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Review Paper

A Review Article of Beekhe Kasni *(Cichorium intybus)* its Traditional uses and Pharmacological Actions

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Abstract

Cichorium intybus L., is an erect perennial herb it is of different types depending on flowers which are bright blue, white or pink Cichorium intybus is about 80±90cm in height .It has a fleshy taproot up to 75 cm in length. Chicory root contains volatile oils which has a wormicidal effect. Chicory is recommended in the treatment of jaundice, spleen problems, gastrointestinal problems like digestive difficulties, gastritis and lack of appetite, sinus problems, cuts and bruises. In Unani system of Medicine Kasni (chicory) is used as a Hepatoprotective and Nephroprotective. Chicory consists of a dietary fibre called as Inulin, which is useful in treating diabetes and constipation. Leaves juice and tea are used to as lithotriptic, elimination of internal mucus and production of bile. This paper gives an overview of Traditional uses and pharmacological properties.

Keywords: Kasni, Chichorium intybus, Inulin, Hepatoprotective, Chicory, Unani.

Introduction

Cichorium intybus L is a member of the family Asteraceae It is an as an important medicinal herb has been used Ayurveda, Unani and Siddha system of medicine for diseases of hepatobiliary system and renal system. Recent studies have found some of the important constituents in chicory such as caffeic acid derivatives, fructooligosaccharides, flavonoids, inulin, and polyphe-nol[1] *Cichorium intybus* L. (Compositae family) is a widespread weed with antibacterial effect. Its habitants are roadsides, railroads and waste grounds, flowering period lasts from June to October. Leaves of the plant contain salts such as sulphates and phosphates of sodium, magnesium and potassium as well as potassium nitrate. It also contains a bitter glycoside named cichorine. In traditional medicine, all parts of the plant specially root and leaves are used as diuretic, laxative, antibilious, antipyretic, blood purification and strengthen of the stomach. It is also used as an appetizer as well as in the treatment of hepatic failure, jaundice, intermittent fever and mild states of chronic skin diseases[2]. Chicorium intybus is called as Hindubar, Indyba in arabic**,** Zral in baluchisthan, Chicory in California, Bunk, Chicory in English, Kichora, Kikori in greek, Kasani in gujrathi, Kasni in hindi, Kasani in Persian, Gul, Hand in Punjabi, Kasni, Tsikorie, Kashini virai in tamil, Kasini vittulu in telugu, Kasani in urdu[3]

Origin and Distribution

The plant grows almost on all types of soil and occurs throughout North West India upto 6000 feet Punjab, Kashmir, Andhra Pradesh, Karnataka and Maharashtra other countries which produce chicory are Baluchistan, Belgium, Europe, France, Germany, Persia, Netherlands, Switzerland, South Africa Waziristan, West Asia, United Kingdom[4].

Botanical Description

Roots are fleshy, tapering, stem 1-3 long angled and grooved, branches rigid spreading, leaf nerves, beneath, hispid leaves ablong lanceolate, upper cordate amplexical. Head 1-1/2" diameter, peduncles thickened in the middle, involucre bracts herbaceous, ligules bright blue, rarely white or pink[5].

Macroscopic

The root is about 8-10 cm long tapering fleshy somewhat branched and at the top about 1cm wide. Both externally and internally it is white in colour when fresh and densely covered by rootlets. The bark is rather thin, radially striate from the bark covered with vessels and separated by a brown cambium line from the finely porous wood. The root tastes sweetish and mucilaginous initially and then very bitter.[5]

Microscopic

The mature root in cross section reveals a typical dicotyledonous structure and also secondary growth. The lateral root shows a simple structure with a central core of a tri or pent arch xylem and the phloem lying between two xylem arms. The vascular tissues are limited by a double end. It is followed by a cortical zone, which is externally lined by a single layered epidermis. In older roots the radiating secondary xylem occupied about 2/3rd of the total thickness which mainly consists of xylem vessels (either scattered or in group of 2 or 3) and rest

of the area is occupied by xylem fibres. Few tracheids are also found. A narrow band of secondary phloem shows distinct groups of sieve tubes, few fibres and parenchymatous medullary rays traverse radially from xylem to phloem. The mature roots are elongated cork cells which develop superficially and laticiferous vessels are also found in the region of secondary phloem[5,6].

Unani Description of Beekhe Kasni: This plant is in use since thousands of years by Unani physicians. A classical herbal medicine, introduced by Prophet Mohammed (pbuh), 1400 years ago. Ibn Sina has described Hindyba / Kasni plant as follows[7]. Endive is of two kinds (a) Wild endive and (b) Cultivated endive.

