

Therapeutic Potential of *Ushir* [*Vetiveria zizanioides* (Linn.)Nash]: Review Study

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Abstract: According to Acharya Charaka and Sushrut, there is no substance in the universe which cannot be used as drug on the condition of rational use with definite objectives. Grasses are interesting and important plant drugs with potential to be used in therapeutics. Classical texts of Ayurveda are filled with the description of therapeutic potential of grasses and fact has been recognized by herbalists / botanists all over the world. The Grasses are underestimated medicinal repository. *Ushir* is one of the most effective medicinal Grass. In present paper an effort has been made to work out therapeutic potential of one of the most primitive plant drug with wide range of uses in human life.

Keywords: Ayurveda, *Vetiveria zizanioides*, therapeutic potential

1. General Introduction

Ushir (*Vetiveria zizanioides* (Linn.) Nash), a member of the family "Poaceae" commonly known as *Khas* or *Khas* grass in India, and synonymously known as *Andropogon muricatus* Retz/ *Chrysopogon zizanioides*. It is a perennial grass with thick fibrous adventitious roots which are aromatic and highly valued¹. In *Kaushik Sutra*, term '*Viran*' has been used for '*Ushir*' and used in all type of diseases (Kau.Su.18.10).² Among *Brihatrayi*, *Amrinala* is the synonym used for *Ushir* by *Charaka* in one context only.³ *Bhava Mishra* has described *Ushir* as the root of a plant called *Virana*. He has attributed separate properties for *Virana* (plant) and *Ushir* (root).⁴



Image 1: *Vetiveria zizanioides* (L.) Nash (Habitat)



Image 2: *Vetiveria zizanioides* (L.) Nash (Roots)

2. Literary Review of Ushir Grass in Ayurveda Classics

- Acharya Charaka has mentioned *Ushir* in *Shukrashodhan* (semen purifier), *Varnya* (Complexion promoters), *Chardinigrahan* (Anti-emetic), *Dahaprashmana*, *Angamardaprashmana* (Restorative), *Stanyajanana* (Galactagogue) *Mahakashaya* and *Tikta Skandha Dravya*.³
- Acharya Sushrut has mentioned *Ushir* in *Eladi Gana*, effective in *Vata- Kapha* disease, *Vrana* (wound), *Kandu*(itching) . (SS.Su.38.24-25); *Pitta* pacifying group (SS.Su.39.8) and *Vatashmari Nashak Gana*.⁵
- Acharya Vagbhatta has mentioned *Ushir* in *Sarivadi Gana*, effective in *Trishna*, *Raktapitta*, *Paittik Jwar*, *Daha* (AH.Su.15.11).⁶

Table 1: Charaka Samhita (1000 B.C.to 4th Century A.D.)^{3&7}

S.N.	Therapeutic Indications	Forms/Formulations	References
1	<i>Trishna</i> (Thirst), <i>Jwar</i> (fever)	<i>Shadangapaniya</i>	CS.Ci.3.144
2	<i>Jwar Chikitsa</i> (fever)	<i>Ushir Kwath</i>	CS.Ci.3.206
3	<i>Jirna Jwar Chikitsa</i> (chronic fever)	<i>Ushir Ghrta</i>	CS.Ci.3.218

