



VA THERPEUTIC AND TOXICOLOGICAL EFFECT OF ATIVISHA PLANT (ACONITUM HETEROPHYLLUM) – A GOLD VALUED MEDICINAL PLANT OF INDIA

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ABSTRACT

Ativisha, or Aconitum heterophyllum wall, is a plant in the Ranunculaceae family that has significant therapeutic properties and is used in Ayurvedic medicine. The roots of the plant are used in one form or another in many ayurvedic treatments. Numerous phytochemical elements (metabolites) are present in this plant, with diterpene alkaloids being the prominent ones having pharmacological activity including analgesic and anti-inflammatory qualities. Consequently, an attempt has been made to examine the numerous chemical and pharmacology investigations that have been conducted.

KEYWORDS - Aconitum heterophyllum, Ativisha, pharmacological activity, etc.

INTRODUCTION

The genus Aconia contains 250 species of angiosperm plants, including perennial herbs that grow in the mountainous parts of the northern hemisphere. One of them is Aconitum heterophyllum, often known as "Atees" in the local vernacular and native to the Himalayan sub- and alpine regions.¹ Because Aconitum heterophyllum has shown a great deal of efficiency in treating a wide range of pediatric diseases, Ayurvedic practitioners refer to it as Shishu Bhaishjya. Recent research has demonstrated that astivisha provides a range of benefits, including immune-modulatory, antibacterial, antipyretic, and antimicrobial effects.² Because of these multitasking properties, it is a drug that is particularly interesting for pediatric illnesses. As Ativisha is considered an endangered species, Mustaka, or Cyperus rotundus, is used in its place.³

TABLE NO. 1 - SYNONYMS OF ATISH⁴

S. R. No.	SYNONYMS	MEANING
1.	Kashmir	The plant grows in Kashmir.
2.	Madri	Plants grow in Madra Desha.
3.	Shukla Kanda	Root tubers are white.
4.	Shrungi	Root tubers are horn-shaped.
5.	Pitta Vallabha	Ativisha is efficacious in Pittaja Roga.
6.	Ghrun Vallabha	Root tubers are quickly infested.
7.	Atisaraghee	Ativisha is very useful in Atisara.
8.	Shishu Bhaishajyam	Ativisha is very beneficial in pediatric disorders.
9.	Visha	It spreads throughout the body or is useful as an antidote.
10.	Shophapaha -	It cures Shopha.

REGIONAL NAMES OF ATIVISHA

- Indian Atees (English)
- Ataich (Bengali)
- Ativish (Gujarati)
- Atees, Atish, Atis, Patis (Hindi)
- Atibaje (Kannada)
- Astividayam (Malayalam)
- Ativisa (Marathi)
- Batis (Punjabi)
- Atividyam (Tamil)
- Atibasa (Telugu)
- Bajjturaki (Persian)

TABLE NO. 2 SCIENTIFIC CLASSIFICATION OF ATIVISHA

Kingdom	Plantae
Class	Dicotyledons
Subclass	Polypetalae
Series	Thalamiflorae
Order	Ranales
Family	Ranunculaceae
Genus	Aconitum
Species	heterophyllum

TABLE NO. 3 PLANT DESCRITPION⁵

S. R. NO.	PLANT PARTS	DESRPTION
1)	Habit	Herbaceous perennial plant grows 1 to 1.5 meters.
2)	Root	Both taproot and adventitious roots are present. Adventitious roots are swollen to form tubers.
3)	Stem	Aerial as well as the underground, the aerial stem is erect, hairy & branched.
4)	Leaves	Cauline and Ramal, simple, petiolate, leaf base sheathing.
5)	Inflorescence	Raceme with an end flower.
6)	Flowers	Bisexual, polysepalous, polypetalous, with numerous stamens, bi to Penta- carpellary syncarpous, superior ovary.
7)	Fruit	Etaerio of follicles.
8)	Flowering and fruiting time	Rainy – autumn season and onwards: July- September.

DISTRIBUTION OF ATIVISHA⁶

Ativisha is often found in the Himalayan subalpine and alpine zones, which extend from the Indus to Kumaon, at elevations of 6,000 to 12,000 feet (2,000 to 4,000 meters).

CLASSIFICATION OF ATIVISHA AS PER CHARAKA AND SUSHRUTA

- **Charaka:** Lekhaniya Maha Kashaya, Arshoghana Maha Kshaya, Tikta Sakandha
- **Sushruta:** Pippyadi Gana, Vachadi Gana, Mustadi Gana.

