International Research Journal of Biological Sciences _____ ISSN 2278-3202
Vol. **6(3),** 48-51, March **(2017)** *Int. Res. J. Biological Sci.*

Short Communication

Phytochemical Study of *Tradescantia spathacea*

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Available online at: www.isca.in, www.isca.me
Received 7th December 2016, revised 13th February 2017, accepted 2nd March 2017

Abstract

Tradescantia spathacea, *commonly called Moses-in-a-basket or oyster plant, is a clump-forming evergreen perennial that is origin from Guatemala, southern Mexico and Belize. It is widely grown in tropical areas because of its attractive foliage. It is commonly grown in the West Indies. It has shown invasive tendencies by escaping gardens and naturalizing in parts of Louisiana and Florida. It belongs to the family commelinaceae. It typically grows as a 6-12" tall rosette consisting of narrow, spirally arranged, linear-lanceolate, stiffly-ascending, sword-shaped, dark green leaves (to 6-12" long) with purple undersides. Plants will spread to form a dense ground cover over time. White flowers in axillary cymes are enclosed by long-lasting, boat-shaped, purple bracts, hence the common name of Moses-in-a-basket. Flowers bloom throughout the year. Flowers are followed by fruit (3-celled capsules). This plant is easily grown indoors in pots or containers. Genus name was given in honor of John Tradescant, a English horticulturist and plant collector. This work was done to study presence of phytochemicals in the leaves extract of Tradescantia spathacea. The extraction of leaves powder of Tradescantia spathacea was done using ethanol and it was used for testing the presence of various phytochemicals.*

Keywords: *Tradescantia spathacea*, Phytochemistry, Flavonoids, Alkaloids.

Introduction

Plants are used as remedies for several diseases for many centuries; they are used as laxatives, blood thinner, antibiotic, anti-malaria[1]. Medicinal plants are known for their potent antioxidant property as they contain bioactive compounds such as carotenoids, benzoic acid, cinnamic acids, folic acid, phenols and flavonoids[2-4]. It has been found that people in different parts of the world tend to use the same or similar plants for treating the same illnesses but in different combinations[5]. Ornamental plants which can be vegetatively propagated have been popular in tropical gardens in many countries. Non flowering plants like Crotons grow into shrubs and small trees in their native habitats of India, Malaysia and some of the South Pacific islands. Leaf colors range from reds, oranges, and yellows to green with all combinations of variegated colors. Leaf shapes vary from broad and elliptical to narrow and almost linear. Since some cultivars are quite tolerant of interior environments, crotons have become very popular as interior potted foliage plants and excellent material for use in floral arrangements[6]. The phytochemical study of the plants is very important commercially and has great interest for pharmaceutical companies to produce new drugs to cure various diseases[7].

Phytochemical study of various medicinal plants are done earlier so the current study is aimed at studying the phytochemical analysis of a indoor ornamental plant and its possible applications in medicines, pH indicators and other uses.

Materials and Methods

Plant material: The leaves of *Tradescantia spathacea* have been collected from, Deulgaon Raja Tahsil of Buldana, Maharashtra.

Collection of sample material and extract preparation: Leaves of plant were collected, properly cleaned and dried. Then leaves were crushed properly using mortar and pestle to obtain powder. The plant leaves powder prepared was then refluxed using ethanol at 50-80^{0}C for 4 hr in a soxhlet instrument. Extract obtained was properly collected and used for performing the phytochemical tests.

Preliminary phytochemical tests: The phytochemical test of extract obtained from extraction of Tradescantia spathacea was properly done using standard procedures as per literature[8-11]. Different tests were done for testing various phytochemicals present in extract like phenolic compounds, coumarins, alkaloids, quinines, protein, anthraquinones, saponins, flavonoids, tannins, phytosterols, terpenoids[8].

Determination of phenolic compounds: Ferric chloride test: Extract was treated with alcoholic $FeCl_3$. If bluish black colour is formed it indicates that Phenol is present.

Determination coumarins: Extract was treated with 3 ml of 10% NaOH. If yellow colour is formed it indicates the coumarins are present in extract.

Figure-1: *Tradescantia spathacea* plant selected for phytochemical screening.

Determination of alkaloids: A concentrated extract (3 ml) was taken in a clean test tube and add 1 ml of HCl the mixture is then heated for about 20 min then cooled and properly filtered, the filtrate obtained was then used for performing the further test as given below.

Wagner test: Filtrate obtained is taken in test tube and add Wagner's reagent. If brown reddish precipitate is formed it indicates that alkaloids are present.

Determination of quinines: Extract was treated with sodium hydroxide solution. If blue, green or red color is formed it indicates that quinines are present.

Determination of protein: Xanthoprotic test: Take extracts in a test tube and add few drops of conc. HNO_3 shake well. If yellow color is formed it indicates that proteins are present in extract.

Determination of anthraquinone: Take extract in test tube and add potassium hydroxide to it. If blood red color is formed it indicates anthraquinone is present in extract.