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4	<i>Jwar chikitsa</i> (Fever)	<i>Patoladi Niruha Basti</i>	CS.Ci.3.244
5	<i>Jwar chikitsa</i>	<i>Chandanadi Taila (Ext.)</i>	CS.Ci.3.257
6	<i>Raktapitta Chikitsa</i> (bleeding disorders)	<i>Peya</i>	CS.Ci.4.44
7	<i>Raktapitta, Tamakswas</i> (bronchial asthma), <i>Trishna,</i>	<i>Ushiradi Churna</i>	CS.Ci.4.72
8	<i>Kaphaj Prameh</i> (Diabetes)	<i>Kwath</i>	CS.Ci.6.28-29
9	<i>Kustha Chikitsa</i> (skin disorders)	<i>Mahatiktak Ghrit</i>	CS.Ci.7.144-150
10	<i>Apasmar</i> (epilepsy) <i>Unmad,</i> (psychosis), <i>Sarp Vish Chikitsa</i> (snake bite)	<i>Kayasthadi Varti</i>	CS.Ci.10.44
11	<i>Grahani Roga Chikitsa</i>	<i>Kiratadya Churna (Anjan)</i>	CS.Ci.15.137
12	<i>Pandu Roga,</i> (Anemia)	<i>Bijakarishtha</i>	CS.Ci.16.107
13	Poison of rats, spiders and reptiles	<i>Mahagandha Hasti- Agad</i>	CS.Ci.23.76-94
14	<i>Shiro Roga</i>	<i>Yoga- Pradeha</i>	CS.Ci.26.177
15	<i>Shiro Roga Chikitsa</i>	<i>Erandadi Dhoomvarti</i>	CS.Ci.26.176
16	<i>Mukha Roga, Danta Roga</i>	<i>Khdiradi Gutika, Khadiradi Taila</i>	CS.Ci.26.206
17	<i>Vata Vyadhi Chikitsa</i>	<i>Amritadya Taila</i>	CS.Ci.28.157
18	<i>Urah Kshat, Vrana, Shukra Kshaya, Apasmar, Bhagna Chikitsa</i>	<i>Amritadya Taila</i>	CS.Ci.29.105
19	<i>Vatarakta, Jwar Chikitsa</i>	<i>Mahapadmak Taila</i>	CS.Ci.29.113
20	To remove foulodour of breast milk	<i>Yoga -Lepa</i>	CS.Ci.30.272
21	<i>Krimi, Prameha, Udar Roga, Ajirna</i>	<i>Rasnadi Niruh Basti</i>	CS.Si.3.61
22	<i>Jeevadan</i> (vital blood loss) <i>Chikitsa</i>	<i>Kwath (Basti)</i>	CS.Si.6.82
23	<i>Pitta disorders</i>	<i>Kwath (Basti)</i>	CS.Si.10.21

CS.- Charak Samhita, Ci- Chikitsa Sthana, Si.-Siddhi Sthana

Table 2: Sushrut Samhita (1000 B.C.to 5th Century A.D.)^{5&8}

S.N.	Therapeutic Indications	Forms/Formulations	References
1.	<i>Paittik Vidradhi</i> (Abscess)	<i>Ushir Lepa,</i>	SS.Ci.16.10
2.	<i>Paittik Ashmari</i> (Calculi) <i>Chikitsa</i>	<i>Kushaadi Ghrit</i>	SS.Ci.7.9-13
3.	<i>Paittik Vidradhi Chikitsa</i>	<i>Karanjadi Ghrta</i>	SS.Ci.16.18
4.	<i>Vran ropan</i> (wound healing)	<i>Ghrit</i>	SS.Ci.16.14
5.	<i>Paittik Updandh Chikitsa</i> (syphilis)	<i>Lepa</i>	SS.Ci.19.30
6.	<i>Rasayana</i>	<i>Vidang Tandul Rasayan</i>	SS.Ci.27.8
7.	<i>Vaman atiyog</i> (hyper emesis) <i>Chikitsa.</i>	<i>Ushiradi Manth</i>	SS.Ci.34.12
8.	<i>Vish</i> (poison) <i>Chikitsa</i>	<i>Mahasugandhi Agad</i>	SS.Ka.6.19
9.	<i>Loota</i> (Spider) <i>Vish Chikitsa</i>	<i>Agad</i>	SS.Ka.8.104, 119
10.	<i>Purish Gandhi Shukra Chikitsa</i>	<i>Ushir Yoga</i>	SS.Sa.2.11
11.	<i>Kaphaj Timir Chikitsa</i> (type of cataract)	<i>Dhoompan</i>	SS.U.17.42
12.	Indicated in <i>Netra roga</i>	<i>Bhadroday Anjan.</i>	SS.U.18.95
13.	<i>Pitaa-Raktaj Shiroroga</i>	<i>Lepa</i>	SS.U.26.14
14.	<i>Murcha</i> (unconsciousness) <i>Chikitsa</i>	<i>Ushiradi Churna</i>	SS.U.46.18
15.	<i>Jirna Jwar</i> (Chronic fever) <i>Chikitsa</i>	<i>Pippalyadi Ghrta</i>	SS.U.39.219-221
16.	<i>Visarp, Jwar, Gulm, Pandu Chikitsa</i>	<i>Triphala Ghrta</i>	SS.U.39.244
17.	<i>Jeerna Jwar Chikitsa</i>	<i>Ksheeri Vrikshadi Taila</i>	SS.U.39.257
18.	<i>Paittik Jwar Chikitsa</i>	<i>Shriparnyadi Kwath</i>	SS.U.39.175
19.	<i>Paittik Atisar Chikitsa</i> (Diarrhoea)	<i>Madhukadi Kwath</i>	SS.U.40.68
20.	<i>Raktapitta Chikitsa</i>	<i>Drakshadi Sheet Kashaya</i>	SS.U.5.32