ATIVISHA'S DESCRIPTION IN BRIHTRAYI AS VISHA DWAYA

- **Shushruta Samhita** – S. S. U. 39/ 237
- **Vagbhata** – A. H. Chi. 21/ 60, A. H. U. 5/ 19, A.H. U. 39/ 79

ATIVISHA'S DESCRIPTION IN BRIHTRAYI AS MADRI

- **Vagbhata** – A. H. Chi. 6/ 52, A. H. Chi. 8/ 149, A. H. Chi. 9/ 7, A. H. Chi. 10/ 53, A. H. Chi. 12/ 18, A. H. Chi. 15/ 71, A. H. Chi. 17/ 26, A. H. U. 2/ 24, A. H. U. 20/ 15

ATIVISHA'S DESCRIPTION IN BRIHTRAYI AS PRATIVISHA

- **Charaka Samhita** – C. S. Chi. 7/ 144, C. S. Chi. 19/ 25
- **Sushruta Samhita** – S. S. U. 40/ 44
- **Vagbhata** – A. H. Chi. 9/ 8, 106, A. H. U. 18/ 25, A. H. U. 35/ 47, A. H. U. 37/ 28

HISTORICAL BACKGROUND OF ATIVISHA⁷

- The plant Visha is described in the Shatapada Brahmana (Tai. Bra. 3/ 7/ 13/ 14). Sayana considered this plant to be Vyaapina.
- Acharya P.V. Sharmaji (Sarapunkha) called it Banaparni. However, Sayana's reading of Vishataki, a synonym for Visha, implies that Visha and Ativisha are interchangeable.
- Charaka referred to this plant only by the name Ativisha. He also mentioned Prativisha twice in his book (C. S. Chi. 7/144 & 19/ 22). He explained it and included many more allusions in his literature under the names Lekhaniya, Arshoghna Vargas, Tikta Skandha, and Shirovirechana Dravyas.
- Sushruta identified it as Ativisha alone, while Atisara is stated when referring to it as Prativisha (S. S. U. 40/ 45). The two kinds that are needed are Ativisha and Prativisha. This is clear from Vagbhata's mention of Visha dvaya (two kinds of Visha) (A. H. U. 39/79).
- Visha and Ativisha were referred to as Visha dvaya by Indukara in this specific situation. But Arunadatta perceived Visha as Kakoli.

- Vagbhata initially referred to Ativisha by the terms Ghuneshta (A. H. Ci. 19/40), Ghunapriya (A. H. Su. 15/33 & A. H. Chi. 9/57, A. H. Chi. 16/11), and Ghunavallabha (A. H. Ci. 8/103, 151).

VARIETIES OF ATIVISHA⁸

Visha dvaya A. S. Su. 12 and A. H. Ut. 39/79; Madanadi Nighantu cited four varieties; and Vagbhata named three sorts (Shodhala Nighantu Guna Sangraha. 12).

- Vagbhata – Ativisha & Visha
- Shodhala – Shukla (Sweta), Krishna & Aruna varieties.
- Madanan Nighantu – Rakta (red tubers), Shweta (white tubers), Krishna (black tubers) & Pita (yellow tubers) varieties.

Numerous authors have identified *A. palmatum* and *A. heterophyllum* as Visha dvaya (Guruprasad Sharma & P. V. Sharma). *A. palmatum* has a solid, black-colored root. Regarding the three or four Ativisha varieties, more investigation is needed. The Nighantus state that *A. kashmiricum* is the third variety and that *Nirvisha*, or *Delphinium denudatum*, may be the fourth. It may be one of the infidelity suspects.

BOTANICALLY THREE VARIETIES OF ATIVISHA ARE OBSERVED:

- *Aconitum heterophyllum*
- *Aconitum palmatum*
- *Aconitum kashmiricum*

USEFUL PART⁹

Ovoid or obconical tubrous roots, which can sporadically develop as mother and daughter tubers. With a central width of up to 1 cm and lengths ranging from 2 to 6 cm, the daughter tuber is bigger. It ends in a thin, tap-like point that split from time to time. The surface is smooth, moderately curved, and has a yellowish-grey tint. The mother tuber has shrunk to a length of 1 cm and a thickness of 0.5 cm. It is small and dark grey in color. Usually, scaly leaf buds wrap the roots.

PHYTOCONSTITUENT¹⁰

A. heterophyllum has several phytochemical components that have medicinal qualities. After being isolated and characterized using chromatographic separation techniques, the structures of the composites of *A. heterophyllum*, including alkaloids, amide alkaloids, flavonoids, flavonol glycosides, diterpenoid, and norditerpenoid compounds, were explained using nuclear magnetic resonance techniques. These combinations were the main focus of medicinal chemists since they are both therapeutic and dangerous. Following a detailed examination of the basic components of *A. heterophyllum*'s roots, seven new diterpenealkaloids have been found. From the weak base fraction, heteroatisine and three additional alkaloids were isolated and named asheterophyllisine, heterophylline,

and heterophyllidine. These compounds are lactone alkaloids; structurally, they are similar to heterotisine. The strong base fraction produced two new alkaloids, T. atidine and F-dihydroatisine. The very strong base fraction yielded two alkaloids: hetidine and hetisinone. The latter was found earlier as a consequence of the chemical transition of hetisine.