Both the varieties bear broad and thin leaves. Endive acts like lettuce (Kahoo) but according to some people, endive is less effective. In my opinion it is more effective than lettuce as a deobstruent in hepatic obstructions. It is however less effective for reducing hotness and producing nutrition. Bitter endive is considered more useful for the liver. Endive is cold in the last phase of the first degree. Its dry part is dry in first degree and moist part is moist in the last phase of first degree. Cultivated variety is relatively more cold and moist. Its bitterness gets intensified and inclines towards heat in summer season. Endive has nothing to do with such changes therapeutically. Wild endive which is also called as Tarakhshaqaq is less moist[7].

The plant described by N.A.Ghani - It is a common plant which grows wild and also cultivated. The cultivated variety is called as Bustani, Hindba e Shami-o-Hashmi-o-Balaqhi and wild variety is called as Dashti, Hindba e Baqhal.

Bustani is of two types: i. Leaves- resemble Kahoo leaves and slightly bitter in taste; flowers- are bigger and bluish in colour (colour of lajward). This variety is also called as Hindba e Shami o Hashmi o Balaqhi, ii. Leaves and flowers are smaller than first variety, flowers are bluish / purple and taste is very bitter. This variety is also called as Hindba e Baqhal. The medicinal properties of the plant is mainly found on the layers of leaves, better not to wash[8].

Phytochemical Studies

Analysis of the seeds gave the following values: Oil. 4.7%, Fatty acid composition, Saturated 21.7%, Unsaturated 78.3%. The analysis of fresh roots gave the following values: Moisture-77.Fat: 0.6gm , Cellulose, Inulin and fiber-9.0gm, Gummy matter- 7.5gm, Glucose- 1.1gm, Bitter extractives- 4.0gm, Ash-0.8% . The roots contain the sesquiterpenes lactones like sonchusides A and C, and, cytokinin, crepidiase B, cichoriolide A, cichoriosides B and C, ribosylzeatin a nucleotidsugar, lactucopicrin, uridine-5'-diphosphoglucoseand chlorogenic, neochlorogenic, 8-deoxylactucin, isochlorogenic, lactucin, caffeic and chicoric acids. The carbohydrates present in the roots include a series of glucofructosans between sucrose and insulin besides glucose and fructose. pentose, levulose and dextrose, taraxarcine and levulose. During storage the inulin is converted into inulide and finally into fructose due to the presence of an enzyme inulocoagulase[9].

The roots of *Cichorium intybus* produce latex, inulin 58% a bitter compound composing of lactucin, lactucopictin, intybin, cichorin taraxasteral, tannins, fructose, pectin, fixed oils, and alkaloids. Aerial part- inulin fructose, resin, cichorin, esculetin[10].

Pharmacological Studies

A recent study has shown that root of Chichory consists of high alkaloids , and the root extract of this plant revealed anticancer , antitumor and immunomodulator properties[11,12]. Chicory is used as an adulterant in coffee so as to reduce gastrointestinal problems like gastritis[13]. The sesquiterpene lactones like lactucin and lactucopicrin were used for antibacterial and antimalarial activity[14], antifungal activity[15,16]. Chichory also has antibacterial and nematicidal effect [17] . Eventhough it has antibacterial effect but still little is known on human pathogenic bacteria. Inulin is a dietary fibre which is a starch which is not digestible by the humans but can be used as an artificial sweetener [18]. Dried root is used as a diuretic, jaundice tonic, stomachic, liver enlargement, gout, used as a tonic in fevers, rheumatic complaints vomiting, diarrhea, and enlargement of the spleen[10,19].

Kasni as Preboitics: Chicory is rich in fibrous polysaccharide inulin, it is a soluble dietary fibre and resistant to digestive enzyme .It reaches to large intestine or colon essentially intact, where it is fermented by resident bacteria. Lactobacilli and bifidobacteria agent digest inulin and feed themselves on it. Hence prebiotics act as fertilizers for these symbiotic bacteria. Inulin serves the role of dietary fibre; safety of inulin has been evaluated and accepted by FDA of United States[19]. The leaves and roots are used to treat diabetes[20].

The Alcoholic extract of its root showed significant anti microbial activity against organisms causing gingival inflammation[21].

Chicory not only contains 58% inulin and sesquiterpene lactones but also contains vitamins and minerals. is an excellent mild bitter tonic for liver and digestive tract and cleansing the urinary tract. Chicory is also taken as a mild laxative[22].

Therapeutics: lithotryptic, diuretic, rheumatism, gout, anti inflammatory, lowers blood sugar[23].

