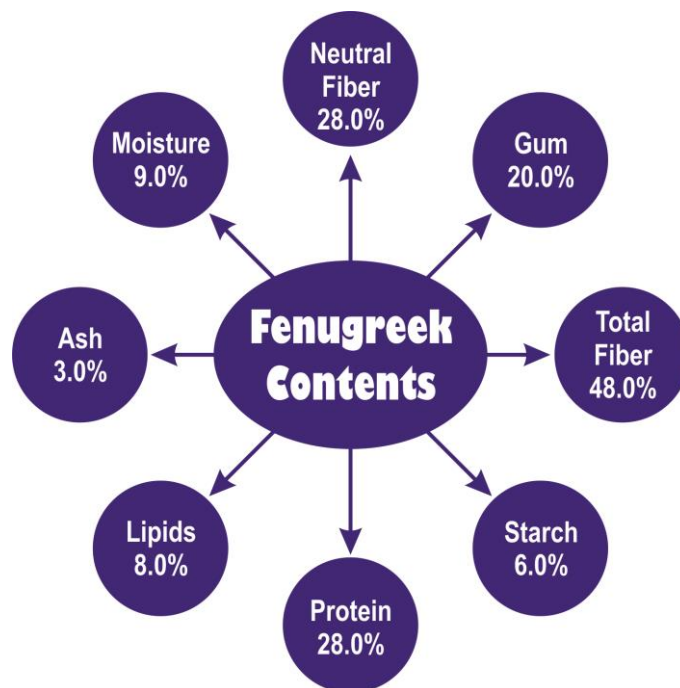


Figure 2: Composition of Fenugreek seed in percentage.²²

Mizaj (Temperament): *Mizaj* is one of the fundamental components of Unani system of medicine. The *Mizaj* of drugs have been expressed in terms of four *kaifiyat* (qualities) viz. *har* (hot), *barid* (cold), *yabis* (dry) and *ratab* (moist). *Mizaj* of *Hulbah* has been described in different classical books like (1) Hot 1 degree, Dry 1 degree (2) Hot 2 degree, Dry 1 degree (3) Hot 2 degree, Dry 2 degree and (4) Hot 3 degree, Dry 3 degree.^{9, 12, 19, 27, 28}

Part used: Leaves, seeds and roots are commonly used

Part studied: Different studies on seeds has been done

Therapeutic Dosage: The therapeutic dose of *Hulbah* is 3-5 gm mentioned in different classical literature.^{4, 10, 23}

Muzir: *Hulbah* along with *Aklelul Mulk* and *Tukhm-e- Alsi* shows toxic effect on people with hot temperament.^{9, 26, 27}

Musleh (Corrective)

Some of the drugs have interesting pharmacological activity but may also produce toxic effect by their inherent nature. In order to optimize their therapeutic effect such agents are subjected to certain corrective measures (*Islah-e-Advia*) as described in Unani literature. Certain examples of corrective of *Hulbah* like *Palak*, *Khurfa*, *Sikanjabeen*, *Anisoon*, *Anar mekhush*, *Berge kasni*, *Sharbate rehani*, and *Khataie* ghee are mentioned in different classical books.^{15, 27, 29, 30}

Abdal-e-Advia (Substitution of drugs)

Abdal-e-Advia, (substitution of drugs) is one of the important principles, which governs the rules pertaining to drug substitution. Classical Unani literature on *Ilmul Advia* (pharmacology) has thoroughly described the substitutes of single drugs has accounted that "in case the drugs required for the treatment of a particular disease are not available, and the physician is unaware of their substitutes which may be used in place of the required drugs, the objectivity and benefaction of this medical system would cease" as all crude drugs cannot be arranged all the times at every clinical unit. The availability of a drug like *Hulbah* cannot be ensured everywhere at every point of time therefore Unani scholars have suggested substitutes of this drug namely *Aklelul mulk* and the other Unani scholars have suggested that substitutes of *Hulbah* is *Tukhm-e- Alsi*.³¹

Murakkabat of Hulbah: Various compound formulations have been prepared in Unani medicine containing methi and these compound are *Dawaul misk*, *Dawaul Luks Qairuti aarad karasna*, *Habbe Khabsul Hadeed*, *Marham dhakhiliyun*, *Laooq-e-Hulba*, *Laooq-e-Zeeq-un-Nafas*, *Zimad-e-Kibreet* and *Zimad-e-Khanazeer*.^{16, 18, 19, 28}

Pharmacological actions of *Trigonella foenum-gracium*L. (Methi) in Unani system of medicine and Ethno-medicine: Detailed pharmacological actions of *Trigonella foenum (methi)* is mentioned in table 1.

