

**CRITICAL REVIEW OF VATSANABH (ACONITUM FEROX)****Dr. Gajanan D. Chatuphale***

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Vatsanabh (*Aconitum ferox* Wall ex Seringe.) is one of the most common drugs discussed in Ayurveda. Various views about this drug have been mentioned in various subjects as Agadtantra, Rasashastra and DravyagunaVijana. This article aims towards critical review of Vatsanabh mentioned in various areas of Ayurveda and modern science.

Common Names - Monkshood, Wolfsbane, Mousebane, Helmet flower, Soldier's cap, Old wife's hood, Friar's cap, Bear's foot.

Botanical Name – *Aconitum ferox* Wall ex Seringe.

Vernacular Names

San-Vatsanabh
Hindi-Bish, Bacchanag
Beng: Katbish
Tam-Vashanabhi
Eng-Indian aconite
Tel-Ativasanabhi
Kan-Vasanabhi
Mal-Vastsarabhi.

Family-Ranunculaceae.

Kula-Vatsanabh Kula.

Habitat- the plant is common in the sub-alpine and alpine zone of Himalayas up to 3,600meters. It grows well in hilly regions of Northern and Eastern parts of India, extending from Assam to Kashmir.

Prorogation-By seeds and vegetative methods.

Parts used- Root.

Chemical Constituents- It contains the alkaloids Aconitine, Pseudoaconitine, Chasmaconitine, Indaconitine, Hypoaconitine, Mesoaconitine etc.

Physical appearance of root -A perennial herb, Roots tuberous paired, daughter tuber ellipsoid to ovoid-oblong, 2.5-4.0cm in length, with filiform root fibres. Leaves scattered, orbicular-cordate to reniform, palmately 5-lobed, blade and petiole pubescent. Peduncle straight, bearing flowers on both sides. Flowers pale

dirty blue, 10-25cm long. Seeds long, obpyramidal to obovoid, winged along the raphe.

Physical appearance of the plant according to Ayurveda

सिन्दुवारसदृक्पत्रोवत्सनाभाकृतिस्तथा ।
यत्पार्श्वेनतरोर्वृद्धिर्वत्सनाभः सभाषितः ॥

भा.प्र.

Leaves resembles like leaves of Nirgundi, tubers resembles like umbilicus of calf. No other plant grows beside the Vatsanabh.

सिन्दुवारदलः पार्श्वेतरुवृद्धिविवर्जितः ।
नीलपुष्पः कन्दविषो क्षुपो हस्तद्वयोच्छ्रितः ॥
दैर्घ्येतुपञ्चाङ्गुलः परं सप्ताङ्गुलोन्मितः ।
व्यासेचएकाङ्गुलात् सार्द्धद्वयङ्गुलप्रमितस्तथा ॥
आमूलचूलं क्रमशः स्थूलश्चपाण्डुरप्रभः ।
कन्दोऽस्यभिषजां वयैर्वत्सनाभइतिस्मृतः ॥

र.तं.24/10-13

It is a shrub having blue flowers, length is up to two hands, length of root is 5 to 7 fingers, breadth is 1 to 1.5 fingers, root is tapering, yellowish white in colour.

Types of Vatsanabh

कृष्णाभः कपिशः पाण्डुर्वर्णतस्त्रिविधोमतः ।
वत्सनाभो विशेषेण क्रमेण गुणवत्तमः ॥

र.तं.24/15

Krushnabh (Blakish), Kapish (Yellowish) and Pandur (Whitish) these are the three types. Among these three whitish is the best one.

Vishadhithan: Tuberous root.

Classification of Poison

According to Rasashastra- Visha/Mahavisha
Charaka – Sthavara Visha (Poison of plant origin)
Sushruta – Kanda Visha (tuber poisons)
Modern – Cardiac poison

Mechanism of action

Aconitine (C₃₄N₄₉NO₂₂) acts on nerve axons by opening sodium channels, as well as by inhibiting complete repolarization of the membrane of myocardial tissue, causing repetitive firing. It stimulates vagal medullary centre.

