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A CRITICAL REVIEW ON ATIVISHA –ACONITUM HETEROPHYLLUM

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ABSTRACT

Aconitum heterophyllum wall, also known as Ativisha, is an Ayurvedic plant with important medicinal effects in the Ranunculaceae family. A variety of ayurveda remedies employ the plant's roots in one way or another. This plant contains a large number of phytochemical constituents (metabolites), particularly diterpene alkaloids, which are the main compounds with pharmacological activities like analgesic and anti-inflammatory properties. As a result, an effort has been made to review the various studies done on its chemistry and pharmacology.

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

INTRODUCTION

There are 250 species of angiosperm plants in the genus Aconia, which includes perennial herbs found in the northern hemisphere's mountain regions. Among them is Aconitum heterophyllum, which is referred to as "Atees" in the local dialect and is found across the Himalayan sub- and alpine areas.[1] Aconitum heterophyllum is known to Ayurvedic doctors as Shishu Bhaishjya because it has demonstrated significant efficacy in treating a variety of pediatric ailments. Ativisha has been shown in recent studies to possess a variety of properties, including immune-modulatory, anti-bacterial, antipyretic, and anti-microbial properties.[2] It is a medication of particular interest in pediatric disorders because of these multitasking abilities. Since Ativisha is

regarded as an endangered species, Mustaka, also known as Cyperus rotundus, is utilized as a substitute.[3]

SYNONYMS OF ATISH[4]

काश्मीरा: – कश्मीरे भवा | The plant grows in Kashmir.

माद्री – मद्र देशे भवा। Plants grow in Madra Desha.

शुक्ल कंदा – शुक्ल वर्ण: कन्दो अस्य। Root tubers are white.

श्रृंगी – शृङ्गाकार कन्द त्वात। Root tubers are horn-shaped.

पित्त वल्ल्भा – पित्त रोगे फल प्रदा। Ativisha is efficacious in Pittaja Roga.

घुण वल्लभा – आशु घूणै: संसृज्यते। Root tubers are quickly infested.

अतिसारघ्नी – अतिसारं नाशयति। Ativisha is very useful in Atisara.

शिशु भैषजयं – बाल रोगेषु लाभ प्रदा । Ativisha is very beneficial in pediatric disorders.

विषा – विवेष्टि व्याप्नोति शरीरं अथवा विषम हन्ति। It spreads throughout the body or is useful as an antidote.

शोफापहा – शोफ नाशिनी। 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. 1: Scientific Classification of Ativisha.

Kingdom	Plantae
Class	Dicotyledons

Subclass	Polypetalae
Series	Thalamiflorae
Order	Ranales
Family	Ranunculaceae
Genus	Aconitum
Species	heterophyllum

PLANT DESCRITPION[5]

Habit – Herbaceous perennial plant grows 1 to 1.5 meters. **Root –** Both taproot and adventitious roots are present. Adventitious roots are swollen to form tubers. **Stem –** Aerial as well as the underground, the aerial stem is erect, hairy & branched. **Leaves –** Cauline and Ramal, simple, petiolate, leaf base sheathing. **Inflorescence –** Raceme with an end flower. **Flowers –** Bisexual, polysepalous, polypetalous, with numerous stamens, bi to Penta-carpellary syncarpous, superior ovary. **Fruit –** Etaerio of follicles.

Flowering and fruiting time- Rainy – autumn season and onwards: July- September.

DISTRIBUTION OF ATIVISHA[6]

Ativisha is often found between 6,000 and 12,000 feet (2,000 and 4,000 meters) in elevation in the Himalayan subalpine and alpine zones, which stretch from the Indus to Kumaon.

