A Review of *Apium graveolens* (Karafs) with special reference to Unani Medicine

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Available online at www.iaimjournal.com

Received on: 27-12-2014

Abstract

Unani system of medicine (USM) is time tested, centuries old medicine based on teachings of Greek and Arab Scholars. Unani medicine has holistic approach of treating disease and illnesses. Drugs of either of three origins i.e. herbal, mineral or animal are used in USM. But the majority of drugs belong to herbs. *Apium graveolens* (Karafs) is one of the common drugs of USM, described by ancient scholars and found effective in modern world also. This paper aims at reviewing the importance of *Apium graveolens* with special reference to USM.

Key words

*Apium graveolens*, Unani medicine, Herbal Medicine, Karafs.

Introduction

*Apium graveolens* is a well known herb of family apiaceae. A genus of annual or perennial herbs, distributed throughout Europe, and in temperate and sub-tropical parts of Africa and Asia [1]. In India it is distributed in the foot hills of north – western Himalayas and the outlying hills of Punjab, Himachal Pradesh and Uttar Pradesh [1]. Roots succulent, well developed, numerous; stems branching, angular or fistular, conspicuously joined, up to 2.4 mm height [1]. Leaves oblong to obovate, 7-18 cm long, pinnate or trifoliolate, radical leaves with large deeply lobes segments [1]. Flowers are white or greenish white, very small, in short peduncled or sessile compound umbels [1]. Fruit is a schizocarp consisting of two mericarps sub orbicular to ellipsoid greyish brown to brown with pale ridge, 1-2 mm in diameter, aromatic and slightly bitter. It is largely cultivated in Amritsar and adjoining parts of Punjab, Haryana, and some areas of western Uttar Pradesh [1].

It is an erect herb; 1-2 meters high, with conspicuously joined stem bearing well developed leaves on long expanded petioles [2]. The drug *Tukhme Karafs* consists of dried seeds of *Apium graveolens* L (apiaceae) [3]. The fruits of *Tukhme Karafs* are about 1.0-1.5 mm long,1.5mm wide, and 1.5mm thick [2, 3]. It contains a minute seed. The epicarp is interspersed with many ducts [2]. The odor and taste of drug is aromatic [3].
Varieties of Karafs

There are two varieties of *A. Graveolens*. Dulce grows near rivers or canals and is mostly appreciated as appetizer and Rapaceum; and Celeriac having small dark green leaves. The main variety under cultivation in India is dulce [1]. It is grown annually in India which is a herbaceous plant with erect stem. Leaves are compound pinnate with long stalks. Flowers are greenish white in colour, appear in compound umbels. The fruits are formed from two compressed carpels, enclosing the seeds, very small dark brown cremocarp, with pungent taste and agreeable odour; roots are adventitious [4]. The plant grows well in organic rich loamy soil at pH between 6 to 7 and low humidity [4].

Ancient Greek and Arab scholars had mentioned five different varieties of Karafs as stated by Ibn Sina (Avicenna), Ibn Baitar and Hussain in their treatise Alqanoon, Jami al Mufradat al Advia wal Aghzia and Makhzan al Advia respectively [3, 5, 6] and Dioscorides was probably the first botanist to write them in detail [7]. The five varieties are as follows [5, 6]:

- **Jabli** also called as Aqt Saliyun, Kohi Maqdun which is self growing on hills and mountain regions.
- **Sakhuri** also known with name of Fitursaliyun and found self growing on stony surface.
- **Bustani** also mentioned with name of Saalibiyun and this variety is cultivated.
- **Nabti** also described with name of Akusaliyun Mashriqi, Karafse Azeem this variety is grown in shady places.
- **Tari (Maiee)** also called as Samarniyun, Anusaliyun, Qurratulain this variety grows near rivers or canals.

Macroscopic Description

The fruits of *Apium graveolens* L. are mostly separated, mericarp; the cremocarp is brown, roundish ovoid, laterally compressed and about 1.0-1.5 mm long, 1.5 mm wide and 1.5 mm thick. The seeds are ortho spermous. The odour and taste of drug is aromatic [2, 3].

Microscopic Description

The sectional view of the fruit shows a wavy outline. Each mericarp has mostly five ridges and six to nine vittae. The epicarp consists of single layers of rectangular, thin walled parenchymatous cells coated with irregular cuticle on the outside [2].