It first stimulates and then paralyses the peripheral terminations of the sensory and secretory nerves, the central nervous system, myocardium, skeletal and smooth muscles. It does not affect the higher centres of brain; hence consciousness remains unaltered till the end.

Clinical features

Symptoms appear within 10 to 20 minutes of ingestion. Tingling or burning sensation in the fingers and toes is usually seen first, followed by sweat, chills, a generalised paraesthesia, dryness of mouth and numbness. System wise signs and symptoms are as follows:

- 1) **GIT-** Nausea, hypersalivation, vomiting, diarrhoea. Chewing on a root may cause swelling of the lips, tongue and mouth, making speech difficult.
- 2) **CVS-** Palpitations, hypotension, ventricular ectopics, arrhythmias, AV block.
- 3) **CNS-** Tingling and numbness of mouth and lips which may extend to the limbs, followed by convulsions. Initial feeling of numbness may process to paralysis of the skeletal muscles. Vertigo, severe headache, restlessness, confusion, ataxia, muscular fasciculations, tonic clonic seizures.
- 4) **RS-** Breathing difficulty, pulmonary oedema.
- 5) **Eye-** Visual blurring, fluctuant pupils (Hippus reaction-Pupils show alternate constriction and dilatation). Mydriasis and miosis may be seen until the patient develops hypoxia. Xanthopsia (yellow halos around objects) has been reported.
- 6) **Metabolic acidosis**
- 7) Death usually occurs from ventricular arrhythmias or respiratory paralysis.

According to Ayurveda

प्रिवास्तम्भोवत्सनाभेपीतविण्मूत्रनेत्रता ॥

सु.क.2/12

It causes stiffness of neck and yellowish discolouration of eyes, urine and faeces.

अविशुद्धंविषंदाहंमोहं हृद्गतिरोधनम् ।
मृत्युश्चविदधात्याशुतस्मात्तं परिशोधयेत् ॥

र.तं 24/18

Ingestion of impure Vatsanabh causes burning sensation, fainting, bradycardia and death.

Cause of death: Death may be due to Respiratory failure or Ventricular fibrillation.

Treatment (According to modern science)

- 1) Gastric lavage, activated charcoal
- 2) Airway support and establishment of IV access
- 3) Intravenous fluids in case of dehydration
- 4) There is no specific antidote for Vatsanabh. Treatment is symptomatic and supportive after decontamination.
- 5) Treatment of cardiac arrhythmias, metabolic acidosis and hypokalaemia.

Ayurveda treatment

- 1) पटवणस्यवृक्षस्यरसोपलप्रमाणतः ।
शर्करायुक्तपानेनवत्सनागविषं हरेत् ॥
अनुपानमंजिरी

Juice of Patawan tree with sugar in quantity as 1 Pala, cures poisoning due to Vatsanabh.

- 2) Ghee along with Takanabhasma
- 3) Combination of Honey, ghee and bark of Arjuna (*Terminaliaarjuna*)

Biological identification and quantification-

Aconitine in biological samples is identified by TLC, GC and HPLC. Quantification is done by GC-MS and LC-MS. The limit of quantification is about 1 µg/L.

Elimination through body and post mortem detection

Elimination of Aconitine is mainly in the urine. Traces also founds in saliva, sweat and bile. It is therefore necessary to preserve these fluids for chemical analysis. Aconitine is extremely unstable and is destroyed by putrefactive processes. Hence it is often difficult to detect after death.

Properties and actions according to Ayurved

- Guna: Ruksha, Teekshna, Laghu, Vyavayi, Vikashi
- Virya: Ushna
- Rasa: Madhur
- Vipaka: Madhura
- Karma: Tridoshghna, Brihana, Rasayana, Yogavahi.

Detoxification (Shodhan)

Detoxification is mentioned in various liquids-either by soaking or boiling for 3 hours. These liquids are as follows-

- Goat milk
- Cow urine
- Cow milk
- Water
- Buffalo dung.

Maran of Vatsanabh

तुल्येनटडकणेनेव द्विगुणेनोषणेनच ।
विषंसंयोजितंशुद्धंमृतंभवतिसर्वथा॥

यो.र.

