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REVIEW STUDY OF *ATIVISHA* (*ACONITUM HETEROPHYLLUM* WALL. EX ROYLE) WITH SPECIAL REFERENCE TO ITS THERAPEUTIC IMPORTANCE AND CONSERVATION NEED

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Abstract

Ativisha (*Aconitum Heterophyllum* Wall. ex Royle) is an important classical medicinal plant of *Ayurveda*, mainly used for disorders related to digestion, fever, vomiting, cough, worm infestation, diarrhea, and pediatric conditions. The official part used is the dried tuberous root. According to the Ayurvedic Pharmacopoeia of India, *Ativisha* belongs to family Ranunculaceae and is native to the western Himalayas, espec*ially Garhwal, Kumaon, and Kashmir, at an altitude of about 2500 to 4000 m. Its roots are ovoid-conical, light ash-grey to grey-brown externally and starch-white internally, with a bitter taste and no tingling sensation. The drug contains important alkaloids such as atisine, dihydroatisine, hetisine, and heteratisine. In *Ayurveda*, it is described as *Katu-Tikta Rasa*, *Laghu-Ruksha Guna*, *Ushna Virya*, *Katu Vipaka*, and acts as *Deepana*, *Pachana*, *Sangrahika*, and *Kaphapittahara*. Modern studies also support its antidiarrheal, antipyretic, anti-inflammatory, antimicrobial, antioxidant, and digestive therapeutic potential. Due to excessive collection of roots, habitat destruction, slow regeneration, and high market demand, *Aconitum Heterophyllum* is considered a threatened Himalayan medicinal plant, creating an urgent need for conservation, cultivation, and sustainable harvesting practices.

Keywords: *Ativisha*, *Aconitum Heterophyllum*, *Deepana*, *Pachana*, Antidiarrheal, Conservation

Introduction

Ativisha is one of the valuable drugs described in classical *Ayurveda*, especially for digestive and febrile disorders. It is commonly known as Atis Root and botanically identified as *Aconitum Heterophyllum* Wall. ex Royle.[1] Unlike many other species of the genus *Aconitum*, which are highly toxic, *Aconitum Heterophyllum* is traditionally considered comparatively safer when used in proper dose and after correct identification. It is widely used in classical formulations such as *Bala Chaturbhadrika Churna*, *Sudarshana Churna*, *Panchatikta Guggulu Ghrita*, and other preparations mentioned for *Jwara*, *Atisara*, *Chardi*, *Kasa*, and *Krimiroga*.[2]

In *Ayurvedic* pharmacology, *Ativisha* is mainly useful in conditions where impaired *Agni*, *Ama*, *Kapha-Pitta Dushti*, and disturbed intestinal function are involved. Its *Deepana* and *Pachana* actions help in improving digestion and metabolism, while its *Sangrahika* property makes it useful in diarrhea and loose motions. It is also an important pediatric drug because many classical formulations used in children include *Ativisha* for fever, cough, vomiting, and gastrointestinal complaints.[3]

At present, the conservation of *Ativisha* has become an important issue. The plant naturally grows in high-altitude Himalayan regions and the medicinal part used is the root, which directly affects plant survival when collected unsustainably. Recent studies describe *Aconitum Heterophyllum* as a rare, endangered, endemic Himalayan medicinal herb, distributed mainly in sub-alpine to alpine regions at about 2400 to 4500 m altitude. Overharvesting, habitat loss, climate-related changes, and slow natural regeneration are major reasons for its declining natural population.[4]

Aim and Objectives

- To review the classical and modern importance of *Ativisha*.
- To describe its botanical identity, morphology, pharmacognosy, and chemical composition.
- To explain its *Ayurvedic* properties, therapeutic actions, and dose.
- To highlight its pharmacological activities reported in modern studies.
- To discuss the conservation need of *Aconitum Heterophyllum* due to overexploitation and habitat pressure.

Material and Methods

The present review study was prepared through literary and scientific analysis of classical *Ayurvedic* texts, the Ayurvedic Pharmacopoeia of India, published review articles, pharmacognostical studies, and modern research papers related to *Ativisha* (*Aconitum Heterophyllum* Wall. ex Royle). The collected information was arranged under botanical identity, vernacular names, synonyms, geographical distribution, morphology, macroscopic and microscopic characters, chemical constituents, *Ayurvedic* properties, pharmacological actions, therapeutic uses, dose, and conservation importance. Online scientific sources such as PubMed-indexed articles, pharmacognostical publications, and conservation-related studies were also reviewed to correlate classical uses with modern findings.

