



# Review of pharmacognostic profile and pharmacological uses of *Nardostachys jatamansi* (Medicinal Plant)

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## ABSTRACT

*Nardostachys jatamansi* is a perennial herb found mainly in temperate and alpine Himalayas. It is used as medicine in ayurveda, homeopathy, ethno medicine and Indian system of medicine as well as in modern medicine industry. The essential oil as well as hydro-alcoholic extract of plant has been found to contain many therapeutically important chemicals. This review article summarizes some chemical constituents of plant and some pharmacological uses as reported by various studies in recent years.

**Keywords:** *Nardostachys jatamansi*, pharmacognostic profile, pharmacological uses

## INTRODUCTION

*Jatamansi* brings a calming effect on the mind. By canalizing the energies of the mind in the right direction, *jatamansi* can remove the depressive thoughts *Nardostachys jatamansi* (*N.jatamansi*) also called nard, nardin, Spikenard and muskroot, is a flowering plant of the Valerian family that grows in Nepal, China and India. The plant grows to about 10-60cm in height and has pink, bell-shaped flowers.



## ➤ Pharmacognostic Profile:

### ❖ Botanical classification:

Kingdom	Plantae
Order	Dipsacales
Family	Valerianaceae
Genus	Nardostachys
Species	N. Jatamansi

### ❖ Common names:

Languages	Vernacular Names
Hindi	Balchara, Jatamansi
Sanskrit	Jatamansi, Bhytajata, Tapaswani
English	Musk-root, Indian spikenard, Indian nard
French	Nard Indian
Kashmir	Bhutijata
Punjab	Billilotan
Marathi	Jatamavshi
Tamil	Jatamanji
Assamese	Jatamamsi
Bengali	Jatamamsi

### ❖ Geographical source:

It is found temperate and alpine region of India at altitude of about 17000ft. Also found in south west china, Nepal, Bhutan, Sikkim, Myanmar, Afghanistan, and Pakistan.

### ❖ Macroscopic Characters:

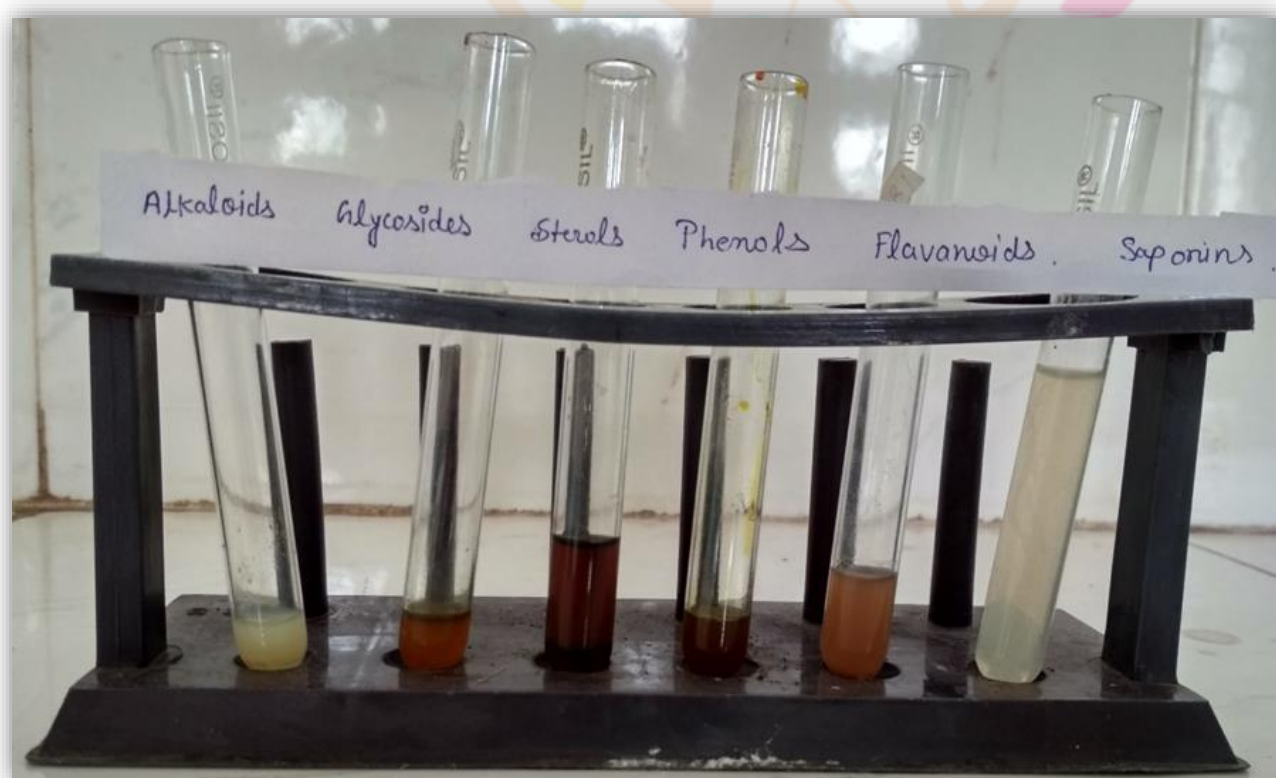
- **Appearance's:** leaves are rosy, slightly pink or blue in dense cymes.
- **Colour:** Dark grey rhizomes are crowned with reddish brown tufted fibres.
- **Odour:** Highly agreeable, aromatic.
- **Size:** Rhizomes are 2.5 to 7.5 cm in length.
- **Shape:** Elongated and cylindrical.