*SS.-Sushrut Samhita, Ci.-Chikitsa Sthana, Ka.-Kalpa Sthana, Sa-Sharir Sthan, U.-Uttar Tantra

Table 3: ASHTANG HRIDAYA (7th century A.D.):⁶

S.N.	Therapeutic uses	Forms/Formulations	References
1.	<i>Garbhini Kandu</i> (Itching during pregnancy)	<i>Ushir Lepa</i>	AH.Sa.1.60
2.	<i>Garbhasrava Chikitsa</i>	<i>Ushir Yoga (Uttar Basti)</i>	AH.Sa.2.2
3.	<i>Trishna and Jwar Chikitsa</i>	<i>Ushiradi Shritsheet Peya</i>	AH.Ci.1.15
4.	<i>Vata- Paittik Jwar Chikitsa</i>	<i>Phant</i>	AH.Ci.1.56
5.	<i>Kapha-Pitta Jwar Chikitsa</i>	<i>Kwath</i>	AH.Ci.1.46, 64
6.	<i>Jwar Chikitsa</i>	<i>Pippalyadi Ghrta</i>	AH.Ci.1.90
7.	<i>Jwar Chikitsa</i>	<i>Ushir Kwath Basti</i>	AH.Ci.1.119
8.	<i>Raktapitta Chikitsa</i>	<i>Kashaya</i>	AH.Ci.2.31, 32
9.	<i>Raktapitta Chikitsa</i>	<i>Ushiradi Peya</i>	AH.Ci.2.16
10.	<i>Mutrakriccha, Prameha, Shool, Shosh</i>	<i>Swadanshra Ghrta</i>	AH.Ci.3.102
11.	<i>Chardi</i> (vomting), <i>Grahani Roga</i> (IBS), <i>Jwar, Pandu</i> (Anemia)	<i>Talisadi Churna</i>	AH.Ci.10.16
12.	<i>Paittik Grahani Roga</i>	<i>Chandanadi Ghrta</i>	AH.Ci.10.41
13.	<i>Ashmari Chikitsa</i>	<i>Ghrta</i>	AH.Ci.11.19
14.	<i>Paittik Timir</i>	<i>Varti (Anjan)</i>	AH.U.13.65
15.	<i>Vrana Ropan</i>	<i>Talisadi Tail</i>	AH.U.26.55
16.	<i>Varnya</i> (complexion promoter)	<i>Kumkumadi Tail</i>	AH.U.32.27
17.	<i>Rasayana</i> (Rejuvenator)	<i>Murvadi Kalp</i>	AH.U.39.155
18.	<i>Vajikarana</i> (Aphrodisiac)	<i>UshirYoga</i>	AH.U.40.12-21

Table 4: Sharangdhara Samhita (13th Century A.D.):⁹

S.N.	Therapeutic uses	Forms/Formulations	References
1.	<i>Shiroroga Chikitsa</i>	<i>Lepa</i>	Sa.S.U.K.11.66
2.	<i>Kaphaj Visarp Chikitsa</i>	<i>Lepa</i>	Sa.S.U.K.11.59
3.	<i>Vrana Chikitsa</i>	<i>Gauradya Ghrita</i>	Sa.S.M.K.9.73
4.	<i>Sannipat Jwar, Trishna, Kasa, Shwas</i>	<i>Abhayadi Kwath</i>	Sa.S.M.K.2.34
5.	<i>Tritiyak Jwar, Trishna, Raktapitta, Jwaratisar</i>	<i>Guduchyadi Kwath</i>	Sa.S.M.K.2.58;61
6.	<i>Trishna, Jwar Chikitsa</i>	<i>Shadangapaan</i>	Sa.S.M.K.2.160
7.	<i>Vata-Pitta Jwar, Pralap, Bhram</i>	<i>Nilotpaladi Hima</i>	Sa.S.M.K.4.5
8.	<i>Jwar Chikitsa</i>	<i>Sudarshan Churna</i>	Sa.S.M.K.6.28
9.	<i>Vatarakta, Kushatha Chikitsa</i>	<i>Mahatikta Ghrita</i>	Sa.S.M.K.9.45
10.	<i>Vrana Chikitsa</i>	<i>Jatyadi Ghrita</i>	Sa.S.M.K.9.58
11.	<i>Raktapitta Chikitsa</i>	<i>Usirasav</i>	Sa.S.M.K.10.13
12.	<i>Kshay, Gulma, Udar Roga Chikitsa</i>	<i>Pippali Aasav</i>	Sa.S.M.K.10.29
13.	<i>Paittik Visarp Chikitsa</i>	<i>Lepa</i>	Sa.S.U.K.11.58
14.	<i>Shiroroga Chikitsa</i>	<i>Yoga</i>	Sa.S.U.K.11.66
15.	<i>Shoth Chikitsa (Inflammation and swelling)</i>	<i>Nishadi Lepa</i>	Sa.S.U.K.11.82