Drug Review

Ativisha is the dried tuberous root of *Aconitum Heterophyllum* Wall. ex Royle, belonging to family Ranunculaceae. It is a perennial Himalayan herb and is highly valued in *Ayurveda* for fever, diarrhea, vomiting, cough, digestive weakness, and pediatric disorders. The drug is bitter in taste and does not produce tingling sensation, which is an important identifying feature mentioned in API. It is considered useful in *Kapha-Pitta* dominant disorders, especially where digestive correction and intestinal regulation are needed.[5]

Taxonomical Classification

Taxonomical Rank	**Classification**
Kingdom	Plantae
Division	Angiosperms
Class	Eudicots
Order	Ranunculales
Family	Ranunculaceae
Genus	*Aconitum*
Species	*Aconitum Heterophyllum* Wall. ex Royle
Official Drug	Dried tuberous root
Common English Name	Atis Root

Vernacular Names

Language	**Name**
Sanskrit	*Ativisha*, *Aruna*, *Ghunapriya*, *Visha*
Hindi	Atis
English	Atis Root
Bengali	Ataicha
Gujarati	Ativishni Kali, Ativikhani Kali
Kannada	Ativisha, Athihage
Kashmiri	Kath
Malayalam	Atividayam, Ativitayam

Marathi	Ativisha
Oriya	Atushi
Punjabi	Atisa, Atees
Tamil	Atividayam
Telugu	Ativasa
Urdu	Atees

Synonyms

Synonym	**Meaning / Indication**
Ativisha	Important classical name of the drug
Aruna	May refer to reddish or special appearance
Ghunapriya	Classical synonym mentioned in API
Visha	Indicates relation with *Aconitum* group, but *Ativisha* is comparatively safer in proper dose
Atis	Common Hindi market name
Atees	Common Unani/Urdu name

Geographical Distribution

Ativisha is native to the western Himalayan region. According to API, it is found in Garhwal, Kumaon, and Kashmir at an altitude of about 2500 to 4000 m. Recent ecological studies also mention its distribution in sub-alpine to alpine open slopes, moist soils, and shady habitats at around 2400 to 4500 m altitude. Due to its high medicinal demand and root-based harvesting, its natural availability has declined in many Himalayan regions.[6]

Morphological Characters

- *Aconitum Heterophyllum* is a perennial herb.
- Roots are tuberous, ovoid-conical, and tapering downwards.
- Stem is herbaceous and grows in high-altitude Himalayan areas.
- Leaves are variable in shape, generally heterophyllous, which is reflected in the species name "heterophyllum."
- Flowers are usually bluish or pale-colored, arranged in racemes.
- The root is the official medicinal part and is collected, dried, and used as drug.

Macroscopic Study According to API

Character	Description
Drug Part	Dried tuberous root
Shape	Ovoid-conical, tapering downwards
Size	2.0 to 7.5 cm long, 0.4 to 1.6 cm or more thick at upper end
External Colour	Light ash-grey, white, or grey-brown
Internal Colour	Starch white
Surface	Wrinkled, marked with scars of fallen rootlets
Apex	Rosette of scaly rudimentary leaves at top
Fracture	Short and starchy
Internal Marking	4 to 7 yellowish-brown dots near centre due to fibrovascular bundles
Taste	Bitter, without tingling sensation

Microscopic Study According to API

Part Observed	Microscopic Features
Epidermis	Single-layered, made of light brown tabular cells
Cork	5 to 10 rows of tangentially elongated thin-walled cells
Cork Cambium	Single-layered, tangentially elongated thin-walled cells
Cortex	Wide cortex with parenchymatous cells and intercellular spaces
Starch Grains	Abundant simple and compound starch grains
Compound Starch	Usually composed of 2 to 4 spherical components
Endodermis	Distinct, barrel-shaped cells
Vascular Bundle	Poorly developed, arranged in a ring
Cambium	Interfascicular cambium present as a ring
Central Core	Thin-walled parenchymatous cells with starch grains
Powder Character	Ash-coloured to light brown powder with abundant starch grains and parenchymatous cells

Identity, Purity and Strength According to API

Parameter	API Standard
Foreign Matter	Not more than 2%
Total Ash	Not more than 4%
Acid-insoluble Ash	Not more than 1%
Alcohol-soluble Extractive	Not less than 6%
Water-soluble Extractive	Not less than 24%