Uses according to Unani System of Medicine: It removes the visceral, hepatic and vascular obstruction. It is a good but not very strong astringent. Application of a paint prepared from its juice with white lead and vinegar elicits a remarkable cooling effect on the organs. It is used as plaster in case of gout. It is

useful in chronic conjunctivitis. The latex of the wild variety removes opacity of the cornea. It is plastered on the chest with barley flour in cases of palpitation. It strengthens the heart; Purging cassia is dissolved in its juice and used as gargle in pharyngitis. It relieves nausea and counteracts the ill effects of excessive yellow bile, it strengthens the heart, and it is one of the best drugs for the stomach having a hot temperament. The wild endive is better than the cultivated variety for stomach diseases, endive is said to be suitable for all kinds of temperaments of the liver, the drug is particularly suitable for hot tempered livers, and however it is not harmful to cold tempered organs unlike some cold vegetables. Oral intake of endive especially of its wild variety along with vinegar causes constipation. Endive is useful in quarton fevers and also in fevers attributed to cold exposure. A plaster of the roots of endive as well as its roasted flour is beneficial against the bites of scorpion, insects, wasps, snakes etc[24].

Afal /Properties: Mufatteh, Munqi, Mulatife Akhlath, Munaqi mujari bole, useful in awrame ahsha, in istasqa acts as munzij and muhalile mavad, useful as blood purifier in hummiyathe murakkaba muzmin, in vaja mufasil, in ehtabas bole, effective in all types of insects' bites.

It is deobstruent, liquefies and lightens humour, clears the nutritive tracts, diuretic, blood purifier, acts as anti inflammatory to digestive organs, relieves istasqae ziqqi, dissolves the matter, cures complex and chronic types of urticarial rashes, useful in gout produced due to hararath, relieves puffiness and odema of face, hands and legs.

Roots boiled and mixed with sirka used as gargle helps in tooth sensitivity, mixed with extract of kishneez sabz or amaltas or shahtoot used as gargle relieves throat inflammation and in initial stages of khunnaq (diphteria) It is abortificient, mixed with its leaves paste applied to insect bites acts as antidote. Kasni is used as saag and juice of whole plant extract and sheera of its seeds useful in kidney's hot temperament[25] Dioscorides says that extract of kasni plant mixed with safeda kashgari (zinc oxide) and sirka applied to the body acts as a moisturizer[8].

Tukhm Kasni is effective in bilious fevers; kasni extract relieves Hummae Ribb. Berg Kasni reduces the hararath of dam and safra, its water that is aabe Kasni murrawaq with sikanjabeen is used in chronic fevers, musakkin safra and cures ghisyan (nausea and vomitings), Kasni is diuretic, reduces the hararath of khoon and safra, in inflammation its application acts as tabreed, raadh and taskeen (cooling, retentive and analgesic), therefore Kasni extract mixed with sandal paste applied as tila on fore head relieves Suddae har[26].

Kasni is mudir bole, taskeene hararthe khoon and safra therefore useful in iltehabe meda (gastritis), kasni roots are blood purifier. Kasni acts as deobstruent and clears the urinary tract and also relieves obstruction caused by suddas and very useful in kidney diseases. Kasni is more effective as Tafteeh and useful in suddade jigar, as it is very bitter it increases the action of Nufooz (absorptive property) in liver and acts as deobstruent. The leaves contain watery substance on their surface which possesses medicinal property hence leaves are better not washed. Kasni is considered as one of the best drug in Sue mizaj meda o jigar. Kasni is munaqie gurda, it clears the urinary tract and renal tubules, therefore useful in urinary tract infection and amraze gurda, the more bitter the more effective in suddad.

Conclusion

Beekhe Kasni (Cichorium intybus) is a medicinal and culinary herb which is used in traditional system of medicine since many years, eventhough it has many medicinal uses but still it is necessary to scientifically validate with experimental and clinical study.

References

1. Kocsis I., Effects of chicory on pancreas status of rats in experimental dyslipidemia, Volume, *Acta Biologica Szegediensis*, **47(1-4)**, 143-146 **(2003)**

2. Ghaderi et al., Comparison of Antibacterial Effect of Cichorium Intybus L. with Vancomycin, Ceftriaxone, Ciprofloxacin and Penicillin (In Vitro), Clinical and Experimental Pharmacology, *Clin Exp Pharmacol*, **2**, 2 **(2012)**

3. Kirtikar K.R. and Basu B.D., Indian medicinal plants, Vol I,II,II, IV and VI , 2nd reprint Edn, Periodical experts book agency Delhi, 649 -651, 1048-1055, 1140-1146, 1199-1206, 1210-1213, 1228-1231,1980- 1982, 2133-2135, 2141-2142, 2149-2150, 2171-2172, 2462-2463 **(1987)**

