

JATAMANSI

Nardostachys grandiflora

The Karnali Zone is one of the major Jatamansi producing areas of Nepal. Jatamansi is an erect perennial rhizomatous herb 10-60 cm long. It has an agreeable odour with bitter aromatic taste and is used as substitute for valerian. It yields up to 2 percent of an essential oil (spikenard oil) with a pleasant odour. The Jatamansi is collected from government owned pastureland and community managed land and sold to village traders who air lift to Nepalgunj to sale to wholesaler. Thus, it is one of the major income generating resources of the rural population. The whole plant has a distinct and lingering smell. Rhizome of Jatamansi has high medicinal value and the essential oil extracted from the rhizomes is used in perfumery.

1. BIOLOGY

A. Taxonomy

Nardostachys grandiflora DC. is the only species of this genus found in Nepal (Anonymous, 1976), the synonym for it is *N. Jatamansi* DC.

Family - Valerianaceae

Local name - Jatamansi, Bhutle and Balcharh

English name - Spikenard



Jatamansi is a perennial with spindle-shaped rootstock covered with fibres of old leaves and flowering stems 5-30 cm. The leaves of Jatamansi are elliptic-lanceolate or spatulate of about 5-20 cm mostly basal and arising from the stout and woody rootstock covered with dark fibres of old leaves. The root of this taxon consists of short, thick, dark grey rhizomes crowned with reddish brown tufted fibrous remains of the petioles of the radical leaves. Flowers are rose-purple to whitish in dense head borne in terminal. Calyx is coloured, 5 -lobed, the lobes enlarge in fruit and become papery. Corolla tube is 6-20 mm long with 5-rounded spreading lobes. The whole plant has a distinct lingering smell.

B. Habitat and Range

Jatamansi is distributed in sub-alpine to alpine regions in dry, open conifer forests, rocks, edges, small depressions, scrubs and in open meadows mostly on north facing slopes. It is found in the alpine Himalayas from Punjab to Sikkim, Bhutan to the province of Yunnan and Szechwanin, South West China at the altitude range of 3000-5000 m (Polunin and Stainton 1987).

In Nepal, it is found in the eastern and central regions but abundantly in the western region growing on open, stony and grassy slopes, and on the turf of glacial flats.

In Jumla district, potential areas for Jatamansi are Patarasi, Chhumchaur, Dillichaur and Patmara VDCs of eastern sector Chaudavisa region

C. Ecology

It is a perennial herb distributed in alpine pasture land of Himalayas. During winter, it sheds all leaves and is buried under the snow. In the beginning of summer, the snow melts and this plant starts to grow. The flowering takes place in June to July and fruiting occurs during August - October. In the beginning of October, all leaves turn yellow and become ready for pereniation. The plant is mostly found growing in sloppy area.

The associated plant species of Jatamansi are: Sunpate (*Rhododendron anthopogon*), Buke phool (*Anophalis spp.*), Dhoopi (*Juniperus indica*), Kutki (*Picrorhiza scrophulariaflora*), Rato ghash (*Geum elatum*) etc.

D. Regeneration

Natural regeneration takes place by rhizome and seeds. The plant can cultivate by the cuttings of underground parts or rhizomes and from seeds. The cuttings of rhizome are the best means for cultivation. Cultivation through cutting of rhizome is fast rather than from seeds.

2. RESOURCE MANAGEMENT

A. Management System

The rhizome is the item of commerce, which is collected from September to December. It is found in CFUG managed forest, government land. Jatamansi is not yet included in the operational plan of CFUG.

B. Harvesting

In Jumla, Jatamansi is harvested from May to December. It is harvested manually by using single hand tool 'Koto' (a small spade like instrument). The rhizome is pulled out by digging with 'Koto'. The leaves and roots are removed and only the rhizome is harvested and gathered into a basket or sack.

C. Sustainability Issues

Jatamansi is collected from May to December while the fruit matures after October. Therefore, the collection of Jatamansi before October is against the sustainability of this product. Because of unsustainable collection, procedure each year the production of this species is decreasing and the farmers have to go further far away from their places.

3. UTILIZATION

A. Subsistence

Jatamansi is harvested for local use and for trade of its valuable roots/rhizomes. The root of Jatamansi is aromatic and bitter in taste. Local people use the root for different purposes. It is used as stimulant, antiseptic and for the treatment of epilepsy, hysteria, convulsive affections, stomachic, laxative and cholera. A tincture of it is given in intestinal colic and flatulence. The rhizome is used as an aromatic adjunct in the preparation of medicinal oil. It is also believed to be used for leprosy. Mixed with sesame oil, it is rubbed on the head as a nerve sedative. It is also said to promote growth and impart blackness of hair. It is used as anti-venom for scorpion stings and insect repellent.

The rhizome is also used to make incense by mixing with the powder of Juniper and Sunpati.

B. Commercial

It is used as an aromatic adjunct in the preparation of medicinal oils and in perfumery. Once dried, the rhizomes are steam distilled to yield between 1 - 2% of essential oil (spikenard oil). The spikenard oil produced in Humla can be generally described as having a greenish color and an odor suggestive of patchouli and official valerian (*Valerina officinalis* L.), sweet, woody, and spicy animal odor. It can be used with advantage as perfumes as oriental basis, heavy floral, animal amber types, etc. It blends well with Cedar wood and Lavender. The oil resinifies on exposure to air.

