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**Review**

# Phytochemical screening of plant: NyctanthesArbor-Tristis

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## Abstract

Nyctanthes arbor-tristis is well known Indian medicinal plant and the leaf extracts are used at a large extent in Indian traditional medicine. Present investigation deals with the qualitative analysis of phytochemicals in seeds of important medicinal Nyctanthes arbor tristis plant. Qualitative analysis was carried out to identify the different classes of secondary metabolites in various chemical extracts such as water and methanol. Qualitative analysis of the extracts proved the presence of phytochemicals such as Saponin, Tannin, Flavonoid, Steroid, Terpenoid, Quinine, Coumarin, Emodin and Gum and Mucilage.

**Keywords:** Qualitative analysis, phytochemical screening, Steroids, Gum and mucilage.

## INTRODUCTON

The term medicinal plants fuse distinctive kinds of plants which are used as a piece of herbalism and a portion of these plants have a therapeutic property. Medicinalplants are the "spine" of traditional medicine. The term herb has come from latin word ′herba′and an old French word ′herbe′. Medicinal plant has been used for medicinal purpose since theancient time. Nowadays, about 3.3 billion people in less developed countries used medicinal plant. There are around 17,000 sorts of higher plants, of which about 8,000 species, are seen as medicinally important and used by town gatherings, particularly tribal groups, or in traditionaltherapeutic frameworks, for instance, the Ayurveda. Plants have hundreds of chemical compound for defense against fungi, insects, disease and herbivorous animals. Plant metabolites include essential metabolites and secondary metabolites. Phytotherapy is theutilization of plants or plant extracts for therapeutic purposes, particularly plants that are not portion of the daily diet. Phytochemistry is the investigation of phytochemicals created in plants, depicting the separation, cleaning, distinguishing identification, and structure of the expansive number of secondary metabolites found in plants. Chlorophyll, amino acids, protein,carbohydrates, nucleotides, fatty acids, steroids and lipids are the primary compounds. Secondary compounds are alkaloid, tannin, terpenoids, phenols etc. Terpenoids have different critical pharmacological activities for example, antiinflammatory, anticancer,

against malarial,restraint of cholesterol union, anti-viral and against bacterial activities [1]. Terpenoids likewise assume an essential part in drawing in valuable parasites and devour the herbivorous insects [2]. Alkaloids are utilized as anesthetic agents and are found in therapeutic plants [3]. enzymeand stimulation of immune system. These medicinal properties are due to the phytochemicals that produces certain definite physiological actions on the human body.

**Phytochemical Tests**

**Qualitative Phytochemical analysis was done by following standard methods**

**Test for Saponin**

To 1ml of plant extract,5ml of Distilled Water was added and the solutionwas then shaken well for 10-15 sec. Appearance of froth in the upper layer of the solution which remains stable for 2 min, indicates that the Saponins are present shown in fig 1.

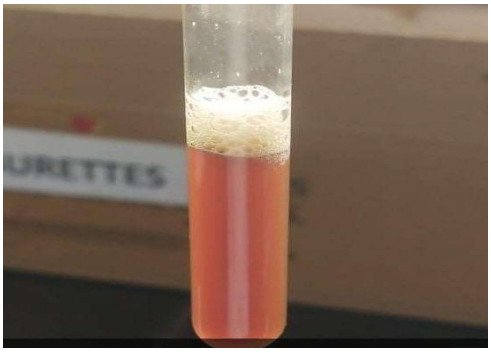

**Fig 1: Saponin is Present (Water)**

**Test for Tannin**

To 1ml of plant extract, 5% 1ml ferric chloride was added and mixed. Appearance of dark black or green colour indicates that the Tannins are present shown in Fig 2.



**Fig 2: Tannin is Present(Water)**

**Test for Flavonoid**

To 2ml of dilute NaOH, 50µl of sample was added. Appearance of yellowish colour of the solution indicates flavonoids present shown in Fig 3.



**Fig 3: Flavonoid is Present (Water)**

**Test for Steroid**

To 1 ml of plant extract, 2ml chloroform was included and 1ml of conc. Hydrochloric acid was additionally included by sides of the test tube. The colour of upper layerchanges to reddish & the hydrochloric acid part showed yellow colour with green fluorescence.This appearance indicates that the steroids are present shown in Fig 4.



**Fig 4: Steroid is Present**

**Test for Terpenoid**

500µl of sample was mixed with 2ml of methanol and 1ml of chloroform. Then 1ml of $H_2SO_4$ solution was then added slowly through the wall of test tube.The solution appears reddish brown in colour which indicates the presence terpenoids in Fig 5



**Fig 5: Terpenoid is Present (Water)**

**Test for Quinine**

To 500µl plant sample, 2ml of NaOH solution was added slowly Formationof blue, green or red colour specify the presence of quinine shown in Fig 6.



**Fig 6: Quinine is Present**

**Test for Coumarin**

To 500 µl of plant sample, 1 ml of NaOH was added. Trace of yellowishappearance of solution shows the presence of Coumarin shown in fig 7.



**Fig 7: Coumarin is Present (Methanol)**

**Test for Emodin**- To 500 µl of plant sample, 2 ml of NH4OH and 3 ml of benzene wasadded and mixed. Appearance of red colour solution shows that the Emodin are present shown in Fig 8.



**Fig 8: Emodin is Present (Water)**

**Test for Gum and mucilage**
To 500 µl of sample, addition of 1 ml of absolute alcohol wasdone. White/cloudy precipitate forms in the solution which proofs the presence of gums and mucilage shown in Fig 9.



**Fig 9: Gum and Mucilage is Present (Water)**

## RESULTS AND DISCUSSION

The present investigation carried on the Nyctanthes arbor-tristis uncovered the presence of therapeutic active constituents. The phytochemically active compounds of Nyctanthes arbor –tristis were qualitatively investigated for Seeds and the outcomes are displayed in Table 1.

**Table 1: Qualitative phytochemical analysis**

| Test | Water Extraction | Solvent Extraction |
|---|---|---|
| Saponin | + | - |
| Flavonoid | + | - |

| | | |
|---|---|---|
| Tannin | + | + |
| Alkaloids | - | + |
| Protein | - | - |
| Steroids | + | + |
| Coumarin | - | + |
| Terpenoid | + | - |
| Quinine | + | - |
| Emodin | + | - |
| Phenol | - | - |
| Glycosides | - | - |
| Gum and mucilage | + | - |
| Phlobatnin | - | - |
| Anthocynine | - | - |

## CONCLUSION

As indicated by the after effect of phytochemical screening it is inferred that the Seeds of Nyctanthes arbor-tristis contained considerable number of secondary bioactive compounds; forexample, alkaloid, flavonoid, steroid, phenol, tannin, saponin, glycoside and terpenoid.

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