CLASSIFICATION OF ATIVISHA AS PER CHARAKA AND SUSHRUTA

- **Charaka:** Lekhaniya Maha Kashaya, Arshoghana Maha Kshaya, Tikta Sakandha
- **Sushruta:** Pipplyadi 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 ATIVISHA[7]

- The Shatapada Brahmana (Tai. Bra. 3/ 7/ 13/ 14) describes the plant, Visha. This plant was regarded by Sayana as Vyaapina.
- Banaparni by Acharya P.V. Sharmaji (Sarapunkha). On the other hand, Sayana's interpretation of the Visha synonym, Vishataki, suggests that Visha and Ativisha are synonymous.
- Charaka solely used the term Ativisha to refer to this plant. In his work, he also made reference to Prativisha twice (C. S. Chi. 7/144 & 19/ 22). Many more allusions can be found in his writing under the headings Lekhaniya, Arshoghna Vargas, Tikta Skandha, and Shirovirechana Dravyas, under which he defined it.
- Additionally, Sushruta reported it as Ativisha exclusively, while Atisara is mentioned when using the Prativisha name (S. S. U. 40/ 45). Ativisha and Prativisha are the two types that are required. The fact that Vagbhata spoke of Visha dvaya (two types of Visha) (A. H. U. 39/79) makes this evident.
- In this particular context, Indukara referred to Visha and Ativisha as Visha dvaya. Arunadatta, however, saw Visha as Kakoli.
- The words 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) were originally used by Vagbhata to refer to Ativisha.
- Nighantus referenced Ativisa, only Sargadhara and Bhavamisra acknowledged it in their books. This plant is well-known for helping with childhood disorders, or Bala Rogas. According to Shodhala, it is one of the elements of Trikarshika and Chaturbhadra.

VARIETIES OF ATIVISHA[8]

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

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

Many writers have recognized A. heterophyllum and A. palmatum as Visha dvaya (Guruprasad Sharma & P. V. Sharma). The root of A. palmatum has a firm, black hue. More research is required on the three or four Ativisha variants. According to the Nighantus, A.

kashmiricum is the third variety, while Delphinium denudatum (Nirvisha) may be the fourth. It might be one of the adulterants.

BOTANICALLY THREE VARIETIES OF ATIVISHA ARE OBSERVED

- Aconitum heterophyllum
- Aconitum palmatum
- Aconitum kashmiricum

USEFUL PART[9]

Tuberous roots that are ovoid or obconical; they can occasionally form as mother and daughter tubers. The daughter tuber is larger, with a central width of up to 1 cm and lengths of 2 to 6 cm. It terminates in a slender, tap-like tip that is occasionally split. The surface is yellowish-grey in hue, smooth, and gently curved. The mother tuber is tiny, dark grey in color, and has shrunk to a length of 1 cm and a thickness of 0.5 cm. Scaly leaf buds typically encircle the roots.

PHYTOCONSTITUENT[10]

Certain phytochemical elements of A. heterophyllum have therapeutic properties. Nuclear magnetic resonance techniques were used to explain the structures of the composites of A. heterophyllum, including alkaloids, amide alkaloids, flavonoids, flavonol glycosides, diterpenoid, and norditerpenoid compounds, after they had been isolated and characterized using chromatographic separation techniques. Because these mixtures are both hazardous and therapeutic, medical chemists focused primarily on them. After a thorough analysis of the fundamental elements of A. heterophyllum's roots, seven novel diterpenealkaloids have been identified. Heteratisine and three other alkaloids, designated asheterophyllisine, heterophylline, and heterophyllidine, were obtained from the weak base fraction. These substances are lactone alkaloids, and they resemble heterotisine structurally. T. Atidine and F-dihydroatisine, two novel alkaloids, were generated by the strong base fraction. Hetidine and hetisinone, two alkaloids, were obtained from the extremely strong base fraction. The latter was previously discovered as a byproduct of hetisine's chemical transition.

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

AAMYIK PRAYOG[11]

VISHAKTA (POISONING)

- In the event of poisoning, ghee prepared with attivisha and cow's milk, etc., is helpful to consume or snuff. In essence, Shweta and Madayantika cook similarly. **(Sushruta Samhita Kalpa Sthana, 1/ 64)**
- Ativisha paste given with honey works well to treat rat poisoning. **(Sushruta Samhita Kalpa Sthana, 7/ 39)**

BALA ROGA (CHILDREN'S DISEASE)

- Ativisha is taken either by itself with honey in cases of cough, fever, and vomiting, or in combination with Karkatsharngi and Pippali. **(Ashtanga Hridya Vrinda Madhava. 66/ 10; Uttara Tantra. 2/ 57).**
- Mustaka is also seen in Chatturbhadr Avaleha **(Bhava Prakasha Chikitsa Sthana, 71–151).**

