



## REVIEW ARTICLE

# Medicinal Properties of *Sarpagandha Ghan Vati* – A Review

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### ABSTRACT

**Introduction:** One of the most well-liked Vedic medicines, *sarpagandha* (*Rauwolfia serpentina*), has been utilized since 1000 BC to treat conditions related to high blood pressure. *Sarpagandha* travels a great distance from British India to Western communities. The majority of the indole alkaloid reserpine, which has been extensively studied over the past 75 years, is responsible for the bioactivities of *sarpagandha*.

**Materials and Methods:** Material related to Sarpagandha Vati is collected from Ayurvedic text and textbook of modern medicine, respectively.

**Results:** A traditional Ayurvedic remedy known as *sarpagandha ghanvati* is frequently recommended for insomnia and anxiety. It contains *Cannabis sativum*, *Jatamansi* (*Nardostachys jatamansi* DC. Family: *Valerianaceae*) roots, *Khurasani ajowan* (*Hyocyamus niger* L.; Family: *Solanaceae*) seeds, and *Sarpagandha* (roots of *R. serpentina* L. (Benth.) Ex Kurz; Family: *Apocyanaceae*).

**Discussion:** The paper aims to review the therapeutic benefits of “*Sarpagandha ghan vati*” as found in various Ayurvedic texts.

**Conclusion:** In order to get to a potentially helpful conclusion on the safe and efficient usage of *sarpagandha* in place of reserpine, the article will examine the ideas of the whole herb and its extracts as well as available information in this respect.

## 1. INTRODUCTION

It is thought that *sarpagandha*, scientifically known as *Rauwolfia serpentina* L. Benth Kurz, is one of the most well-known medicinal plants in the world. The plant has been mentioned in Ayurvedic medical texts from India since at least 1000 BC.<sup>[1]</sup> Traditional healers believe that *sarpagandha* root can lower blood pressure and treat a number of neurological symptoms, such as anxiety, psychosis, schizophrenia, epilepsy, and sleeplessness. It has been used for a very long time as an antidote against the bite of venomous snakes and reptiles in many different places of the world.<sup>[2]</sup> The word *Sarpagandha* was appropriately derived due to its unique application. Sen and Bose released the first modern work on *sarpagandha* in 1931. The first study on the antihypertensive effects of *sarpagandha* was published in 1949 by Vakil. The most significant indole alkaloid found in *R. serpentina*'s root, stem, and leaves is reserpine. Muller

and his colleagues initially chemically isolated it and named it methyl 18-hydroxy-11,17-dimethoxy-3,20-yohimban-16-carboxylate-3,4,5-trimethoxybenzoate in 1952.<sup>[3]</sup> According to sources, the root of the plant contains 72% of the drug reserpine, whereas the stem and leaf only contain 25% and 3%, respectively.<sup>[4]</sup> It has also been suggested that reserpine irreversibly blocks the vesicular monoamine transporter, which usually transports free norepinephrine, serotonin, and dopamine from cytoplasm of presynaptic nerve terminal into storage vesicles and these neurotransmitters are metabolized by MAO (as well as by COMT) in the cytoplasm and consequently never reach the synapse.<sup>[5]</sup> Reserpine's dose-related effects on blood pressure, heart rate, and withdrawals because of negative effects have been the subject of a Cochrane Database Review. Reserpine has a unique anti-hypertensive effect, but there are reports of serious adverse effects from prolonged use and higher doses (above 0.5 mg/day), including lethargy, sedation, psychiatric depression, hypotension, nausea, bradycardia, bronchospasm, and withdrawal psychosis.<sup>[6]</sup> *Sarpagandha* is still widely used in traditional Ayurvedic formulations like *Sarpagandha Ghana Vati* and *Sarpagandha Mishran* or as a single herb in *Sarpagandha churna*. Ayurvedic medicine called *Sarpagandha*

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*Ghan Vati* is made from *sarpagandha*, a priceless root that may be found in the *R. serpentina* blooming plant.<sup>[7]</sup> Snakeroot is known as *sarpagandha* in Sanskrit because of the plant's twisted, snake-like root. This plant's root is employed in traditional and indigenous medicine. *Sarpagandha* produces a chemical called alkaline reserpine, which may be good for the body.<sup>[8,9]</sup> The main active ingredient is alkaline reserpine, which is derived from the plant. One such formulation listed in the classics and the first medication of choice for hypertension is *sarpagandha ghan vati*. This review article will highlight, evaluate, elaborate, and discuss about *Sarpagandha vati*.

