

ANCIENT AND CONTEMPORARY STUDY OF VATSANABHA (*Aconitum ferox* wall.)

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ABSTRACT

Ayurveda means “The Science of Life” (Ayuh means Life and Veda means “Science” in Sanskrit). Ayurveda the fundamental science of life is evolved primarily for maintenance of good health and to cure the diseases. Agadtantra is the one of the eight branches of Ashtanga Ayurveda, which deals with study of poisons, types, effects, and management. *Vatsanabha* is one of the most common drugs discussed in Ayurveda. Various prospective of this drug had been mentioned in Ayurvedic classics. In Ayurveda, it is described as *Sthavara Visha* (poison of plant origin) and *Maha Visha* (potent poison), and in modern science, according to its mode of action it is a cardiac poison. All parts of this plant are poisonous; however, the root and root tubers are the most potent, which is hazardous to human beings. Besides the hazardous effects, the root of *Vatsanabha* is considered to have medicinal values. In some texts books, it is mentioned that seeds are also poisonous. By *Shodhan sanskar*, *Vatsanabha* has most therapeutics effects. The study of *Vatsanabha* mainly focussed on plant details, identification, therapeutic uses, toxic effects, medico-legal aspects etc.

Keyword: *Ayurveda*, *Agadtantra*, Poisoning, Symptoms, Treatment, *Vatsanabha*

INTRODUCTION

Vatsanabha is known to the Ayurvedic classics since very early times. The herb *Visha* is delineated in *Atharvaved* and *Brahamana granthas*. Among the *Brihatrayi*, *Acharya Charaka* mentioned it under *Sthavar Vishaa*.¹ *Vatsanabh* is described under thirteen varieties of *Kanda Vishaa* {tuberous root poisons} by *Sushruta*. *Sushruta* also described the four varieties of *Vatsanabha* as well as their poisonous effects². In india, it grows in the Himalayan ranges. The dry root is tapering, slightly arched, with wrinkles. It is 5-10 cm long and 1-2 cm thick at upper ex-

ternity. Externally it is brown in colour but internally white in colour, when freshly cut and its colour changes on exposure to air. It has sweet taste, which gives its name *Mitha Bisha*. *Aconite ferox* is an herb used as an ingredient in many Ayurvedic formulations. It is a poisonous herb, but when used in smaller quantity after purification and processing, it is used as a medicine. It has many health benefits. In modern toxicology, according to its mode of action, *Vatsanabha* is categorised under cardiac poisons. *Acharya Ras Vagbhatt* preferred the name *Visha* for

Vatsanabha and used it in the treatment of *Kushtha*, *Timir*, *Gandmala Apachii*, *Nadivrana* and *Mushika Visha* etc.

BOTANICAL NAME – *Aconitum ferox* wall.

FAMILY- Ranunculaceae

SYNONYMS – *Amritum*, *Visha*, *Garalam*, *Nagam*, *Nabhi*, *Pranharammaranum*, *Mahaushadham*, *Vatsanabha*, *Vatsanag*, *kshwed*, *Vishaa*, *Amrita*.³

COMMON NAMES - Monkhood, Mousebane Soldiers cap, wolfsbane helmet flower, old wives hood friers cap, Bears foot.

COMMON POISONOUS VARIETY –

A.ferox; *A.napellus*; *A.palmetum*; *A.heterophyllum*

SCIENTIFIC CLASSIFICATION

Kingdom - Plantae

Division - Magnoliophyta

Class - Magnoliophyta

Order - Ranunculacea

Family- Ranunculacea

Genus- Aconitum

Species- *ferox*

VERNACULAR NAMES-⁴

Assami- *Visha*

Bengali- *KathVisha*, *mitha Visha*

Bihari- *Dakara*

English- *Monks hood aconite*

Gujrati- *Basnag*, *Bachnag*

Hindi- *Bachanag*, *Mitha Visha* *Mitha teliya*, *Teliya Visha*

Kannada- *Vasnabhi*

Malayam- *Vatsanabhai*

Marathi- *Bachnag*

Panjabi- *Mohair*, *Shyam mohari*

Sanskrit-*Vatsanabha*

Tamil- *Vasanasi*

Telugu- *Ativasnabhi*

KULA - *VATSANABHA KULA*

HABIT- The plant is common in the sub-alpine and alpine zone of Himalayas. It grows well in hilly regions of northern and eastern parts of India, extending from Assam to Kashmir.