Sa.S.-Sharangdhara Samhita, U.K.-Uttar Khand, M.K.-Madhya Khand

Table 5: Chakradatta (11th Century A.D.):¹⁰

S.N.	Therapeutic uses	Forms/Formulations	References (Verses)
1.	<i>Hridroga Chikitsa</i>	<i>Shwadanshra Ghrita</i>	C.D.Hridroga.27
2.	<i>Ashmari Chikitsa</i>	<i>Pashanbheda Ghrita</i>	C.D.Ashmari.8-10
3.	<i>Netra Roga Chikitsa</i>	<i>Kanadyanjan</i>	C.D. Netra Roga 139
4.	<i>Shiro Roga Chikitsa</i>	<i>Chandanadi Lepa</i>	C.D.Shiroroga 11
5.	<i>Asrigdar Chikitsa (menorrhagia)</i>	<i>Shitkalyanak Ghrita.</i>	C.D.Asrigdar 20-25
6.	<i>Sutika Roga Chikitsa</i>	<i>Hiberadi Kwath</i>	C.D.Striroga.33
7.	<i>Sunandamatrika Grah Chikitsa</i>	<i>Ushir Dhoopan</i>	C.D.Balaroga 87
8.	<i>Rajyakshma Chikitsa</i>	<i>Lavangadi Churna</i>	C.D.Rajyakshma 19
9.	<i>Prameha, Mutraghat, Ashmari</i>	<i>Kushaavaleha (Veeran)</i>	C.D.Prameha 1-5
10.	<i>Sannipata Jwar Chikitsa</i>	<i>Ashtadashang Kwath</i>	C.D.Jwar 175-177

C.D.-Chakradatta

Table 6: Bhava Prakash Nighantu (16th Century A.D.)

USHIR: Karpuradi Varga (Verse 86-88) ⁴	
Synonyms:	<i>Viran Mool, Ushir, Nalad, Amrinal, Sevy and Samgandhik.</i>
Classical Pharmacology:	<i>Rasa- Tikta, Madhur; Guna-Laghu; Virya-Sheet</i>
Properties-	<i>Pachan, Stambhan</i>
Therapeutic Indications	It cures <i>Chardi, Bhrama, Mada, Trishna, Visarp, Mutrakriccha, Daha, Vrana, Vish, Kapha, Rakta</i> and <i>Pitta</i> disease.

Phytochemistry

Chemical constituents present in the plant are Vetiverol, Vetivone, β -vetivone, Khusimone, Khusimol, Vetivene, Khositone, Terpenes, Benzoic acid, Tripene-4-ol, β -Humulene, Epizizianal, vetivenyl vetivenate, vetivazulene, Levojunenol, Vanillin, Vetivenic acid, Zizaene, Zizanin. *Vetiver* oil sample from Argentina (yield, 1.5%) contained α and β -Vetivones, vetivenol and vetivenyl vetivenate as the major constituents.¹

Classical Pharmacological Properties:¹¹

Karma: *Swedapnayan, Dahaprashmana, Twak-doshhara, Varnya, Mashtishk-nadi shamak, Dipan, Pachan, Trishnanigraha, Chardinigraha, Stambhana, Raktaprasadan, Hridayashamak, Balya, Kaphanihsarak, Mutrajanana, Swedajanana, Swedadaurgandhyahara, Kushthaghna, Jwaraghna, Vishaghna.*

Indications: *Jwar, Daha, Trishna, Raktapitta, Chardi, Mutrakriccha, Visarp, Kustha, Ati-Daurgandhya, Ati-*

Sweda, Mada, Murcha, Agnimandya, Atisar, Shosh, Visha, Hrida-daurbalya.