4. Anonymous, Standardisation of Single drugs of Unani medicine Part I, CCRUM, New Delhi, 156-161 **(1987)**

5. Anonymous, Standardisation of Single drugs of Unani medicine Part II, CCRUM, New Delhi, **60,** 101-107 **(1992)**

6. Saroja S., Padma P.R. and Radha P., Enzymic and non enzymic anti oxidants in *Cichorium intybus*, Dept of Bio chemistry and Biotechnology, Avinashilingam University, Coimbatore, India, 37-39 **(2001)**

7. Ibn Sina, Al Qanoon Fit Tib Vol 2, Nami Press Lucknow, 22, 450, 45, 154, 111, 164, 160, 170, 98, 134, 140, 142, 53, 146, 123, 467 **(1906)**

8. Ghani M.N., Khazanethul Advia, Jadeed idara kitabul Shifa, New Delhi, 55, 108, 137, 149,190, 240-243, 401-403, 458-459, 478, 525, 674,675, 704, 868-870, 997-998 **(1921)**

9. Anonymous, The Wealth of India, Vol I, II,III, IV, V, VIII, X, CSIR, New Delhi, 78-79, 87, 170, 88, 179, 370, 389, 391, 52, 195, 120-122, 93, 267, 555-561 **(1992)**

10. Kokate C.K., Pharmacognosy, 36th edn; Nirali Prakashan, 41, Budhwar Peth, Jogeshwari mandir lane, Pune 411002, 544 **(2006)**

11. Angelina Quintero Araceli, Pelcastre and Dolores Jose, Antitumoral of Pyrimidinederivatives of Phytochemical sesquiterpen lactones, *J Pharm. Pharmaceut. Sci.*, **3**, 108-112 **(1999)**

12. Hazra B., Sarkar R., Bhattacharyya S. and Roy P., Tumour inhibitory activity of chicory root extract against Ehrlich ascites carcinoma in mice, *Fitoterapia*, **73**, 730-733 **(2002)**

13. Bremness L., The Complete Book of Herbs of Joanna Chisholm (Eds.), Darling Kindersley, London, 68 **(1998)**

14. Bischoff T.A., Nguyen-Dinh P., A.G., Arefi M. Laurantos C.J. Kelley and Y. Karchesy, Antimalarial activity of Lactucin and Lactucopicrin sesquiterpene lactones isolated from *Cichorium intybus* L. *J. Ethnopharmacol*, **95**, 455-457 **(2004)**

15. Monde K.T., Oya A., Shira and Takasugi M., A guaianolids phytoalexin, cichorelaxin from *Cichorium intybus*, Phytochemistry, **29**, 3449-3451 **(1990)**

16. Nishmura H., Nagasaka T. and Satoh A., Ecochemical from chicory rhizome, *Academia Sinica*, **2,** 63-70 **(1999)**

17. Nandagopal S. and Kumari B.D.R., Phytochemical and Antibacterial Studies of Chicory (*Cichorium intybus* L.) - A Multipurpose Medicinal Plant, *Advances in Biological Research*, **1(1-2)**, 17-21 **(2007)**

18. Kashyapa K. and Chand R., The useful plants of India, National Institute of Science Communication New Delhi, 124 **(2000)**

19. Chopra R.N., Nayar S.L. and Chopra I.C., The glossary of Indian medicinal plants, CSIR, New Delhi, 44 **(2002)**

20. Pullaiah T. and Chandrasekhar K., Anti diabetic plants in India, Regency publications New Delhi, 137, 138 **(2003)**

21. Patel V.K. and Doshi J., In vitro study of anti microbial activity of extract of cichorium intybus linn on gingival inflammation, *J. Indian Dental Association*, **53(1)**, 25 **(1981)**

22. Chevallier A., Encyclopedia of medicinal plants, D.K. Publishing Book, New York, 187 **(1996)**

23. Karnick C.R., Pharmacopeal standards of herbal plants, Vol II; Sri Satguru Publications Indian book centre New Delhi, 35 **(1994)**

24. Azmi W.A., Kuliyat Advia, Ajaz publishing house, 138 **(1997)**

25. Jeelani G., Maghzan ul Ilaj, Vol I & II; Idara kitabul shifa Daryaganj New Delhi, 579 **(2005)**

26. Ibn Rushd, Kitabul Kuliyat, CCRUM, New Delhi, 226, 302.,111,112,133 **(1987)**