PROPAGATION– By seeds and vegetative methods.

CLASSICAL CATEGORIZATION

Charaka Samhita- *Sthavara Visha*

Sushruta Samhita- *Kanda Visha*

Bhavaprakash nighantu-*Dhatvadi Varga*

Raja nighantu- *Mishraka Varga*

Dhanvantari nighantu- *Mishraka Varga*

Shodhal nighantu- *Candadi Varga*

Kaidev nighantu- *Visha Varga*

IDENTIFICATIONS

PHYSICAL APPEARANCE OF THE PLANT

Acharaya Ras vagbhatta described it as *Pandura varna* (yellowish grey colour). Its root is similar to Navel of calf⁵ and is not more than five angul in length. According to *Bhavaprakash*, its leaves resembles leaves of *Nirgundii*⁶, tuber resembles like umbilicus of calf. Around the *Vatsanabha*, there is no other plant grows. It is a shrub having blue flowers, the size of the root is described as 5-7 angul and circumference is 1- 1.5 angul. In some texts certain characteristics are given about the best quality of *Vatsanabha*.

ACTIVE PRINCIPLES

Aconite ferox is rich in alkaloids, & it is more potent. Its root contains toxic alkaloids like *Aconitine*, *Mesaconitine*, *Hypaconitine*, *Pseudo aconitine*, *Indaconitine*, *Picraconitine*, *Aconine* along with *bikhacnitine*, *chasmaconitine*.⁷

PROPERTIES OF VATSANABHA⁸

Sthula (bulky tuber)

Snigdha (smooth on outer texture)

Guru (heavy indigestion)

Nava (newly harvested)

Phala pakanta grahya (collected after fruits have dried up)

Kitadi abhakshita (not affected by insects and pests).

TYPES

According to *Sushruta*-⁴

According to *Ras vagbhatta*⁹,

The colour and the properties of each variety are given below

Table 1

S. no	VARIETY ⁹	COLOUR	PROPERTIES
1	<i>Brahmana</i>	<i>Pandur varna</i>	<i>Rasayan</i>
2	<i>Kshatriya</i>	<i>Rakta varna</i>	<i>Deha pushti kar</i>
3	<i>Vaishya</i>	<i>Pita varna</i>	<i>Kushtagna</i>
4	<i>Kshudra</i>	<i>Krishna varna</i>	<i>Dhatu karma</i>

According to *Ras tarangni*- 3¹⁰
Krishnabha (blackish), *Kapish* (brownish yellow), and
Pandur (whitish)¹¹. They are considered as superior to
each other in the same order.

BOTANICAL DESCRIPTION ¹¹

Aconite is a Greek word meaning arrow (Acron). The
arrows were coated with this poison and used. Hence,
the name is Aconite. It is one of the oldest known
drugs and is of two different kinds. They are poison-
ous and non-poisonous. It is a perennial herb.

Root- Paired, the shape of daughters root may be
avoided or ellipsoid, there length is 2.5 to 4 cm, about
1- 1.5 cm thick, roots fibres are filliform, dark brown
externally, yellowish white on fracture, other tubers
are much shrunk and wrinkled with more numerous
root fibres.

STEM - Erect, with or without a slender, simple, 40-
90 cm high, covered with sharp spreading yellow hair
in the upper part and glabrous below.

LEAVES - Scattered, distant, cleft or lobed, simple,
alternate oval in shape. Towards the bottom leaves are
larger in size and on the top of the plants leaves are
growing smaller and shorter.

INFLORESCENCE- Peduncle straight, bearing flow-
ers on both sides, they are pale dirty blue, yellow, and
pink zygomorphic flowers with numerous stamen.

FRUITS- Tube like capsule or just like helmet that
opens at the top, Carpels 5, 15-20 mm lon and 4-5
mm.

