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Review Paper

Argyrea Nervosa: A Comprehensive Review

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ABSTRACT

The Convolvulaceae family has within it the famous medicinal plant *Argyrea nervosa* (also known as *Argyrea speciosa*), used in many different traditional medical systems throughout India, especially Ayurveda. The entire plant can be found throughout all of India and has always been used in traditional medicine for the treatment of diabetes, inflammation, ulcers, neurological diseases, infections and reproductive conditions. Phytochemical studies show the diverse range of bioactive compounds within *A. nervosa*, including flavonoids, alkaloids, triterpenes, steroids, phenylpropanoids, and coumarins, contributing to its many therapeutic uses. Research indicates that various extracts of *A. nervosa* demonstrate the ability to act as antioxidants, possess anti-inflammatory properties, protect the liver, assist with wound healing, kill bacteria, are antidiabetic, are neuroprotective, and enhance libido. This article reviews the taxonomy, morphology, ethnobotanical applications, phytochemical constituents, and pharmacological activities of *Argyrea nervosa* to highlight its medicinal significance and potential for novel drug discovery.

INTRODUCTION

The *Argyrea speciosa* (L.F.) Sweet, referred to as the elephant creeper, belongs to the Convolvulaceae family. This woody vine grows to a height of up to 300 metres (984 feet) above sea level in India. Traditionally, the roots of this plant are consumed as a tonic, aphrodisiac, and diuretic, and used to treat rheumatism, gonorrhoea, and chronic ulcers, as well as for treating nervous system disorders. There are many ergoline

alkaloids found in the seeds of this plant. This ornamental plant is widely grown in garden settings throughout India (including West Bengal, Assam, Odisha, Uttarakhand, Rajasthan, Karnataka, and Kerala), as it typically grows as undergrowth in semi-deciduous forests and in slightly damp environments such as riverbanks and lake edges. *Vridha daraka*, also known as *A. speciosa*, is a rasayana herb that is used in many forms of Ayurvedic medicine in India. In

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Ayurveda, the roots of *A. speciosa* are considered to have aphrodisiac and rejuvenating properties, promote brain function, are considered a nerve tonic to support liver function, and have a tonifying effect to treat general fatigue or debility. Silver nanoparticles produced from *Argyreia nervosa* have been shown to have strong anti-inflammatory, anti-diabetic and antioxidant properties. Additionally, silver nanoparticles from *A. speciosa* have demonstrated significant antibacterial activity for certain bacterial infections. Previous phytochemical studies of this plant revealed the presence of lipids, flavonoids, triterpenes, steroids, phenylpropanoids and coumarins. Some specific compounds include friedelin, ergine, and agroclavine.

Vernacular name

Gujarati: Samundrasosh, Vardharo

Hindi: Samandar-ka-pat, Samundarsokha, Ghav-patta

Bengal: Bichtarak, Guguli

Malayalam: Samudrapachcha, Samudrapala, Samudrastokam

Marathi: Samandarshokh, Samudrasoka

Sanskrit: Antakotarpushpi,

Chhagalanghri, Vryddhadaraka, Samundrasosha

Tamil: Ambagar, Peymunnai, Sadarbalai, Samuttrappalai

Telugu: Chandrapoda, Kokkiti, Palasamudra, Samudrapachcha, Samudrappala

Kannada: Chandrapada

Urdu: Samandarsosha

English: Elephant creeper, Woolly Morning-Glory[6]

TAXONOMY CLASSIFICATION

Kingdom Plantae

Phylum Streptophyta

Class Equisetopsida

Subclass Magnoliidae

Order Solanales

Family Convolvulaceae

Genus *Argyreia*

Species *Argyreia nervosa*[7]

MORPHOLOGICAL DESCRIPTION

It is a twining woody climber that can grow to a height of at least ten meters. White pubescence covers young shoots thickly.

Stem: The stem is white and tomentose in young stages. The older stem (25 mm) is so thick that it shows vertical ridges and numerous lenticels, which are mostly transversely elongated.