Interviewed collectors and traders reported that Jatamansi collected in mid September to mid October (Asoj) is yellowish, containing the highest oil percentage, in comparison to Jatamansi collected in mid April to mid May (Bahishak) when rhizomes are still green and contain less oil. The worst quality, however, is collected mid July to mid August (Srawan) when Jatamansi turns black and the dried raw material is mixed up with dust.

4. MARKETING

A. Production Volume and Trade

According to the DFO information, a total of 85,889 kg of dried Jatamansi was traded last year collected from Patarasi, Chhumchaur, Dillichaur and Patmara VDCs of eastern sector Chaudavisa region and Bumramadichaur, Malikabota, Kanakasundari, Birat, Pandugupha, Dhapa, Narakot, Shanigaun, Kartikswami, Depalgaun and Garjyangkot VDCs of Jumla district.

Buying price of raw Jatamansi at village or collector's level is NRs 54 per kg, which went up to NRs 70 per kg at the Jumla airport. Local trader/ airport traders buy the product and airlift to Nepalgunj wholesalers. Only limited quantity of Jatamansi is bought by

Manishanker Devkota and Rinamoksha Herbal Production and Processing Company Ltd. for distillation purposes from their closest CFUGs (Chaudhavishe sector), and local traders.

B. Current Market Channel

Collectors-> Middlemen/Local Traders ->Airport Traders->Wholesalers->Processors
->Exporters

Farmer/collectors -> Processors -->Middlemen -->Exporters

Farmer/collectors ->Processors -->Exporters

Farmer/collectors --> Middlemen/Local Traders --> Illegal Exporters

C. Current Processing

The type of *Nardostachys jatamansi* collected greatly affects the yield and aroma of character of the essential oil obtained with distillation. Quality is influenced by the maturity of the rhizomes at the time of harvest, the form of preparation, and duration of storage.

Rhizomes harvested at latter stages of maturity, 2 to 3 years old plants, possess relatively higher essential oil content as compared with younger plants. Plant material collected in different locations will differ in oil content. The volatile oil cells are generally located on the fine fibrous hairs of the rhizome. Plant material collected from the open grass land has relatively higher essential oil content as compared to the plant collected in the bushy area.

For commercial purpose, the rhizomes are graded, packed in distillation apparatus evenly with several layers to avoid channelization of steam, and distilled with low pressure and relatively dry steam for 9 to 18 hours.

D. Variability and Risk

If there is no demand from international market on Jatamansi oil, no trading will happen. There is a high fluctuation of market price each year. Transportation of these products is solely dependent on airlifting. The selling price of the raw material at the collection area is affected by the price at India.

5. SOCIO-ECONOMIC AND POLICY ISSUES

A. Socio-economic Factors of Existing Activities

Jatamansi is usually found far away from the community. It takes a few hours to 2-3 days walk to reach Jatamansi growing habitat in Jumla district. Collectors take necessary equipment, extra clothes, and food when they go harvesting. They live inside caves, during the harvest. After sufficient harvest, they come down with load of Jatamansi. It takes at least two days, sometimes 5-6 days to make one full man load. Since the Jatamansi grows on cliff and slopy mountains, sometimes the collectors get injured or face serious accident during the harvest. Thus collection of Jatamansi is really an hardship due to health hazards. Sometimes the money generated from Jatamansi is less than their labour cost. If the Jatamansi collection is done from a virgin area then the money generated by selling of Jatamansi become higher than the labour cost.

Sometimes collectors get advance money from wholesaler or village traders. The money generated from the sale of Jatamansi is utilized on domestic expenses.

Farmers however are not interested in cultivation of Jatamansi in their farmland because of lacking of technical and financial supports. Most of them have limited knowledge on reproduction techniques. Apart from that the DFO does not discriminate cultivated Jatamansi with wild Jatamansi in royalty collection and other bureaucratic procedure.

B. HMG Policy on Collection, Processing, and Trade

1. Current Policy

It is necessary to get collection permission to collect this plant from natural forest from respective forest district office. The interested collector should apply to DFO stating the collection site and the quantity to be collected. But in real practice collectors never take collection permit before collection. Traders have to have release permission which they acquire after paying royalty of Rs 15/kg to DFO. Without release permission nobody is allowed to take Jatamansi from the district of origin. It is banned to export in crude form. Thus export is permitted only to the processed products, spikenard oil or marc.

2. Policy Constraints

After paying royalty to DFO, the traders are legally allowed to release Jatamansi from respective district of origin within 15 days. During this period, if the traders could not manage air transport again they have to extend date from DFO. It takes longer time to go district centres for the extension of collection permit. Thus, most of the traders opposed this system. It is banned item for export in crude form therefore; traders who cannot pass the material through the Indian border are forced to sale in Nepal. Marc (residue left of processed Jatamansi) of this plant is also allowed to export if the oil content is below 0.35%. But the Department of Plant Resources, recently authorised government office, is not allowing permission to export the Jatamansi Marc even its' oil content is less than 0.35 percent. There is no clear policy regarding the export of Jatamansi Marc. Because of this policy problem, Jatamansi Marc is being smuggled abroad through Nepal-India border.

6. REFERENCES

Polunin, Oleg and Stainton, Adam 1997. *Flowers of the Himalaya*. Oxford University Press, Calcutta, Chennai, Mumbai.

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