Botanical name

*Apium graveolens* L. [9, 10, 11, 12, 13, 14]

Family

Apiaceae [1, 11, 14], Umbelliferae [1, 11, 14].

Vernacular names

<table>
<thead>
<tr>
<th>Language</th>
<th>Name</th>
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<tbody>
<tr>
<td>English</td>
<td>Celery [3, 4, 9, 10, 11, 15, 16]</td>
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<tr>
<td>Ayurveda</td>
<td>Ajmuda [11]</td>
</tr>
<tr>
<td>Gujarati</td>
<td>Bodiajmuda [3]</td>
</tr>
<tr>
<td>Arabic</td>
<td>Phitra saleyaun [17, 18]</td>
</tr>
<tr>
<td>Hindi</td>
<td>Ajmud and Karafs [3, 9, 12, 14, 15, 19, 20]</td>
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<tr>
<td>Sanskrit</td>
<td>Mayauri [1, 3, 12, 18]</td>
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<tr>
<td>Romi</td>
<td>Batarakhiyun [9]</td>
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<tr>
<td>Folk</td>
<td>Ajmuda [11]</td>
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<td>Tamil</td>
<td>Celery-keerai [11]</td>
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<tr>
<td>Unani</td>
<td>Karafs [9, 11]</td>
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<tr>
<td>Bangali</td>
<td>Ajmud [18]</td>
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<tr>
<td>Marathi</td>
<td>Ajmuda [3, 19]</td>
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<tr>
<td>Urdu</td>
<td>Tukhme karafs [18]</td>
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<tr>
<td>Latin</td>
<td>Salahi [9]</td>
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<tr>
<td>Sindhi</td>
<td>Diljan [18]</td>
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<tr>
<td>Seriyan</td>
<td>Karafa [1, 9, 15]</td>
</tr>
<tr>
<td>Persian</td>
<td>Tukhme karafs. Karafs [3, 17, 18, 19]</td>
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<tr>
<td>Kanada</td>
<td>Selerina [1, 12, 21]</td>
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</table>
Apium graveolens (Karafs) with special reference to Unani Medicine

**Habitat**
An erect herb found in the base of the north western Himalayas and outlying hills in Punjab and western India [3, 15]. It is native to Europe [4, 11], India, North and South Africa [4]. In India cultivated in north western Himalayas and in hills of Uttar Pradesh, Himachal Pradesh, Southern India [11]. It is cultivated in India particularly Punjab, and U.P Europe and USA [12].

**Parts used**
Seeds, leaves, and its essential oil [4, 10] Roots and seeds [15]

**Mizaj (Temperament)**
Seeds - Hot 2° and Dry 2° [3, 8, 18, 22, 23]

**Taste**
Slightly bitter [2, 24, 25], pungent [25], sharp taste [19]

**A’fal (Action)**
Hazim [3, 9, 20, 22], Mushtahi [3, 10, 18, 22, 23, 24], Kasire Riyah [3, 10, 18, 23, 25], Mufatit [3, 17, 20, 23], Muhalil [2, 23], Muarriq [3, 18, 20], Mukawiye Bah [3, 17, 24], Mufatit Hisat [3, 24], Muuddire Bauil [4, 9, 17, 18, 22, 25], Muuddire Haiz [3, 9, 17, 18, 22, 25]

**Nafae khas (Main action)**
Muuddire Bauil wa Haiz [3], Balghami Amraz [3, 18, 23], Taqtih [3], Mufatit [3], Hisate Kulliya wa Masana [3, 17, 18, 20, 25]

**Istemalat (Uses)**
Jaundice [4], Iqran Nisa [3, 18], Niqras [3, 22], Ehtabase Boail wa Haiz [3, 18], Hisate Kulliya wa Masana [3 Istisqa [3], Zatul janb [3, 17, 18], Waja-ul-Zohar [3], Hichki [22], Usrul Boai [22], Mullyene Shaikam [9], Nafaq Maida [3, 9], Ghisyan [9].

**Miqdare khurak (Dose)**
3-5 gm [3, 18, 20]

**Mazarrat (Toxicity)**
Harmful for hot temperament [3, 18], Hamla aurat [3, 18, 20, 23], Lungs [17]

**Musleh (Correctives)**
Masti [3], Anisoon [3, 18, 22, 23], Kahu [22]

**Badal (Substitutes)**
Saunf, Ajwain and Zeera [22]

**Murakkabat (Compound formulations)**
Jawarishe Zarooni Sada, Jawarish Falafili, Majoone Hajful Yaho, Majoone Dabeedul Ward, Majoone Jograj Gugal, Majoone Nankhwah, Sikanjabeen Bazoori Motadiol, Zimade Sumbulutteeb, Banadiqul Buzoor, Sufoofe Mohazzil [27].

