

**MEDICINAL USES OF SUNN HEMP (CROTALARIA JUNCEA LINN): A REVIEW  
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Article Received on 12/09/2020

Article Revised on 02/10/2020

Article Accepted on 23/10/2020

**ABSTRACT**

Vetiveria zizanioides is popularly known as Khas Khas, Khas or Khus grass in India. It is a densely tufted grass, found throughout the plains and lower hills of India, particularly on the riverbanks and in rich marshy soil. Vetiver has been known to India since ancient times. It has been considered as a highclass perfume and copper plate inscriptions list the perfume as one of the articles used by royalty. Two species of Vetiveria are found in India, of which V. zizanioides is the common source of the well known oil of vetiver, which is used in medicine and in perfumery. Khas grass grows wild in many states, namely Haryana, Uttar Pradesh, Rajasthan, Gujarat, Bihar, Orissa and Madhya Pradesh and throughout South India. It is systematically cultivated in the North Indian states of Rajasthan, Uttar Pradesh and Punjab and in the South Indian states of Kerala, Tamil Nadu, Karnataka and Andhra Pradesh. The yield from the cultivated crops, however, meets only a very small percentage of the requirements of the country. The bulk of the roots used for cooling purposes and for the extraction of the oil are obtained from the wild. Vetiver oil is regarded as stimulant, diaphoretic and refrigerant. This oil is used in perfumery, cosmetics and soaps and for flavouring sherbets (Indian cool drinks). Local application of leaf paste for rheumatism, lumbago and sprain gives good relief. The dried roots are also used to perfume the linen clothes. The rachis is used in the manufacture of moodas, sirkies, etc. The young leaves are browsed by cattle and sheep. Dried culms are used for making brooms and thatching of huts. Pulp is suitable for manufacturing paper and straw board.

**KEYWORDS:** Vetiveria zizanioides, Vetiver oil, Moodas, Khas khas.**INTRODUCTION**

Vetiveria zizanioides (Linn.) Nash, a member of the family Poaceae commonly known as the KhasKhas, Khas or Khus grass in India, is a perennial grass with thick fibrous adventitious roots which are aromatic and highly valued. This tufted grass grows throughout the plains of India ascending up to an elevation of 1200 m. Having wide ecological amplitude, this grass grows in a wide variety of ecological habitats covering all biogeographic provinces of India. No wonder that this is one grass which has been extensively used by almost all the tribes. Details of botany, its multifarious uses, cultivation and how this species can be exploited for eco-development programs are discussed in this paper.

**BOTANY AND DESCRIPTION**

Vetiveria zizanioides is a densely tufted grass with the culms arising from an aromatic rhizome up to 2 m tall; the roots are stout, dense and aromatic; leaves are narrow, erect, keeled with scabrid margins; inflorescence

is a panicle, up to 15-45 cm long of numerous slender racemes in whorls on a central axis; spikelets are grey to purplish, 4-6 mm long, in pairs, one sessile the other pedicelled; 2-flowered; the lower floret is reduced to a lemma, upper bisexual in sessile, male in the pedicelled spikelet; glumes are armed with stout, tubercle-based spines, lemmas awnless, palea minute.

Khas grass grows wild in almost all plain states in India up to an elevation of 1 200 m. Only in some pockets of South India is the grass systematically cultivated but the yield from the cultivated crops meets only a small percentage of requirements. Therefore, there is great stress on the wild populations, which have already declined in many areas. The grass is known by several local names in different regions in India.

**Cultivation**

Although Khas grass has been extensively used for a variety of purposes, no systematic and large-scale cultivation appears to have been taken up particularly in North India where the use of the grass is quite extensive.

There, most of the requirement for Khas is met by the wild populations. In South Indian states like Kerala, Tamil Nadu, Andhra Pradesh and Karnataka, Khas is cultivated mainly for vetiver oil obtained from distillation of the roots.