Fig:- *Argyreia Nervosa* Stem

Leaves: Simple, alternating, long-petioled leaves range in length from 5 to 15 cm. The leaf blade is fairly large, elliptical or widely ovate-cordate, and is 20–30 cm in length and 20–25 cm in width.



Fig:- *Argyreia Nervosa* Leaves

Flower: Large, showy, funnel-shaped, regular, sub capitate flowers with short pedicels in axillary bracteate cymes are carried on sturdy, white, and tomentose peduncles. The flowers are stained purple or pale to deep pink.



Fig:- Argyreia Nervosa Flowers

Fruits: The fruits are 1.2–1.8 cm in diameter, yellowish brown, smooth, globose, indehiscent, and irregularly crumbling berries with two or four seeds imbedded in a mealy pulp.



Fig:- Argyreia Nervosa Fruits

Roots: The thickness and size of *Argyreia speciosa* roots varies. The slender roots have a rather smooth, brownish appearance and are typically 2-4 mm in diameter.[2,6]

ETHNOBOTANICAL USES

Traditional remedies using plants for various medicinal purposes In the Indian states of Rajasthan and Karnataka; certain tribes have traditionally used various parts of the plant to cure a variety of ailments. For example, the Lodha tribe has used both the dried root powder mixed with an alcoholic beverage (in a 3:1 ratio) to cure gonorrhea and cow's milk mixed with the dried root powder in a 1:2 ratio for dysuria. The Palliyar tribe in the western ghats of India has used the extract of the root to treat gastrointestinal issues. The Santal tribe has used the leaves to treat skin abscesses. The Oraon tribe has used the juice of fresh green leaves and oil from the pongamia pinnata seed to help with anemia and weight loss. Some other tribes have also used extracts of *A. speciosa* to cure syphilis and other types of male sexual problems; it has also been reported to be beneficial in the treatment of smallpox. In Lakhimpur, tuber paste has been used to relieve stomach ulcers. The Kurichiya tribe of Wayanad district in Kerala has used the leaf, flower, and root parts of the plant to treat rheumatoid arthritis and coughs. Historically, this plant was used to treat a variety of gastrointestinal problems, including both diarrhea and dysentery, and to alleviate digestive problems. Additionally, it was historically used to treat smallpox, syphilis, and wounds; in some instances, the leaves have also been used for their antiphlogistic and contraceptive properties among members of rajasthani tribal communities. Leaves have been used topically to relieve the symptoms of various skin conditions, including skin infections, ringworm, eczema, and itching. In addition to these uses, leaves have been used as rubefacients and local irritants. There have also been claims from traditional sources regarding the antiphlogistic, hypotensive, and spasmolytic properties of the seeds of the plant.[28]

PHYTOCHEMICAL CONSTITUENTS



Seeds :- Fatty oil: Glycosides of palmitic, oleic, stearic, behenic, linoleic and linolenic acids. Fatty acids: Myristoleic, myristic, palmitic, linoleic, linolenic, oleic, stearic, nonadecanoic, heneicosanoic, behenic acids, Alkaloids: Ergometrine, aegoclavin, iso-setoclavine, ergine, isoergine

Leaves :- 1-Triacontanol, epifriedelinol acetate, epifriedelinol, β -sitosterol

Flavonoids: quercetin, kaempferol, kaempferol-3-O-L-rhamnopyranoside

Flavone glycosides: 7,8,3,4,5-pentahydroxyflavone-5-O- α -L-rhamnopyranoside and

7,8,3',4',5'-pentahydroxyflavone-5-O- β -D-glucopyranoside, Triterpene: friedelanol-5-O- β -D-glucopyranoside

Roots:- Tetradecanyl palmitate, 5,8-oxidotetracosan-10-one

Aryl esters: stigmasteryl-p-hydroxycinnamate, hexadecanyl-p-hydroxycinnamate; coumarin scopoletin.

Coumarin glycoside: L-ester coumarin, 6-methoxy-7-O- α -D-glucoside.