TABLE NO. 2 RASA PANCHAKA OF ATISH

- **Rasa** - Katu (pungent), Tikta (bitter)
- **Guna** - Laghu (light), Ruksha (dry)
- **Virya** - Ushana (hot potency)
- **Vipaka** - Katu (pungent)
- **Dosha Karma**- Kapha- Pitta Hara

THERAPEUTIC INDICATION

- Jwara
- Ajeerna
- Kasa
- Atisara
- Krimi
- Visha Roga
- Chardi

TABLE NO. 4-AAMYIK PRAYOG¹¹

S.R. NO.	PRAYOG	REFERENCES IF ANY
1.	VISHAKTA (POISONING): <ul style="list-style-type: none"> • Ghee made from attivisha, cow's milk, etc., is useful to eat or snuff in case of poisoning. Shweta and Madayantika cook very much the same. • When administered with honey, atavisha paste is an effective treatment for rat poisoning. 	<ul style="list-style-type: none"> • Kalpa Sthana, Sushruta Samhita, 1/ 64) • Sushruta Samhita Kalpa Sthana (7/39)
2.	BALA ROGA (CHILDREN'S DISEASE): <ul style="list-style-type: none"> • Ativisha is taken either by itself with honey in cases of cough, fever, and vomiting, or in 	<ul style="list-style-type: none"> • Ashtanga Hridya Vrinda Madhava. 66/ 10; Uttara Tantra. 2/ 57

	combination with Karkatsharngi and Pippali.. <ul style="list-style-type: none"> • Mustaka is also seen in Chatturbhadr Avaleha. 	<ul style="list-style-type: none"> • Bhava Prakasha Chikitsa Sthana, 71–151
3.	ATISARA (DIARRHEA) <ul style="list-style-type: none"> • Ativisha Avaleha, which tests for severe diarrhea and contains Ativisa together with Bilva, Mocharasa, Lodhra, Dhataki-Puspa, and mango seed. • Ama Atisaara, a liquid gruel prepared with Ativisha and Sunthi, works well. 	<ul style="list-style-type: none"> • Bhava Prakasha Samhita, Chikitsa Sthana, 2/ 148 • Charaka Samhita Sutra, Sthana, 2/ 22
4.	GRAHANI- ROGA (IBS) <ul style="list-style-type: none"> • To help break down Ama, Grahani-Roga recommends using a decoction of Ativisha, Shunthi, and Mustaka. • Mix one-part Ativisha and three parts Ankota with water. It examines all illnesses of the abdomen. 	<ul style="list-style-type: none"> • Charaka Samhita Chikitsa Sthana, 15/98 • Vanga Sena, Grahani, 167

MATRA (DOSE)

- Powdered moor (root): 1–3 grams daily, divided into doses
- 65–195 mg of solid extract as a tonic with a 2% alkaloid content.
- 49–65 mg of solid extract with a 2% alkaloid content as an anthelmintic.
- Solid extract with an anti-periodic dose of 260–390 mg (2% alkaloid).

PHARMACOLOGICAL ACTIVITY¹²

Since the species Atisine is far less toxic than both pseudoconitine and aconitine, it is frequently regarded as non-poisonous. The complete aqueous extract of the root produced substantial hypertension despite the alkaloid atisine generating hypotension; this was probably due to its action on the sympathetic nervous system. It is now clear that the alkaloid atisine is essential for the antiperiodic aphrodisiac and tonic aconitine actions in the central nervous system, cardiovascular system, and respiratory system due to the identification of benzyl ester and OH groups in the molecular structure of *A. heterophyllum*. This mechanism is present in *Celastrus paniculatus* polyesters and these esters' actions resemble those of aconitine.

Rats with granulomas created by cotton pellets were used to calculate the anti-inflammatory effectiveness of *A. heterophyllum* ethanolic root extract (225, 450, and 900 mg/kg p.o.), as shown by Verma et al. In rats that formed

granulomas from the cotton pellet, the weight of the pellet decreased, indicating that the extract lessened inflammation. The findings showed that the extract's anti-inflammatory qualities and effects were comparable to those of the well-known non-steroidal anti-inflammatory medication diclofenac sodium. A growing body of research suggests that phytochemicals and herbal products, in addition to being more widely available, more affordable, and safe, can also influence the course of inflammatory illnesses and potentially offer a combination of nutrients that aid in preserving and restoring tissue deterioration. As such, a rational assessment of the popular medications' potential for usage in inflammatory disorders makes sense. Plants of *A. heterophyllum* have been related to cytotoxic, immune-stimulating, antiviral, and antifungal properties^{12–15}. *A. heterophyllum* has also been found to contain saponins, sugars, tannins, and flavonoids.

