

## REVIEW OF HALELA SIYAH WITH UNANI PERSPECTIVE AND MODERN PHARMACOLOGY

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### ABSTRACT

Herbal medicine is among the most frequently used complementary medicines. Now a day's most of the people worldwide rely on herbal medicines for some aspect of their primary health care needs. Treatment with medicinal plants is considered very safe as there is no or minimal side effects. The propitious fact is that, use of herbal treatments is independent of any age groups. Most of the pharmaceutical companies are currently conducting extensive research on plant materials congregated from the rain forests and other places for their potential medicinal value. *Terminalia chebula* Retz (Combretaceae) is called as "King of medicine" because of its phenomenal powers of healing. In Unani system of medicine, it is commonly known as *Halela siyah*. The whole plant endowed with high

Medicinal value and conventionally used for the treatment of various infirmities for human being. *Terminalia chebula* Retz possesses a multiple pharmacological and medicinal activities such as antioxidant, antidiabetic, hepatoprotective, gastrointestinal motility and wound healing activities etc. This review attempts to compile the data regarding its ethanobotanical actions and uses notably of Unani background along with its phytopharmacological portray.

**KEYWORDS:** Herbal medicine, Halela siyah, *Terminalia chebula* Retz, phytopharmacology.

## INTRODUCTION

Plants have been used for health and medicinal purposes for several thousands of years. A majority of the world's population in developing countries still relies on herbal medicine to meet its health needs. In this prevailing era of synthetic drug, where the use of allopathic system of medicine is increased, the herbal drug treatment is still a desirable treatment and the reason of its amelioration is its reduced risk of side effects, effective in chronic conditions, low cost and widespread availability. With the growing popularity of herbal medicines, many countries gave technical support for the development and regulation of herbal medicines. Due to recent technological advancement the phytochemistry of the plant and their related pharmacological actions on various pathologies of human body has been enacted. In Unani system of medicine, the fruit of *Terminalia chebula* Retz is called as Halela siyah which is being used for treating disorders since antiquity. *Terminalia chebula* Retz is a plant, belongs to the genus *Terminalia*, family *combretaceae* of kingdom *plantae*. Some of the Indian writers depict seven varieties of *Terminalia chebula*, which attribute to same fruit but in altered stages of maturity. Particularly the bigger fruit is considered as relevant. Sometimes *Terminalia chebula* Retz is recommended alone or in combination with Beleric and Emblic Myrobalans in an immense number of diseases, and are called as "tripphala" or three fruits in Sanskrit. Now, it is considered a profitable source of natural products for medicine across various diseases. In Unani system of medicine, *Halela siyah* is used in *Malikholia* (melancholia), *istirkha* (paralysis), *Juzam* (leprosy), *Bawaseer* (piles), *Izme Tehal* (splenomegaly), coarsely powdered fruit with almond oil is *Mulayyin* (laxative).<sup>[1,2,3,5]</sup> The drug has ample of pharmacological activities like antibacterial, antifungal, antispasmodic, antiinflammatory, antioxidant and anticarcinogenic activity etc. The fruit of *Terminalia chebula* Retz possess a purgative action and also has a protective effect on the gastrointestinal mucosa, with the renovation in secretory status of Brunner's gland which is involved in the protection against duodenal ulcer. In Unani system of medicine three types of fruits of *Terminalia chebula* Retz have been mentioned. These are small size *Halela siyah* (black colour), medium size *Halela zard* (yellow colour) and the large size *Halela kabuli*.<sup>[2,3,5,4]</sup>



**Figure 1: Images of *Terminalia chebula* Retz.**

### **Taxonomical Classification**

Kingdom	:	Plantae
Subkingdom	:	Tracheobionta
Super Division	:	Spermatophyta
Division	:	Magnoliophyta
Class	:	Magnoliopsida
Subclass	:	Rosidae
Order	:	Myrtales
Family	:	<i>Combretaceae</i>
Genus	:	<i>Terminalia</i>
Species	:	<i>chebula</i>
Botanical name	:	<i>Terminalia chebula</i> Retz.