Fruits:- n-Triacontanol, β -sitosterol, p-hydroxycinnamoyl octadecanolate, caffeic acid.[9]

PHARMACOLOGICAL ACTION

1 Analgesic and Anti-inflammatory: The methanol extract of *Argyrea speciosa* root has shown considerable analgesic and anti-inflammatory effects, suppressing carrageenan-induced paw edema ($P < 0.01$) and decreasing the number of writhes caused by acetic acid at 30, 100, and 300 mg/kg dosing. There were statistically significant increases in the time of pain latency during the tail immersion and hot plate tests at 100 and 300 mg/kg of *Argyrea speciosa* root extract.3

Holoptelea integrifolia and *Argyrea speciosa* have demonstrated strong analgesic and anti-inflammatory activity in experimental models. Combination of both plants produced enhanced analgesia that exceeded ibuprofen's effects in the tail flick test and produced comparable anti-inflammatory activity. Both plants increased the time of pain latency in the tail flick test, reduced the number of writhes recorded, and suppressed paw edema.[10]

2 Antioxidant: The aqueous extract of *Argyrea nervosa* produced significant antioxidant activity in several in vitro test systems, including DPPH, ABTS, lipid peroxidation, iron chelation, nitric oxide, and superoxide scavenging. The aqueous extract also exhibited concentration dependent free radical scavenging activity with low IC_{50} values and inhibited hemoglobin glycosylation.[11]

3 Hepatoprotective and Antioxidant: Ethanolic and ethyl acetate extracts of *Argyrea speciosa* root exhibit significant hepatoprotective and in-vivo antioxidant activity against carbon tetrachloride (CCl_4) induced liver toxicity in rats.[12]

4. Wound Healing Action: The application of a 10% aqueous leaf extract from *Argyrea speciosa* to wounds on mice showed benefits in wound healing. Administration of the extract resulted in faster contraction of the wound, shorter time to achieve epithelialization and strengthening of new tissue, and increased deposition of collagen. These data lend scientific support to traditional use of *A. speciosa* leaves for wound healing in northern India.[13]

5. Antimicrobial Activity: Flavonoid sulfates and various root fractions of *A. speciosa* demonstrated broad-spectrum antibacterial activity against bacteria, fungi and *Mycobacterium tuberculosis*. Flavonoid sulfates can provide strong

in vitro and in vivo efficacy, work synergistically with conventional antitubercular drugs, have low toxicity and prolong the life of infected mice.¹⁴ The antifungal activity of a leaf extract from *A. nervosa* was used to produce silver nanoparticles (AN-AgNPs) with very potent antibacterial activity. Biogenic AN-AgNPs (10-40 nm) presented by UV-Visible spectrophotometry, FTIR, PXRD and SEM, exhibited a significantly higher level of activity against *Escherichia coli* relative to cytotoxicity than traditional antibiotics, indicating that they qualify as a safe alternative to evidence-based antibiotics.^[15]

6. Antipyretic Action: Significant antipyretic activity was observed in methanol and ethyl acetate extracts from the aerial section of plants that have been traditionally used as antipyretic agents.^[16]

7. Anti-obesity action: The action of *Argyrea speciosa* extract (500 mg/kg/day) has been to reducing both the rate of weight gain in rats fed a high cholesterol diet and the amount of fat tissue. The anti-obesity and hypolipidemic effects of the extract are believed to be derived from its ability to improve lipid profiles by lowering levels of serum leptin, total cholesterol, LDL cholesterol and triglycerides. Furthermore the extract was shown to prevent the development of fatty liver and inhibit the activity of pancreatic lipase.^[17]

8. Gastroprotective action: Several gastrointestinal ulcer models were conducted to evaluate the gastroprotective effects of *Argyrea speciosa* extract (ASE). In these models ASE provided dose dependent gastroprotection equivalent to that provided by ranitidine. The extract produced beneficial effects on antioxidant status (increased superoxide dismutase (SOD) levels and increased catalase activity), as well as decreasing the ulcer indexes, levels of lipid peroxidation and acid-pepsin levels. It was shown

to also increase the amount of gastric mucin. The above results suggest that the gastroprotection that occurs with ASE is likely due to both cytoprotective and free radical scavenging mechanisms.^[18]