TOXICITY¹³

When used incorrectly, *ativisha* is a dangerous herb that can turn toxic. Bradycardia, dry mouth, and constipation are a few mild to moderate poisonings caused by high doses that do not cause death. Without purification, a single consumption of 5–6 grams may have these harmful consequences.

ANTIDOTE- Goghrata (Cow's ghee) or Godugdha (Cow's milk) orally.

SODHANA (PURIFICATION)

Cut the *Ativiga* tuberous roots into little pieces, immerse them in Gomaya Kwatha (liquid cow dung) for three hours, and then allow them to air dry.

FORMULATION OF ATIVISHA

- Ativishadi Churna for Kasa, Jwara
- Mahatiktaka Ghrita for Pittaja Kustha
- Pushyanaga Churna for Arsha and Atisaara
- Vasishta Haritaki for Kasa
- Rodhra Asava for Prameha
- Madhukadi Ghrita for Arsha and Atisaara
- Bal Chaturbhadradi Churna for Bala Roga
- Kutajghan Vati
- Chandraprabha Vati
- Khadir Gutika

CONTRAINDICATION AND SIDE EFFECTS¹⁴

It is advisable to avoid taking Ativisha if you are pregnant or nursing. Ativisha should be used in pediatric illnesses, but only under a doctor's care. Excessive consumption can lead to signs of vata dysfunction, such as dry mouth.

CONCLUSION

Astivisha roots are utilized medicinally and show significant potential. It is very advised to use Ativisha for treating pediatric illnesses. It severely stimulates the digestive system and serves as an appetizer, digestant, and astringent. Digestive diseases such as piles, anorexia, dyspepsia, diarrhea, worms, and vomiting respond well to it. The purpose of this study is to look into potential additional therapeutic applications that have been noted in the literature but are not frequently utilized in clinical settings. Aticisha is not generally used for skin problems, gynecological diseases (menorrhagia, DUB, etc.), and other joint maladies, even though it is frequently referenced in treatises. Further clinical research in this area is necessary to demonstrate Ativisha's effectiveness in treating additional ailments.

CONFLICT OF INTEREST -NIL

SOURCE OF SUPPORT -NONE

REFERENCES

1. Agnivesha, Charaka, Dridhabala. In: Charaka Samhita, ed. Vaidya Jadavaji Trikamji Acharya., editor. Varanasi: Chaukhamba Sanskrit Sansthan; 2009.
2. Sushruta. In: Sushruta Samhita, Sutra Sthana, ed. Vaidya Jadavji Trikamji Acharya., editor. Varanasi: Choukhambha Orientalia; 2005.
3. Vagbhata. In: Ashtanga Hrudaya, 9th ed. Anna Moreshwar Kunte, Krishnashastri Navarre, Harishastri, editors. Varanasi: Choukhambha Orientalia; 2005.
4. Bhavamishra. In: Bhava Prakasha Nighantu, Haritkyadi Varga 11th ed. part 2. Brahma Shankara Mishra., editor. Varanasi: Choukhambha Bharati Academy; 2009.
5. Bhavprakash, commentary by Bulusu Sitaram, forwarded by K.C. Chunekar, editor. Varanasi: Choukhambha Bharati Academy; 2008.
6. Sharma PV, Kaideva Nighantu. Aushadhi Varga. Chaukhamba Orientalia, Varanasi; 2006:
7. Tripathi I., Raja Nighantu, Pipplyadi Varga, Chaukhamba Krishnadas Academy; Varanasi; 2010
Dhanwantri Nighantu, Guduchyadi Varga
8. P.V. Sharma, Priya Nighantu, Shatpushpadi Varga, Chaukhamba Krishnadas Academy; editor. Varanasi: Choukhambha Bharati Academy; 2002.
9. Rastogi R.P and Mehrotra B.N Compend, Indian Med Plant 1993; 2:10.11.

10. Anwar S, Ahmad B, Sultan M, Gul W, Islam N. Biological and pharmacological properties of *Aconitum chasmanthum*. J Biol Sci 2003; 3: 989-93
11. Patel, D.K Amin K.S and Nanavti D.D. Drugs 1995; 32: 566.
12. Dr. J.L.N. Sastry and Dr. B.S. Sastry, *Dravyaguna Vigyana*, Chaukhambha Orientalia, editor. Varanasi: Choukhambha Bharati Academy; 2005.
13. Chakrapanidatta, Chakradatta with the vaidaya Prabha hindi commentary by indra deva tripathi, chaukhambha sankrita sansthan, varanasi 2nd Edition, 1994.
14. Dr. Sahil Gupta, Ativisha (*Aconitum heterophyllum*), <https://iafaforallergy.com/dravya-herbs-part-a/atish-aconitum-heterophyllum/>

