



USHEERA (*Vetiveria zizanioides* Linn. Nash): A DRUG REVIEW

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ABSTRACT

Usheera (*Vetiveria zizanioides* Linn. Nash) possesses a great therapeutic value in the traditional Ayurvedic medicine and is widely distributed in India. Apart from the medicinal value, the culms are used for sweeping, scenting clothes and also as soil binders. In Ayurvedic literature, the plant has been mentioned from Veda Kala to Nighantu Kala. Hence in a view of immense medicinal importance of the plant this review is therefore compile all the information related to Usheera.

Keywords: Usheera, *Vetiveria zizanioides*, Nighantu Kala.

INTRODUCTION

Usheera (*Vetiveria zizanioides* Linn. Nash) belongs to the family Poaceae (syn. *Andropogon squarrosus* Hook. f., non-Linn. f.) also commonly known as Khas-Khas or Khus grass; is native to India. It is a densely tufted perennial grass, where roots are the useful part¹. It has been cultivated longest for the scented oil produced by its roots as well as for the ability of the plant to retain soil and prevent erosion². Usheera possess Tikta Madhura Rasa, Laghu Snigdha Guna, Madhura Vipaka and Sheeta Virya and it does Vata pitta Shamana. It possesses karma like Trishnahara, Dahashamaka, Swedahara³ etc. The drug is detailed in Samhitha and Nighantu with the mentioning of some of the Yogas which includes Usheera as a main drug. The references from classical books and Nighantu, the morphological descriptions, chemical constituents, therapeutic activity and recent researches are described in this chapter.

Historical background

In the Vedic literature, there is mentioning of the drug Usheera in first mandala of *Rigveda*. In Koushika sutra it is named as "Veerana" and regarded as "Sarvaroga Bhaishajya", this indicates that the drug was used as a medicine since the ancient time.

Adhunika kala: Some of the important Nighantu of Modern era were Priya Nighantu, Adarsha Nighantu in which Usheera was mentioned in Shatapushpadi Varga in Priya Nighantu⁴ and Adarsha Nighantu⁵ mentions Usheera in Trinadhi Varga.

The Wealth of India identifies Usheera as *Vetiveria zizanioides* Linn.Nash⁶. Other books of Modern periods such as Ayurvedic Pharmacopoeia of India, Wealth of India, Database on Indian

Medicinal Plants used in Ayurveda, Compendium of Indian Medicinal Plants, Indian Materia Medica, Quality standards of Indian Medicinal Plants and other books written by recent scholars also gives a lot of information regarding the Habit, Habitat, Morphology which includes Macroscopic and Microscopic description of the drug along with Chemical constituents, TLC, Quantitative standards, Adulterants, Substituents etc of Usheera.

Nirukthi / Basonym

• Ushyathe ishyathe sarveh maadhuryadhi gunakathvath ithi | Usheera is liked by many people because of its sweet scent and taste⁷.

• Ushyathe ishyathe sarveh | It is liked by all due to its fragrance⁸.

Synonyms⁹

Habitat

• Jalavaasa– Usheera grows commonly near water resources.

Morphology

• Mrunaalam – Stem appears similar to lotus stem

Properties and Actions

Naladam – Usheera has got pleasant Aroma

Abhaya– Usheera is useful in many diseases, so no fear of any diseases.

Sevyam– Usheera is very useful in diseases like fever etc

Table 1: Synonyms mentioned by various Samhitha, Nighantu

PARYAYA	C S ¹⁰	S S ¹¹	A H ¹²	A N ¹³	S N ¹⁴	D N ¹⁵	MP N ¹⁶	K N ¹⁷	BP N ¹⁸	R N ¹⁹	SH N ²⁰	N A ⁵	P N ⁴	MN 21
Abhaya	+	-	+	+	-	+	+	+	+	-	-	-	-	+
Amrunaala	+	-	-	+	-	-	-	+	+	+	+	-	-	+
Avadatha	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Bahumula	-	-	-	+	+	-	-	+	-	-	-	-	-	-
Balaka	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Chaityaparni	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Gandhadhya	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Grahabhuvaya	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Haripriya	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Jalamoda	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Jalashaya	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jalavasa	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Lamajjaka	-	-	-	+	+	-	-	-	-	+	-	-	-	-
Mrunaala	-	-	-	-	-	+	-	+	-	+	-	-	-	-
Nalada	-	-	-	-	-	-	-	-	+	-	+	-	-	+
Ranapriya	-	-	-	+	-	+	-	+	-	+	-	-	-	-
Samagandhika	-	-	-	-	-	+	-	+	+	+	+	-	-	+
Samarangika	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Sevya	+	+	+	-	+	-	+	+	+	-	+	-	-	+
Sheetamoolaka	-	-	-	-	-	-	-	+	-	+	-	-	-	-
Shishira	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Shubhra	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Sugandhiraja	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Sugandhika	-	-	-	-	-	-	-	-	-	+	-	-	-	+
Sugandhikota	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Sugandhimulaka	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Vaana	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Varitara	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Veera	-	-	-	+	-	+	+	+	-	+	+	-	+	+
Veeramulaka-	-	-	-	+	-	-	+	-	-	-	-	-	-	-
Veerataru	-	-	-	-	-	+	-	+	-	-	-	-	-	-
Veerana	+	-	+	+	+	-	-	+	+	+	-	-	-	-