**Ethno botanical description**

**Actions**

**Seeds**
Stomachic [19], Aphrodisiac [19], Tonic [19], Astringent to bowel [19], Appetiser [19], Anthelmintic [19], Abortifacient [19], Antispasmodic [15]

**Therapeutic uses**
Back-ache [4], Flatulance [4], Kidney and Bladder calculi [2, 6], Jaundice [4], Nephritic colic [4], Obstruction in urinary passages [4], Anti-
inflammatory [15], Rheumatic disorders [29], Rheumatism [15, 29] and Gout [15, 29]

Seeds are good for heart [19], Useful in ophthalmia, bronchitis [11, 15, 19], Asthma [11, 15, 19], Vomiting [19], Toohache [19], Tumor [19], Fever with cough [19], Rheumatism [19], Chest pain, Inflammation useful in catarrh [19], Tonic [19], Stimulant and cardial [15, 19], Antispasmodic [19], Chronic skin disorders like psoriasis [11], Liver and spleen disease [11, 15, 19]. Root is used for Diuretic [19], Anasarca and Colic [15, 19].

Chemical composition
The herbs oil constitutes apio, sedenolide and 3-butylphalalide. The seed oil consists of d-limonene, d-selenene, selanonic acid anhydride, and sedamolide. The leaves and stalks contain vitamin A, C and iron. The herb contains glucoside appin [4]. The fruit, commonly called seeds contain apiin, apigenin, caffeic acid and chlorogenic acid [1]. The fatty acid composition of the oil is as follows: palmitic (11.7%), oleic (30.5%), linoleic (9.7%), petroselinic acid (41.0%), and resin acid (7.0%). Non protein amino acid viz alanine, glutamine, and asparagine are present. Unknown alkaloids possessing tranquilizing and anti-convulsant activities have also been isolated [1].

Organic: Glucosides, Steroids, Phenolics, Flavonoid, Essential oil [2, 3].
Inorganic: Sodium, Potassium, Calcium and Iron [2, 3].

Constituents: It is said to contain sulphur. It also contains, leucoside apin, a volatile essential oil, mucilage and salts [15].

Medicinal and pharmacological activities
- **Anti inflammatory activity**: Ramzani, et al. was found anti inflammatory activity of the aqueous and hexane extracts of *Tukhme Karafs* in their animal study [30].
- **Anti fungal activity**: The steam distilled oil of *Tukhme Karafs* was evaluated by Jain and Jain in their study and found that this it has more marked antifungal activity then standard drug against several fungi. Kher and Chaurasia had also evaluated the antifungal activity of essential oil of *Tukhme Karafs* against 15 different species of fungi [31].
- **Antibacterial activity**: The antibacterial activity was evaluated by Goutum MP et al in an invitro study and they found that it has marked antibacterial activity against several bacterea such as Vibro cholerea, Staphylococcus aureus, streptococcus pyogens etc. [32].
- **Gastro intestinal activity**: The methanolic extracts of *Apium graveolens* Linn showed hepatoprotective activity comparable with standard drug silymarin [33].
- **Anthelminthic activity**: Kokate and Verma have reported that 0.1% emulsion of oil in 1% aqueous polysarbate 20 produced paralytic effect in 31 minutes and lethal effect in 78 minutes and 0.2% emulsion of oil in 1% aqueous polysarbate 20 produced paralytic effect in 13 minutes and lethal effect in 44 minutes in comparision to 0.1% piparazine citrate which produced paralysis in 24 minutes and lethal effect in 70 minutes and 0.2% piparazine citrate which produced paralysis in 16 minutes and lethal effect in 44 minutes [34].

**Conclusion**
*Apium graveolens* L. has been researched thoroughly for its phytochemical and
pharmacological properties. From the preceding describes, it is evident that *Apium graveolens* L. has been used ethno-medicinally as a valuable therapeutic agent for a variety of diseases, and the descriptions of Unani Medicine is found to be true on modern parameters as we have exemplified in this article. Assorted chemical constituents those are present in *Karafs* may be responsible for its pharmacological actions.

**References**


Source of support: Nil
Conflict of interest: None declared.