



TUKHM-E-KARAFS –CELERY SEEDS, A UNANI MEDICINE REVIEW

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ABSTRACT

The drugs Tukhm-e-Karafs consists of dry seeds of *Apium graveolens* L. (Family-Apiaceae). An erect herb found in the base of North West Himalayas and outlying hills in Punjab and western India. The plant occurs from November to March. Flowering and fruiting take place during February-March. has been used as a vegetable since ancient times. Celery has a long fibrous stalk tapering into leaves. Celery seed powder is used as a spice. it's been used as both food and medicine for centuries. Celery is high in fiber and nutrients and low in calories. It's full of potassium, vitamins, and antioxidants. Scientific evidence indicates that leaf, stem, root and seed extracts of celery are reported to possess remarkable medicinal properties. Seeds are also important in human nutrition as they are a rich source of fatty acids, proteins, phytochemicals and micronutrients. Active compounds such as alkaloids, coumarins, flavonoids, glycosides, limonene, myrcene, phenols, phthalides, and steroids present in celery seeds are responsible for different medicinal properties. Medicinal properties of celery seeds include anticancer, antidiabetic, anti-hyperlipidemic, antioxidant, antimicrobial and anti-inflammatory activity.

KEYWORDS: Celery, Celery Seeds, Unani, Karafs

Habitat

North West Himalaya, Persia, Hills of Uttarakhand, outlying Hills in the Punjab, Punjab Bombay, Uttar Pradesh, western Uttar Pradesh, Himachal Pradesh, Afghanistan, Western Asia, Europe & Abyssinia North Africa, Western India, Bengal

Description: The fruits of Tukhm-e-Karafs are mostly separated mericarp. The cremocarp is brown ovoid, laterally compressed and about 1.0-1.5mm long, 1.5mm wide, and 1.5mm thick. Each mericarp has five straight, scarcely prominent primary ridges. The seeds are orthospermous. The odour and taste of drugs is aromatic.

It is propagated by seeds. Seedlings are raised in the nursery and transplanted after 100-110 days. Transplanting is done in North India around 1st December

DESCRIPTION :

Macroscopic

Root: Cylindrical tap root narrowing towards the end, longitudinally started, lateral roots are few show circular protruding lenticels places with a short fracture. Odour aromatic, taste salty. According to Unani scholar root is blackish and has fibrous branches and is considered as most powerful among all parts of Karafs.

Seed: Seeds are branched, circular, blackish in colour, Irregular surface, strong odour, pungent in taste, resembles zeera (caraway).

Stem: Cylindrical occasionally branched 1 to 5 mm in diameter, succulent, become fistular at maturity on account of the shrinkage of pith, nodes are distinct and swollen, show

well developed scaly leaves clasping the bases of the lateral branches, surface is longitudinally ridged and furrowed; fracture is fibrous surface is pithy, white and hollow in the centre; colour yellowish green. Odour faintly aromatic; taste salty

Leaf: Pinnate, large, 3 partite, with large deeply lobed segments and coarsely toothed at the apex, leaflets ovate to suborbicular, 3 lobed, 2.0 to 4.5 cm in length, petiole is cylindrical thin, 2 to 3 cm in length, brittle, pale green in colour. Odour aromatic; taste salty and slightly bitter

Flower: The inflorescence is a compound umbel with short peduncle. The flowers are small and white in colour, the calyx teeth are obsolete; petals 5, ovate, acute with inflexed tips. The carpels are semiterete, sub pentagonal, with distinct ridges. According to Unani scholar the colour of the flower is zard (yellowish) and has thin branches

Fruit: Cremocarp, suborbicular to ellipsoidal, 1 to 2 mm in diameter show 5 straight primary ridges on each mericarp.

Microscopic

Root: Diagrammatic TS of the root is circular in outline shows outer brownish thin bark with irregular margin and inner wide zone of wood occupying more than two third the area of the section. Detailed TS of the root shows outer narrow bark consisting of obliterated cells of the cork, and a narrow band of phelloderm. This is followed by 6 to 8 rows of loosely arranged thin walled parenchymatous cells of the cortex; 2 to 3 rows of cortical cell lie underneath this. Endodermis layer is distinct followed by secondary phloem consisting of sieve elements, medullary rays and parenchyma; cambium is distinct, encircling the central wide secondary xylem consisting of

solitary of groups of 2 or 3 radially arranged vessels, trachids, fibres and uni-to biseriate medullary rays in continuation with that phloem.