Table 2: Vernacular names²²

Assami	Ushira , Virina
Bengali	Khaskhas, Venaramula, Shanader
Bombay	Khasa khasa
Burma	Miyamoe
Canarese	Lavancha
Cutch	Vala
Deccan	Khaskhas
English	Cuscus Grass, Koosa, True Vetiver, Vetiver Grass
French	Chiendent du Indes, Vetiver
Gujarati	Valo, Sugandhi
Hindi	Khas, Khas bona, Onei, Panni, Ganrar.
Kannada	Lavanchi, Madivala gida, Balada beru, Karisajje hullu, Kadudappa
Konkani	Bhanavalo
La reunion	Vetiver
Malyalam	Ramachham, Ramachehamver, Vettiver.
Marathi	Vala
Mundar	Birijono, Sirum, Sirumjono
Oriya	Ushira, Benachera
Oudh	Tin
Nepal	Nagesuri
Persia	Narmishka
Punjab	Panni, Khas.
Sadani	Birni
Santal	Siom
Sinhalese	Saivendera, Sevandramal
Tamil	Vettiver, Tlamichamver, Vilhalver, Viranam, Virkel, Viyal.
Urdu	Khas
Telugu	Kuruvaeru, Vetti-vellu, Vetti-veru, Avurugaddi Vaeru, Lamajjakamuvaeru, Vidavalivaeru, Kuruveru.

Table 3: Classification of Usheera[*Vetiveria zizanioides* Linn.] according to Varga in Samhitha, Nighantu

Samhitha	Varga
Charaka samhitha ²³	Varnya Mahakashaya Shukrashodhana Chardi Nigrahana Daha Prashamana Angamarda Prashamana
Sushruta Samhitha ²⁴	Eladi gana Sarivadi gana Pittasamshamana
Ashtanga Hridaya ²⁵	Tikta gana Sarivadi Gana Pittaghna Gana
Ashtanga Sangraha ²⁶	Pittasamshamana gana Kandughna
Dhanwantari Nighantu ¹⁵	Chandanadi Varga
Shodala Nighantu ¹⁴	Chandanadi Varga
Madanapala Nighantu ¹⁶	Karpuradi Varga
Raja Nighantu ¹⁹	Chandanadi Varga
Kaiyadeva Nighantu ¹⁷	Oshadhi varga
Bhavaprakasha Nighantu ¹⁸	Karpuradi varga
Nighantu Adarsha ⁵	Trinadi varga
Priya Nighantu ⁴	Shatapushpadi varga

TAXONOMICAL POSITION²⁷

Kingdom -Plantae
 Division -Embryophyta siphonogram
 Subdivision -Angiospermae
 Class -Monocotyledonae
 Order -Glumiflorae
 Family -Graminae
 Genus -*Vetiveria*
 Species -*zizanioides*
 Scientific name -*Vetiveria zizanioides*

***Vetiver zizanioides* (Linn.) Nash²⁸**

A densely tufted perennial grass. Rootstock branching with spongy aromatic roots. Culms stout, upto over 1.8m high, usually sheathed all along.

Leaf-sheaths compressed, especially the lower which are sharply keeled and fan-like, imbricate, very smooth, firm; ligules reduced to a scarious rim; blades narrowly linear, acute, erect, rigid, firm or somewhat spongy, usually glabrous, rarely more or less hairy downwards on the face, pale green, midrib slender, lateral nerves close, 6 or more on each side, rather stout slightly prominent, margin spinously rough.

