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A REVIEW ARTICLE ON *SAHDEVI (VERNONIA CINEREA* LESS.*)*

Dr. Randeep Chaudhary*[1] and Dr. Rosy Gupta[2]

[1]MD Scholar, [2]Incharge and Reader,
Department of Dravyaguna, Post Graduate Training and Research Institute, Government Ayurvedic College, Patiala (Punjab) - 147001 India.

***Corresponding Author: Dr. Randeep Chaudhary**
MD Scholar, Department of Dravyaguna, Post Graduate Training and Research Institute, Government Ayurvedic College, Patiala (Punjab) - 147001 India.

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ABSTRACT
Sahdevi (*Vernonia cinerea* Less.) is a medicinal plant with a rich history in traditional healing practices. This comprehensive review delves into the literary review, phytochemical composition, pharmacological properties, and therapeutic potential of *Sahdevi*. Drawing from a diverse array of *Ayurvedic* literature, this article examines its traditional uses and explores recent researches elucidating its pharmacological actions, including antioxidant, anti-inflammatory, antimicrobial, and anticancer properties. Furthermore, this review discusses the challenges and opportunities in harnessing *Sahdevi's* therapeutic benefits, highlighting the need for further research to unlock its full potential in modern medicine.

KEYWORDS: *Sahdevi*, *Vernonia cinerea* Less, *Sehdeva*, Antipyretic, Diaphoretic.

INTRODUCTION

Sahdevi (Vernonia cinerea Less.) stands as a botanical marvel, revered for its empirical antipyretic action by merely tying its root on forehead.[1] With a lineage steeped in traditional healing practices, *Sahdevi* has emerged as a subject of increasing interest in modern scientific inquiry. This review embarks on a journey to unravel the multifaceted therapeutic potential of *Sahdevi*, delving into its rich phytochemical profile, historical usage, and contemporary pharmacological insights. As we navigate through the intricate tapestry of *Sahdevi's* traditional lore and scientific scrutiny, we aim to provide a comprehensive overview that illuminates its promising role in contemporary healthcare paradigms. Through this exploration, we endeavour to shed light on the enigmatic allure of *Sahdevi* and its implications for the future of medicinal research and practice.

Botanical Name: - *Vernonia cinerea* Less.
Family:- Asteraceae / Compositae

Taxonomical Classification

Rank	Scientific Name	Common Name
Kingdom	Plantae	Plants
Subkingdom	Tracheobionta	Vascular plants
Super division	Spermatophyta	Seed plants
Division	Magnoliophyta	Flowering plants
Class	Magnoliopsida	Dicotyledons
Subclass	Asteridae	
Order	Asterales	
Family	Asteraceae / Compositae	Aster family
Genus	*Vernonia*	ironweed
Species	*Vernonia cinerea* Less.	little ironweed

Vernacular Names[2].[3]

Sansk. : *Uttamkanyaka, Dandotpalā, Ghaudavalli, Devasahra*
Assam. : *Schdevi*
Beng. : *Kuksim, Kalajira*
Eng. : Purple Fleabane, Fleabane
Guj. : *Sadoree, Sadodee*
Hindi. : *Sahdevi, Daudotpala, Sadodi*
Mar. : *Sadodee, Sahdeve, Osari*
Punj. : *Sehdei*

Historical review regarding *Sahdevi* and *Sahdeva*

No direct reference of *Sahdevi* is found in *Vedic* literature but adjectives like *Arundhati, Vishvaroopa, Subhaga, Jeevala in Atharva veda* are referenced to depict *Sahdevi*. Its roots were said to be used for *Balya, Rakshoghana* & *Stanyajanan* properties.[4] (But these actions are more likely to be of *Sahdeva)*

During *Samhita Kala Acharya Charaka* has mentioned *Sahdevi* to be *Jvaraghna* in the form of *Daivavyapashraya chikitsa*.[5] *Acharya VridhVagbhata* has also mentioned it in *PratekaGrahaPratishedhAdhaya* for *Dharana Karma*.

A reference of *Sahdeva* has come in *Shushrut Samhita* which is often confused with *Sahdevi*, but *Dalhan* has described *Sahdeva* as a variety of *Bala* possessing yellow flowers.[6] *Sahdeva* is also mentioned in *Bhela Samhita*. In *Shivkosha Nighantu* both *Sahdevi* and *Sahdeva* find mention in same verse. In *Nighantu Shesha* (12A.D. *Gulmakanda*) two types are mentioned -1. *Shweta Sahdeva* (Syn. *Dandotpalā, Gouvandani*) bears white flowers, 2. *Rakta Sahdeva* (Syn. *Vishvadeva*) bearing red flowers is *Sahdevi*.[7] In *Bhavprakash Nighantu Puravkhanda* & *Madhayamkhanda, Sahdevi* with reference to *Prabhavajanya jvarahar karma* is highlighted while in *Guduchadi Varga Sahdevi* is mentioned among *Bala Chatustya*.[8]

In *Nighantu Kala* Sahdevi finds mention in *Abhidhana Ratnamala* (12-13th A.D. *Swaduskanda*); *Madanapala Nighantu* (14th A.D., *Abhayadi varga*); *Raja Nighantu* (17th A.D. *Shtahvaadi varga*); *Nighantu Adarsh* (20th A.D.)

