IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

PHYTOCHEMICAL ANALYSIS OF *Argyreia nervosa* (BRUM. F) LEAF AND STEM EXTRACT

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Abstract: ***Argyreia nervosa* belongs to convolvulaceae family and commonly known elephant creeper. It is well known for its medicinal importance. In present study the leaf and stem extract of *Argyreia nervosa* in ethanol were analysed for the presence of various phytochemicals such as proteins and amino acids, carbohydrates, alkaloids, phenols, flavonoids, steroids, triterpenoids, tannins, saponins and anthraquinone. The ethanolic leaf extract shows presence of carbohydrate, proteins and amino acids, alkaloid, flavonoids, tannins, saponin and phenols whereas, anthraquinone, steroids and triterpenoids were absent. While ethanolic stem extract shows presence of proteins, carbohydrates, alkaloids, phenols and tannins, saponins, anthraquinone whereas steroids and triterpenoids were absent.**

Index Terms **- *Argyreia nervosa*, convolvulaceae, phytochemicals**

I. INTRODUCTION

Argyreia nervosa Brum is belongs to convolvulaceae family. Is is a climbing shrub with woody tomentose stem commonly known as elephant creeper in English and samudra sok in hindi. In India it is found mainly in Deccan, Karnataka and east slopes of the West Ghats at an altitude of 900 m^3 (krishnaveni et. al. 2009). The leaves of *Argyreia nervosa* has hepatoprotective, hypoglycaemic, anticonvulsant, aphrodisiac, antioxidant, antiviral, nematicidal, antimicrobial, immunomodulatory, analgesic and anti-inflammatory activity (Abhay prakash mishra et. al. (2015), Krishnaveni et. al. (2009), Gokhale AB et. al. (2002)

In present study attempts have been made to explore the presence of phytoconstituents present in ethanolic extract of leaf and stem of *Argyreia nervosa*..

II. Materials and Methods

2.1 Plant samples

Healthy leaves and stems of *Argyreia nervosa* were collected from local region of Nanded, Maharashtra. The leaves and stems were cleaned, air dried in shade, coarsely powdered and stored in airtight container.

2.2 Preparation of plant extract

T hirty gm of powder was extracted using ethanol as a solvent. The extraction was done by using soxhlet apparatus.The temperature was maintained 10^0-20^0 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 4^0C for further phytochemical analysis.

2.3 phytochemical analysis

The extracts were subjected for the preliminary phytochemical analysis by using standered methods described by K. Santhi and R. Sengottuvel(2016)

2.3.1 Detection of Alkaloids

Extracts were dissolved individually in dilute hydrochloric acid and filtered. The filtrates were used to test the presence of alkaloids.

Mayer s test: Filtrates were treated with Mayer s reagent. Formation of a yellow cream precipitate indicates the presence of alkaloids.

2.3.2 Detection of Flavonoids

H2SO4 test: Extracts were treated with few drops of H2SO4. Formation of orange colour indicates that the presence of flavonoids

2.3.3 Detection of Steroids

Two ml of acetic anhydride was added to five mg of the extracts, each with two ml of H2SO4. The colour was changed from violet to blue or green in some samples indicate that the presence of steroids.

2.3.4 Detection of Terpenoids

Salkowski s Test Five mg of the extract of the leaves, flowers and seeds was mixed with two ml of chloroform and concentrated H2SO4 (3ml) was carefully added to form a layer. An appearance of reddish brown colour in the inner face was indicates that the presence of terpenoids.

2.3.5 Detection of Anthroquinones

Borntrager s Test About five mg of the extract was boiled with 10% HCl for few minutes in a water bath. It was filtered and allowed to cool. Equal volume of CHCl3 was added to the filtrate. Few drops of 10% NH3 were added to the mixture and heated. Formation of pink colour indicates that the presence anthroquinones.

2.3.6 Detection of Phenols

Ferric chloride test: 10mg extracts were treated with few drops of ferric chloride solution. Formation of bluish black colour indicates that the presence of phenol.

2.3.7 Detection of Saponins

About 0.5mg of the extract was shaken with five ml of distilled water. Formation of frothing (appearance of creamy miss of small bubbles) shows that the presence of saponins.

2.3.8 Detection of Tannins

A small quantity of extract was mixed with water and heated on a water bath. The mixture was filtered and ferric chloride was added to the filtrate. A dark green colour was formed. It indicates that the presence of tannins.

2.3.9 Detection of Carbohydrates

0.5mg extracts were dissolved individually in five ml distilled water and filtered. The filtrate was used to test the presence of carbohydrates.

2.3.10 Detection of Protein & Amino acids

Biuret test: To 0.5 mg of extract equal volume of 40% NaoH solution and two drops of one percent copper sulphate solution was added. The appearance of violet colour indicates that the presence of protein.
Ninhydrin test: About 0.5 mg of extract was taken and two drops of freshly prepared 0.2% Ninhydrin reagent was added and heated. The appearance of pink or purple colour indicates that the presence of proteins, peptides or amino acids.

III. RESULT AND DISCUSSION

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

Table 1: Phytochemical analysis of *Argyreia nervosa*

Test	Argyreia nervosa	
	Leaf	Stem
Alkaloids Mayers test	+	+
Flavonoids H_2SO_4 test	+	+
Steroids Liebermann-Burchard test	-	-
Terpenoids Salkowski test	-	-
Anthraquinone Borntrager's test	-	+
Phenols Ferric chloride test	+	+
Saponins	+	+
Tannin	+	+
Carbohydrates	+	+
Proteins and Amino acids Biuret test Ninhydrine test	 + +	 + +

(+) Present (-) Absent

Present investigation shows that both the parts i.e. leaf and stem contais alkaloids, flavonoids, phenols, tannin, carbohydrates, proteins and amino acids while steroids, triterpenoids and saponins were absent in both the extracts whereas anthraquinone is present in stem extract but absent in leaf extract of *Argyreia nervosa*.

The phytochemicals are the secondary metaboilts of plants which are naturally occurring chemical compounds having diverse protective properties or disease preventing properties (Minakshi et. al. 2016). Alkaloids have antimicrobial,anti-diabetic, anaesthetics, muscle relaxants, antioxidant, anticancer activity and also acts as pain killer (Joshi et. al. 2013, Rohit Kumar Bargh 2015) Phenols are reported as anti-inflamatory, immune enhancer and harmone modulators. Also it shows antidiabetic, anticarcenogenic activity (Merey Gospel Arjun et. al. 2017, Joshi et. al. 2013)Saponins are used in hypercholesterolemia, hyperglycemia, antioxidant, anticancer, anti-inflammatory activity (K. Santhi and R. Sengottuvel 2016) Flavonoids have antiallergic, antioxidant, antimicrobial and ancticancer property while Tannins have general antimicrobial and antioxidant activities.(Joshi et. al. 2013)

IV. CONCLUSION

Argyreia nervosa is rich source of phytoconstituents. The Both ethanolic extracts of leaf and stem contain phytochemical such as carbohydrate, proteins, alkaloids, phenols, flavonoids, saponins and tannins. Each of them is highly effective against different types of diseases.

V. ACKNOELADGEMENT

The authors are thankful to the DST-FIST and SAP-DRS-Phase II sponsored School of Life Sciences, Swami Ramanand Teerth Marathwada University, Nanded.

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