### **Vernacular Names**

**Unani:** *Halela Siyah,*

**English:** *Chebulic Myrobalan, Black Myrobalan,*

**Urdu:** *Halela, Halela Kabuli, Halela Zard,*

**Arabic:** *Halelaj,*

**Persian:** *Halela Kabuli,*

**Assam:** *Helikha, Silikha, Hokikha,*

**Cambodian:** *Sa mao tchet,*

**Chinese:** *He Li Le,*

**Portuguese:** *Mirabolanos,*

**French:** *Myrobalan noir,*

**Malaysian:** *Manja puteri*,

**Hindi:** *Harrad, Harra, Bal Har*,

**Sanskrit:** *Haritaki, Abhaya, Siva, Kayastha, Pathya*,

**Malayalam:** *Kaddukkai, Katukka, Kayastha, Divya*,

**Marathi:** *Harda, Hirda, Harba*,

**Oriya:** *Haridra, Hirdar, Hirada, Horida*,

**Telgu:** *Karakkai*,

**Tamil:** *Kadukkai, Arabi, Amagola, Arabi, Aridadi*,

**Telgu:** *Karaka, Karakkaya, Haritaki karaka, Sringitiga*,

**Bengali:** *Haritaki, Hora*,

**Kannada:** *Alalekay, Kale Har, Zangali Har*,

**Punjabi:** *Halela, Haser, Harrar, Har Hush, Harar*,

**Kashmiri:** *Halela, Pahari: Hana*,

**Gujrati:** *Hirido, Himaja, Pilo-Harde, Kabuli-harda, Hardo*.<sup>[2,3,4,5,6]</sup>

### Distribution

*Terminalia chebula* Retz is found throughout South East Asia including Bhutan, Sri Lanka, Nepal and Bangladesh. In India, it is found in Sub Himalayan region from river Ravi Eastward to West Bengal and Assam and is also found in central and South India Ascending upto the altitude of 1500-2000m.

### Discription of Plant in Unani (Mahiyat)

*Terminali chebula* Retz (*Halela siyah*) is a medium to large deciduous tree found all over India, mostly in areas of light rainfall. It grows upto 25-30m in height. Flowers are white or yellow in colour with a strong unpleasant odour, borne in a terminal spikes.<sup>[14]</sup> Leaves are small, elliptic rhombus, with an acute tip, glabrous above and yellowish pubescence below. The author of the *Makhzan-ul-Advia* has stated that it has six varieties, the very young fruit is about the size of cumin seeds are called *Halileh-i- zira*; when its size becomes a grain of barley, *Halileh-i-jawi*; when the size of a raisin, *Halileh-i-zangi or hindi*; when yellowish and half arrived at maturity, *Halileh-i-chini*; when further developed, *Halileh-i-asfar*; and lastly when relatively mature, *Halileh-i-kabuli*. The second, third and last variety of chebolic myrobalans are used for medicinal purposes.

## Morphology

### Macroscopic

*Terminalia chebula* Retz, is a tall deciduous tree attaining a height up to 30 m, with expanded spreading branches. Leaves 7-20cm by 4-8cm, glabrous or nearly so when mature, not clustered, elliptic oblong. Flowers are hermaphrodite, 4mm across, sessile, dull-white or yellow in colour with an unpleasant smell. Calyx campanulate, flat at base, 3mm long, glabrous outside. Bark is 6mm thick and dark brown with many shallow vertical cracks.<sup>[6]</sup> The fruit is drupe, pendulous, ellipsoid or ovoid from a broad base, 2-4cm long, when dry yellowish green. Taste is astringent.<sup>[6]</sup>

### Microscopic

Transverse section of pericarp shows epicarp which is consist of one layer of epidermal cells, inner is tangential and upper portions of radial wall thick; mesocarp is consist of 2-3 layers of collenchymal cell, followed by vast zone of parenchyma in which fibres and sclereids are present. Vascular bundles are scattered; fibres having peg like outgrowth and simple pitted walls. Sclereids are of discrete shapes and sizes but predominantly elongated tannins and raphides found in parenchyma. Endocarp is consist of thick-walled sclereids, chiefly elongated epidermal surface view is concede, uniformly thick-walled, polygonal cells divided into two by a thin septa. Starch grains are simple rounded or oval in shape, measuring diameter is 2-7m, present in almost all cells of mesocarp.<sup>[7]</sup>

