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A study on Preliminary Phytochemical Screening of Solanum Trilobatum

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ABSTRACT

Phytochemicals are the most vital sources for the treatment of destructive diseases. Solanum trilobatum is widely used in traditional medicine as antiviral, antitumoral and to cure various human ailments. The work was to evaluate the preliminary phytochemical screening of the leave extract of Solanum trilobatum reveles the presence of medicinally active substance like Protein, Alkaloids, Flavonoids and Saponins along with inorganic elements like Sulphate, Phosphate, Chloride and Nitrate.

KEYWORDS: Medicinal plant, Phytochemical, Antiviral, Antitumoral.

INTRODUCTION

The interest of the scientific class in the study of compounds of plant origin is increasing worldwide, especially in developing countries where the use of herbal medicines is widely used for their basic health needs[1]. Microbial resistance to antibiotics is one of the most serious public health problems, especially in developing countries where infectious diseases still represent a major cause of human mortality (World Health Organization, 2014). One of the oldest forms of medical practice is the use of plants for therapeutic purposes[2], teas, syrups, tinctures, among others have been used as medicines and in many cases come to be the sole therapeutic resource of certain communities and ethnic groups[3].

Solanum trilobatum, a thorny creeper with bluish violet flower, more commonly available in Southern India has been used traditionally in Siddha system of medicines to treat various diseases. Solanum trilobatum(Solanaceae – herbs) is an important medicinal plant[4,5]. The leaves contain rich amount of calcium, iron, phosphorus, carbohydrates, protein, fat, crude fibre, and minerals (Jawaharet al., 2004).This herbal plant is

used as medicine for asthma, vomiting of blood, reducing blood glucose level and bilious matter phlegmatic rheumatism and several kinds of leprosy. It is also antibacterial, antifungal antimitotic, antioxidant andantitumouours activities[6-8].

Fig.1Solanum trilobatum Plant

MATERIALS AND METHODS

PLANT MATERIALS

Fresh plants were collected from the medicinal garden and were identified with the help of a botanist. Solanum trilobatum were washed with distilled water, shade dried, powdered and stored in an air- tight container separately for further use.

PREPARATION OF EXTRACTS

About 5gm of dried finely powdered plant powder was added with 200 ml of distilled water. The mixture was heated on a hot plate with continuous stirring at 30º-40ºC for 20 minutes. Then the water extract was filtered through filter paper and the filtrate was used for the phytochemical analysis.

QUALITATIVE PHYTOCHEMICAL ANALYSIS

Phytochemcial analysis of the extract was conducted by Trease and Evans.1989: Harborne (1998).[9] By this analysis, the presence of several phytochemicals like, Protein, Alkaloids, Flavonoids and Saponins were tested.

Test for proteins

Millon's test

Crude extract when mixed with 2ml of Millon's reagent, white precipitate appeared which turned red upon gentle heating that confirmed the presence of protein.

Test for flavonoids

Alkaline reagent test

Crude extract was mixed with 2ml of 2% solution of NaOH. An intense yellow colour was formed which turned colourless on addition of few drops of diluted acid which indicates the presence of flavonoids.

Test for saponins

Foam test

Crude extract was mixed with 5ml of distilled water in a test tube and it was shaken vigorously. The formation of stable foam was taken as an indication for the presence of saponins.

Test for alkaloids

Hager's Test

Test solution was treated with few drops of Hager's reagent (saturated picric acid). Formation of yellow precipitate would show a positive results for the presence of alkaloids.

DETERMINATION OF INORGANIC ELEMENTS

Sulphate

To 5ml of the test solution, lead acetate reagent was added. A white precipitate soluble in sodium hydroxide was formed.

Phosphate

About 5ml of test solution was prepared in nitric acid and a few drops of ammonium molybdate solution were added. It was heated for about 10 minutes and left to be cooled. A yellow crystalline precipitate of ammonium molybdate was observed.

Chloride

About 3 to 5 ml of lead acetate solution was added to about 5 to 7 ml of the filtrate. A white precipitate soluble in hot water was observed.

Nitrate

Ferrous sulphate solution was added to 5 ml of the test solution. No brown colour was produced but when sulphuric acid was added slowly from the side of the test tube, a brown coloured ring was produced at the junction of two liquids.

RESULTS & DISCUSSION

Priliminary qualitative phytochemical analysis made for the leaf extract of Solanum trilobatum extracts revealed, the presence of phytochemicals and inorganic elements such as flavonoids, saponins, Protein, alkaloids, Sulphate, Phosphate, Chloride and Nitrate. The phytochemical screening and inorganic elemental analysis of leaf extract of Solanum trilobatum were summarized in the table-1.

Phytochemicals/Inorganic elements	Results
Protein	+
Alkaloids	+
Flavonoids	+
Saponins	+
Sulphate	+
Phosphate	+
Chloride	+
Nitrate	+

Table 1. The phytochemical profile of the leaf extract of Solanum trilobatum.

CONCLUSION

The result revealed that the presence of medicinally important constituents such as Protein, Alkaloids, Flavonoids and Saponins in the leaf extract of Solanum trilobatum. It shows major antibacterial properties. The alkaloids present in the leaf extract, which possess potential therapeutic effects against several NDDs diseases, Flavonoids help to regulate cellular activity and fight off free radicals. Saponins decrease blood lipids.

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