Stem: Diagrammatic TS of the stem is circular in outline with ridged and grooved margin, groups of collenchymatous cells are located under each ridge. A narrow parenchymatous cortex and a ring of vascular bundles encircling the wide central pith are seen. Detailed TS of the stem shows a layer of epidermis with striated cuticle and 2 to 3 rows of collenchymatous hypodermis lying underneath it which has more layers in the ridges; cortex is parenchymatous composed of 4 to 6 rows of cells. Endodermis is distinct, stelar tissue consists of a continuously running ring of wedge shaped vascular bundles those located underneath ridge being well developed and bigger in size. Xylem consists of radially arranged vessels, associated with parenchyma and thin walled fiber; pith is very wide, parenchymatous and contains prismatic and rosette crystals of calcium oxalate.

Leaf: Diagrammatic TS of leaf passing through the midrib is convexly protruding at the lower side slightly elevated at upper side, shows an arc meristele embedded in the parenchymatous ground tissue and laterally extended narrow bands of dorsiventral laminar tissue. Detailed TS of the leaf shows an upper and lower epidermis with thin cuticle. A well developed conjoint, bicollateral meristele lies in the centre of the midrib and collenchymatous tissue underneath the epidermis; 1 to 2 layers of palisade cells lie underneath the upper epidermis of the lamina; remaining mesophyll tissue being composed of 4 to 6 rows of spongy parenchyma traversed with vascular strands; prismatic crystals of calcium oxalate are present throughout the parenchymatous cells of the mesophyll and ground tissue of midrib.

Synonyms:

Arabic: Habb-ul-Karafs, Samarul Karafs, Karafs Tukhm-e-Karafs
 Bengali: Chain Randhuni Cheendani, Chanu
 Bombay: Ajmud, Badi Ajamoda 'Badi ajmud
 Catalan: Apit
 Chinese: Chin
 Cutch: Ajwankaputa, Budiajiwan
 English: Celery, Marsh Parsley, Smallage, Wild celery
 French: Ache, Ache Cultivee
 German: Eppich, Sellerie, Sumpfeppich, Wassereppich, Wassermark, Wasserpeterlein, Wildersellerie
 Greek: Eleioslinon
 Gujarati: Badi ajamoda, Bodi ajamoda
 Hindi: Karafs, Ajmod, Ajmad, Bari Ajmod, Ajmud, BoriAjmud, Ajmoda
 Hova: Selery
 Italian: Appio, Sedano
 Kannada: Selerina
 Languedoc: Api, Apibausguas
 Latini: Salahri
 Malta: Celery, Carfus
 Marathi: Amjoda, Ajmoda
 Persian: Tukhm-e-Karafs, Karafs, Karafsh, Karasb, Tukhm-e-Karasb

Portuguese: Apio, Apio hortense

Punjabi: Bhutijata, Bhutijhata Bhutghata

Romi: Baatrakhyun, Telin

Russian: Dikiy Selderei

Sanskrit: Ajmoda, Andha Patriki, Brahmakoshi, Dipyaka, Anthpatrika, Brahmamusha, Dipyaka, Gandhadala, Hastikaveri, Hayagandha, Karavi, Kharashva, Kharavha, Lochamastaka, Markati, Mayura, Moda, Modadhya, Modini, Phalamukhya, Shikkimoda, Uragandha, Uragandhika, Vanhidipika, Vastamoda, Vishali

Saryani: Karasha

Shaami: Sard

Spanish: Apio, Apiocomun

Tamil: Celery, Keerai

Unani: Karafsa, Saalyun

Urdu: Tukhm-e-Karafs, Ajmod

Powder: Powder analysis of the crude drugs reveals the presence of fragments of epicarp having stomata, mesocarp, vittae, endosperm, vessels, scleroids and aleurone grains and micro spheroidal crystals of calcium oxalate. (18) shows fragment of cork in surface view; fragments of upper and lower epidermis in surface view embedded with anomocytic stomata; fragments of fibers and bordered pitted vessels and trichomes; transversely cut fragments of leaf showing a row of palisade cells lying underneath the upper epidermis; prismatic crystals of calcium oxalate.

