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Research Article

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Phytochemical analysis of leaves and roots of *Mimosa pudica* collected from Kalingavaram, Tamil Nadu

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ABSTRACT

Mimosa pudica is used in disease related to blood and bile, bilious fever, piles, jaundice, leprosy, ulcer and smallpox. In the present study ethanolic extracts of Mimosa pudica leaves and roots sample were obtained using soxhlet apparatus. Phytochemical studies for the presence of revealed that tannin and proteins are present in both the samples.

Keywords: *Mimosa pudica*, Phytochemical, Tannin, antiheptotoxic

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INTRODUCTION

Many plants and herb species used traditionally have potential antimicrobial and antiviral properties (Shelef, *et al* 1983) and this has raised the optimistic thinking of scientists about the future of phyto-antimicrobial agents. (Das *et al*., 1999). Mimosa plant has a history of use for the treatment of various ailments and the most commonly used plant part for this purpose is the root, but flowers bark and fruit can also be utilized. Several research works have been carried out to study about the phytochemical components of *Mimosa pudica*(Ahmad g, *et al* 2001; Arthur, 1954.) and also about the antimicrobial activity of the plant(Palacios. *et al*., 1991). The major chemical substances of interest in these surveys were the alkaloids and steroidal sapogenins, however also been reported (Lozoya and Lozaya, 1989). The methanolic extract of leaves of M. pudica showed the presence of bioactive components like terpenoids, flavonoids, glycosides, alkaloids, quinines, phenols, tannins, saponins and coumarin(Gandhiraja, *et al*., 2009). In Manipur, a state in India, it is reported that the consumption of the decoction of leaves boiled in water causes diuresis, and is used in urinary tract infection. This plant has hepatoprotective, hypolipidemic, antifertility, antihapatotoxic, anti convulsant, anti depressant and wound healing properties. The seeds of the plant was also said to have diuretic property (Krishnaraju, *et al*., 2006). Roots of mimosa contain tannin, ash, calcium oxalate crystals and alkaloid mimosine(Oudhia, *et al*., 2006).

EXPERIMENTAL SECTION

Collection of Plant Materials

Fresh leaves and root of *Mimosa pudica*were collected from Kalingavaram (KrishnagiriDt).

Sample Preparation

The sample leaf and root were washed with sterile water, air dried, powdered and kept in an air tight container for further use.

Plant Extraction Method

Extraction:

25 gms of each sample were taken and extracted separately with 250 ml ethanol usingsoxhlet apparatus. The extract were collected and dried. The condensed extract was then dissolved in ethanol to the concentration of 100mg/ml. After that allow for 5 cycles and switch of the apparatus and then take the sample solution and extracted solution in a beaker and cover it with a paper and make holes on the paper for the evaporation of the solvent .Allow it for drying.and then collect the residue from the beaker.

Phytochemical Screening (Dey and Raman, 1957)

To identify the phytochemical in plant extract chemical tests were carried out. The stock concentration of plant extract 10 mg/ml was used.

Test For Tannins

Preparation of 0.1% ferric chloride:

To 99.9 ml of distilled water 0.1ml of ferric chloride reagent was added.

Ferric chloride Test

1 ml of the sample taken and a few drops of 0.1% ferric chloride was added and observed for brownish green or blue, black colouration.

Test For Saponins

To 1 ml of extract 5 ml of distilled water was added and shaken vigorously. Observed for soaking appearance indicates the presence of saponins.

Test For Flavonoids

To 1 ml of extract 5 ml of dilute ammonia solution was added, followed by addition of concentrated sulphuric acid along the sides of the tube. Appearance of yellow colouration.

Test for Alkaloids

1 ml of sample was taken to that few drops of Dragandoff reagent was added and observed for orange red colour.

Test for Protein

1 ml of sample was taken to that few drops of Bradford reagent was added. The blue colour was observed.

Test for Steroids

1 ml of the filtrate was taken to that 10% concentration H_2SO_4 was added and observed for green colour.

Test for Anthroquinones

1 ml of sample was taken to that aqueous ammonia (shaking) was added and observed for change in colour of aqueous layer (Pink, Red or Violet).

RESULTS AND DISCUSSION

The present study is of free radical reaction and phytochemical analysis of *Mimosa pudica* plant extract against Dimorphic fungi. The plant sample was collected from Kalingavaram (Krishnagiri DT).

1. *Mimosa pudica* – Leaf sample (MPL)
2. *Mimosa pudica* – Root sample (MPR)

Both samples were extracted by Ethanol using soxhlet method. The crude extract were collected and processed for further study. The crude extract collected from the samples MPL 1.36 gm and MPR 1.24 gm.

Phytochemical analysis:

The crude extract of both samples were studied and the result were tabulated (Table -Phytochemical, which process many Ecological and physiological roles as widely distributed as plant constituents. Phytochemical exhibit wide range of biological effects as constituents at their antioxidant properties. The phytochemical analysis of the crude extract indicated the presence of tannins, proteins and steroids.

These compounds are known to be biological active and therefore aid the antimicrobial activity. Tannins have been found to form irreversible complexes with highly rich protein resulting in the inhibition of cell protein synthesis.

Tannins are known to react with protein to provide difficult tanning effect which is important for the treatment of influenced or ulcerated tissues. Herbs that that have tannins have the main component astringen are used for treating intestinal disorder such as diarrhea and dysentery. The presence of tannin in *Mimosa pudica* is the traditional treatment for ailments.

Steroidal compounds present in *Mimosa pudica* extracts are important due to their relationship with various anabolic hormones including sex hormones. *Mimosa pudica* extracts which exhibited antibacterial activity and antiviral activity. It is concluded that both extract could be potential source of active antimicrobial agent.

S. NO.	PHYTOCHEMICALS	MPL	MPR
1	Tannins	+	+
2	Saponins	-	-
3	Alkaloids	-	-
4	Flavonoids	-	-
5	Proteins	+	+
6	Steroids	+	-
7	Anthroquinones	-	-

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