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Review Article

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

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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].

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Varieties of *Karafs*

There are two varieties of *A. Graveolens.* Dulce the leaves and flowering stems of which are used 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 edventitious [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

Language	Name
English	Celery [3, 4, 9, 10, 11, 15, 16]
Ayurveda	Ajmuda [11]
Gujarati	Bodiajmuda [3]
Arabic	Phitra saleyaun [17, 18]
Hindi	Ajmud and *Karafs* [3, 9, 12, 14, 15, 19, 20]
Sanskrit	Mayauri [1, 3, 12, 18]
Romi	Batarakhiyun [9]
Folk	Ajmuda [11]
Tamil	Celery-keerai [11]
Unani	*Karafs* [9, 11]
Bangali	Ajmud [18]
Marathi	Ajmuda [3, 19]
Urdu	*Tukhme karafs* [18]
Latin	Salahri [9]
Sindhi	Diljan [18]
Seriyani	Karafsa [1, 9, 15]
Persian	*Tukhme karafs. Karafs* [3, 17, 18, 19]
Kanada	Selerina [1, 12,21]

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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 2^0 and Dry 2^0 [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], *Mufatteh* [3, 17, 20, 23], *Muhalil* [2, 23], *Muarriq* [3, 18, 20], *Mukawiye Bah* [3, 17, 24], *Mufatite Hisat* [3, 24], *Muddire Baul* [4, 9, 17, 18, 22, 25], *Muddire Haiz*[3, 9, 17, 18, 22, 25]

Nafae khas (Main action)

Muddier Baul wa Haiz [3], *Balghami Amraz* [3, 18, 23], *Taqtih* [3], *Mufatite* [3], *Hisate Kulliya wa Masana* [3, 17, 18, 20, 25]

Istemalat (Uses)

Jaundice [4], *Irqun Nisa* [3, 18], *Niqras* [3, 22], *Ehtabase Boal wa Haiz* [3, 18], *Hisate Kulliya wa Masana* [3 *Istisqa* [3], *Zatul janb* [3, 17, 18], *Waja-ul-Zohar* [3], *Hichki* [22], *Usrul Boal* [22], *Mullyene Shaikam* [9], *Nafaq Maida* [3, 9], *Ghisiyan* [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)

Mastagi [3], *Anisoon* [3, 18, 22, 23], *Kahu* [22]

Badal (Substitutes)

Saunf, Ajwain and *Zeera* [22]

Murakkabat (Compound formulations)

Jawarishe Zarooni Sada, Jawarish Falafili, Majoone Hajrul Yahood, Majoon Dabeedul Ward, Majoone Jograj Gugal, Majoone Nankhwah, Sikanjabeen Bazoori Motadiol, Zimade Sumbulutteeb, Banadiqul Buzoor, Sufoofe Mohazzil [27].

Ethno botanical description

Actions

De-obstruent [15, 28], Resolvent [15], Diaphoretic [19], Apetiser [19], Laxative [19], Carminative [11, 15, 19], Lithotriptic [15], Emmanogogue [2, 11, 15, 28], Diuretic [4, 11, 15, 28], Sedative [11, 28], Antiemetic [11], Antiseptic [11], Tranculizer [11], Anticonvulsant [11], Antifungal [11].

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-

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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], Toothache [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 apiol, sedenolide and 3-butylphalide. The seed oil consists of d-limonene, d-selenene, selanoic 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 apiin, 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, Staphylcoccus 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% piperazine citrate which produced paralysis in 24 minutes and lethal effect in 70 minutes and 0.2% piperazine 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

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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.

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