Determination of saponins: Take extract (5ml) in a test tube and add distilled water (20ml) then shake well the solution for 15 min. if foam is formed it indicates Saponis are present in extract.

Detection of flavonoids: i. Take extract in a test tube and add to it 10 % sodium hydroxide solution, if intense yellow colour is formed it indicates that flavonoids are present. ii. Take extract in test tube and add to it 10 % ammonium hydroxide solution. If yellow fluorescence appears it indicates that flavonoids are present.

Determination of tannins: i. Take extract (2ml) in a test tube and add to it 1% lead acetate. If a yellowish precipitate is formed it indicates that tannins are present. ii. Take leaves extract (4ml) in a test tube and add to it 4 ml ferric chloride. If green colour is formed it indicates that tannin is present.

Determination of phytosterols: Salkowski's Test: Take extract in test tube and add chloroform shake well and then filter it. Take filtrate in test tube add few drops of Conc.H_2SO_4, shake well and allow it to stand for few min. If a golden yellow colour appears it indicates that phytosterols are present.

Determination of terpenoids: In a test tube take about 0.8 g of plant sample and add 10 ml of methanol in it shake it well and filter it. Take 5 ml of filtrate and add 2 ml of chloroform mix it well now add 3 ml of sulphuric acid. If reddish brown colour is formed it indicates that terpenoids are present.

Results and discussion

Results of Phytochemical Study of *Tradescantia spathacea* are given in following Figures and Tables.

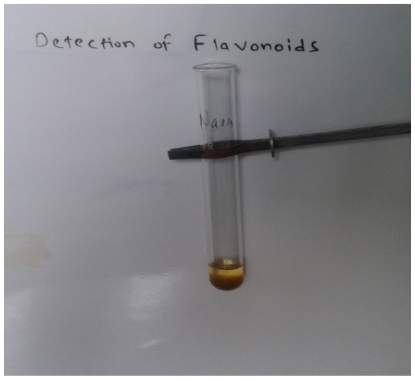

Figure-2: Flavonoid test.

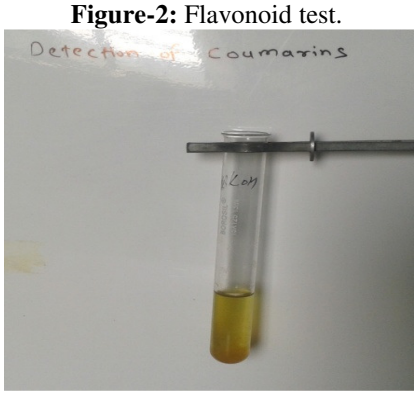

Figure-3: Coumarin Test.

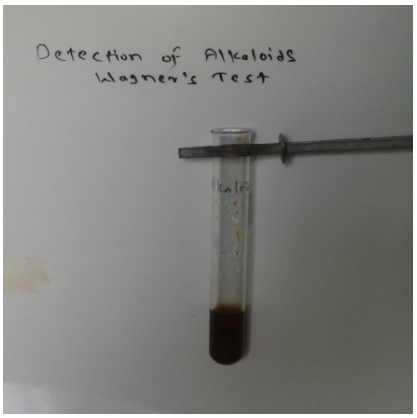

Figure-4: Alkaloid Test.

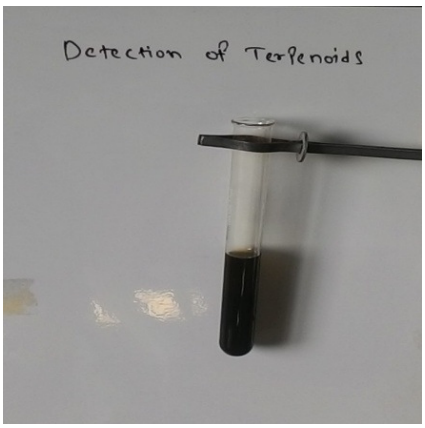

Figure-5: Terpenoid Test.

Table-1: Phytochemical screening of *Tradescantia spathacea* plants leaf extract.

Sr. No.	Component Tested	Result
1	Phenolic compound	Negative
2	Coumarins	Positive
3	Alkaloids	Positive
4	Quinines	Negative
5	Protein	Negative
6	Anthraquinones	Negative
7	Saponins	Positive
8	Flavonoids	Positive
9	Tannins	Negative
10	Phytosterols	Negative
11	Terpenoids.	Positive

Conclusion

The current study was done considering the phytochemical analyses, antioxidant characteristics as well as the economic importance of some indoor ornamental plants which are not known for their medicinal use. Indoor ornamental plant leaf extracts showed a quality of phytochemicals which are coumarins, alkaloids, saponins, flavonoids and terpenoids. The study revealed the medicinal importance of ornamental plant extracts. Thus the indoor ornamental plants can offer source for various medicines and other uses in future along with high asthetic value where research is required.

Acknowledgement

The authors are thankful to Principal Dr. G. B. Jadhav of Shri Vyankatesh Arts, Commerce and Science College, Deulgaon Raja, Dist. Buldana (M.S.) for his encouragement and providing good research facilities during this work.

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