Chemical Composition

Chemical Group / Constituent	Reported Constituents	Importance
Alkaloids	Atisine	Important low-toxic alkaloid
Alkaloids	Dihydroatisine	Supports pharmacological activity
Alkaloids	Hetisine	Reported diterpenoid alkaloid
Alkaloids	Heteratisine	Important marker constituent
Diterpene Alkaloids	Various aconite-type alkaloids	Responsible for many biological actions
Starch	Simple and compound starch grains	Useful in microscopic identification
Other phytochemicals	Flavonoids, tannins, phenolic compounds, glycosides	Support antioxidant and antimicrobial actions

Ayurvedic Properties

Ayurvedic Parameter	Description
Rasa	*Katu*, *Tikta*
Guna	*Laghu*, *Ruksha*
Virya	*Ushna*
Vipaka	*Katu*

Karma	*Deepana*, *Pachana*, *Sangrahika*, *Kaphapittahara*
Main Action	Digestive stimulant, carminative, antidiarrheal, antipyretic
Main Indications	*Krimiroga*, *Jwara*, *Kasa*, *Chardi*, *Amatisara*

Pharmacological Actions

Antidiarrheal Action[7]

Ativisha is classically indicated in *Atisara* and *Amatisara*. Its *Sangrahika*, *Deepana*, and *Pachana* actions help in improving digestion and reducing excessive bowel movement. Modern pharmacological reviews also support its traditional use in gastrointestinal disorders and diarrhea-related conditions.

Antipyretic Action[8]

In classical practice, *Ativisha* is used in *Jwara*, especially when fever is associated with digestive impairment, vomiting, cough, or loose stool. Its *Katu-Tikta Rasa* and *Ushna Virya* help in correcting *Agni* and reducing *Ama*, which are important factors in the pathogenesis of *Jwara*.

Digestive and Appetizer Action[9]

Due to its *Deepana* and *Pachana* properties, *Ativisha* helps in improving appetite, digestion, and metabolic correction. It is useful in conditions of *Agnimandya*, indigestion, heaviness, abdominal discomfort, and *Ama* formation.

Antimicrobial and Anthelmintic Action[10]

API mentions *Krimiroga* as one of the therapeutic uses of *Ativisha*. The presence of alkaloids and other phytoconstituents may support antimicrobial and anthelmintic activities, which may explain its traditional use in worm infestation and infective gastrointestinal conditions.

Anti-inflammatory Action[11]

Modern reviews describe anti-inflammatory potential of *Aconitum Heterophyllum*. This supports its usefulness in conditions where inflammation is associated with fever, digestive disorders, respiratory complaints, or tissue irritation.

Pediatric Utility[12]

Ativisha is frequently used in pediatric formulations such as *Bala Chaturbhadrika Churna*. It is useful in children for fever, cough, vomiting, diarrhea, and digestive disturbance when used in proper dose and under medical supervision.

Conservation Need

Ativisha (*Aconitum Heterophyllum* Wall. ex Royle) is a highly valuable Himalayan medicinal plant, but its natural population is decreasing rapidly due to excessive collection, poor regeneration, and high

commercial demand. The main useful part of the plant is the tuberous root, so when the drug is collected from the wild, the whole plant is usually destroyed. This makes natural regeneration very difficult and creates a serious threat to its survival in its original habitat.[13]

The plant mainly grows in high-altitude Himalayan regions such as Kashmir, Himachal Pradesh, Uttarakhand, and other alpine areas. These regions are ecologically sensitive, and the plant requires specific climatic conditions for growth. Habitat destruction, grazing pressure, climate change, deforestation, road construction, and unscientific harvesting further reduce its natural availability. Because of slow growth and limited seed germination, wild populations cannot recover quickly after overharvesting.[14]

Therefore, conservation of *Ativisha* is very important for maintaining its future availability in clinical practice and drug industry. Proper cultivation, nursery development, seed propagation, tissue culture techniques, controlled harvesting, and protection of natural habitats should be promoted. Farmers should be encouraged to cultivate *Ativisha* under suitable Himalayan agro-climatic conditions so that pressure on wild sources can be reduced. Authentication of raw drug is also necessary to prevent adulteration and substitution in the market.[15]

Main Reasons for Conservation Need

Reason	**Explanation**
High medicinal demand	Widely used in *Ayurvedic* formulations for fever, diarrhea, vomiting, cough, and pediatric disorders
Root is the useful part	Harvesting of root destroys the whole plant
Slow regeneration	Plant takes time to regrow and natural multiplication is limited
Habitat-specific growth	Naturally grows only in high-altitude Himalayan regions
Overexploitation	Excessive wild collection for commercial use reduces natural population
Habitat loss	Road construction, deforestation, grazing, and human activities disturb its natural habitat
Adulteration risk	Scarcity increases chances of substitution with other species
Ecological importance	It is part of fragile Himalayan biodiversity