Part Used- Root, *Vetiver* oil

Dosage- 3-6 gm of the dry powder form for infusion.¹²

Traditional use:¹

Plant Part	Tribe	Ailment
Root decoction	Santhals	As cooling in high fever and inflammation.
Root paste	Lodhas	Headache, fever
Root ash	Oraons	Acidity
Root juice	Tribe of M.P.	Anthelmintic
Root vapour	Tribe of Varanasi	Malaria fever
Leaf paste	South Indian tribes	Rheumatism and sprain
<i>Vetiver</i> oil	Most tribe	Stimulant, diaphoretic and refrigerant
Root and stem juice	South Indian tribes	Boil, burn, epilepsy, scorpion sting, snakebite, mouth ulcer

Vetiver oil is used as carminative in flatulence, colic and obstinate vomiting. It is regarded as a stimulant, diaphoretic and refrigerant. A decoction of leaves is recommended as a diaphoretic. When locally applied in rheumatism, lumbago and sprain, it is a good ambrocatation and affords relief. The plant is used as an anthelmintic for children. External application of *Ushira* destroys boils caused by excessive perspiration (*Swedaj pidika*). The root is cooling, alexiteric, stomachic, useful in burning sensations, bilious fevers, sweats, foul breath, thirst, strangury, ulcers, diseases of the blood, spermatorrhoea. The infusion of the roots is used as a tonic and emmenagogue. By mixing it with red sandalwood and a fragrant wood called *padma kasta* (all in powder) to a tub of water an aromatic bath is prepared. Its essence or oil or Otto is given in two minimum doses to check the vomiting of cholera and is used in perfumery. Grass used in the form of cigarettes and smoked with benzoin, relieves headache.¹³

3. Modern Therapeutic Potential Based on Researches

Following therapeutic properties of *Vetiveria zizanioides* (Linn.) Nash. have been reported on the basis of different researches:

A) Anti-Oxidant Activity:

The essential oil of *Vetiver* root has been shown to possess antioxidant activity. Recently antioxidant activity of *Vetiver* oil has been attribute to β -vetinine, β -vetinone and α -vetinone⁷. As the presence of Lead and Zinc greatly enhanced the activity of superoxidase dismutase (SOD), peroxidase (POD), catalase (CAT) implying different mechanism to detoxify active oxygen species exist in different part of plant. These results show that *Vetiver* oil and some of its component can be potential alternative natural antioxidants.¹

B) Anti Bacterial and Antifungal Activity

The oil (at 200ppm) showed good antifungal activity against *Aspergillus niger* (77%), *A. flavus* (70%), *Fusarium oxysporum* (83%) and *Penicillium* sp. (82%) has also been reported. The oil also showed significant antibacterial activity against *Staphylococcus aureus* and moderate activity against *S. pyogens*, *E. coli* and *Corynebacterium ovis*.¹⁴

C) Anti Septic

Vetiver essential oil efficiently stops the growth of *Staphylococcus aureus*, the bacteria responsible for causing septic, and eliminates them, thereby helping cure septic and giving protection against it. Being totally safe, *Vetiver* oil can be applied externally on wounds or taken orally, to protect wounds as well as internal organs from septic.

D) Wound Healing

Vetiver essential oil helps in the formation of new tissue is used so as to accelerate the healing and recovery of skin wounds as well to remove stains, marks on the skin and the scars themselves.

E) Anti-Inflammatory

The very soothing and cooling effect of this essential oil calms and pacifies all sorts of inflammations. But it is particularly good in giving relief from inflammations in circulatory system and nervous system. It is found to be an appropriate treatment for inflammations caused by sun stroke, dehydration and *loo* (name given to very hot and dry winds prevalent during summers in the dry regions of India and few neighboring countries).

F) Nervine

Vetiver oil heals the damages done to the nerves by shock, fear, stress. Further, it helps get rid of nervous disorders, afflictions, epileptic and hysteric attacks, nervous and neurotic disorders such as Parkinson's disease and lack of control over limbs etc.¹⁵

4. Conclusion

Classically *Ushir* possesses *Swedapnayan*, *Dahaprashmana*, *Twak-doshhara*, *Varnya*, *Mashtishk-nadi shamak*, *Dipan*, *Pachan*, *Trishnanigrah*, *Chardinigrah*, *Stambhana*, *Raktaprasadan*, *Hridayashamak*, *Balya*, *Kaphanihsarak*, *Mutrajanana*, *Swedajanana*, *Swedadaurgandhyahara*, *Kushthaghna*, *Jwaraghna*, *Vishaghna* properties.

V.zizanioides tones up every system functioning in body, namely the digestive, respiratory, circulatory, excretory, endocrine, nervous system and the neurotic system. Therapeutic potential of *Ushir* discussed in ancient *Ayurveda* classics have been experimentally and clinically verified in modern era. In spite of well established therapeutic potential and easy availability grass family has least therapeutic application in modern *Ayurveda*. There is need towards judicious use of *Vetiver* in therapeutics for the well-being of ailing humanity.

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