Although vetiver grows in almost all types of soils, a rich and well-drained sandy loamy soil is considered the best. The grass grows luxuriantly in areas with an annual rainfall of 1 000-2 000 mm and temperature ranging from 22 to 43°C. Marshy riverbeds with sandy loam are best suited for this grass (Anon. 1976). The cultivation procedure adopted is also very simple. The land is cleared and through deep tilling ridges and furrows are made. Slips separated from the clumps with the rhizomes intact having 15-20 cm of shoot constitutes the material for planting. Cultivation through seeds is normally done by raising nursery beds sometime in early January and the seedlings are transplanted before the onset of the monsoon. The first method, however, is predominant.

In North India although the plants profusely set seeds, there is no organized nursery or systematic cultivation except in some botanical gardens and experimental plots. Weeding is also recommended for healthy and robust growth of the plant. Irrigation is done only when necessary. Although manuring is not very essential, some ash, compost, ammonium sulphate, groundnut cake, and brine manure can enhance the good growth of Khas grass.

Harvesting is usually done by uprooting the whole plants and then cutting roots and cleaning mud and other parts of the root system. In areas where Khas is systematically cultivated, the roots are harvested at the age of 10-12 months for manufacture of articles and for medicine. For extraction of oil, the harvesting is delayed by another three to four months.

#### Traditional Uses

India is inhabited by a wide variety of tribal populations who dwell in forested areas and depend on surrounding resources for their livelihood. Among the several hundreds of plants which are gathered by tribal populations, Khas grass, particularly in North Indian plains, takes a leading role. Various tribes use the different parts of the grass for many of their ailments such as mouth ulcer, fever, boil, epilepsy, burn, snakebite, scorpion sting, rheumatism, fever, headache, etc. The Santhal tribes of Bihar and West Bengal use the paste of fresh roots for burn, snakebite and scorpion sting, and a decoction of the roots as a tonic for weakness; the Lodhas of West Bengal use the root paste for headache, rheumatism and sprain, and a stem decoction for urinary tract infection; the Mandla and Bastar tribes of Madhya Pradesh use the leaf juice as anthelmintic; the tribes of the Varanasi district inhale the root vapour for malarial fever. The root ash is given to patients for acidity by the Oraon tribe. Likewise, there

are very many different applications of the plant for different ailments among different ethnic tribes.

#### Commercial Application

The commercial applications of the grass mainly pertain to the extraction of vetiver oil through distillation of the roots. Vetiver oil is one of the most valuable and important raw materials in perfumery and has 442 extensive applications in the soap and cosmetic industries, for pharmaceutical companies and as antimicrobial and anti-fungal agent. Over 150 compounds have been isolated and characterized from vetiver oil so far. A major portion of oil consists of sesquiterpene alcohol.

#### Khas: The Ecofriendly Grass

*Vetiveria zizanioides* has wide ecological amplitude and this trait of the species must be exploited for eco-development of the regions devoid of biodiversity. The grass with its tuft-forming habit and thick root system greatly helps in checking soil erosion. It can be recommended for fallow areas and waste places including sodic soils. However, efforts should be made to evolve suitable varieties for sodic soils. Work in this direction is already initiated at the field research stations of Banthra and Oraon under the National Botanical Research Institute at Lucknow. This will not only boost the economic conditions of local farmers but also improve the soil ecology. Small-scale village-level industries based on Khas grass could be established for extraction of vetiver oil; for manufacture of straw board and handmade paper from pulp of the aerial parts of the grass.

This can to some extent reduce the stress on bamboo resources, which are also declining. As this grass is invariably used by most of the tribes, the tribal and other village womenfolk should be encouraged (with suitable subsidies) to cultivate the species near the vicinity of their huts. Suitable arrangement can be made to collect the excess harvest left from these tribal pockets for trade or for local oil industries so that tribal families can also supplement their income. While this would bring the economy to the poor villagers, it would also help in the conservation and eco-development of the region.

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