

### Vatsnabha– A Wonderful Poisonous Drug

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#### ABSTRACT

*Vatsnabha* (*Aconitum ferox*) is categorized under the *sthavara visha*<sup>1</sup> (plant origin). Aconite is a Greek word which means arrow poison. It was used as an arrow poison in Chinese history. Aconite based Ayurvedic medicines are commonly used by *Ayurvedic* physicians and traditional practitioners in primary healthcare. Even a strong poison can become an excellent medicine if administered properly; on the other hand even the most useful medicine act as a poison if not handled correctly. *Vatsnabha* is highly toxic in nature even then it is used as a medicine after purification and in therapeutic dose. In therapeutic doses it has capacity to treat many diseases therefore; it is used as an ingredient of various *Ayurvedic* formulations. *Ayurveda* proposes a traditional technique of *shodhana* (purification) to reduce the harmful effects associated with *vatsnabha*. The review gives us opportunity to understand the toxic effects, medicinal importance, methods of purification, therapeutic dose and antidotes of *vatsnabha*.

#### Keywords

*vatsnabha*, *visha*, *sodhana*, toxic effects



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## INTRODUCTION

A deciduous perennial plant, two to six feet high, 50 cms wide, belonging to family Ranunculaceae and growing in eastern temperate and sub-alpine regions of the Himalayas, eastwards of Uttarakhand, Nepal, Kashmir and Sikkim<sup>2</sup>. All the parts of the plant are poisonous, the root being most potent. The root is mostly used for English name- Monk's hood, aconite, wolfsbane, blue rocket

Hindi name- *Bachnag, meetha vish, meetha teliya*

Sanskrit name- *Amrut*

Bihari name- *Dakara*

Gujrati name- *Basnag, bachnag*

Kanada name- *Vatsanabhi*

Punjabi name- *Mohari, shyam mohari*

Telugu name- *Nabhi*

Marathi name- *Bachnag*

## CHEMICAL CONSTITUENTS

The concentration of aconite in the fresh plant is between 0.3% and 2.0% in tubers and 0.2% and 1.2% in the leaves. The highest concentration of aconite is found in the winter. The major alkaloids are aconitine (acetylbenzoyl-aconine), pseudoaconitine, bikhaconitine, diacetyl pseudoaconitine, aconine, picraconine (benzoyl-aconine), and

medicinal purpose. The dry root is conical tapering in shape, usually shriveled, and has longitudinal wrinkles. It is 5-10 cms long, 1-2 cms thick at the upper end, and dark brown externally. Freshly cut root is starchy and white in colour internally which changes to pink when exposed to air. It is odorless and a bit sweetish in taste.

## VERNACULAR NAMES

other alkaloids combined with aconitic acid. *Aconitum chasmanthum* is the main source of aconite. The chief of these active principles is aconitine which forms transparent, colorless, rhombic crystals, readily soluble in chloroform and benzene, less in ether and absolute alcohol and almost insoluble in water<sup>3</sup>.

## MECHANISM OF TOXICITY

The cardiotoxicity and neurotoxicity of aconitine and related alkaloids are due to their actions on the voltage-sensitive sodium channels of the cell membranes of excitable tissues, including the myocardium, nerves, and muscles. Aconitine increases the permeability of excitable membrane for sodium ions and prolong the sodium influx during the action potential as a consequence sensible nerve ending and motor endplates are first activated but later blocked<sup>4</sup>.

## PHARMACOLOGICAL ACTION

The *Rasa* (taste) of *vatsnabha* is *madhura* (sweet), *katu* (pungent) *tikta* (bitter), *Kashaya* (astringent); *Vipaka* (undergoes taste conversion after digestion) is *Katu*; and it is *Ushna* (hot) in *Veerya* (potency).

The recommended dose of purified *Vatsanabha* (*A. ferox* Wall.) root is 15-30 mg<sup>5</sup>. It is used in *Tridosaja vikara*, especially in *Kapha vataj roga*.

As per *Ayurvedic* texts *vatsnabha* act as *yogavahi* (catalyst) therefore it increases the potency of medicine in which it is used as ingredient. It improves digestion, relieves coldness, nutritive. It is used in the treatment of vision problems, night blindness, eyes infections, inflammation, otitis and headache. It is useful in treatment of sciatica and backache. It is also used as antidote for poisoning due to *jangama visha* (animal origin poison).

Aconitine and related compounds exhibits analgesic, antipyretic, anti-inflammatory, aphrodisiac and anti-rheumatic properties. Certain species of aconite have antitumor activities and regulate neurological disorders.

