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Research Article

**PRELIMINARY PHYTOCHEMICAL SCREENING OF
VARIOUS EXTRACTS OF CTENOLEPSIS CERASIFORMIS****S. Selvakumar* and J. Monica.**

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Abstract:

Medicinal plants besides therapeutic agents are also a big source of information for a wide variety of chemical constituents which could be developed as drugs with precise selectivity. These are the reservoirs of potentially useful chemical compounds which could serve as newer leads and clues for modern drug design. The medicinal plants are useful for healing as well as for curing of human diseases because of the presence of phytochemical constituents. Phytochemicals are naturally occurring in the medicinal plants, leaves, vegetables and roots that have defense mechanism and protect from various diseases. Phytochemicals are primary and secondary compounds. Medicinal plants are used for discovering and screening of the phytochemical constituents which are very helpful for the manufacturing of new drugs. The previous phytochemical analysis and present studied show nearly the similar results due to the presence of the phytochemical constituents. The phytochemical analysis of the medicinal plants are also important and have commercial interest in both research institutes and pharmaceuticals companies for the manufacturing of the new drugs for treatment of various diseases. Hence, the present study aims to explore the phytochemical profile of the Indian medicinal plant Ctenolepsis cerasiformis. Our results indicate that the presence of various Phytochemicals in the chloroform extract of Ctenolepsis cerasiformis.

Keywords: *Ctenolepsis cerasiformis, Phytochemicals, Defense mechanisms, Pharmaceuticals, Therapeutics.*

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INTRODUCTION:

The importance of medicinal plant in drug development is known to us and humans have used them for different diseases from the beginning of human history [1]. Traditional folk treatment from wild plants has always guided researchers to search for novel medications to develop healthy life for humans and animals. In addition, some medicinal plants are still obscured within the plant which need to be scientifically evaluated [2]. *Ctenolepis cerasiformis* is a medicinal plant distributed in south india and belongs to the family of cucurbitaceae and spreading on low shrubs or climbing; stem subfiliform, elongate, much branched, grooved and angled, glabrous except the sparse hairs at the node. Tendrils slender, elongated, simple. Leaves 3.5-10 cm long and almost equally broad, lamina broadly ovate-cordate in outline, scabrid-punctate above and beneath, scabrid hairs pointing forward on nerves and margins, palmately 3-(rarely 5-)-lobed, segments usually ovate-oblong, acute, narrow at the base, the lateral segments often with apparent mucro. Petiole 2-4 cm long; stipular bracts 7-15 mm long, more or less suborbicular, ciliate with hairs as long as the breadth of bract. Flowers minute (petals spreading, ovate-ligulate, almost free, 1.5 mm long, 1 mm broad); male flowers 5-10 at the apex of 2-4 cm long peduncles, pedicel ebracteate, 2-3 mm long; female flowers solitary on short peduncles; ovary globose, slightly beaked, 2 mm long, 1.5 mm across. Fruit globose or obovate, glabrous, c. 1.3 cm in diameter. Seeds 2, ovoid, c. 8 mm long, 5 mm broad, ovate-pyriform, plano-convex, not bordered, smooth, edges compressed. Hence, it is of interest to investigate the phytochemical profile of chloroform extract of *Ctenolepis cerasiformis* were undertaken. Our results indicate that the presence of various Phytochemicals.

MATERIALS AND METHODS:

Collection of samples

The medicinal plants used for the experiment were whole plant of *Ctenolepis cerasiformis* which were collected from the local medicinal farms.

Preparation of extracts

500 grams of dried leaf powder of *Ctenolepis cerasiformis* was packed in separate round bottom flask for sample extraction using different solvents namely ethanol, methanol, chloroform, ethyl acetate and water. The extraction was conducted with 750 ml of each solvent for a period of 24 hours. At the end of the extraction the respective solvents were concentrated under reduced pressure and the crude extracts were stored in refrigerator.

Phytochemical analysis

The extracts prepared were analyzed for the presence of alkaloids, saponins, tannins, steroids, flavanoids, anthraquinones, cardiac glycosides and reducing sugars based on the protocols available in the literature [3-7].

Test for alkaloids

The extract of the crude dry powder of each solvent was evaporated to dryness in boiling water bath. The residues were dissolved in 2 N Hydrochloric acid. The mixture was filtered and the filtrate was divided into three equal portions. One portion was treated with a few drops of Mayer's reagent; one portion was treated with equal amount of Dragendorff's reagent and the third portion was treated with equal amount of Wagner's reagent respectively. The creamish precipitate, the orange precipitate and brown precipitate indicated the presence of respective alkaloids.

Test for saponins

About 0.5 g of the plant extract was shaken with water in a test tube and then heated to boil. Frothing was observed which was taken as a preliminary evidence for the presence of the saponins.

Test for tannins

About 0.5 g of extract was added was in 10 ml of water in a test tube and filtered. A few drops of 0.1% ferric chloride was added and observed for brownish green or blue-black coloration.