9. Nootropic Action: A study using an aqueous extract of *Argyrea Speciosa* in mice demonstrated that it has anti-cholinesterase and nootropic actions. It was shown to decrease acetylcholinesterase levels in the brain, improve amnesia induced by diazepam, scopolamine, and advancing age, and enhance both short-term and long-term memory. These findings suggest that the *Argyrea Speciosa* may have the potential to treat cognitive impairments and dementia induced by aging.^[19]

10. Antistress Activity: Studies using hydroalcoholic extracts of *Argyrea Speciosa* root on rats demonstrated that they had immunomodulatory and antistress quality, as evidenced by enhanced ability to tolerate stress, decreased incidence of pain, seizures, and stomach ulcer formation, and restoration of stress-induced biochemical and histological damage. The increase in humoral immune response demonstrated the antistress efficacy of the extract was based on immunostimulatory activity and non-specific immune resistance.^[20]

11 Psychotropic Activity: A study using hydroalcoholic extract of *Argyrea Speciosa* root on rodents showed significant psychotropic effects. The extract reduced spontaneous motor activity and exploratory behavior while increasing duration of sleep induced by pentobarbital, decreased stereotypy induced by apomorphine and produced catalepsy, providing evidence of sedation and possible neuroleptic characteristics.^[5]

12 Anticonvulsants: The hydroalcoholic extract of *Argyrea speciosa* significantly reduced seizures and mortality in mice with pentylenetetrazole-induced seizures and showed partial protection against the maximum electroshock seizure model.^[21] The hydroalcoholic root extract of *Argyrea speciosa* produced anticonvulsant and central nervous system depressant effects in rodents. The extract had no anxiolytic effects, but significantly decreased locomotor activity, increased the duration of immobility in models of depression, and prevented seizures caused by maximum electroshock and pentylenetetrazole.^[22]

13 Neuroprotection: The ethanolic root extract of *Argyrea speciosa* produced significant neuroprotection (100-400 mg/kg orally for 7 days) in a rat model of global cerebral ischemia-reperfusion injury through its antioxidant and anti-inflammatory properties. The extract reduced neurobehavioral deficits, sensorimotor impairment, cerebral infarct size, and brain edema.^[23]

14 Anti-diabetic: Ethanol (ASE) and aqueous (ASW) extracts of *Argyrea speciosa* (100 and 200 mg/kg) exhibited significant antihyperglycemic and hypolipidemic effects in both normal and streptozotocin-induced diabetic rats, supporting the traditional use of *Argyrea speciosa* as an antidiabetic by improving glucose and sucrose tolerance, reducing serum glucose, and normalizing lipid profiles.^[25]

15 Antilung injury action: Mice treated with *Argyrea speciosa* hydroalcoholic extract were protected from HCl-induced acute lung injury in a dose-dependent fashion. The extract inhibited activation of NF- κ B, resulting in significant reductions in neutrophil infiltration, pulmonary edema, oxidative stress and production of pro-inflammatory cytokines at 100 mg/kg

demonstrating significant anti-inflammatory and antioxidant properties.

16 Aphrodisiac effects: *Argyrea nervosa* produced marked aphrodisiac effects in male mice. The effects were evident with both root and flower treatments yielding increased sexual activity and an increase in proportion of male offspring thus suggesting that it has promise for increasing male sexual function, and the alcoholic extract from the roots (200 mg/kg, p.o.) markedly increased mounting behaviour as well as mating performance in a dose-dependent manner.^[26]

17 Anticancer activity: The active compound in *Argyrea nervosa*, geranyl isovalerate, exhibited strong anticancer activity against HCT116 (a human model of colorectal cancer). Geranyl isovalerate caused the generation of oxidative stress and dysfunction of the mitochondria leading to activation of the apoptosis cascade through inhibition of anti-apoptotic genes (Bcl-2, PARP) and stimulation of pro-apoptotic genes (caspase-3 and caspase-9). Hence, geranyl isovalerate could be an excellent therapeutic agent for the treatment of cancer. The findings of this study demonstrate that *A. nervosa* has the ability to alter cell viability in a way that is dependent on dose and time, supporting its potential to be used as either a lead or adjunct therapeutic agent for colorectal cancer therapy.^[27]