## 2. MATERIALS AND METHODS

Information on *Sarpagandha ghan vati* is taken from texts on Ayurveda and modern text, respectively. The accessible Ayurvedic samhita commentaries have also been used to gather pertinent information.

## 3. REVIEW OF LITERATURE

### 3.1. Ingredient of *Sarpa Gandha ghan vati*<sup>[10]</sup> Table 1

#### 3.1.1. Medicinal properties of Ingredient of *Sarpa Gandha ghan vati*

##### 3.1.1.1. *R. serpentina* (*Sarpagandha*)

*Rauwolfia* (*R. serpentina*) is an evergreen shrub that is a member of the dogbane or Apocynaceae family.<sup>[1]</sup> *Sarpagandha* has a property to balance Vata and pitta Dosha in the body. This herb has ability to reduce the heart rate and dilates blood vessels with lowering of blood pressure. For ages, *R. serpentina* was used in Indian folk medicine to cure a wide range of illnesses, such as snake and insect stings, febrile illnesses, malaria, abdominal pain, and diarrhea. In addition, it was employed as a febrifuge, uterine stimulant, and sanity cure.<sup>[11]</sup> In a clinical trial of *R. serpentina* in essential hypertension, Vakil treated 50 patients with initial blood pressures <160/95 mm Hg. The study included 30 males and 20 females ranging in age from 39 to 76 years. Thirty-nine of 48 patients who completed the study showed a drop of both systolic and diastolic blood pressure at 1 week after starting the medicine. After 4 weeks of taking the medicine, systolic blood pressure dropped between 2 and 54 mm Hg for those patients. Twenty-two of 47 patients (one dropped out of the study) showed a moderate drop in systolic blood pressure, from 10 to 24 mm Hg. Thirteen of the 47 patients showed a marked drop in systolic blood pressure of greater than 25 mm Hg, and 38 of the 47 patients showed a drop in diastolic blood pressure of between 4 and 34 mm Hg, with an average drop of 11 mm Hg. Twenty-seven patients showed a moderate drop of diastolic blood pressure of between 5 and 14 mm Hg, and seven patients showed a drop greater than 15 mm Hg. The hypotensive action of the drug was perceptible at 2 weeks after stopping the drug in 91% of patients and at 4 weeks after discontinuing the drug in 75% of patients. No serious adverse side effects were noted. In that study, 85% of patients experienced a drop in systolic blood pressure, and 81% of patients experienced a drop in diastolic blood pressure.<sup>[12]</sup>

### 3.2. *Hyoscyamus Niger-Khurasani Ajwain*

*Ajwain/Khorasani Ajwain/Khorasni Yavani Khurasani* are the seeds of the nightshade or Solanaceae family plant *Hyoscyamus niger*. Iran's Khurasan is home to the *Khurasani ajwain*. It is utilized in the Ayurvedic and Unani medical systems to treat a wide range of illnesses. Because of its hypnotic, psychedelic, narcotic, and sedative qualities, it is frequently used as an opium substitute. Alkaloids are present in every section of the *Khurasani ajwain* plant. These alkaloids have been linked to heart and breathing rate increases, pupil dilation, excitation,

and convulsions. Only the recommended low dosage is ever utilized. It has a narcotic and astringent effect. *Khurasani ajwain* is used to relax the mind and induce sleep due to its narcotic and sedative effects.<sup>[13]</sup>