### Chemical Composition

The total phytochemical constituents of *Terminalia chebula* Retz are hydrolysable tannins (20-50%), they are responsible for pharmacological activities. Phenolic compounds, polyphenols, triterpenoids, glycosides, fatty acids and some other constituents were also reported. Chebulin, a tannin-terchebin, gallic acid, linolic, stearic, arachidic, palmitic and oleic acid are also present.<sup>[8]</sup> Triacontanoic, gallic and palmitic acid, daucosterol, beta-sitosterol, ethyl ester of gallic acid and triethylester of chebulic acid, ellagitannin, terchebulin, along with teaflavin A and punicalagin have been isolated from the fruits.<sup>[9]</sup> A new triterpene, chebupentol, arjungenin, terminoic acid and arjunolic acid are also isolated from the fruit.<sup>[9]</sup> Antioxidant constituents of the plant, pyrogallol and phloroglucinol are isolated along with vanillic, ferulic and caffeic acid.<sup>[9]</sup> Mucilage, gallic acid, tannic acid, a brownish yellow coloring matter, chebulinic acid is also found.<sup>[10]</sup>

**Mizaj (Temperament)**

The mizaj (temperament) of Halelah siyah is Cold 1° Dry 2°. [2,3,5]

**Parts Used:** Dried fruit. [10]

Stem, bark. [8]

**Dosage in Unani (Miqdar-e-Khurak):** 3-5g. [3,7,9]

**Adverse effects (Muzir asrat):** Excessive dose of Halela siyah is considered harmful for Liver and causes constipation. [3]

**Correctives (Musleh):** Almond oil (*Prunus amygdalus*, Batsch), Honey. [3,12]

**Substitute (Badal):** Halela Kabuli (Fleshy *Terminalia chebula*, Retz) Mazu (*Quercus infectoria*) In case of constipation. [3,12]

**Types of Halela**

Following are the types of Halela, which are generally mentioned by Unani Scholars.

- 1) **Halela Siyah:** It is actually an unripe fruit, also known as *Halela Hindi*. When there is no seed in *Halela* fruit and it falls down before growing into a complete fruit and it is collected, it is called *Halela Siyah*.
- 2) **Halela Zard:** When the fruit of *Halela* becomes yellow and seed is present in it, then it is called as *Halela Zard*. It is a ripened fruit.
- 3) **Halela Kabuli:** When the fruit of *Halela* ripens completely and becomes large in size, it is called *Halela Kabuli*. It is a completely ripened fruit. [3,5]

However, **Ibn Sina**, further added fourth type to above classification. This is **Halela Cheeni**, It is like *Kabuli* but it is thinner than *Halela Kabuli* Also called as *Halela Kabuli*. While Some Unani Scholars specified that it is of six types. They included two more types apart from these four. These are **Zeera Har**, when the size of *Halela* is like a cumin seed, it is called *Zeera Har*. This stage is prior to *Halela Siyah* and **Jawahar**, when the *Zeera Har* grows to the size of barley grain, it is called *Jawahar*. [12,13,14]

**Unani Pharmacological Actions**

- *Dafe Safra* (Antibilious) [9,10,11]
- *Mudir e Baul* (Diuretic) [8]

- *Mulaiyyan* (Laxative)<sup>[10]</sup>
- *Muqawwi Amaa* (Intestinal tonic)<sup>[5]</sup>
- *Muqawwi Basar* (Eye tonic)<sup>[7]</sup>
- *Muqawwi Dimag* (Brain tonic)<sup>[7,5]</sup>
- *Muqawwi Meda* (Stomachic)<sup>[9,10,5]</sup>
- *Muqawwi Qalb* (Cardio tonic)<sup>[8]</sup>
- *Musaffi Khoon* (Blood Purifier)<sup>[5]</sup>
- *Musakkin* (Analgesic)<sup>[7]</sup>
- *Mushil* (Purgative)<sup>[5,9,10,11]</sup>
- *Qabiz* (Astringent)<sup>[9,10,5]</sup>

### **Peculiar Medicinal Actions of Halela<sup>[3,5]</sup>**

- ❖ **Halela Siyah:** Brain Tonic, Blood Purifier, Melanagogue, Siccative, Stomachic, Tonic for intestines.
- ❖ **Halela Zard:** Eye Tonic, Brain Tonic, Astringent, Stomachic, Gum strengthening and Cholagogue.
- ❖ **Halela Kabuli:** Diuretic, Memory enhancer, Stomachic, Brain Tonic, Liver Tonic, Deobstruent and Purgative for phlegm, yellow and black bile.