Standards of Quality

Foreign organic matter: Not more than 1 %

Ash: Not more than 10 %

Acid insoluble ash: Not more than 2 %

Volatile oil: Not less than 1.5 %

Specific gravity: 0.870 to 0.895

Optical rotation: +670 to +790

Physicochemical Properties

Moisture : 5-11% (seeds), 80.3-93.5% (leaves), total ash 6.9-11.0% (seeds), fiber

1.4-102% (seeds), cold water extract : 5.9-12.9 % (seeds)

Chemical Constituents: celery seeds, like those of parsley, contain Apiin. A substance first obtained by Rump in 1836 from leaves, stalks, and seeds of common parsley. Lindenborn, found it contain 54.71-55.25 % carbon and 5.40-5.60% hydrogen and further shows it is a glycoside. This glycoside split up into glucose and Apigenin. From these numbers Lindenborn inferred that apigenin is isomeric with quinone and assigned to apiin the formula C₁₂H₁₄O₇. Apiin is slightly soluble in cold, easily in hot water, still more easily in hot alcohol, insoluble in ether, from the aqueous or alcoholic solution, it always separates by slow cooling in the form of jelly. It dissolves in alkalies with a light yellow colour. It's hot aqueous solution gives no precipitate with silver nitrate, lead nitrate, or copper sulphate, a brown-red precipitate with ferric chloride, a blood-red colouration with ferrous sulphate. Apiin is powerfully dextrogyrate, its specific rotatory power for yellow light being +1730. The seeds and herb yield a colourless or pale yellow essential oil, sp. gr. 0.881. Apiin, luteolin, apigenin, isoquercitrin, bergapten, myristic acid, luteolin-

7-apiosylglucoside, chrysoeriol, apiosylglucoside, caffeic, p-coumaric and ferulic acids, kaempferol, celereoside, seselin, isoimperatorin, osthenol, apigravin, psoralen, 8-hydroxy-5-methoxypsoralen, umbelliferone, apiumetin, rutaretin carvone, piperitone, eugenol, α -pinene, terpinolene, Δ^3 -careen, menthone, celerin, p-hydroxycinnamic acid, β -carotene, vitamin A palmitate, vitamin K1, α -tocopherol, nodakenetin, (-) 2, 3-dihydro-2-(1-hydroxy-1-hydroxymethylethyl)-7H-furo[3,2g] [1]-benzopyran-7-one, butyl-4, 5-dihydrophthalide, caryophyllene, butylphthalide, 1-phenylpentane, apiumoside, oleamide, 11, 21-dioxo-2 β , 3 β , 15 α , trihydroxyurs-12-ene-2-O- β -D-glucopyranoside, 11,21-dioxo-3 β , 15 α , 24-trihydroxyurs-12-ene-24-O- β -D-glucopyranoside, 11, 21-dioxo-3 β , 15 α , 24-trihydroxyolean-12ene-24-O- β -D-glucopyranoside, apigenin-7-O-[2-O-5-O-feruloyl]- β -D-apiofuranosyl]- β -D-glucopyranoside, chrysoeriol-7-O-[2-O-(5-O-feruloyl)- β -D-apiofuranosyl]- β -D-glucopyranoside, falcariindiol, (9Z)1, 9-heptadecadiene-4, 6-diyne-3, 8,11-triol, oplopandiol, 5, 8-dimethoxypsoralen, isofraxidin, eugenic acid, transferulic acid, trans-cinamic acid, p-hydroxyphenylethanol ferulat, caffeoylquinic acid, 5-p-transcoumaroylquinic acid, lunularin, lunularic acid, 2-(3-methoxy-4-hydroxyphenol)-propane-1, 3-diol, D-allitol, Bsitosterol, benzoic acid, succinic acid, dimeric phthalide, 3-n-butyl-tetrahydrophthalide, γ -selinene, sedanenolide, 3-n-butylphthalide and trans- and cis-sedanenolide, luteolin 7-O-apiosylglucoside luteolin 7-O-apioylglucoside, apigenin 7-O-apiosylglucoside, chrysoeriol 7-O-apiosylglucoside, chrysoeriol 7-O-glucoside, falcariinol, falcariindiol, panaxydiol, polyacetylene 8-Omethylfalcariindiol, celeriosides A-E, celephthalides A-C, senkyunolides-N and J, 3-hydroxymethyl-6-methoxy-2, 3-dihydro-1H-indol-2-ol, L-tryptophan, 7-[3-(3,4-dihydroxy-4-hydroxymethyl-tetrahydro-feurane-2-yloxy)-4, 5-dihydroxy-6-hydroxymethyl-tetrahydro-pyran-2-yloxy]-5-hydroxy-2-(4-hydroxy-3-methoxyphenyl)-chromen-4-one, 3-n-butyl-4, 5-dihydrophthalide, 5-allyl-2-methoxyphenol, 1,3-di[(cis)-9-octadecenoyl]-2-[(cis,cis)-9,12-octadecadienoyl]glycerol, p-mentha-2,8,dien-1-ol, p-mentha-8(9)-en-1, 2-diol, methoxsalen(8-methoxypsorslen), 5-methoxypsoralen, 3, 3 α -cis-neocnidilide, isopimpinellin, xanthotoxin, 5 α -androst-16-en-3-one, triglycerides 1-monoglycerides, 2-monoglycerides, 1:2-diglycerides, 1:3-diglycerides, phosphatidylethanolamine, lysophosphatidylethanolamine, undecatriene(E)-2-nonenal, (z)-3-hexenal, (Z)-3-hexenol, 2-methylbutanoic acid, sotolon, β -da masenone, β -ionone, myrcene.