Table 1: Pharmacological actions of *Trigonella foenum-gracium*L. (Methi) in Unani system of medicine and Ethno-medicine: 6, 9, 16, 12, 17, 26

S. No.	Action	Unani and Ethno botanical reference
1.	<i>Muhallil-e-Waram</i> (Anti-inflammatory)	11, 15, 18, 30
2.	<i>Munzij</i> (Concoctive)	15, 28
3.	<i>Jali</i> (Detergent)	30, 32
4.	<i>Mulattif</i> (Demulcent)	11, 18, 30
5.	<i>Musakkin-e- Alam</i> (Analgesic)	15, 19
6.	<i>Mudirr-i-Hayd</i> (Emmenagogue)	18, 19, 29, 20
7.	<i>Mudirr-i- Bawl</i> (Diuretic)	18, 29, 30, 17
8.	Utero tonic	11, 33
9.	<i>Muqawwi-i-Midah</i> (Stomachic)	19
10.	<i>Mulayyin-e-Shikam</i> (Laxative)	18
11.	<i>Kasir-e-Riyah</i> (Carminative)	15, 21, 13, 20
12.	<i>Mosakhhin</i> (Anesthetic)	28
13.	<i>Muharrrik Rahim</i> (stimulant)	19, 28
14.	<i>Dafi-i-Tashannuj</i> (Antispasmodic Activity)	6
15.	Antidiabetic Activity	12, 22
16.	<i>Muqawwi-i-Badan</i> (General body tonic)	15, 31, 32
17.	<i>Indemalqurooh</i> (Antiulcer)	34, 13
18.	Nephroprotective	6, 15
19.	<i>Muqawwi-e-Asab</i> (Neuroprotective Activity)	6, 18
20.	<i>Munaffis-e-Balgham</i> (Expectorant)	6, 32
21.	<i>Muqavvi-e-Shar</i> (Hair tonic)	30, 31
22.	<i>Muallid-e-Dam</i> , (Haemopoietic)	32
23.	<i>Musaffi-e-Khoon</i> (Blood purifier)	6, 32
24.	<i>Muqawwi-i-Badan</i> (General body tonic)	30, 31
25.	<i>Muqawwi-is-Bah</i> (Aphrodisiac)	30
26.	Anti-bacterial Activity	13
27.	Anti-oxidant Activity	22
28.	Anti-fungal Activity	11
29.	Immunological Activity	11
30.	Anti-cancerous Activity.	6, 11

Therapeutic Uses of *Hulbah* in Unani and Ethno- Medicine: Detailed therapeutic uses of *Hulbah* in Unani and Ethno-medicine are showed in table 2.

Table 2: Therapeutic Uses in Unani and Ethno- Medicine:

S. No.	Uses	Unani and Ethno botanical reference
1.	<i>Ziabetus shakri</i> (Diabetes)	12, 28, 38
2.	<i>Ihtibas-e-Bowl wa Haiz</i> (Amenorrhoea)	23, 28, 30
3.	<i>Warm-e-Rahem</i> (Endometritis) ¹⁰	12, 18, 9
4.	<i>Istisqa</i> (Ascites)	29, 31
5.	<i>Mudirre -e-Nafas</i> (Puerperium)	31
6.	<i>Zof-e-Meda</i> (Gastric upset)	30
7.	<i>Nafakh-e-Shikam</i> (Flatulence)	31
8.	<i>Qoolanj</i> (Intestinal colic)	31
9.	<i>Bawaseer</i> (Piles) ¹¹	18, 19, 30
10.	<i>Sualqinia</i> (Anemia)	28, 31
11.	<i>Izm-e-Tehal wa Kabid</i> (Hepatomegaly and splenomegaly)	18, 30, 31
12.	<i>Inteshar-e-Shar</i>	15, 29, 20
13.	<i>Wajaul-qutn</i> (Backache)	19, 28
14.	<i>Falij</i> (Paralysis)	6, 30, 32
15.	<i>Mirgi</i> (Epilepsy)	18
16.	<i>Taqteer-ul-Baul</i> (Incontinence)	31
17.	<i>Nazla</i> (common cold)	31
18.	<i>Suaal</i> (cough) ¹⁷	18, 29
19.	<i>Diq al-Nafas</i> (Asthma)	9, 15, 19, 28, 31
20.	<i>Dard-e-Chashm</i> (Ophthalmia).	15, 28
21.	<i>Fasad-e-laun</i> (pigmentation disorders)	28, 32, 34
22.	<i>Fasad-e-Khoon</i>	
23.	<i>Mushil-e-Wilaadat</i> (Oxytocic)	9, 29
24.	<i>Salabat-e-Rahim</i>	29, 31
25.	<i>Mudir-e-laban</i> (Galactogogue)	21, 28, 30, 13, 33
26.	<i>Iltehab-i- Rahim</i> (Cervicitis)	12
27.	<i>Quruh-i-Rahim</i> (cervical ectopy)	12
28.	<i>Kirmshikam</i> (Anthelmintic)	21, 30, 20
29.	<i>Zaheer-e-Muzmin</i> (chronic dysentery)	9, 18, 20
30.	<i>Huzaj</i> (dandruff)	30
31.	<i>Warm-e-Tihaal</i> (Splenitis)	30, 32, 34
32.	<i>Faqruddam</i> (Anemia)	28
33.	<i>Abla</i> (Burn)	31, 13
34.	<i>Safa</i> (Alopecia)	30
35.	<i>Waja-ul-Mafasil</i> (Rheumatism)	15, 28

Pharmacological studies done on *Trigonella foenum graecum* (Methi)

1-Antiarthritic effect: A study conducted by Yusuf Amin et al., in which he was using 50% ethanolic extract of *Hulba* seeds and exhibited that it was highly significant in reduction of arthritis in rats.³⁵

2-Antibacterial and Antifungal activity: The result of study suggests that the methanol and aqueous extract of *Trigonella foenum graecum* Linn revealed a significance scope to develop a antimicrobial and Antifungal activity.^{10, 36}

3-Hypolipidemic effect: Study conducted by Praveen Kumar revealed that fenugreek seeds were responsible for Hypolipidemic effects.³⁷

4-Anthelmintic activity Present study reveals that seeds of *Trigonella foenum graecum* Linn showed mark and potent anthelmintic activity.³⁸

5-Estrogenic activities: The study conducted by Sreeja et al., concluded the evidence for estrogenic activities of fenugreek seeds. In vitro study showed that the presence of phytoestrogen.³⁹

6-Effect on polycystic ovarian syndrome: A randomized clinical trial on efficacy of hydro alcoholic extract of fenugreek on PCOS patients showed significant decreased in polycystic appearing ovaries on ultrasound and regularization of menstrual cycle due to presence of furostanolic saponins.⁴⁰

7-Anti-inflammatory and analgesic activities: Study showed that fenugreek seed extract exhibit anti-inflammatory and analgesic activities due to presence of glycoside and steroidal compound saponins. Moreover, fenugreek seed powder reported to reduce the severity of dysmenorrhea and this effect is attributed to the presence of phytosterols alkaloids, glycosides and phenols.⁴¹

8-Anti-hyperlipidemic and anti-obesity activity: In this study authors showed that ethanolic extract of *Trigonella foenum graecum* seed showed lower serum total cholesterol, triglyceride, LDL cholesterol and higher values of HDL cholesterol by decreasing the hepatic lipid content mediated by diosgenin, the main a glycon of fenugreek.⁴²

9-Anti-oxidant activity: Yadav et al., (2011) studied that the antioxidant capacity of the fenugreek extract were analyzed by using the free radical scavenging (DPPH) and the ferric reducing antioxidant power (FRAP) methods. The results revealed that the fenugreek exhibit antioxidant activity.⁴³ Scientist evaluated that polyphenol-rich extract of Fenugreek seed have potential effect against hydrogen peroxide (H₂O₂)-Induced oxidation in normal and diabetic human erythrocytes (RBCs).