SEEDS- Obovoid to Obpyramidal 2.6 -3mm. Long
winged along with the raphe.

DISTRIBUTION- Grows wild in the alpine Himala-
yas, Kashmir at an Altitude of 3600m.



Figure-1: Herb of Vatsanabha.



Figure-2: Roots of Vatsanabha

Table 2: RASA PANCHAK¹²

Rasa	<i>Madhura</i>
Guna	<i>Laghu, Ruksa, Tikshna, Vyavayi, Vikashi</i>
Virya	<i>Ushna</i>
Vipaka	<i>Katu</i>
Karma	<i>Vat-kaphaghna, Vishahara, Jvarahar, Madakari, Kushthaghna</i>
Prabhav	<i>Rasayana</i>

INDICATIONS

*Jwara(sannipat), Jangama Visha, Kushtha, Mad-
humeha, Swasa, Kasa, Plihodar, Agnimandya, Vata
rogas etc.*

Ras vagbhatta specifically documented the relation
between duration of its administration and its thera-
peutic effects

Table 3

3 Months ad- ministration	Cures all the eight major types of kushtha
6 months	Improves complexions. (cos- metic purpose)
12 months	Cures all diseases

PART USED - mainly roots are used.

MECHANISM OF ACTION ¹³

Aconite act on nerve axons by opening sodium chan-
nels.

It also inhibits complete repolarization of the mem-
brane of myocardial tissue causing repetitive firings.

It stimulates vagal medullary centre.

METABOLISM

Metabolism of aconitum alkaloids is mainly carried out by the enzymes esterase.

Aconitine is converted into benzoyaconine through hydrolysis in C-8 position and into aconine.

TOXIC EFFECT OF VATSANABHA¹⁴

Sushruta clearly described the toxic effect of *Vatsanabha*

Griva stambh (Stiffness of the neck), *Pitavinmutra* (yellow colour in urine and faeces.) *Pitanetrata* (yellowish discolouration of eyes).¹⁵

STAGES OF VATSANABHA POISONING ACCORDING TO RAS RATNA SAMMUCCHYA

Ras Vagbhatta described the eight stages of *Vatsanabha* that is ASHTA VEGA

Table 4

VEGA	SYMPTOMS
1 st stage <i>Pratham vega</i>	<i>Tvak vikar</i> (Skin disorders)
2 nd stage <i>Dwitiya vega</i>	<i>Vepthu</i> (Tremers)
3 rd stage <i>Tritiya Vega</i>	<i>Dah</i> (Burning all over the body)
4 th stage <i>Chaturth Vega</i>	<i>Vrikritavastha</i>
5 th stage <i>Pancham Vega</i>	<i>Fenodgam</i> (Bubble from mouth)
6 th stage <i>Shashtham vega</i>	<i>Skandha Bhang</i> (dropping of Shoulders)
7 th stage <i>saptam Vega</i>	<i>Jadhtha</i> (Comatose)
8 th stage <i>Ashatham Vega</i>	<i>Maran</i> (Death)

According to *Sushruta Sthavar Vishaa Veg*¹⁵

Table No.5

VEGA	SYMPTOMS
<i>Pratham Vega</i>	Blur vision & Loss of movement of tongue, Dyspnoea
<i>Dwitiya vega</i>	Shivering, Debility, Burning Sensation, Pain in throat
<i>Tritiya Vega</i>	Pain In Heart, Dryness Of Palate. Severe Pain In Stomach, Swelling eyes
<i>Chaturtha Vega</i>	Pricking pain in Stomach & intestine, Hiccup, cough
<i>Pancham Vega</i>	More Elimination Of Cough, Discolouration, Pain In The Joints, Aggravation Of Dosa, Pain in large intestine
<i>Shashtham Vega</i>	Loss of consciousness, Severe diarrhoea
<i>Saptam Vega</i>	Cutting Pain in Shoulder