### **Therapeutic Uses (Unani)**

- *Amraz-e-baul* (Urinary diseases)<sup>[10]</sup>
- *Azm-e- Tihal* (Splenomegaly)<sup>[9,10]</sup>
- *Azm-e-Kabid* (Hepatomegaly)<sup>[9,10]</sup>
- *Bawaseer* (Piles)<sup>[5,10]</sup>
- Dyspepsia (Tukhma)<sup>[11]</sup>
- *Ehtebas-e-Tams* (Amenorrhoea)<sup>[8]</sup>
- *Fuwaq* (Hiccup)<sup>[10]</sup>
- *Humma* (Fever)<sup>[9,10]</sup>
- *Ishal* (Diarrhoea)<sup>[5,9,10]</sup>
- *Juzam* (Leprosy)<sup>[5]</sup>
- *Laqwa* (Facial Palsy)<sup>[5]</sup>
- *Malikhuliya* (Melancholia)<sup>[5]</sup>
- *Nafakh-e-Shikam* (Flatulence)<sup>[9,10]</sup>
- *Qabz* (Constipation)<sup>[9]</sup>



- *Qai* (Vomiting)<sup>[9,10]</sup>
- *Sau-e-Hazm* (Indigestion)<sup>[11]</sup>
- *Suaal* (Cough)<sup>[9,10]</sup>
- *Warm-e-Ama* (Colic)<sup>[9]</sup>
- *Zaheer* (Dysentery)<sup>[9,10]</sup>
- *Zauf-e-Hafiza* (Dementia)<sup>[5]</sup>
- *Zeequn Nafs* (Bronchial asthma)<sup>[9,10]</sup>
- *Zofe-e- Basar* (Eye weakness)<sup>[7]</sup>
- *Zofe-e- Dimag* (Brain weakness)<sup>[7]</sup>
- *Zofe-e- Meda wa Ama* (Weakness of gastrointestinal tract)<sup>[7]</sup>
- *Zofe-e- Qalb* (Cardiac weakness)<sup>[8]</sup>

#### **Peculiar Uses of Halela<sup>[3,5]</sup>**

- ❖ ***Halela Siyah***: Malancholia, Memory weakness, Facial palsy, Piles, Leprosy, Diarrhoea.
- ❖ ***Halela Zard***: Eye weakness, Redness of eye, Constipation, Gastrointestinal weakness, Epilepsy, Piles, Dysopia, Disorders caused by black and yellow bile.
- ❖ ***Halela Kabuli***: Dementia, Headache, Melancholia, Epilepsy, Facial palsy, Whitening of hairs, Piles.

**Compound Formulations (Murakkab):** All Itrifalat, Majoon khabs-ul Hadeed, Habb-e-Muqil, Kohal-ul-Jawahir.<sup>[7,8]</sup>

#### **Pharmacological Studies**

- Antiaging activity<sup>[30]</sup>
- Anti-arthritis activity<sup>[32]</sup>
- Antibacterial activity<sup>[26]</sup>
- Anticancer activity<sup>[37]</sup>
- Anticaries activity<sup>[40]</sup>
- Anticonvulsant activity<sup>[23]</sup>
- Antidepressant activity<sup>[39]</sup>
- Antidiabetic activity<sup>[33]</sup>
- Antifungal activity<sup>[17]</sup>
- Anti-HSV-2 activity<sup>[27]</sup>
- Anti-inflammatory activity<sup>[25]</sup>
- Antimicrobial activity<sup>[29]</sup>



- Antioxidant activity<sup>[20,38]</sup>
- Antipyretic activity<sup>[28]</sup>
- Antiulcerogenic activity<sup>[35]</sup>
- Anxiolytic activity<sup>[18]</sup>
- Cardioprotective activity<sup>[36]</sup>
- Chemomodulatory activity<sup>[34]</sup>
- Hepatoprotective activity<sup>[21]</sup>
- Hypolipidemic activity<sup>[31]</sup>
- Immunomodulatory activity<sup>[16]</sup>
- Neuroprotective activity<sup>[19]</sup>
- Radioprotective activity<sup>[24]</sup>
- Wound healing activity<sup>[22]</sup>

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