

PHYTOPCHEMICAL ANALYSIS OF LEAVES OF FIMBRISTYLIS OVATA

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ABSTRACT

Terrestrial, annual or perennial, tufted herb. Roots fibrous, white or brown. Stems erect, triangular, solid, hairy. Stipules absent. Leaves simple, not lobed or divided, sessile, linear, more than 2 cm long/wide, margin entire, apex acute, base clasping. Leaf sheath present, compressed in cross section. Flowers bisexual, grouped together in a terminal cluster, sessile, green, petals absent. Fruit a nut. The plant is having some medical properties. By considering this we analysed the methanolic extract of the leaves of the plant using soxhlet extractor. The extract shows the presence of many bioactive chemicals.

Keywords:- *Phytochemicals, screening, methanolic, extract, tannins, soxhlet.*

INTRODUCTION

Phytochemistry, in the strict sense is the study of chemicals contained in plants in a more descriptive and illustrative manner. Medicinal plants are valuable natural resources and regarded as potentially safe drugs and have been tested for biological, antimicrobial and hypoglycemic activity also play an important role in the modern medicine [1]. With the continuous use of antibiotics, microorganisms have become resistant. In addition to this problem, antibiotics are sometimes associated with adverse effects on host which include hypersensitivity, depletion of beneficial gut and mucosal microorganism, immune suppression and allergic reactions. This has created immense clinical problem in the treatment of infectious diseases. Therefore there is a need to develop alternative antimicrobial drugs for the treatment of infectious diseases; one approach is to screen local medicinal plants for possible antimicrobial properties. Plant materials remain an important resource to combat serious diseases in the world [2]. Fimbristylis ovata (Burm.f.) Kern has long been used in traditional medicine for the treatment of inflammation associated diseases.

Fimbristylis ovata (Burm. f.) Kern belonging to the family Cyperaceae is a perennial sedge possessing orange rhizome. Fimbristylis ovata is distributed in the pantropics [3], tropics and subtropics and low lying grasslands. The entire plant is reported to be medicinally important in traditional systems. The entire plant is used by the Digo tribes of Kenya to treat ailments such as rheumatism, cough, bronchitis, asthma, urinary tract infection and arthritis [4]. The ayurvedic name is Ibha-muulaka. It is active against adenitis, scrofula, syphilis; also in cough, bronchitis and asthma [5]. In the present study we have tried to carry out phytochemical screening of extracts of leaves of Fimbristylis ovata.

MATERIALS AND METHODS

Collection of Sample

Fresh leaf of *Fimbristylis ovata* were collected from Nimbhi Village, Ta. Morshi, Dist- Amravati (Central region of India) in the month of Nov –2016.

Processing of the sample

Fresh Leaves of plants were washed well using tap water and twice using distilled water and it was dried in shade for a period of 10 days, at an ambient temperature of 33°C. After drying, plant Materials were cut into small pieces. The dried samples were grinded properly using a mortar and pestle and later using a grinder, to obtain the powdered form and stored at room temperature till their use in the experiment [6]

Preparation of extracts

Dried powdered material (20 gm) of sample was extracted with methanol in soxhlet apparatus. The temperature of heating mantle was adjusted to 63°C for methanolic extraction. The extract was concentrated by gradually evaporating the respective solvent in the same extractor. The concentrated extract was collected in sterile bottles and refrigerated until use [7]

Phytochemical analysis (Qualitative analysis)

Test for carbohydrates

Molisch's reagent was added to 2 ml of both extract. A little amount of concentrated sulphuric acid was added to it and allowed to form a layer. The mixture was shaken well, and allowed to stand for few more minutes, which was then diluted by adding 5 ml of distilled water. Purple precipitate ring showed the presence of carbohydrates [8], [9], [10].

Test for proteins

0.5 ml of each extract was treated with equal volume of 1% sodium hydroxide, to which a few drops of copper sulphate solution was gently added. The solution turning to purple colour, indicated the presence of proteins[11]

.Test for tannins

Gelatin test:-

3 gm of both extract was added to 6 ml of distilled solution was added to it. A bluish green colour indicated the presence of tannins [10], [11].

Test for proteins and amino acids

Ninhydrin Test:-

To the sample extract, few drops of Ninhydrin reagent were added. After mixing it well, the solution was boiled in water for 2-3 minutes. A bluish-blackish colour indicated the presence of proteins[12].

Test for terpenoids (Salkowski test)

5 ml of each extract was mixed in 2 ml of chloroform, and concentrated H₂SO₄ (3 ml) was carefully added to form a layer. A reddish brown coloration of the inter face was formed to show positive results for the presence of terpenoids.

Test for alkaloids

0.5 gm of each extract was stirred with 4 ml of 1% dilute hydrochloric acid. It was boiled and filtered.

Dragendorff's test

1 ml of the filtrate was treated with few drops of Dragendorff's reagent. Orange brown precipitate indicated the presence of alkaloids[13], [14].

Test for Chalcones

2 ml of Ammonium hydroxide was added to 0.5 g each extract of each sample. Appearance of reddish color showed the presence of chalcones

Test for saponins

Froth test for saponins was used. 1g of the each sample was weighed into a conical flask in which 10ml of sterile distilled water was added and boiled for 5 min. The mixture was filtered and 2.5ml of the filtrate was added to 10ml of sterile distilled water in a test tube. The test tube was stopped and shaken vigorously for about 30 second. It was then allowed to stand for half an hour. Honeycomb froth indicated the presence of saponins

Test for Glycosides: Extracts were treated with sodium nitropruside in pyridine and sodium hydroxide. Formation of pink to blood red colour indicates the presence of cardiac glycosides.

Flavonoids Lead acetate Solution Test: Test solution when treated with few drops of 10% lead acetate solution would results in the formation of yellow precipitate.

Test for Phenols: Ferric chloride test: Extracts were treated with 3-4 drops of ferric chloride solution. Formation of bluish black or dark green colour indicates the presence of phenols.

Result and Discussion

The leaves of *Fimbristylis ovata* were rich in phytochemical activity, as shown in Table 1.

Table 1. Phytochemical Analysis of leaves of *Fimbristylis ovata*

Sr. No.	Test Performed	Results of Methanolic Extract
1	Test for carbohydrates Fehling's Test	+
2	Test for proteins	+
3	Test for tannins Gelatin test:-	++
4	Test for Amino acids Ninhydrin Test	-
5	Test for terpenoids (Salkowski test)	+
6	Test for alkaloids Dragendorff's test	++
7	Test for Chalcones	+
8	Test for Saponins	++
9	Test for Glycosides	+
10	Test for Flavonoids Lead acetate solution test	++
11	Test for Phenols	++

Conclusion:

The methanolic extracts of the leaves of *fimbristylis ovata* revealed the presence of carbohydrates, alkaloids, tannins, chalcones, saponins, proteins, terpenoids where as it shows the negative test towards amino acids.

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