Most of the *Nighantus* have mentioned *Sahdeva* as synonym or as variety of *MahaBala.* Not only this most *Nighantus* have used the names *Sahdevi, Sahdeva & Mahabala* as synonyms with *Balya, Vrishya Karma*. Apart from the famous verse of *Charak* regarding *Jvarghan* action, its only in the recent text by *Shodhal, Bhavmishra, Vaidya Manorma* and in *Shasrayog* that its *Jvaraghana, Shothara, Nidrajnana, Bhutgreha, Visphotnasak* etc *karma* are highlighted.

Botanical Description[9],[10],[11]

Habitat:- An erect, rarely decumbent herb, found throughout India, ascending to an altitude of *c*. 1,800 m. It is one of the commonest Indian weeds. Also found in Tropical Africa, Asia and Australia.

Stem:- Slender 15-17 cm. high, grooved and ribbed cylindric, striate, more or less pubescent, slightly branched glabrous, cylindrical, hairy, 1-8 mm thick, basal region of branches greenish-brown, apical region dark green, bearing a number of flowers; fracture short.

Leaves:- Petioles variable, 6-13 mm. long, leaves 2.5-5.0 cm, variable in shape, broadly elliptic or lanceolate, membranous or rather coriaceous obtuse or acute, shortly mucronate, more or less pubescent on both sides, irregularly toothed or shallowly crenate- serrate.

Flowers:- Pinkish and purple, in minute heads in rounded or flat-topped corymbs; about 20- in number, 6 mm. diam., in lax divaricate terminal corymbs, with a minute linear bract beneath each head of flowers and with small bracts in the forks of the peduncles.

Fruits:- Achenes 1.25 mm. long, oblong, terete, slightly narrowed at the base. Clothed with appressed white hairs.

Root:- 5-12 cm long, 1-7 mm thick, oblique and gradually tapering, bearing a few rootlets; external surface, dirty brown; fracture, short.

Flowering and fruiting time: -Plant flowers during rainy season and fruiting occurs in winter season.

Phytochemical Constituents[12][13][14]

The herb contains B-amyrin, lupeol and their acetates, B-sitosterol, stigmasterol, 4-spinasterol, phenolic resin and potassium chloride.

Saponins, Sapogenins, Flavonoids.

Seeds yield 38 per cent of a fatty oil having the fatty acids : myristic 8, palmitic 23, stearic 8, arachidic 3, bethenic 4, oleic 4, linoleic 22 and oxygenated oleic 28 per cent.

Properties and Action[15]

Rasa : Katu, Tikta
Guna : Laghu, Ruksa
Virya : Ushna
Vipaka : Katu
DoshaKarma : KaphaVataSamaka

Pharmacological properties of *Sahdevi*

Jvaraghna, Sothahara, Nidrakara, Kusthaghna, Svedajanana, Raktasodhak.

Classical and Research based Therapeutic Uses[16][17][18][19]

1. ***Jvaraghna*** – Uses of *Sahdevi* are given in the form of intrinsic (Oral route) as well as extrinsic (Topical) application for the treatment of various types of *Jvara* especially *Vishamjvara*.

Intrinsic uses

- *Sahdevi Panchang Swarasa* (juice) is given in all kinds of fever.
- *SidhaTail* with *Swarasa* and *kalka* of *Sahdevi Panchang* and *kshir* is given internally in all kinds of fever.
- *Sahdevi* is given by making infusion of the plant which makes a useful combination with quinine against malarial fevers and a decoction is given to promote perspiration in febrile conditions.

Extrinsic uses

- *Sahdevi moola* when tied either to head, neck or arm is said to be used for *Bhootabhishangaj jvar, Vishamjvara, Grahbadha.*

Antipyretic action- The methanolic extract of the complete plant of *V. cinerea* was found equally effective at the dose of 500 mg/kg as standard drug paracetamol. The antipyretic activity also showed by Methanol Extract and Chloroform Extract in a yeast suspension-induced hyperthermia.[20]

1. ***Krmighna* (Anthelmintic)**

- Fresh juice of the leaves is given in amoebiasis.
- A poultice of the leaves is used against humid herpes, eczema and ringworm and for the extraction of guineaworms.
- The juice is boiled with oil and used for the treatment of elephantiasis.
- The root is bitter and used as an anthelmintic.
- The seeds are also commonly used as anthelmintic against roundworms and threadworms.