Conservation Measures

Conservation Method	**Importance**
In-situ conservation	Protection of the plant in its natural habitat
Ex-situ conservation	Cultivation in botanical gardens, nurseries, and herbal farms
Cultivation practices	Reduces pressure on wild population

Seed propagation	Helps in large-scale multiplication
Tissue culture	Useful for rapid propagation and preservation of elite plant material
Sustainable harvesting	Allows collection without destroying future growth
Awareness among collectors	Prevents immature and excessive collection
Quality control	Ensures genuine *Ativisha* and prevents adulteration
Government regulation	Controls illegal trade and overharvesting
Farmer involvement	Promotes commercial cultivation and livelihood support

Drug and Dosage

Form	**Dose**	**Anupana / Use**
Root powder	0.6 to 2 g	With honey, warm water, or as directed
Decoction	As per formulation requirement	Used in digestive and febrile conditions
Compound formulation	As per classical formulation	Used in *Jwara*, *Atisara*, *Kasa*, *Chardi*
Pediatric use	Dose should be adjusted according to age and physician advice	Commonly used in classical pediatric formulations

Flow Chart

Collection of authentic *Ativisha* root
↓
Botanical identification as *Aconitum Heterophyllum* Wall. ex Royle
↓
Macroscopic and microscopic examination according to API
↓
Assessment of purity: foreign matter, ash value, extractive value
↓
Chemical evaluation: alkaloids such as atisine, dihydroatisine, hetisine, heteratisine
↓
Understanding *Ayurvedic* properties: *Katu-Tikta Rasa*, *Laghu-Ruksha Guna*, *Ushna Virya*, *Katu Vipaka*
↓
Therapeutic actions: *Deepana*, *Pachana*, *Sangrahika*, *Kaphapittahara*
↓
Clinical use in *Jwara*, *Atisara*, *Chardi*, *Kasa*, and *Krimiroga*
↓
High demand and root harvesting pressure

↓

Need for conservation, cultivation, authentication, and sustainable use

Discussion

Ativisha is a clinically important drug because it acts mainly on the digestive and febrile disease pathway. Its *Katu-Tikta Rasa*, *Laghu-Ruksha Guna*, *Ushna Virya*, and *Katu Vipaka* make it suitable for correcting *Agnimandya*, reducing *Ama*, and balancing *Kapha-Pitta*. The classical actions such as *Deepana*, *Pachana*, and *Sangrahika* clearly explain its use in *Atisara*, *Amatisara*, vomiting, cough, fever, and worm infestation. Its presence in pediatric formulations also shows its practical importance in child healthcare.[16]

From a pharmacognostical view, API-based identification is very important because the drug is costly and prone to adulteration. The ovoid-conical root, ash-grey external colour, starch-white internal surface, bitter taste without tingling sensation, abundant starch grains, parenchymatous cells, and specific extractive values help in confirming the identity and quality of the drug. Since many *Aconitum* species are toxic, correct identification of *Aconitum Heterophyllum* is essential for safe clinical use.[17]

The conservation need of *Ativisha* is equally important. The root is the useful part, so harvesting often destroys the whole plant. Natural populations are affected by overcollection, habitat loss, poor regeneration, and high commercial demand. Recent studies and reports describe *Aconitum Heterophyllum* as a rare or endangered Himalayan medicinal plant requiring urgent conservation efforts. Cultivation, nursery development, seed and tissue culture propagation, good agricultural practices, and strict raw drug authentication can help protect this important drug for future therapeutic use.[18]

Conclusion

Ativisha (*Aconitum Heterophyllum* Wall. ex Royle) is a highly valuable Himalayan medicinal plant with strong classical and modern therapeutic relevance. Its main actions are *Deepana*, *Pachana*, *Sangrahika*, and *Kaphapittahara*, making it useful in *Jwara*, *Atisara*, *Chardi*, *Kasa*, *Krimiroga*, and pediatric digestive disorders. API standards provide important macroscopic, microscopic, purity, and dosage guidelines for its correct identification and safe use. Modern studies support its antidiarrheal, anti-inflammatory, antimicrobial, antioxidant, and digestive potential. However, because of root-based harvesting and high market demand, the plant needs serious conservation through cultivation, sustainable collection, and proper authentication.

Conflict of Interest: Nil

Source of Support: None

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