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Phytochemical Screening Of Methanolic Extract Of Nyctanthes Arbor-Tristis Linn. Leaf

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ABSTRAST
Medicinal plants are a rich source of pharmacologically bioactive molecules. Nyctanthes arbor-tristis is a medicinal plant of family Oleaceae. The plant produces many bioactive molecule which make them a rich source of various types of medicines. Nyctanthes arbor-tristis is commonly known as "Night Jasmine" or "Harshingar". The plant produces many bioactive molecule which make them a rich source of various types of medicines. The purpous of study was to do phytochemical screening of the methanolic extract of Nyctanthes arbor-tristis leaf. 50 gm of Nyctanthes leaf powder was extract in the Soxhlet extractor for 24 hours. The yield was 12 % w/w. the phytochemical screening of methanolic extract showed the presence of tannins, alkaloids, saponins, terpenoid and phenolic compounds. The study reveal that these bioactive compounds might be used as anti-diabetic, anti-microbial and anti-inflammatory.

Keyword: *Nyctanthes arbor-tristis, phytochemicals, leaf extract and bioactive molecules.*

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I. INTRODUCTION

Medicinal plants are rich source of many pharmacologically bioactive molecules. Researchers are presently focusing on the phytochemicals to manage and trace various disease of humans. *Nyctanthes arbor-tristis* Linn. is native of southeastern Asia. It is a medicinal plant belong to family oleaceae (Nyctaginaceae). The plant is commonly known as 'Night Jasmin' or 'Harsingar'. (Vats et al., 2009, Meshram et. al., 2012). It is a small tree with a grey or greenish, rough and peeling bark, growing upto 10 m in height. During night fragrance of the flower is very strong and pleasant (Siddiqui et. al., 2006). The plant is widely cultivated in tropical and subtropical parts of the world. All part of *Nyctanthes arbor-tristis* Linn. has one or the other medicinal properties and is popular among the local tribes as traditional medicine. (Champa Rani et al., 2012). Over 50% of all modern clinical drugs are of natural product origin and natural product play a vital role in modern drugs development in the pharmaceutical industry (Bardoloi et. al., 2018).

The plant contains some phytochemicals like mannitol, glycosides, flavonols, nicotoflorin etc. the whole plant shows pharmacological properties and leaves show anti-inflammatory, anti-fungal and anti-bacterial effects. (Gulson et al., 2015).

In view of this background we performed the extraction and preliminary pharmacological screening of the methanolic extract of *Nyctanthes arbor-tristis* leaf.

II. MATERIALS AND METHODS

Preparation of leaf extract

The fresh leaves were collected from Chapra Bihar. The plant and leaves were authenticated by Prof. S. R. Padamadeo, University professor of botany, Patna University. A voucher specimen is kept in the department of botany, Jai Prakash Mahilla College, Chapra, Bihar, India for further reference. The leaves were thoroughly washed in tap water and finally rinsed with distilled water. The leaves were shade dried and grinded into powder. The powder was stored in a clean closed container until for further use.

Source of chemicals

All the chemicals used in this investigation were purchased from Bihar scientific company and Krishna scientific Patna Bihar, India.

Soxhlet extraction

The dried powder of leaves (50g) was placed in the thimble of Soxhlet apparatus. 200 ml of methanol was used as a solvent. The solvent dissolve the active biomolecules. The leaves remains as precipitate and the active biomolecules were present in the solvent. The extraction was continued till clear solvent was seen in the thimble. Then the extract was dried in a water bath till a dark orange residue was obtained. The percentage yield was 12%. The extract were kept at -20◌̊C till further use.

Phytochemical screening

Phytochemical screening was carried out on different extract on the leaves using standard protocol to identify the secondary metabolites. (Harborne, 1973; Trease and Tiwari et al., 2011).

Test for alkaloids: -

5 ml of leaf extract was mixed with 3 ml of dil. HCl and kept in water bath for 10 min at boiling temperature and then filtered. Then the mixture was treated with few drops of Wagner's reagent. The sample was observed for turbidity or precipitation.

Test for flavonoids:-

1 ml of dilute sodium hydroxide was added in 1 ml of the extract. The presence of flavonoid is indicated by formation of yellow colour in the plant extract. The yellow colour disappear on allowing the solution to stand.

Test for tannins:-

1-3 drops of ferric chloride solution was added in 1 ml leaf extract. The blue or green colour indicated the presence of tannins.

Test for saponins:-

2 ml of leaf extract was mixed with 5 ml of distilled water and shaken vigorously till a stable persistent froth was obtained which indicated presence of saponins.

Test for terpenoids:-

1 ml of leaf extract was dissolved in 1 ml of chloroform and 1 ml of con. Sulphuric acid was added to it. A reddish brown discoloration at the interface showed the presence of terpenoids.

Test for phenolic compounds:-

5 drops of 1% ferric chloride was added in 2 ml of leaf extract and then 1 ml of potassium ferrocynide was added. The presence of blue green colour indicated the presence of phenolic compounds.

Test for reducing sugar:-

2 ml of plant extract was mixed with 2 drops of Fehling's solution A and B and kept in water bath for 5 min. the appearance of orange – red colour indicated presence of reducing sugar.

III. RESULT AND DISCUSSION

Table-1: - results of the phytochemical screening of Methanolic extract of *Nyctanthes arbor-tristis* leaf.

Sl. No.	Phytochemicals	Observation	Inference
01	Alkaloids	Red precipitate	+
02	Flavonoids		-
03	Tannins	Green colour	+
04	saponins	Presence of emulsion	+
05	Terpenoids	Reddish-brown colour	+
06	Phenolic compounds	Green colour	+
07	Reducing sugar		-

The result of phytochemical screening provide an empirical basis for the use of medicinal plants in traditional therapy. The phytochemical constituents are responsible for the pharmacological actions of the plant. Alkaloids have antimicrobial activities. Saponins have been reported to have antimicrobial properties and they may act as important precursor for steroidal substances. These steroidal substances have wide range of pharmacological activities (Hashemi S R et al., 2008). The terpenoids and sequiterpens found in the plant extract

show anti-inflammatory and anti-microbial effects. The results of phytochemical screening of methanolic extract of Nyctanthes leaf showed the presence of Alkaloids, tannins, terpenoids and phenolic compounds (Table-1). Solvents used also determine the phytochemicals constituents. More poor Solvents have lesser components compared to the least polar. The phytochemical screening can provide evidence for its applications against various disorders.

IV. CONCLUSION

The phytochemical screening of methanolic extracts of Nycanthes arbar-tristis showed presence of some important phytochemicals like Alkaloids, tannins, phenolic compounds, terpenoids and saponins (Table-2). These phytochemicals have important pharmacological activities like anti-diabetic, anti-inflammatory, antibacterial and antioxidant properties. As it has medicinal value, hence more study needs to do to know more about its medicinal properties and other uses.

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