### 3.3. *Nardostachys jatamansi-Jatamansi*

According to Ayurveda, the roots and rhizomes of *N. jatamansi* have been employed in a variety of herbal compositions, including nutritional supplements. This significant traditional medication is also used to treat hysteria, syncope, convulsions, epilepsy, and mental incapacity. The drug's decoction is also utilized for cardiovascular system problems, sleeplessness, and neurological conditions. According to reports, it has antioxidant and anti-lipid peroxidation properties as well as antidepressant, anticonvulsant, and antiarrhythmic properties. The roots of this plant are said to contain lignans, neolignans, and sesquiterpenes (*jatamansic acid* and *jatamansone*).<sup>[14]</sup> The *Jatamansi* plant's roots are pungent, astringent, bitter, and sweet, and they balance all three doshas. The root powder acts on the blood and nerves when taken orally. The circulatory, neurological, digestive, respiratory, and reproductive systems are most affected. *Atamansi* has a reducing effect on blood pressure. In addition, it has a calming and tranquil impact on the brain. Therefore, the primary indications for this medicinal herb are the treatment of heart, brain, and nerve disorders. The infusion of root powder is given a few times each day to treat intestinal colic, hysteria, convulsive disorders, and heart palpitations.

### 3.4. *Cannabis Sativa-Bhang*

In Asia, particularly in India, cannabis was utilized as medicine before the arrival of the Christian era. Cannabis has a very lengthy history of medical use. Since the time of the Vedic civilization, it has been utilized to treat a variety of illnesses. It is well renowned for offering a variety of alternative medical therapies. Cannabis has a variety of medical benefits, including euphoric, analgesic, narcotic, stomachic, antispasmodic, anodyne, and sedative effects. More than 25 ailments can be cured just by the cannabis leaves. Tumors and malignant ulcers are treated with seeds. More than 1000 papers describing various characteristics of *C. sativa* have been published in the past 50 years. Cannabis products should be taken with caution despite their medical benefits because they can cause cognitive impairment and may increase the risk of psychosis in young people who are already prone to it.

There are many cultures that are aware of the medical potential of *C. sativa*. Its intricacy leads to the historical use of different plant components in pharmacotherapy and ethnomedicine. Rheumatism, epilepsy, asthma, skin burns, pain, the management of STDs, challenges during child labor, postpartum hemorrhage, and gastrointestinal activities have all been treated with *C. sativa*. *C. sativa* is still only sometimes used, and in most nations, it is prohibited. Due to the abundance of phytochemicals in *C. sativa* L., which has long been used medicinally, scientists are working to maximize the plant's pharmacological potential. The name "cannabis" refers to the produced or obtained goods (drugs and essential oils) made from the annual herb *C. sativa* and its variations, which are members of the *Cannabaceae* family. Due to the psychotropic properties of a particular cannabinoid, the usage of this versatile plant has been restricted for a long time.<sup>[15]</sup>

The *Rasapanchaka* of *Vijaya* is said to as possessing *Tikta rasa*, *Laghu guna*, *Tikshna guna*, *Ushna virya*, *Katu vipaka*, *Dipana*, *Pachana*, *Grahi*, *Pittala*, and *Kapha-Vata* pacifying characteristics in the majority of the classical Ayurvedic books. The only text that particularly emphasized *Katu rasa* in addition to *Tikta rasa* to *Vijaya* was *Anandakanda*. According to *Saligrama nighantu Vijaya*

has *Medhya* and *Rasayana* characteristics, and as a result, it is therapeutically effective in *Unmada*, *Apasmara*, *Vali*, *Palitya*, etc. For various formulations comprising *Vijaya* to counteract its *Tikshna* and *Pitta* vitiating qualities, dietetics such *Lavana* (saline), *Amla* (sour), *Kshara* (base), and *Madhura* (sweet) *rasa* food things have been enumerated as *pathya* (wholesome). *Karshani*, *Vijaya's* pacifying effects on *Vata* and *Kapha* can be used to create anti-obesity drugs. *Anorexia* and *dyspepsia* are frequent symptoms of many clinical disorders. *Vijaya's Dipana* and *Pachana* properties can be used to heal certain ailments. The qualities of *Vyavayi* and *Yogavahi* allow for pharmaceutical innovation to enhance the performance of any product. The *Vijaya* herb can be used in all parts of daily living. A frequent source of fiber used to create hemp ropes, fabrics, clothes, hempcrete, etc. is stem, which has uses beyond medicine. When used in food preparations, seeds are a good source of nutrition.