CONCLUSION

As a traditional herbal medicine, *A. nervosa* has been used by various cultures throughout the world and is increasingly being established as a valid therapeutic agent through scientific validation. Its diverse history of use as a medicinal plant, combined with the phytochemistry of this plant, suggest that there are many potential therapeutic properties associated with it; this is demonstrated in the wide variety of biological



activities seen in experimental models of *A. nervosa*. These uses include treating diabetes, inflammation, oxidative stress, liver disease, neurological disorders, infections, and promoting wound healing; all of which have been documented through scientific studies. Furthermore, its potential antidiabetic properties (via α -amylase inhibition and improving gut health) provide evidence of the potential value of this plant in treating individuals with type 2 diabetes mellitus. Many of these potential benefits remain to be confirmed, and as positive preclinical studies exist, additional important studies (including complete mechanistic studies, toxicity testing, and appropriately planned clinical trials) should be performed in the future to establish the efficacy, safety, and appropriate dosage of *A. nervosa*. Overall, *A. nervosa* contains considerable potential for the development of new bioactive compounds for use in plant-based therapies and functional health products.

REFERENCES

1. Shukla YN, Srivastava A, Kumar S, Kumar S. Phytotoxic and antimicrobial constituents of *Argyrea speciosa* and *Oenothera biennis*. *Journal of ethnopharmacology*. 1999 Nov 1;67(2):241-5.
2. Joseph A, Mathew S, Skaria BP, Sheeja EC. Medicinal uses and biological activities of *Argyrea speciosa* sweet (Hawaiian baby woodrose)-an overview. *Indian J. Nat. Prod. Resour*. 2011 Sep;2(3):286-91.
3. Bachhav RS, Gulecha VS, Upasani C. Analgesic and anti-inflammatory activity of *Argyrea speciosa* root. *Indian Journal of Pharmacology*. 2009 Jul 1;41(4):158-61.
4. Krishnamoorthy K, Jayaraman S, Krishnamoorthy R, Manoharadas S, Alshuniaber MA, Vikas B, Veeraraghavan VP. Green synthesis and evaluation of antimicrobial, antioxidant, anti-inflammatory, and anti-diabetic activities of silver nanoparticles from *Argyrea nervosa* leaf extract: an invitro study. *Journal of King Saud University-Science*. 2023 Dec 1;35(10):102955.[5] Galani VJ, Patel BG. Psychotropic activity of *Argyrea speciosa* roots in experimental animals. *AYU (An International Quarterly Journal of Research in Ayurveda)*. 2011 Jul 1;32(3):380-4.
5. Galani VJ, Patel BG, Patel NB. *Argyrea speciosa* (Linn. f.) sweet: A comprehensive review. *Pharmacognosy Reviews*. 2010 Jul;4(8):172.
6. POWO (2025). "Plants of the World Online, Available from *Argyrea nervosa* (Burm.f.) Bojer, Plants of the World Online | Kew Science
7. Singh JB, Mukul T. Phytochemistry and pharmacological profile of traditionally used medicinal plant *Argyrea speciosa* (Linn. f.). *Journal of Drug Delivery & Therapeutics*. 2018 Sep 2;8:41-6.
8. Padhi M, Mahapatra S, Panda J, Mishra NK. Traditional uses and phytopharmacological aspects of *Argyrea nervosa*. *Journal of Advanced Pharmaceutical Research*. 2013;4(1):23-32.
9. Lalan BK, Hiray RS, Ghongane BB. Evaluation of analgesic and anti-inflammatory activity of extract of *Holoptelea integrifolia* and *Argyrea speciosa* in animal models. *Journal of Clinical and Diagnostic Research: JCDR*. 2015 Jul 1;9(7):FF01.
10. Shreedhara CS, Ram HA, Zanwar SB, Falguni GP. Free radical scavenging activity of aqueous root extract of *Argyrea nervosa* (Burm. f.) Boj. (Convolvulaceae).
11. Habbu PV, Shastry RA, Mahadevan KM, Joshi H, Das SK. Hepatoprotective and antioxidant effects of *Argyrea speciosa* in rats. *African Journal of Traditional,*