Temparament: Hot 2 dry 2 , Hot 1 dry 2

ACTION according to unani medicine:

Mudirr-i-BawL, Mufattit-i-Hasah (lithotriptic), Mudirr-i-Hayd (emmenagogue), Muqawwi bah (aphrodisiac), Muhallil (resolvent), Musakkin (sedative), Mufattih-i-Sudad (remove obstruction), Mu'arriq (diaphoretic), Mushtahi (appetizer), Kasir-i-Riyah (carminative), Mugarri, Dafi'-i-Tashannuj (Antispasmodic), Mulayyin-i-Am'a' (Laxative) Qatil-i-Didan (Anthelmintic) Mukhrij-i-Janin (abortifacient) Muqawwi (Tonic) Muqawwi-i-Mi'da (Stomachic), Su'al-o-Surfa (bronchitis), Istisqa' Ziqqi(ascites), Muqawwi-i-Mi'da (abdominal pain), Waja' al-Asnan (toothache), (Ayurveda)

Karafs is beneficial in management of Waja'al-Kulya (renal pain), Waja' al-Mathana (Pain in bladder) and Waja' al-Zahr (Backache) as described by Dioscorides. Resolve obstruction in cavity of liver and spleen (Maseeh). Karafs helps in healing wound that have morbid matter (roophis). For hot temperament individuals, before using karafs vinegar is to be added (Razi). When kaahu is used with karafs then it act as musleh of karafs and it neutralize its taste (israyli). It removes Tha'alil(warts) if applied with Naushadar. Karafs increase appetite if given with salt. Karafs is musakkin (neutralize the heat of humours) and helps in starting menstruation or diuresis of urine. It removes Nafkh al-Mi'da (flatulence) due to accumulation of Rih (gases) Jalinus (Galen). According to Jalinus (Galen), Tukhm of Karafs is more beneficial as compared to others parts of Karafs. The potent calorific action of Karafs results in increment of flow of urine and menses (Jalinus). Karafs in powder form is more effective if given with honey.

Therapeutic use:

Dhat al-Janb (Pleurisy), Niqris (gout)

'Irq al-Nasa (Sciatica)

Waja' al-Zahr (Backache)

Nafkh al-shikam (Abdominal Flatulence)

istisqa (oedema)

Waja' al-Kulya (renal pain)

Waja' al-Mathana (cystodynia)

Qay' (Vomiting)

Ihtibas al-Bawl (retention of urine)

Hasah al-Kulya wa Mathana (nephrolithiasis/cystolithiasis)

Dama/ Diq al-Nafas (bronchial asthma) [Hudar (Rheumatism)

Dose: 3-5 gm ,6 maasha (6gm), 3 maasha (3gm)

Musleh (Corrective): Anisoon [17, 75, 98] Ajwain Khurasani [98] Mastagi Rumi ,Kahu According to Jalinus (Galen), Karafs and Kahu when mixed and given then the temperament of the product become Motadil (moderate).

Badal (Substitute): whole plant-badyan and Tukhm ka badal ajwain desi & zeera

Muddat Hayat (shelf life) Tukhm- 2 years, Root- 3 years

Important compound formulations of unani system of medicine:

1. Bandiqul Bazoar,
2. sikanjbeen Buzoori Motadil,
3. jawarish Safarjali Qabiz,
4. Jawarish-e-Zarooni Sada,
5. Majoon-e-jalali,
6. Majoon-e-Kalkalanaj,
7. Majoon-e-Jograj Gugaj,
8. Majoon-i Hajral Yahoood,
9. Sufoof-e-Namak Sheikh-ur-raees,
10. Majoon Dabidulward,
11. jawarish falafili,
12. jawarish-e-shahreyaran,

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