10-Hepatoprotective activity: Extract of dried seeds of *Trigonella foenum graecum* on an animal model exhibits hepatoprotective activity revealed the presence of flavonoids.⁴⁴

11-Hypoglycemic activity: In this study *Trigonella foenum graecum* seed increased fecal bile acid and cholesterol excretion. This may be secondary to a reaction between the bile acids and fenugreek-derived saponins causing the formation of micelles too large for the digestive tract to absorb.²⁸ *Trigonella foenum graecum* seed powder solution may delay the absorption of glucose and fatty acids, thus providing less substrate for the synthesis of triglycerides.⁴⁵

12-Antidiabetic effects: Galactomann rich soluble fiber fraction, saponins, and an amino acid called 4-

hydroxyleucine which helped in increasing insulin in hyperglycemic rats and humans.⁴⁵

13-Gastroprotective effect:

The study revealed that decreased gastric ulcer can be attributed to phytic acid, saponins and trigonelline found in the essential oil of fenugreek.⁴⁶

14-Haemopoitic study: This clinical trial proved that the fenugreek seeds rich in proteins with essential amino acids, iron and Ascorbate. Folate content has restorative and nutritive properties. Thus, it was evidenced for haemopoetic activity of fenugreek seed.⁴⁷

15-Antifertile effect: Bano et al., (2016) carried out a study *Trigonella foenum graecum* seed in which males: decrease plasma androgen, decrease cone of sperm, reduced weight of testis. In females: increases the plasma cone of progesterone.²²

Conclusion:

Trigonella foenum graecum (Methi) is having important medicinal properties and it is used as a single drug or in combination with other drugs. It is also important ingredients of various compound formulations used in Unani system of medicine to treat the various types of diseases. The different parts of the *Hulbah* plant showed various pharmacological activities like Anti-inflammatory, Concoctive, Detergent, Demulcent, Analgesic, Emmenagogue, Diuretic, Uterine tonic, Stomachic, Laxative, Carminative, Anesthetic, Stimulant, Antispasmodic activity, Antidiabetic activity, General body tonic, Antiulcer, Nephroprotective, Neuro-protective activity, Expectoant, Hair tonic, Haemopoietic, Blood purifier, General body tonic, Aphrodisiac, Anti-bacterial activity, Anti-oxidant activity, Anti-fungal activity, Immunological activity and Anti-cancerous activity. This review comprehensively highlighted the pharmacological and Phytochemical details of *T. foenum* and it may provide a way for further analysis and research.

Acknowledgement

Authors are thankful to all the library staff of National Institute of Unani Medicine (NIUM), Bangalore for providing classical literature, manuscripts and other necessary materials on the subject.

Conflict of interest

No conflicts of interest

References

- Kokate C.K, Purohit A. P, and Gokhale SB, Pharmacognosy: 47th ed.vol. I, II: Pune: Nirali Prakashan; 2012. p. 1.1, 6.1-6.46.
- Anonymous. (2011) Traditional Medicines; Global situation, issues and challenges. The world medicines situation: Geneva: (World Health Organization.)
- Anonymous. Traditional Medicines; Global situation, issues and challenges. The world medicines situation: Geneva: World Health Organization; 2011.
- Ahmad S, and Hassan M, Standardization of crude drugs: a preview. WJPR, 2015; 4 (10):155-174.
- Ahmad H, Wadud A, Sofi G, Khazir M, *Khabasul Hadeed* (iron rust): an important mineral drug of unani medicine for the management of hematopoietic disorders especially anaemia, Hippocratic journal of unani medicine, 2019; 14(2):33-44.
- Khan QA, Khan AA, Ansari S, Jahangir U, Hulbah (*Trigonella foenum graecum*): A REVIEW. IJP, 2015; 2(7):315-319.
- Modarasi M, Behnaz M, Jalalizand A, The effect of Hydro-Alcoholic Extract of fenugreek seeds on female Reproductive Hormones in mice: International Conference on Applied Life Science (ICALS 2012) Turkey, 2012; p 10-12.