Panicle oblong, up to over 30 cm. long, usually contracted; rachis stout, smooth; whorls 6-10 with up to 20 rays; branches oblique to suberect, makes for up to 5 cm, filiform, slightly rough. Racemes up to 5 cm long, very slender; joints about as long as the sessile spikelets or sometimes distinctly exceeding them, smooth or more or less rough, minutely and unequally ciliolate at the slightly oblique tips; pedicels similar, but shorter.

Sessile spikelet linear-lanceolate to almost linear, acute or subacute, 4.2-4.8 mm long, yellowish, olive or violet- brown or purplish to almost black; callus obtuse, under 1mm long, glabrous. Involucral glumes, acute, coriaceous, lower muriculate all over the back, 5 nerved, lateral nerves close, very fine; upper spinulously muricate on the keel. Lower floral glume as long as the involucral glumes, acute, reversely ciliolate, upper up to 3.3

mm. long narrow, oblong-lanceolate, mucronulate, ciliate. Lodicules 2, quadrate and conspicuous, though small. Styles and stigma short. Stigma purple. Anthers 2-3.3 mm. long. Pedicelled spikelet sparingly aculeolate or almost smooth; upper floral glume entire, acute.

HABITAT²⁹ It is found throughout the plains and lower hills of India, particularly on the river-banks and in rich marshy soil, ascending to an altitude of 1200 m, grows wild in Haryana, Uttar Pradesh, Rajasthan, Gujarat, Bihar, Orissa, Assam, Madhya Pradesh and South India.

CHEMICAL CONSTITUENTS²⁹

MAJOR – Epikhusinol , Khusol , Khusenol , Khusimol , Khusenic Acid(Zizanoic Acid) , Khusilal , Allokhusiol , Khusinol , Khusiol.

OTHERS

Khusitone, (+)-khusitene, (-)- cadinene, khusinol acetate, khusinoloxide, isobisabolene, α -cadinene, cloven, α -amorphene, khusinol, epiglobalol, spathiallenol, cyclocopacamphenic acid, α - and β -vetivone , epicyclocopacamphenic acid , vetivene , vetivenic acid , khusimone , norkhusinoloxide , α -calacorene , isokhusenic acid, (+)-zizaene , (+)-prezizaene, zizanol , β -eudesmol, cyclocopacamphenol, epicyclocopacamphenol, valerianol, elemol, khusitoneol , epizizanoic acid , junenol , (+)-(1S,10R)-1 , 10-do=imethylbicyclo[4.4.0]dec-6-en-3-one, (+)-(6S,10S)-6,10-dimethylbicyclo[4.4.0]dec-1-en-3-one , isokhusimol , tricyclovetivene , methoxyphenol, *o,m,p*-cresol , eugenol , *cis* - and *trans*-isoeugenol , 4- vinylphenol, 4-vinylguaicol, vanillin , zizanal, epizizanal, fructose, glucose , sucrose , palmitic acid, (+)- α -cadinol , cadina-4 α , 10 β -diol, khusinodiol , vetidiol.

Acoradienes , α -funebrene , isovalencenic acid , veticadinol , α - and β -isovetivenes , 1,6-dimethyl4-isopropenylbicyclo[4.4.0] dec -1-ene , isovalencenol , vetiselinenol , isovetiselinenol, 4 β -H-5 α -eremophila-1-(10), 7-(11)-dien-13-ol , isovetivone , vetivenol , benzoic acid , 2- epizizanone , glycerol.

Table 5: Rasapanchaka of usheera

	RASA	GUNA	VEERYA	VIPAKA
BPN ¹⁸	Tikta	Laghu	Sheeta	Kaphapittahara
DN ¹⁵	Tikta	Snigdha	Sheeta	Vatapittaghna
RN ¹⁹	Tikta	Laghu	Sheeta	Pittahara
KN ¹⁷	Madhura, Tikta	Laghu, Ruksha	Ushna	-
MPN ¹⁶	-	Sheeta	Sheeta	Kaphapittahara