SYMPTOMS ACCORDING TO MODERN^{16, 17}

Table 6

Burning sensation from mouth to stomach	Profused sweating
Tingling & Numbness in mouth, tongue & Pharynx	Weakness of limbs
Salivation	Inability to stand or walk
Nausea	Muscle pain & Cramps
Vomiting	Pupils contracts & Dilate, but remain dilate at the later stage
Diarrhoea	Dimness of vision
Dryness of mouth	diplopia may occur
Polydipsia	Pulse becomes slow, feable & irregular
Difficulty in swallowing	Hypotension
headach	Breathlessness
Giddiness	Mental condition normal but hallucination
Pallor	Fatigueness in muscles

MANAGEMENT ACCORDING TO AYURVEDA ANTIDOTES (PRATIVISHA)

Accidental poisoning or over dose of aconite may produce the many symptoms. There are so many antidotes have been mentioned for aconite poisoning. *Acharya Ras Vagbhatta* specially mentioned that the treatment is possible up to 5-7 vegas only.¹⁸ According to *Ras Ratna Samucchya Go Ghrita* (cows ghee) is considered as one of the best anti dote for *Visha*.¹⁹ in case of its poisoning, *Vamana* shall be induced first followed by *lepa* or *Anjana* or *Kwatha* of *visaghna Gana*. *Tankan* (Borax) is considered to be the main antidote. It may be administered along with Ghee. Generally equal quantity of *Vatsanabha* and *tankan* (borax) are recommended to neutralize the toxic effect of the *Vatsanabha*. If *tankan* is not available, *Maricha* (piper nigrum) may be used. Another alternative antidote is *Arjuna* (*Terminalia arjuna*) bark is mixed with honey and ghee.

MANAGEMENT IN TOXICOLOGY^{17,18,19}

Most of the aconite varieties are poisonous; the most poisonous part is root. The main active principle is aconitine which produces toxic effects. Gastric lavage with tannic acid/ activated charcoal. Inotropic therapy is required if hypotension persists, and atropine (0.5-1mg IV) should be used to treat bradycardia. Ventricular arrhythmia is treated with amiodarone and

flecainide (first- line treatment). In refractory cases and cardiogenic shock, early use of cardiopulmonary bypass is recommended Symptomatic treatment.

INDICATION & CONTRAINDICATION FOR VATSANABHA

In certain disease, it may be administered in summer, but in case of *Sattva prakriti*, *Visha* is used during winter and spring. *Vatsanabha* should not be used in rainy season and on the cloudy days. It may be used daily as *Rasayana* after performing *ghitapana* and *shodhan*. *Visha* is contraindicated for *pitta* predominant, *klivya* (impotent), *Krodhi* (Angers), kings or royal employers, giddiness, sun stroke after walking for long distance, when feeling thirsty and hungry. It is also contraindicated in pregnant, children, old age, in emaciated peoples, in *marma* (vital) *Rogas* etc. Exposure to fire and heat should also be avoided. Some of restricted diet should be followed. Death may occur from shock and syncope but usually due to arrest of respiration.

FATAL DOSES-

One gram of the root and 20 Drops of Tincture may cause death. Four mg of the aconitine and 250 mg of the extract is fatal for human beings. The fatal period for *Vatsanabha* poisoning is 2- 6 hrs. Ayurvedic classics recommend that *Vatsanabha* is to be administered only after proper *Shodhan* (Processing) and *Maran* (Incineration).

SHODHAN (DETOXIFICATION) OF VATSANABHA²⁰

The tuberous roots of aconite are treated in several ways, before oral administration. There is more description of *Shodhan* procedure in *Ras Shastra*. Detoxification procedure is done by using various liquids either by soaking or boiling on it. Liquids may be Water, or *Gomutra* (Cows urine), or *Ajadugdha* (Goat milk), *Godugdha* (Cow milk), *Triphala kwatha* (Decoction Of *Triphala*), *Mahishamala* (Buffalo Dung), *Ksharajala/Tankodaka* (Borax water)

MARAN OF VATSANABHA²¹

Maran procedure is generally done with *Tankana* (Borax), or *Tankana* and *Maricha* (*Piper Nigrum*) or by using *Twak* (Bark of *Cinnamomum Zeylicum*) or *Gandhaka* (Sulphur)

THERAPEUTIC DOSE

1/16- 1/8 Ratti (7 to 15mg)

THERAPEUTIC USES

There are so many preparations of vatsanabha which are used in Shira shula, Shula Vrishchik Visha, Shotha, (as lepa), Shukra meh, Snayuk.