8. Vani P, Rajinder GK, Nutraceuticals potential of Methi (*Trigonella foenum graecum L.*) and Kasuri Methi (*Trigonella corniculata L.*) Journal of Pharmacognosy and phytochemistry 2014; 3(4):47-57.
9. Tanvir A, Izharul H, Aisha P, Nazamuddin M, Shaista P. *Hulbah (Trigonella foenum graecum)*: The common Indian spice full of medicinal values, International Journal of Preclinical and Pharmaceutical Research, 2014; 5(1):41-46.
10. Dash BK, Sultana S, Sultana N, Antibacterial Activities of Methanol and Acetone Extracts of Fenugreek (*Trigonella foenum*) and Coriander (*Coriandrum sativum*), Life Sciences and Medicine Research LSMR, 2011;27.
11. Nasrullah KM, Mohammed BD, Hamid PS, Fenugreek (*Trigonella foenum-graecum L.*) as a valuable medicinal plant, International Journal of Advanced Biological and Biomedical Research, 2013; 1(8):922-931.
12. Anju, Idris M, Methi (*Trigonella foenum graecum*): A Multifunctional Herbal Drug, JHMR, 2018; 3:26.
13. Prajapati ND, Purohit S, Kumar T, A Handbook of Medicinal plants New Delhi; Agrobios (India) Agro house behind Nasrani cinema. 97, 318,523.
14. Ghosh B, Chandra I, Chatterjee S, Fenugreek (*Trigonella foenum-graecum L.*) and its necessity (Review Paper), fire journal of Engineering and Technology;2015; 1(1):60-67.
15. Taria AHN, Tajul Mufradat. New Delhi: Idarae Kitabul Shifa; YNM; 2010.p 716-717.
16. Ibnul Qayyam Al-Jauzi. Tiibe Nabvi [Urdu Translation by Azizur Rahman]. Mumbai: Darus Salfiya; 1999. P. 559-561.
17. Nadkarni AK. Indian Materia Medica. Vol I. 2nd Ed. New Delhi: Popular Prakashan (P Ltd); 2009.p. 240-41.
18. Hussain SM. Herbal unani Medicine all India; Unani Tibbi conference New Delhi: p53.
19. Anonymous. The Unani Pharmacopia of India. Part-1, volume-2. New Delhi: GOI (AYUSH); YNM: p53-54.
20. Kirtikar KR, Basu BD, Indian Medicinal Plant. 2nd ed. 4th Vol. International book distributors, Dehradun India: 2006. P.700-01.
21. Asia S, Shafia M, Therapeutic profile of Fenugreek (*Trigonella foenum-graecum linn*) A Culinary Regimen: International Journals of pharmacy & pharmaceutical Research (IJPPR), 2016; (6):3.
22. Bano D, Tabassum H, Ahmad A, Mabood A, Ahmad IZ, The medicinal significance of the bioactive compounds of *Trigonella foenum-graecum*: a review. International Journal of Research in Ayurveda & Pharmacy, 2016; 7(4):84-91.
23. Chatterjee A, Pakrashi SC, The treatise on Indian medicinal plants. Vol. 2nd. New Delhi, National institute of Science Communication, CSIR; 1992. p. 125-126.
24. Ram P Rastogi. Compendium of Indian Medicinal plants. Vol. 2nd, 3rd, 4th. CDRI, Lucknow & National Institute of Science Communication, New Delhi; 1993. 659-660,740.
25. Anonymous. *Methi*. www.google.com/search?q=methi&client=ms-android&prmd. (Accessed on10-3-20).
26. Kant S, Karna L, Phytochemical screening and gas chromatography- mass spectrometry and analysis of seed extract of *Trigonella foenum-graecum* (fenugreek / methi), 2013; 3(1):209-214.
27. Halim MA. *Mufradat-e-Azizi*. New Delhi: Central Council Research for Unani Medicine; 2009. p.49.
28. Kabeeruddin M. *Makhzanul Mufradat*. New Delhi: Aijaz publication house; 2007.p398-399.
29. Abdul HM. *Bustanul Mufradat*. New Delhi: Idarae Kitabul Shifa; 2002.p 572-573.