Anthelmintic action-Complete plant and root of *V. Cinerea* has showed anti-malarial activity by having anti-plasmodium activity. Three major sesquiterpene lactones i.e. 8a-tigloyloxy-hirsutinolide-13-O-acetate, 8a-(4-hydroxymethacryloyloxy)-hirsutinolide-13-O-acetate and vernolides D exhibited significant antiplasmodial activity on chloroquine resistant Plasmodium falciparum strain.[21]

2. ***Visphotnasak-*** *Kalka* of *Sahdevi* when applied to the wound, gives wonderful result in wound healing.
3. ***Netrabhisyanda* (Conjunctivitis)-** The flowers are administered for conjunctivitis.
4. **Renal Stones-** *Sahdevi Patraswaras* is used along with *Tulsipatra Swarasa* for the treatment of Renal Stones.
5. **Nidrajanak-** *Sahdevi* when tied to forehead or just kept along headside induces sleep.
6. **Vishghana (Alexipharmic)-** Seeds of *Sahdevi* are said to have *Vishghana* property.
7. **Piles-** The expressed juice of whole plant is given in piles.
8. **Dropsy-** The root of *Sahdevi* is given for dropsy.
9. **Anticolic-** Juice of its root is given for colic pain.
10. **In Incontinence of urine** -The chloroform extract of the leaves of V. Cinerea have shown hyponatraemic, hyperkalaemic and hyperchloraemic diuretic action. Methanolic and aqueous extracts showed effective antidiuretic effects.[22] The plant juice is given to children with incontinence of urine at night (Bed wetting).
11. **Anticancer Activity-** Antitumour activity is significantly seen in ethanolic and chloroform extracts of aerial parts of *Vernonia cinerea* against Dalton's ascitic lymphoma. In vivo studies in mice showed a decrease in cancer cell count with the injection of extracts and this protective effect is also concluded by haematological parameters.[23]
12. **Anti-Hyperglycaemic Activity**: The ethanolic extract contains phytochemical bioactive compounds like glycosides, esters, flavonoids, steroids, tannins and terpenoids which have anti hyperglycaemic activity. In vivo studies in mice with crude extract and sesquiterpene lactone showed that the plant did not cause any significant toxicity nor any changes in alertness, breathing, mental problems and motor activity including body weight. Decrease in blood glucose was seen in alloxan induced mice than normal mice were observed when treated with the plant for a period of fourteen days. Time dependent reduction in diabetic activity of alloxan-induced rats is due to restoration of pancreatic function by increased insulin output or decreased intestinal absorption of sugar.[24]
13. **Antioxidant Activity**: Alkaloids are a major component present in the plant and are said to have antioxidant and immunomodulatory effect. It is due to the DPPH scavenging activity of the carbon tetrachloride fraction of methanolic extract of the plant. These extracts are used for medicinal and preservative purposes. The antioxidant activity of the plant is due to its phenolic activity and may also play a role in neurofibrillary tangles and neurotic plaques16. Higher antioxidant property is shown by methanolic extract of leaf when compared to flower.[25]

Extra Pharmacological Usage

The seeds are made into a paste with lime juice and used for destroying pediculi. They form a constituent of masala, a folk herbal recipe of veterinary use, orally given to horses.[25]

Part Used: - Roots & *Panchanga.*

Dose: - Fresh juice 10-20 ml, *Decoction* 50-100 ml

DISCUSSION

Regarding its Ayurvedic Pharmacological Aspect

- *Sahdevi* has *Katu & Tikta Rasa* which help in *Agni Vridhi, Dipan, AmaPachana and Srotoshodhan-* ensuring good digestion, metabolism and biotransformation in body. As *Jvara* is *Amasya Samuth Vyadhi* balancing *Pachak Agni* helps in treatment of *Jvara.* Also, *Sahdevi* has *Ushna Virya* whose *SvedaJanan* property truly justifies its diaphoretic action in *Javra* when used internally. But *Jwarghan* action by locally tying the root on head, neck etc. is special and specific property of it, named aptly to be Prabhavjanya by Charak
- *Sahdevi* is *Krmighna* due to its *Katu* (Pungenr) & *Tikta* (Bitter) *Rasa* as well as *Tikshna Guna.*

Future scope:- Ayurvedic medicines are known for their pharmacological safety, making them suitable for standalone use or as supplements to contemporary treatment. The widespread utilization of *Vernonia cinerea* Less., which has been recognized for its antipyretic and anthelmintic properties, as well as its effectiveness in treating various other disorders have

been clinically tested. But large-scale trails are required for supporting its therapeutic use specially the *Prabhavjanya* antipyretic action. Also, its time to investigate its medicinal potential at molecular level using various biotechnological techniques.

CONCLUSION

Sahdevi, *Vernonia cinerea* Less. belonging to Asteraceae family, also known as *Dandotpalā,* is an ethnomedicinal plant found throughout India. *Vernonia cinerea* Less. is an important plant for the treatment of various diseases like fever, Inconsistence of urine, Helminth infection, Cancer, Hyperglycaemia. It is also famous in Unani medicine. But not many people know much about the amazing health benefits of *Sahdevi*. So, it is time to appreciate this plant and use it to its full potential.

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