MEDICINAL EFFECTS OF KAAHU (LACTUCA SATIVA LINN) DESCRIBED IN UNANI MEDICINE - A REVIEW

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ABSTRACT

Kaahu – Lactuca sativa L. is a large genus of annual or perennial herbs, chiefly of north temperate regions. About 25 species occur in India. All the species contain milky latex and the dried latex from some of them furnishes the drug lactucarium. Lactuca sativa L. (Asteraceae) is considered as the most important vegetable in the group of leafy vegetables. It is also extensively used as a fresh vegetable, but some forms are also cooked. It has been used for salads at a very early period. According to Herodotus, they were served at the tables of the Persian Kings more than 400 years before the Christian era. The garden lettuce is considered to have originated in the warmer temperate parts of western Asia, including eastern Mediterranean and descended from L. Serriola Linn, prickley lettuce, found wild in the Himalayas and north temperate regions of the Old World. The present review will provide comprehensive information on phytochemical and curative uses with exceptional mention to Unani medicine which will help to tap its unexplored potential with more scientific approach.

Keywords: Kaahu; Lactuca sativa Linn; Lettuce; Antianxiety; Hypnotic.

INTRODUCTION

Kaahu – Lactuca sativa L is an erect leafy plant, 60-150cm high, usually prickly towards the base is found wild in the western Himalayan region between 1,800 and 3,300 [1]. An erect, glabrous, herbaceous annual, 0.5-1.2 m high widely grown for its crisp, edible, highly developed radical leaves, which appear before the flowering starts, leaves 12.5- 25.0 cm long, thin, nearly orbicular, oblong, obovate or lingulate, plane bullate or curved, flower leads of yellow rays, borne on panicles; achenes lenticular oblong, dark brown or grayish brown, with slender beak and white pappus [2].

It is particularly vital as a commercial crop in Asia, North and Central America, and Europe. World’s largest producers are China, U.S., Spain, Italy, India and Japan. Garden lettuce like other species of lactuca yields lactucarium used as hypnotic in bronchitis and asthma. It is used in poultices for burns and painful ulcers.2 Fruit oval-oblong compressed often curved, not winged at the edge, with six slender ribs on each face, smooth, pale grey or (black), pappus very white and glistening.

Anticonvulsant and sedative properties have been established for the leaves of this plant [3, 4]. The whole has been acclimated in the analysis of abdomen problems to activate digestion, to enhance appetite and subside inflammation [4, 5] via the anti-inflammatory activities of triterpene lactones [6].

Family - Compositae; Asteraceae.
Parts used: Seeds, leaves
Vernacular Names:
Lettuce, **Unani-- Kaahu Bastaani, Salaad Pattaa, Salaad Baagh ki [7], Tamil—Shallatu-virai [8], Hindi—Kaahu, salad [8], Arabic—Bazul Khas [8], Persian—Tukm-i-kaahu [8], Urdu—Kaahu [8], Telugu—Shallattu [8].**

**Morphology**

It is an annual glabrous herb with thin tap root and an erect stem 30-100cm tall, branched in the upper part. Leaves 12.5- 25.0 cm long, thin, nearly orbicular, oblong, obviolate or lingulate, plane bullate or curved, flower leads of yellow rays [2]. Leaves are spirally arranged, forming a dense rosette or a head before bolting and their shape is oblong to transverse elliptic, orbicular to triangular, entire to pinnatisect. The leaf margin is entire to setose dentate, often curly. Stem leaves are oblong elliptic, with a cordate base. Fruit oval-oblong compressed often curved, not winged at the edge, with six slender ribs on each face, smooth, pale gray or (black), pappus very white and glistening [9]. Seeds are very small (600-700/g) [2]. Shiny, tasteless, reddish white or blackish white in color, the blackish one has less cooling effect [10].

**Therapeutic activity**

As per established knowledge, it is used in the management of insomnia, anxiety, neurosis, dry coughs, rheumatic pain, and etc. [11]. The entire plant has also been used for the treatment of stomach harms, to motivate digestion and to augment appetite and reduce inflammation [12]. The latex from Lactuca sativa contains 15 oxalyl and 8 sulfate conjugates of the guaianolide sesquiterpene lactones, lactucin, deoxyactuctin and lactucopicirin [13, 14]. Lettucenin-A is extremely antimicrobial [15]. Antioxidant activity of lettuce has been accounted to prevent chronic diseases connected to oxidative stress such as cancer [16]. Plant is used in painful ulcers and burns. The leaves contain calcium, phosphorous, iron, thiamine, riboflavin, niacin, carotene, iodine, fluorine. It is rich in nutritive value classed with cauliflower, celery and asparagus, chiefly valued for its mineral and vitamin content [17]. Dietary allowance of 10 gm of lettuce is adequate to meet the vitamin K requirement of the body. Aqueous extract of roots gave a guanine-type sesquiterpene glycoside, lactoside C, along with known glycosides, lactoside A and macro-cliniside A [7].