Pure Vatsanabh is mixed with borax in equal and powdered black pepper in double quantity and macerated; loses its poisonous properties.

समटडकणसमिष्टं तद्विषम् मृतमुच्यते।
योजयेत्सर्वरोगेषुनविकारं करोति च॥

आ.प्र.6/60

It is done by mixing Vatsanabh in equal quantity of Tankan (Borax). It does not produce any type of poisonous symptoms.

Therapeutic dose

कलांशतोरक्तिकायावस्वशप्रमितंविषं।
विमलविनियुञ्जीतबलकालाद्यपेक्षया॥

र.तं.24/66

By considering all other factors Vatsanabh should be administered in a dose of 1/16 to 1/8 ratti. (7 to 15mg).

Contraindications for administrating poison (Vatsanabh)

नबालेष्वतिवृद्धेषुरोगिणीगर्भिणीषु ।
नचातिक्षीणगात्रेषुयक्ष्मलक्ष्मयुतेनच ॥
न क्रोधितेनचभ्रान्ते हृदौर्बल्ये विशेषतः ।
वत्सनाभविषं वैद्यः प्रायशोनप्रयोजयेत् ॥
एतेष्वपिप्रयोक्तव्येऽवश्यंखलुविधानवित् ।
यन्नतोह्यल्पकालार्थंयुञ्जीतात्यल्पमात्रया ॥

र.त. 24/61-63

Poison (Vatsanabh) should not be administered in those who are very young, very old, diseased, pregnant women, suffering from Rajayakshma, who are in anger, tired and specially in having weakened heart.

If there is necessity of use of poison then it should only be administered with caution, in small quantity and for short duration only.

Therapeutic uses: Kushtha, Shotha, Shwas, Kasa, Pleeha, Udara, Madhumeha.

Uses

- The tuber is very popular in Chinese medicine for the treatment of various ailments. The root is usually processed by drying, soaking or boiling, which significantly reduces its toxicity. Herbal decoctions of aconite are generally prepared by soaking the roots in water or saturated lime water and then boiling. This causes hydrolysis of aconite alkaloids to less toxic benzyllaconine and aconine derivatives.
- Formerly aconite found mentioned in the British pharmacopeia (Until 1953), but today it is only used in allopathic medicine as a proarrhythmic agent in animal studies to test the efficacy of antiarrhythmic agents.

Fatal dose

- Indian aconite root: 1gm
- Tincture: 5ml
- Liniment: 1ml
- Pure aconitine: 2mg
- Aconitine nitrate: 4mg.

Fatal Period- Usually 1-5 hrs.

Postmortem Appearance

No specific signs. The poison is often difficult to detect by chemical analysis. Fragments of root may be found in stomach contents. The mucous membrane of the stomach and the small intestine may be congested and inflamed. Aconite is extremely unstable and is destroyed by purification.

Medico-legal Importance

- Accidental poisoning occurs from mistaken identity with horse reddish root.
- Inhalation of the dust while powdering of root.
- Use of aconite as suicidal poison is common in India.
- It is considered as ideal homicidal poison because:
 - a) Cheap and easily available.
 - b) The lethal dose is small and fatal period is also short.
 - c) Its colour can be disguised by mixing it with pink coloured drinks.
 - d) Its taste can be masked by mixing it with sweets or by giving it with betel leaves.
 - e) It is largely destroyed in the body and therefore cannot be detected by chemical analysis.
- Aconitine added in Indian liquors to increase the intoxicating effect.
- Rarely used as abortifacient.
- Used as arrow poison or cattle poison.
- In Sikkim, the root is described as useful to the sportsman for destroying elephants and tigers, useful to the rich for putting troublesome relations out of the way and useful to the jealous husbands for the purpose of destroying faithless wives.

Formulations: Mrityunjayrasa, Hinguleshwarrasa, Panchamrutrasa, Anandbhiravrasa, Shivtandavrasa, Jaya Vatee, Kaphaketurasa, Tamraparpati, Sanjivanivati, Tribhuvankirti rasa, Kaphaketu rasa.

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