- Complementary and Alternative Medicines. 2008 Oct 17;5(2):158-64.
13. Yadav KS, Yadav NP, Rawat B, Rai VK, Shanker K, Venkateswara Rao C. An assessment of wound healing potential of *Argyrea speciosa* leaves. *The Scientific World Journal*. 2014;2014(1):406921. Habbu PV, Mahadevan KM, Shastry RA, Manjunatha H. Antimicrobial activity of flavanoid sulphates and other fractions of *Argyrea speciosa* (Burm. f) Boj. *Indian journal of experimental biology*. 2009 Feb 1;47(2):121.
 14. Singhal AK, Gupta H, Bhati VS. Wound healing activity of *Argyrea nervosa* leaves extract. *International Journal of Applied and Basic Medical Research*. 2011 Jan 1;1(1):36-9.
 15. Jeet KA, Tomar SU, Thakur NA. Antipyretic activity of whole aerial part from *Argyrea nervosa*. *Int J Pharm Pharm Sci*. 2012;4(4):76-7.
 16. Kumar S, Alagawadi KR, Rao MR. Effect of *Argyrea speciosa* root extract on cafeteria diet-induced obesity in rats. *Indian journal of Pharmacology*. 2011 Mar 1;43(2):163-7.
 17. Jaiswal SK, Rao CV, Sharma B, Mishra P, Das S, Dubey MK. Gastroprotective effect of standardized leaf extract from *Argyrea speciosa* on experimental gastric ulcers in rats. *Journal of Ethnopharmacology*. 2011 Sep 1;137(1):341-4.
 18. Hanumanthachar J, Navneet K, Jyotibala C. Evaluation of nootropic effect of *Argyrea speciosa* in mice. *Journal of Health Science*. 2007;53(4):382-8.
 19. Patel NB, Galani VJ, Patel BG. Antistress activity of *Argyrea speciosa* roots in experimental animals. *Journal of Ayurveda and integrative medicine*. 2011 Jul;2(3):129.
 20. Vyawahare NS, Bodhankar SL. Anticonvulsant activity of *Argyrea speciosa* in mice. *Indian journal of pharmaceutical sciences*. 2009 Mar;71(2):131.
 21. Galani VJ, Patel BG. Effect of hydroalcoholic extract of *Argyrea speciosa* roots against experimentally induced anxiety, depression and convulsions in rodents. *International Journal of Biomedical and Pharmaceutical Sciences*. 2011;5(1):31-5.
 22. Singh JB, Mukul T. Protective effect of ethanolic extract from the root of *Argyrea speciosa* against global cerebral ischemic reperfusion injury in rats. *Journal of Drug Delivery & Therapeutics*. 2018 Nov 1;8(6):8-15.
 23. Habbu PV, Mahadevan KM, Kulkarni VH, Marietta P, Pratap V, Thippeswamy BS, Veerapur VP. Antidiabetic activity of *Argyrea speciosa* (sweet) (Burm. f.) Boj. in normoglycemic and streptozotocin-induced diabetic rats. *Oriental pharmacy and experimental medicine*. 2010 Jan;10(2):90-102.
 24. Kamble AD, Kumbhar AA, Kulkarni RP, Kulkarni AA. Potential Hypoglycemic Secondary Metabolites from *Argyrea nervosa* (Burm. f.) Boj. Influencing Human Gut Health. In *Medical Sciences Forum* 2023 Mar 1 (Vol. 21, No. 1, p. 42). MDPI.
 25. Subramoniam A, Madhavachandran V, Ravi K, Anuja VS. Aphrodisiac property of the elephant creeper *Argyrea nervosa*. *J Endocrinol Reprod*. 2007;11(2):82-5.
 26. Rasool F, Sharma D, Anand PS, Magani SK, Tantravahi S. Evaluation of the anticancer properties of geranylisovalerate, an active ingredient of *Argyrea nervosa* extract in colorectal cancer cells. *Frontiers in Pharmacology*. 2021 Sep 20;12:698375.
 27. Shejul SS, Deshmukh AS, Tambe MS, Waman SV, Varpe MR. *Argyrea nervosa*'s chemical constituents & their pharmacological applications: An overview

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