## CONTRA-INDICATION OF VATSNABHA

All the food substance which aggravate *pitta* like *usna* (hot), pungent, sour, salty eatables should be avoided.

It is contraindicated in pregnancy, lactation and in early childhood, patient of cardiac, liver, kidney and brain disease.

It should be avoided in person with *pitta* symptoms like excessive thirst, hunger, anger, sun exposure. It should be avoided during summer and rainy season when there is chance of *pitta* aggravation.

*Vatsanabha* can be absorbed through skin and it should be handled carefully.

While consuming *vatsanabha* preparation one should follow abstinence and should consume cow milk, ghee, honey, sugar and rice.

## TOXIC EFFECT OF VATSNABHA

*Acharya Susruta*, father of surgery clearly documented the toxic effect of *vatsnabha* as torticollis (neck stiffness) and yellow discoloration of eye, stools and urine<sup>6</sup>.

Aconitine and related alkaloid found in *aconitum* species causes cardiotoxicity, neurotoxicity and gastrointestinal toxicity. Cardiac manifestation includes pulse is slow, feeble and irregular, hypotension and cardiac arrhythmia. Gastrointestinal manifestation includes nausea, vomiting, salivation, pain in abdomen, tingling of

tongue, mouth and throat followed by numbness. Neurological manifestation includes vertigo, restlessness, headache and giddiness.

About 1gm of Indian aconite root produces warning symptoms and 1.3 to 2 gm would probably prove fatal. About 1 ml of the liniment and 5 ml of tincture have respectively proved fatal<sup>7</sup>. About 2-4 mg of pure aconitine has proved fatal result. The usual fatal period is from 2 to 6 hours<sup>8</sup>. Causes of death in vatsanabha toxicity are ventricular arrhythmia<sup>9</sup>, asystole, paralysis of heart and respiratory center.

## PURIFICATION OF VATSANABHA

One among the following methods can be used for *shodhana* of *Vatsanabha*

1. *Aconitum ferox* roots are made into pieces, tied into piece of cotton cloth, suspended in *dola yantra* and heated in goat milk<sup>10</sup> or cow milk for three hours.
2. *Vatsanabha* roots are boiled by suspending in *triphala* decoction in *dola yantra* for three hours gets purified.
3. *Aconitum* root is tied in a piece of cotton cloth, kept dipped in cow urine. It is exposed to sunlight for three days. Each day, urine of cow is replaced with fresh one. After third day, it is dried and preserved.

## ANTIDOTE FOR VATSANABHA POISONING

If toxic symptoms is appears due to over dose of formulation contains aconitum or usage of improper / without purification of *vatsanabha* in that condition *tankana bhasma* along with *ghee* is given<sup>11</sup>. Combination of honey, *ghee* and bark of *arjun* (*Terminalia arjuna*) is also used as antidote. Whenever *vatsanabha* is used in any formulation, *tankana bhasma* (borax calx) is also used in the formulation to counteract the toxic effect of *vatsnabha* and hence there will be no toxic effects.

Gastric lavage with a solution contains activated charcoal or tannic acid is advised<sup>12</sup>. Cardiac monitoring necessary and administration of 1 mg of atropine for bradycardia is suggested. For cardiac arrhythmia, 50 ml of 0.1 percent novocaine given intravenously and remaining symptomatic treatment should be adopted<sup>13</sup>.

## IMPORTANT FORMULATIONS

*Mahashankha vati*, *Sanjivani vati*, *Tamra parpati*, *Kaphketu ras*, *Tribhuvankirti ras*, *Saubhagya vati*, *Rambana ras*, *Anand bhairava*, *Hinguleshvvara rase*, *Panchamrita rasa*, *Vatavidhvamsani rasa* etc.

## SUBSTITUTE

The different species which grow in the temperate Himalayan region of India and are used as substitute for aconite are *Aconitum balfourii*, *Aconitum deinorrhizum*, *Aconitum charmanthum* and *Aconitum spicatum*<sup>14</sup>. The first two species, namely *Aconitum balfourii* and *Aconitum deinorrhizum*, were originally included under the name of *Aconitum ferox*.

## CONCLUSION

Formulations having aconitum roots as an ingredient are highly effective in various diseases. Practitioners while prescribing such medicines should be aware of the quantity of *vatsnabha* in a formulation and prescribe such drugs only in recommended dose and follow-up the patient for any toxic symptom. The dose of *vatsnabha* should not exceed 30 mg per day above this dose it may be toxic. If any toxic symptom appears, the formulation containing *vatsnabha* should be immediately stopped and medicine to counteract the toxic symptoms should be started immediately without any delay. The patient should also be aware and not to purchase Ayurvedic medicine over the counter and start self medication.

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