Gurukul International Multidisciplinary Research Journal (GIMRJ)*with* International Impact Factor 8.357
Peer Reviewed Journal
https://doi.org/10.69758/GIMRJ/2505I5VXIIIP0036

e-ISSN No. 2394-8426
Monthly Issue
MAY-2025
Issue–V, Volume–XIII

Investigating Secondary Metabolites in Argyreia nervosa Leaves: A Preliminary Study

Dr. S.P. Khodke

Head, Department of Botany, Vinayak Vidnyan Mahavidyalaya,Nandgaonkh.

1 For correspondence, E-mail: khodke.suchita@gmail.com

ABSTRACT:

Argyreia nervosa Linn. (*Argyreia speciosa*), commonly known as Hawaiian Baby Woodrose, is a medicinal plant known for its psychoactive and therapeutic properties. This preliminary study investigates the presence of secondary metabolites in the leaves of *A. nervosa* through qualitative phytochemical screening. The analysis revealed the presence of key bioactive compounds including alkaloids, flavonoids, tannins, saponins, and terpenoids. These findings suggest the potential of A. nervosa leaves for pharmacological applications, laying a foundation for further phytochemical and pharmacological studies.

Keywords: *Argyreia nervosa,*leaf, phytochemical.

Introduction:

Plants are very important natures gift to human being. These plants **play a vital role in sustaining life on Earth. Not only do they provide us with oxygen through the process of photosynthesis, but they also form the basis of most food chains. In addition to their ecological importance, many plants have powerful medicinal properties. For centuries, traditional systems of medicine like Ayurveda, Traditional Chinese Medicine, and Indigenous healing practices have relied on herbs and plant extracts to treat illnesses and maintain health.(Phougat *etal*.,2022). Even today, a large percentage of pharmaceutical drugs are derived from plant compounds. Today there is lot of demand from pharmaceutical industries of the medicinal plants.** *Argyreia nervosa* Brum is belongs to convolvulaceae family. It is a climbing shrub with woody tomentose stem commonly known as elephant creeper in English and samudra sok in hindi.(Fig.No.1).The leaves of *Argyreia nervosa* has hepatoprotective, hypoglycaemic, anticonvulsant,aphrodisiac, antioxidant, antiviral, nematicidal, antimicrobial, immunomodulatory, analgesic and anti-inflammatory activity (Mishra A.P.*et*. *al*. (2015), Gokhale AB *et*. *al*. (2002)).

This woody climber holds historical significance due to its diverse medicinal properties. The leaves of *Argyreia nervosa* have been traditionally used to treat infectious wounds.(Dhvani Goti and Sumita Dasgupta,2024). This study aimed to investigate the secondary metabolites present in plant's leaf, focusing on compounds that may explain its therapeutic effects. Preliminary phytochemical screening revealed the presence of the following bioactive constituents:alkaloids, flavonoids, tannins, saponins, and terpenoids. The wound-healing properties of the leaves can be associated with these secondary metabolites, which are known for their significant biological activities. However, the preliminary findings of the current study emphasize the need for further scientific validation to substantiate these results.

Fig No.1 - Entire Plant

Materials and Methods

Plant samples collection:

Fresh leaves of *Argyreia nervosa* were collected from the Botanical garden of Vinayak Vidnyan Mahavidyalaya, Nandgaon khandeshwar,Maharashtra.The leaves were washed, shade-dried for 7–10 days, and ground into a fine powder using a mechanical grinder. and stored in airtight container.

Preparation of plant extract-

Thirty gm of powder was extracted using ethanol as a solvent. The extraction was done by using soxhlet apparatus. The temperature was maintained 100 -200 below boiling point of solvent. The time was fixed to 6hrs for each extraction. The solvent was then kept for evaporation at room temperature and concentrated to one fourth of its original volume and stored at 40C for further phytochemical analysis.

Phytochemical analysis

Standard qualitative tests were performed on the methanolic extract to detect the presence of secondary metabolites. The extracts were subjected for the preliminary phytochemical analysis by using standered methods described by K. Santhi and R. Sengottuvel(2016).

RESULT AND DISCUSSION

The present study was carried out to investigate the phytochemical constituents present in *Argyreia nervosa*. The ethanolic leaf extract were analysed for phytochemicals and results were mentioned in Table 1.

Table 1: Phytochemical analysis of *Argyreia nervosa* leaf

Test	*Argyreia nervosa* leaf
Alkaloids (Mayer,s test)	+
Flavonoids (H2SO4 test)	+
Steroids (Liebermann-Burchard test)	–
Terpenoids (Salkowski test)	–
Anthraquinone (Borntrager's test)	–
Phenols (Ferric chloride test)	+
Saponins	+
Tannin	+

(+) Present (-) Absent

CONCLUSION

The detection of alkaloids, flavonoids, and tannins in A. nervosa aligns with its established medicinal properties, as these phytochemicals are known for their antimicrobial, antioxidant, and anti-inflammatory activities. The absence of glycosides may suggest a tissue-specific distribution of secondary metabolites within the plant. This study confirms that the leaves, in addition to the seeds, contain a diverse array of bioactive constituents, reinforcing their role in traditional

medicine. Further chromatographic and spectroscopic analyses are recommended to isolate and structurally characterize these individual compounds.

REFERENCES

Mishra, A. P., Saklani, S., Chandra, S., & Tiwari, P. (2015). Total phenolics, flavonoids and antioxidant evaluation in the leaves of *Argyreia nervosa* Burm. Int. J. Pharm. Sci. Rev. Res, 32, 34-37.

Gokhale, A. B., Damre, A. S., Kulkarni, K. R., & Saraf, M. N. (2002). Preliminary evaluation of anti-inflammatory and antiarthritic activity of *S. lappa*, *A. speciosa* and A. *aspera*. Phytomedicine, 9(5), 433-437.

Santhi, K., & Sengottuvel, R. (2016). Qualitative and quantitative phytochemical analysis of *Moringa concanensis* Nimmo. International Journal of Current Microbiology and Applied Sciences, 5(1), 633-640.

Harborne JB. Phytochemical Methods: A Guide to Modern Techniques of Plant Analysis. Springer Science & Business Media, 1998.

Ghani A. Medicinal Plants of Bangladesh: Chemical Constituents and Uses. Asiatic Society of Bangladesh, 2003.

Kokate CK, Purohit AP, Gokhale SB: Pharmacognosy. Nirali Prakashan, 2008.

Chanda S, Dave R: In vitro models for antioxidant activity evaluation and some medicinal plants possessing antioxidant properties: An overview. Afr J Microbiol Res, 2009.

Phougat, p., kumar, h., and nasa, p. (2022). An updated review on herb-herb combination (polyherbal therapy) and their evaluation for therapeutic enhancement and advancement. Journal of pharmaceutical negative results, 4366-4377.

Dhvani Goti and Sumita Dasgupta(2024).Screening of Phytochemicals from Leaf Extracts of *Argyreia nervosa*.African Journal of Biomedical Research 27(special issue):530-537