Test for steroids

2 ml of acetic anhydride was added to 0.5 g of methanol extract of each sample with 2 ml sulphuric acid. The colour changed from violet to blue or green in some samples indicating the presence of steroids.

Test for flavanoids

2 ml of extract solution was treated with 1.5 ml of 50% methanol solution. The solution was warmed and metal magnesium was added. To this solution few drops of conc. Hydrochloric acid was added and the red colour was observed for flavanoids and orange colour for flavanoids.

Test for anthraquinones

About 0.5 g of extract was taken in a dry test tube and 5 ml of chloroform was added and shaken for 5 min. The extract was filtered and the filtrate shaken with equal volume of 10% of ammonia solution. A pink violet or red colour in the ammonical layer indicates the presence of anthraquinones.

Test for cardiac glycosides

0.2 g of extract was dissolved in 1 ml of glacial acetic acid containing 1 drop of ferric chloride solution. This was then under layered with 1ml of concentrated sulphuric acid. A brown ring obtained at the interface indicated the presence of a deoxy sugar characteristic of cardiac glycosoids.

Test for Proteins

To 2ml of protein solution 1ml of 40% NaOH solution and 1 to 2 drops of 1% CuSO₄ solution was added. A violet color indicated the presence of peptide linkage of the molecule.

Test for Amino Acids

To 2ml of sample was added to 2ml of Ninhydrin reagent and kept in water bath for 20 minutes. Appearance of purple color indicated the presence of amino acids in the sample.

Test for Tri-Terpenoids

5ml of each extract was added to 2ml of chloroform and 3ml of con. H₂SO₄ to form a monolayer of reddish brown coloration of the interface was showed to form positive result for the terpenoids.

Test for Triple Sugar

To 2 ml of extract 2drops of Molisch's reagent was added and shaken well. 2ml of con. of con. H₂SO₄ was added on the sides of the test tube. A reddish violet ring appeared at the junction of two layers immediately indicated the presence of carbohydrates.

Test for Polyphenols

To 2ml of sample was added to 2ml of ferric chloride solution and kept in the room temperature. Appearance of violet color indicated the presence of phenolic compounds in the sample.

RESULTS AND DISCUSSION:**Table 1: Preliminary phytochemical constituents of *Ctenolepis cerasiformis*.**

S. no	Phytochemicals	Chloroform extract	Aqueous extract	Ethanol extract	Ethyl acetate extract
1.	Flavanoids	++	--	++	++
2.	Alkaloids	++	++	++	++
3.	Saponins	--	++	++	--
4.	Tannins	++	++	--	++
5.	Amino acids	--	--	--	--
6.	Proteins	--	--	--	++
7.	Terpenoids	--	--	--	--
8.	Reducing sugars	++	++	--	++
9.	Cardiac glycosides	++	++	++	++
10.	Anthroquinones	++	--	++	--
11.	Steroids	--	++	--	--
12.	Poly phenols	--	--	--	--

“++” - Positive, “--” - Negative.

Phytochemicals are the chemicals that present naturally in plants. Now- a-days these phytochemicals become more popular due to their countless medicinal uses. Phytochemicals play a vital role against number of diseases such as asthma, arthritis, cancer etc. unlike pharmaceutical chemicals these phytochemicals do not have any side effects. Since the phytochemicals cure diseases without causing any harm to human beings these can also be considered as “manfriendly medicines”. Table :1 shows the presences of chloroform extract of *Ctenolepis cerasiformis*. The plant extract contains Flavanoids, Alkaloids, Cardiac glycosides, Tannins, Triple-sugars and remaining Phytochemicals such as Saponins, Amino acids, Anthroquinone, Steriods,

Poly phenols , Triterpenoids and Proteins were absents in chloroform extracts. The Aqueous extract contains Flavanoids, Alkaloids, Cardiac glycosides, Saponins, Tannins, Triple-sugars, Amino acids, Anthroquinone, Steroids and the remaining phytochemicals such as Poly phenols, Proteins and Triterpenoids were absents. The Ethanol extract contain Alkaloids, Flavanoids, Saponins, Cardiac glycosides, Anthroquinone and the remaining Phytochemicals such as Tannins, Steroids, Proteins, Amino acids, Triple-sugars, Poly phenols, and Triterpenoids were absents. The Ethyle Acetate extract contains Alkaloids, Flavanoids, Tannins, Triple-sugars, Cardiac glycosides and the remaining Phytochemicals such as Saponins, Steriods, Proteins,

Amino acids, Poly phenols, Anthroquinone and Triterpenoids were absent. Phytochemical constituents are the basic source for the establishment of several pharmaceutical industries the constituents are playing a significant role in the identification of crude drugs. The medicinal value of these plants lies in some chemical substances that produces a definite physiological action on the human body. The most important property of these bioactive constituents of plants is that they are more effective with little or no side effects when compared to the commonly used synthetic chemotherapeutic agents [8].

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