POSTMORTEM APPEARANCE^{17, 18, 19}

There is no specific sign in Aconite poisoning. The poison is often difficult to detect by chemical analysis. Fragment of root may be found in stomach content. The odour of chloroform may be perceived when the liniment is swallowed. Mucous membrane of the stomach & small intestine is congested & inflamed. Hemorrhagic pulmonary edema and diffuse contraction band necrosis in myocardium may be present. Aconitine is extremely unstable and is destroyed by putrefaction.

MEDICO-LEGAL ASPECTS

It is often regarded as an ideal homicidal poison because of its cheap and easily availability. Lethal dose of Aconite is small and the fatal period is short. Colour can be distinguished by mixing it with pink coloured drinks. Taste can be masked by mixing it with sweets or by giving it with paan leaves (betel leaf). Extremely unstable and destroyed by putrefaction, hence cannot be detected by chemical analysis. Accidental poisoning occurs mostly from eating the root in mistake for horse-radish root or by therapeutic application of liniment containing aconite or by added it to liquor for better kick. Poisoning is more common from accident rather than homicide or suicide.

Homicidal cases are not frequently reported. It is also used as an abortifacient, cattle and arrow poison. Suicide is not common.

FORMULATIONS

There are so many formulations of *Vatsanabha* like Hingleshvara Rasa, Anand bhairava Rasa, Jwara murari Rasa, Mrityunjaya Rasa, Amrit Rasayan, Panchamrita Rasa, Tribhuvan kirti Rasa, Kaphaketu rasa, Rambhana Rasa, *Visha taila* etc.

DISCUSSION

Vatsanabha is one of the most important herbs of Ayurvedic formulary, which have so many therapeutic actions. The symptoms of aconite poisoning are nau-

sea, vomiting, dyspnoea, Numbness & tingling in tongue and mouth. According to Ayurveda, the main symptoms of vatsanabha poisoning are *Griva sthambh*, *Pitanetra*, *Pitta vina* and *pitamutrata*. Due to having highly toxicity effects, advised only to be used after proper purification. Because of Its useful properties like Ushna, Teekshna, is the main content in many formulation & preparations. Vatsanabha is mainly used in *Vata-Kaphaj Vikar(disorders)*. It is also used in *Jwara (sannipat)*, *Jangama Visha*, *Kushtha*, *Madhumeha*, *Swasa*, *Kasa*, *Plihodar*, *Agni-mandya* etc. it is a boon for Ayurveda, hence it is also called *Amrita*. Indications and contraindications should be properly follow, improper use of it may causes severe complications or may be fatal. So its purification must be done properly by using various methods of purification. The use of Vatsanabha and its preparations is contraindicated in *pitta* dominant persons, in old & in emaciated person, in pregnancy, and during summer. Used of aconite as homicidal and suicidal poisoning is more common in India, because of its unstable nature it is generally used as homicidal poison. It is extremely unstable and is destroyed by putrefaction. Hence it is difficult to detect its presence in any sample or in dead body. So it is more important to identify it properly.

CONCLUSION

From this study it is concluded that *Vatsanabha* is very important drug mentioned in Ayurvedic pharmacopoeia and formularies. After purification we can use it to get more benefits. It is a poisonous herb, but when used in smaller quantity after purification and processing used as a medicine. It has so many health benefits (*Rasayana*) as well as therapeutic effects. It is also used as *Rasayana* (rejuvenating agent) which enhance health, happiness and longevity, and maintain the body physiological functions as well as provide good health. Improper use of Vatsanabha can produce adverse effects and complications. Procedure of *Shodhan* (Processing) and *Maran* (Incineration) should be done properly. It should be done in open place to avoid complication, and proper precautions should be taken during processing and incineration. Its fatal dose is small and fatal period is short. Hence its

proper identification, adverse effects, Therapeutic uses, complications, its management, Medicolegal aspects are very important in this study.

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