**Phytoconstituents**

Phytoanalysis of fresh lettuce gave the following values: moisture 92.9%; Protein 2.1; ether extract 0.3; fibre 0.5; carbohydrates 3.0; and mineral matter1.2%; carotene (as vitamin A) 2200 IU; vitamin B1 270 μg.; nicotinic acid 0.4mg, riboflavin 120 μg; and vitamin C 15 mg/100gm. It is also a reasonable source of folic acid and contains some vitamin E, vitamin G, vitamin K and choline. The mineral constituents present in lettuce are: sodium 3.1; potassium 208; calcium 25.9; magnesium 9.7; iron 0.73; copper 0.15; phosophorus 30.2; sulphur11.8; and chlorine 39.5 mg/100 gm. Traces of arsenic, barium, manganese, titanium, zinc, aluminum, fluorine and iodine are reported [2]. The leaves contain calcium, phosphorous, iron, thiamine, riboflavin, niacin, carotene, iodine, fluorine. A dietary allowance of 10 gm of lettuce is adequate to meet the vitamin K requirement of the body [7]. An oil rich in carotene, chlorophyll and xanthophyll has been obtained from lettuce waste by extraction with organic solvents; the unsaponifiable fraction of lettuce lipids contain ethyl Alcohol, an amyrine like compound (C30H50O, m.p 1900) ergosterol, vitamin E and an antioxidant (C13H14O5, m.p. 1430), concentrates of vitamin E and of the antioxidant have been reported [7]. The chief constituents of lactucarium are lactone or lactucerin, lachicin and lacturic acid. It also contains a small quantity of an amorphous principle termed lactucopicirin. A new carotenoid lactua xanthin is also isolated from lettuce [24].

**Miqdarekhurak (Dose):** 3 – 5 gram [20, 24]

**Mizaj (Temperament):** Cold 2° and Dry 2° [20, 24] Cold and Wet 2° [25]

**Muzir (Toxicity):**

Decreases spermatogenesis [20, 24]. Causes dementia, regular eating causes Zofe basarat [19].

**Muslekh (Corrective):**

Podeena, Karafs, Mastagi, Shahad khalis, Zeera siyah, Podeena, Ajmood, Shalgham, Morabba e haleela [20, 24, 26]

**Badal (Substitute):**

Tukhme khashkhash, Damul akhwain, Kasni, Roghane maghz tukhme kaddu, Roghane badam [21, 25]

**Physico chemical standards (%)** [27]

| Total ash | : 8.5 |
| Acid soluble ash | : 3.5 |
| Water soluble ash | : 1.0 |

**pH Values**

| 1% solution | : 4.2 |
| 10% | : 4.08 |
| Loss on drying at 105°C | : 10.0 |

**Successive extractive values (%)**

| Petroleum ether | : 31.6 |
| Benzene | : 0.95 |
| Chloroform | : 0.45 |
| Acetone | : 2.60 |
| Ethanol | : 0.95 |

**Compound formulation of kaahu (Lactuca sativa Linn) in Unani medicine**

- Roghane kaahu [18, 28,29]
- Qurse sartan [30]
- Qurse ziyabitus [30]
• Qurs musallas [30]
• Tiryaq e nazla [30]

• Qurs tabasheer kafoori [24]
• Roghan laboob sabaa barid [30, 24]

Recent scientific studies
1. A study designed to elucidate the protective effects of ethanolic extract of Lactuca sativa against toxicity caused by carbon tetrachloride (ccl4) in reproductive system of rats revealed that lettuce extract treatment augments the antioxidants defense mechanism against ccl4-induced toxicity and provides evidence that it has therapeutic role in free radical mediated diseases [31].
2. In a study it is reported that the extract of lactuca sativa seeds possess analgesic and anti-inflammatory properties in rats [4].
3. In a study conducted on January 2014, it is reported that the hydro-alcoholic and aqueous extracts of lettuce seed have antispermatic effects and also shown increased serum level of testosterone in mice thus suggesting that lettuce seed could be a potential contraceptive agent [32].

Pharmacological activity

<table>
<thead>
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<th>Istemalat (Uses)</th>
<th>Ethnobotanical Actions</th>
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<td><strong>Musakkin</strong> (Analgiesic) [18]</td>
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<td><strong>Mujaffife Mani</strong> (Semen desicator) [18]</td>
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<td><strong>Mudirre Baul</strong> (Diuretic) [18]</td>
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<td>Tappeerul baul (Urine incontinence) [18]</td>
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<td>Neeshe aqrab (Scorpion bite) [18]</td>
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<td>Malankholiya (Malencholia) [18]</td>
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<td>Junoon21 (Insanity)</td>
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<td>Sual shobi (Brachitis) [18]</td>
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CONCLUSION
In Unani medicine, the pharmacological actions of Kaahu (Lactuca sativa Linn.) are described as Musakkin (analgesic), Munawwim (sedative). The oil of kaahu has been recommended for the treatment of headache, insomnia, nervousness, palpitation, etc [33]. The oil is a rich source of antioxidants like quercetin, caffeic acid and vitamins. It also contains phenolic acids, tannins and glycosides which may responsible for its use in mental disorders. Kaahu is an important drug in Unani system of medicine used for ages in the treatment of headache, insomnia, nervousness, hypertension, palpitation, fever, Asthma, Chronic bronchitis, acute cold/Coryza, Scorpion sting etc. The scientific analysis of Kaahu accomplishes many of the activities count in Unani classical literature. Further investigations are necessary to seek out the mechanism of action, active principle(s) and utility of Kaahu in clinical tradition.

REFERENCES