Table 6: Karma

Karma	BPN ¹⁸	DN ¹⁵	KN ¹⁷	MPN ¹⁶	RN ¹⁹	SN ¹⁴	PN ⁴
Pachana	+	-	+	+	-	-	-
Dahaghna	+	+	+	+	+	+	+
Vishahara	+	-	+	+	-	-	-
Trishnahara	+	+	+	+	-	-	-
Jwarahara	+	+	+	-	+	-	-
Stambhana	+	-	+	+	-	-	-
Madahara	+	-	+	-	-	-	-
Dourgandhyahara	-	+	+	-	-	+	-
Shramhara	-	-	-	-	+	-	-
Rakta vikara	+	+	+	+	-	-	-
Raktapitta	+	+	-	-	-	+	+
Shiroroga	-	-	-	-	-	-	-
Shoola	-	-	-	-	-	-	-
Shwasa	-	-	-	-	-	-	-
Shrama	-	-	-	-	+	-	-
Shosha	-	-	-	-	-	-	-
Shotha	-	-	-	-	-	-	-
Swedahara	-	+	-	-	-	+	-
Swedadikya	-	-	-	-	-	-	+
Trushna	+	-	+	-	-	-	+
Vatarakta	-	-	-	-	-	-	-
Visarpa	+	-	-	+	-	-	+
Visha	+	-	+	+	-	-	-
Vrana	+	-	+	+	-	-	-

Table 7: Rogagnata of usheera

ROGA	C S ¹⁰	S S ¹¹	A H ¹²	S N ¹⁴	D N ¹⁵	MP N ¹⁶	K N ¹⁷	BP N ¹⁸	R N ¹⁹	SH N ²⁰	P N ⁴	M N ²¹
Abhishyanda	-	+	-	-	-	-	-	-	-	-	-	-
Agnimandya	+	+	-	-	-	-	-	-	-	-	-	-
Amlapitta	+	-	-	-	-	-	-	-	-	-	-	-
Apasmara	+	-	-	-	-	-	-	-	-	-	-	-
Arsha	+	+	+	-	-	-	-	-	-	-	-	-
Aruchi	+	+	+	-	-	-	-	-	-	-	-	-
Ashmari	+	+	-	-	-	-	-	-	-	-	-	-
Atisara	+	-	-	-	-	-	-	-	-	-	-	-
Atisweda	+	-	-	-	-	-	-	-	-	+	+	-
Chardi	+	-	+	-	-	-	-	+	-	-	+	-
Daha	+	+	+	+	+	+	+	+	+	+	+	+
Gulma	+	+	+	-	-	-	-	-	-	-	-	-
Grahani	+	+	+	-	-	-	-	-	-	-	-	-
Haleemaka	+	-	+	-	-	-	-	-	-	-	-	-
Hidroga	+	-	+	-	-	-	-	+	-	-	-	-
Jwara	+	+	+	+	+	-	+	+	+	+	+	+
Kamala	+	-	-	-	-	-	-	-	-	-	-	-
Kasa	+	+	+	-	-	-	-	-	-	-	-	-
Kushta	+	+	-	-	-	-	+	-	-	-	-	-
Mutraroga	+	+	-	-	-	-	-	-	-	-	-	-
Mutrakrichra	+	+	+	-	-	+	+	+	-	-	+	+
Mutraghata	-	-	+	-	-	-	-	-	-	-	-	-
Pama	+	-	-	-	-	-	-	-	-	-	-	-
Pandu	+	+	+	-	-	-	-	-	-	-	-	-
Parshwashoola	-	-	+	-	-	-	-	-	-	-	-	-

Substitutes and adulterants³⁰

Coleus vetiveroides roots are good substitute to *V. zizanioides*.

Safety aspects³⁰

The drug used traditionally in prescribed doses may be considered safe.

Dosage³⁰

Powder: 3 to 6 g.

Pharmacology³¹

Vetiveria zizanioides (Linn).Nash possess antioxidant activity, Antifungal activity, antibacterial activity, Hepatoprotective activity, Antitubercular activity, Mosquito repellent activity, Antihyperglycemic activity, Antidepressant activity.

DISCUSSION

Usheera (*Vetiveria zizanioides* Linn. Nash) is a common plant with its usage dated from Vedas till date. In present era, due to its multifaceted pharmacological actions its usage in cosmetics (Varnya), anti-diaphoretic action (Swedaapanayana) is increasing. It is cultivated in rich marshy soil and been cultivated longest for the scented oil produced by its roots as well as for the ability of the plant to retain soil and prevent erosion. Though the identity of the plant is correct, confusion in the synonyms has led to controversy. Even the cultivation is done in large quantity, other plant which belongs to same species like *Coleus zizanioides* is been used as substitute.

CONCLUSION

Usheera is one of the most important and easily available drugs. It is widely used in various Ayurvedic formulations. *Ayurvedic* texts describes that *Usheera* possess Trishnahara, Dahashamaka, Mutrala, Jwarghna, Swedahara and so on. It is being mentioned in *Agrya* in the management of *Jwara* and *Twak Dosha*. *Usheera* can be a potential dietary component which can help in prevention of diseases.

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