ATISARA (DIARRHEA)

- Ativisha Avaleha, which tests for severe diarrhea and contains Ativisa together with Bilva, Mocharasa, Lodhra, Dhataki-Puspa, and mango seed. **(Bhava Prakasha Samhita, Chikitsa Sthana, 2/ 148)**
- Ama Atisaara, a liquid gruel prepared with Ativisha and Sunthi, works well. **(Charaka Samhita Sutra, Sthana, 2/ 22)**

GRAHANI- ROGA (IBS)

- To help break down Ama, Grahani-Roga recommends using a decoction of Ativisha, Shunthi, and Mustaka. **(Charaka Samhita Chikitsa Sthana, 15/98)**
- Mix one-part Ativisha and three parts Ankota with water. It examines all illnesses of the abdomen. **(Vanga Sena, Grahani, 167).**

MATRA

- 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 ACTIVITY[12]

Since Atisine is far less toxic than pseudoconitine and aconitine, the species is frequently thought to be non-poisonous. The complete aqueous extract of the root produced considerable hypertension despite the alkaloid Atisine producing hypotension; this was presumably due to an influence on the sympathetic nervous system. Now that the existence of benzyl ester and OH groups in the molecular structure of A. heterophyllum has been established, it is clear that the alkaloid Atisine is the key component that functions as an antiperodic aphrodisiac and tonic aconitine in the CNS CVS and respiratory system. This system is found in Celastruspaniculatus polyesters[10], and the actions of these esters are comparable to those of aconitine.

Verma et al. showed that in rats with cotton pellet-induced granuloma, the anti-inflammatory effect of ethanolic root extract of A. heterophyllum (225, 450, and 900 mg/kg p.o.) was calculated.[7] Rats with cotton pellet-induced granulomas showed decreased weight of cotton pellet, indicating that the extract had decreased inflammation. The outcomes showed that the extract's anti-inflammatory qualities and effects were comparable to those of the common non-steroidal anti-inflammatory medicine diclofenac sodium. Growing evidence has shown that, in addition to being more affordable, readily available, and safe, phytochemicals and herbal products can influence the development of inflammatory diseases and may offer a combination of nutrients that aid in preserving and re-establishing tissue deterioration. Consequently, it makes sense to assess the standard medications for their prospective application in inflammatory disorders rationally. There have been reports of antifungal, cytotoxic, antiviral, and immune-stimulant activities associated with A. hetrophyllum

plants.[12–15] Additional substances that have been isolated from A. heterophyllum include sugars, tannins, flavonoids, and saponins.

TOXICITY[13]

When handled carelessly, astivisha can cause toxicity and is classified as a dangerous plant. Severe overdoses cause mild to moderate poisonings that don't kill you, such as constipation, dry mouth, and bradycardia. Without purification, a single intake of 5–6 gm may have these hazardous consequences.

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

SODHANA (PURIFICATION)

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

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 EFFECTS[14]

It is advisable to refrain from using Ativisha if nursing or pregnant. Ativisha should be used in pediatric illnesses, but only under a doctor's care. When taken in excess, it might cause dry mouth and other symptoms associated with Vata dysfunction.

CONLCUSION

Ativisha roots are utilized for therapeutic purposes and have a remarkable medicinal potential. It is strongly advised to use Ativisha for pediatric illnesses. As an appetizer,

digestant, and astringent, it provides a sharp stimulant to the digestive system. Digestive diseases such as anorexia, dyspepsia, piles, diarrhea, worms, and vomiting respond well to it. The purpose of this research is to investigate potential additional therapeutic applications that have been discussed in literature but are not routinely employed in clinical settings. Ativisha is not commonly used for skin problems, gynecological illnesses (menorrhagia, DUB, etc.), and other joint disorders, although it is referenced frequently in treatises. Therefore, more clinical research in this area is necessary to demonstrate Ativisha's effectiveness in treating additional conditions.

CONFLICT OF INTEREST –NIL.

SOURCE OF SUPPORT – None.

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