30. Ghani N. *Khazainul Advia*. New Delhi: Idarah Kitab ul Shifa, YNM; p 1290-1291.
31. Khan A. *Muheete Azam*. (Urdu translation), Vol II CCRUM. New Delhi: YNM; p.514-17.
32. Ibn baitar ZA. *Al Jameul Mufradat al Advia al Aghzia*. (Urdu Translations) Vol.2 New Delhi: (CCRUM; 2003. P.54-55.
33. Duke JA, Godwin MJB. Ducellier J, Duke PAK. Hand book of Medicinal herbs. 2nd ed. CRC press; 2002.p296-297.
34. Ibn Sina. *Al-Qanoon fit Tibb*. Volume 2. Idara Kitabus shifa. New Delhi: YNM 2007; p 106.
35. Amin M.Y, Ahmed G, Alam M.J, Experimental study of *Hulba (Trigonella foenum-graecum)* for Anti arthritic activity, Hippocratic journal of unani Medicine. CCRUM, Ministry of health and Family Welfare, Govt. of India 2008; 3(1):1-5.
36. Dharajiya D, Jasani H, Khatrani T, Kapuria M, Pachchigar K, Patel P, Evaluation of antibacterial and antifungal activity of fenugreek (*Trigonella foenum-graecum*) extracts, Int J Pharm Sci, 2016; 8(4):212-7.
37. Kumar P, Bhandari U, Jamadagni S, Fenugreek seed extract inhibit fat accumulation and ameliorates dyslipidemia in high fat diet-induced obese rats, BioMed research international, 2014.
38. Swarnakar G, Roat K, Sanger B, Kumawat A, Anthelmintic effect of *Trigonella foenum-graecum* on tegument of Gastrothylax crumenifer in cattle of Udaipur, India, Int J Curr Micro biol App Sci, 2014; 5(3):599-606.
39. Sreeja S, Anju VS, Sreeja S, In vitro estrogenic activities of fenugreek *Trigonella foenum graecum* seeds, Indian Journal of Medical Research, 2010; Jun 1;131(6):814.
40. Swaroop A, Jaipuria AS, Gupta SK, Bagchi M, Kumar P, Preuss HG, Bagchi D, Efficacy of a novel fenugreek seed extract (*Trigonella foenum-graecum*, Furocyst TM) in polycystic ovary syndrome (PCOS), International journal of medical sciences, 2015; 12(10):825.
41. Sofi G, Dar MA, Jafri MA, Ahmad G, Anti-inflammatory and analgesic effect of barge Hulba (Leaves of *Trigonella foenum graecum*) Unani Res, 2011; 1(1):23.
42. Semalty A, Kumar R, Semalty M, Anti hyperlipidemic and anti obesity activities ethanolic extract of *Trigonella foenum graecum* (seeds) of Himalayan region in diet induced obese mice, Adv. Biomed. Pharma, 2015; 2(5):229-34.
43. Bukhari SB, Bhangar MI, Memon S, Antioxidant activity of extract from Fenugreek Seeds (*Trigonella foenum-graecum*), Pak. J. Anal Environ. Chem , 2008; 9(2):78-83.
44. Meera P, Devi P, Kameswari B, Madhuitha B, Merlin NJ, Antioxidant and hepatoprotective activities of *Ocimum basilicum Linn* and *Trigonella foenum graecum Linn* against H₂O₂ and CCL₄ induced hepatotoxicity in goat liver, Indian journal of Experimental Biology, 2009; July 47(7):584-90.
45. Geberemeskel GA, Debebe YG, Nguse NA, Antidiabetic Effect of Fenugreek Seed Powder Solution (*Trigonella foenum-graecum L.*) on Hyperlipidemia in Diabetic Patients, Journal of diabetes research, 2019; 45-51.
46. Goyal S, Gupta N, Chatterjee S, Investigating therapeutic potential of *Trigonella foenum-graecum L.* as our defence mechanism against several human diseases, Journal of toxicology, 2016; Jan 18.
47. Megha D, Anissa M, Ishna Balkr, Ishna U, Rohini K, Efflesect of *Trigonella foenum-graecum* (fenugreek/ Methi) on Haemoglobin levels in females of child's Bearing age, Biomedical Research, 2012; 23(1):47-50.