### 3.5. Pippalimoola-Piper Longum

The root of *P. longum* Linn., which has powerful medicinal effects, is a key component in many Ayurvedic medicine compositions. *Piperine*, *piperlongumine*, *sylvatin*, *sesamin*, *diaudesmin* *piperlonguminine*, *pipermonaline*, and *piperundecalidine* are the main components that have been isolated from different portions of *P. longum*. Chronic bronchitis, asthma, constipation, gonorrhoea, paralysis of the tongue, cholera, chronic malaria, viral hepatitis, respiratory infections, stomach-aches, bronchitis, illnesses of the spleen, cough, and tumors are among the conditions, it is most frequently used to treat.<sup>[16]</sup>

## 4. DISCUSSION

The traditional polyherbal ayurvedic medication is *sarpagandhaghan vati*. *Insomnia*, an elevated pulse, and excessive blood pressure can all be treated with it. *Cannabis*, *Khurasani ajwain*, *Jatamansi*, and *Pippala Mula* are also included in this mix along with *Sarpagandha*, which serves as the major element. This medicine's components all have sedative, narcotic, and tranquillizing properties. They have a depressive effect on the central nervous system, which includes the brain and spinal cord, which means that they slow regular brain function. This characteristic aids in the treatment of anxiety and sleep issues. People who have seizures, anxiety, or sleep difficulties are given CNS depressants as well as anxious or troubled sleepers. The power of *Sarpagandhaghan Vati* is extremely hot and causes perspiration. To lessen its *Pitta*-inducing impact, it is typically eaten with milk. This medication should not be used in cases of excessive body heat, bleeding disorders, ulcers, intestinal inflammation, burning sensations, low blood pressure, depression, breastfeeding, or pregnancy. *Bhang* use is authorized by the Indian Narcotic Drugs and Psychotropic Substances Act of 1985 for medical and research purposes. The main psychoactive cannabinoid, tetrahydrocannabinol, stimulates CB1 receptors in the brain, peripheral nerves, and autonomic nervous system. Studies have shown that cannabis has therapeutic efficacy for treating ailments such as Alzheimer's illness, anorexia, weight loss linked to AIDS, and spasticity brought on by multiple sclerosis. The effects of *bhanga* (*C. sativa* Linn.) on the heart and coronary vessels are largely mediated by endocannabinoids. Despite legal restrictions in every nation, cannabis is the most widely used illicit recreational drug in the world.

## 5. CONCLUSION

An ayurvedic medicine known as *Sarpagandha Ghan Vati* is used to treat tachycardia, albuminuria, drunkenness, insomnia, and hypertension

(high blood pressure). The neurological system is affected by ingredients in *sarpagandha ghan vati*. It slows down the heartbeat and lowers blood pressure.

## 6. ACKNOWLEDGMENT

Ananta Hemp (official mail id - info@hempworks.in) works is a wellness, personal care, and nutrition company centered around hemp. Aiming to be the market leader in offering its clients a range of goods made with the beneficial properties of hemp. Ananta Hemp Works, one of the best hemp businesses in India, is well-positioned to revolutionize this emerging sector with its organized strategy, all-encompassing vision, and capable management. *Sarpagandha vati* is legally framed by the company as cannabis.

## 7. AUTHORS' CONTRIBUTIONS

All the authors contributed equally in design and execution of the article.

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## 9. ETHICAL APPROVALS

This study not required ethical clearance as it is a review study.

## 10. CONFLICTS OF INTEREST

Nil.

## 11. DATA AVAILABILITY

This is an original manuscript and all data are available for only review purposes from principal investigators.

## 12. PUBLISHERS NOTE

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**Table 1:** Ingredient of *Sarpa Gandha ghan vati*<sup>[10]</sup>

Ingredients	Part
<i>Rauwolfia Serpentina</i> Root Powder ( <i>Sarpagandha Churna</i> )	10 g
<i>Hyoscyamus Niger-Khurasani</i> Ajwain	2 g
<i>Nardostachys Jatamansi-Jatamansi</i> root powder	1 g
<i>Cannabis Sativa-Bhang</i>	1 g
<i>Pippalimoola-Piper longum</i>	1 g