### ❖ Microscopical Character:

A transverse section of the rhizome shows a thin periderm, a large parenchymatous cortex which is rich in starch and an endodermis containing globules of volatile oil. Within a ring of collateral vascular bundles lies a large pith containing scattered groups of sclerenchyma cells.

❖ **Preliminary Phytochemical evaluation of N. Jatamansi:**

Phytochemical Test	N. jatamansi
Carbohydrate (Molish Test)	Positive (+)
Protein (Biuret test)	Positive (+)
Steroid Test	Positive (+)
Glycoside Test	Positive (+)
Flavonoid Test	Positive (+)
Alkaloid Test	Positive (+)
Tannin Test	Negative (-)
Saponin Test	Positive (+)
Phenols Test	Negative (-)

❖ **Ancient use of N. Jatamansi:**

In Ayurveda N. jatamansi is used for Madhya (Brain tonic), Rasayana (Rejuvenative to the mind), Nidrajnana (Promotes sleep), Manasrogaghna (Alleviates mental diseases), Pachana (Digestive) Kasaswasahara (Alleviates coughs and breathing difficulties), Kushtaghna (Stops skin diseases and itching), Doha prashamana (Stops burning sensations), Varnya (Benefits complexion) and Romasanjanana (Promotes hair growth).

## ➤ Pharmacological Uses:

N.Jatamansi has many similar medicinal properties like Bacopa Monnieri (Water hyssop) including anti-stress, anti-convulsive, and cognitive-enhancing abilities. However, unlike Bacopa, the research related to its medicinal value is still in its preliminary stage. It is an aromatic herb, which exerts cooling action in the body. Let's have a quick look at its medicinal properties that responsible for its medicinal uses:

- **Neuroprotective:** Salim S *et al* pre-treatment with an alcoholic extract of N. jatamansi DC dosed at 250 mg/kg of for 15 days protected rats against focal ischemia caused by middle cerebral artery occlusion. The protective effect may be associated with improving glutathione content, inhibiting lipid peroxidation, and activity on the Na<sup>+</sup>/K<sup>+</sup> ATP ase and catalase enzyme systems.
- **Anti-depressant:** pre-treatment with an ethanolic extract of N. jatamansi DC dosed at 150 mg/kg of for 15 days protected rats due to the inhibition of MAO (Monoamine oxidase enzyme) The antidepressant effect of N. jatamansi seems likely to be mediated through inhibition of MAO.
- **Anti-cataleptic:** The oral administration of the alcoholic extract of N. Jatamansi at a dose of 500 mg/kg with combination of l-dopa and carbidopa. The maximal decrease in catalepsy was observed.
- **Anti-seizure (Anticonvulsant):** The ethanolic extract of Nardostachys jatamansi roots has been found to be effective in maximal electroshock seizure (MES) model at the dose of 400 mg/kg and in pentylenetetrazole induced seizure model at the dose of 200 mg/kg and 400 mg/kg in albino rats
- **Antihypertensive:** Mohd. Ashfaque *et al* studied antihypertensive activity of ethanolic extract of Nardostachys jatamansi at the doses of 10, 20 and 25 mg/kg body weight of dogs. The test drug produced significant fall in blood pressure in all doses indicating that the plant had antihypertensive effect against adrenaline induced hypertension.
- **Antibacterial and Antifungal (Jatamansi oil):** Nardostachys jatamansi is effective against most of the microorganisms thereby justifying its role as antimicrobial and antifungal agent. The plant has been found to be active against number of bacterial strains such as E. coli (ATCC 25922), K. pneumonia (ATCC 700603), P. aeruginosa (ATCC 27853), S. typhimurium (ATCC 14028), S. aureus (ATCC 25992).

## CONCLUSION

Nardostachys jatamansi has been in use for treatment of various pathological conditions for many years. It contains chemicals of various classes such as fixed oils, alkaloids, flavonoids, tannins, saponin, proteins and amino acids, carbohydrates, terpenoids, glycosides and lactones. Many of them are therapeutically important. Various researches have proved that the plant shows multiple therapeutic activities which include antibacterial and antifungal, anticonvulsant, antioxidant and anticancer, anti-anxiety and antidepressant.

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