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Phytochemical Constituent and Antimicrobial Activities of T.asthamatica Leaves

S. Ahmed John[1] **and R. Malathi**[2]

[1] Dept. of Botony, J.M. College, Trichy.

[2] Dept. of Biotechnology, Bharathidasan University College, Orathanadu.

Abstract. Since plants posses mainly medicine properties, the present study was designed to evaluate the antibacterial activities and phytochemical profile of the extracts from leaves of thylaphora asthamatica leaves. The antimicrobial activity was performed by agar disc diffusion method against bacteria viz.Staphylococcus aureis, proteus mirabilis, klebsiella pneumoniae, salmonella typhi, E.coli and fungi aspergillus flavus, aspergellus niger, fusarium. The methanolic extract of leaves of *T.asthamatica* showed maximum activity than chloroform and aqueous extract. This shows that the plant can be used for medicnal purpose.

Keywords: Phytochemical, Tasthamatica, antimicrobial activity

Query: Refs. [2, 4, 7] are provided in the list, but not cited in the text.

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1 Introduction

Plants show enormous versality in synthesizing complex materials, which have no immediate which have immediate obvious growth (or) metabolic functions. These complex materials are referred to as secondary metabolites the plant secondary metabolites

have recently been referred to as phytochemicals. They Phytochemicals are naturally occurring and biologically active plant compounds that have potential diseases inhibiting capabilities.

Thylophora asthamatica is a medicinally important plant belongs to genus *Tylophora* of perennial, usually twining herbs (or) undershrubs, the roots have a sweetish taste turning acrid and pleasant aromatic odour. They are used for the treatment of asthma, whooping cough dysentery and diarrhoea. The powered leaves, roots contain 0.2 to 0.3% alkaloids [1] has antitumar alkaloid; the present work has been designed to evaluate the photochemical analysis and antimicrobial activities in the leaves of these plants.

2 Materials and method

Collection and processing of plant material

The fresh leaves of *T.asthamatica* were collected during the month of February 2008 in Banks of Cauvery river, Thiruchirapalli, India. It was botanically identified and authentically a voucher specimen (TAL-12) has reference, the leaves were shade dried, powdered, sieved through 40 mesh and stored in tightly closed containers for further use.

2.1 Preparation of the Plant Extract

The powered plant material (500 g) was extracted with petroleum ether (60–80° C) using soxhlet apparatus to remove lipids. It was filtered and the filtrate was discarded the residue was separately extracted with methanol, chloroform and aqueous extract also prepared.

2.2 Phytochemical analysis

The photochemical analysis of methanol, chloroform and aqueous leaf extract of T.asthamica was carried in the test of alkaloid (Salehi ebalal 1972) Flavonoids [3] Tannin (Segelman **et al**1969) soponin [5] Terpenoids [6] analysis were carried.

3 Determination of anti-microbial activity

3.1 Microorganisms

The test organisms used was obtained from (Institute of microbial technology), India. Baterial such as (*staphylococcus aureus, proteusmirabis Klebsiella pneumoniae, salmonella typhi,Escherichia coli*) Fungi such as (*Aspergillus flavus, Apergillus niger, Curvularia,Fusarium*)

3.2 Antibacterial assay

A modified agar diffusion method as stated by (Bauer, **et al**1966) was used to determine antibacterial activity, nutrient agar was modulated with bacterial cells (0.2 ml of bacterial cell suspension in 2 ml medium) and poured into Petri dishes to give a solid plate. 100 ml of test samples were applied on sterile paper disc (6 mm diameter) the disc was placed on the surface on inoculated agar plate. The plates were incubated for 24 hrs at 37° C. Distilled water was used as negative control. Inhibition zone diameter around each of the disc were measured and recorded at the end of the incubation time. An average zone of inhibition was calculated for the three replicates.

3.3 Antifungal assay

For the evaluation of antifungal effect. PDA medium was inoculated with fungal cell. The plates were incubated for a 3 days at 25° C. Further processes are repeated above mentioned.

4 Results

The result of the phytochemical analysis were reported in Table 1. phytochemical analysis revealed that chloroform, methanol and aqueous extracts of thylophora asthamatica leaves contain alkaloids, flovaonoids , tannin, glucose. Table 2 shows the in vitro antibacterial activity of aqueous, methanol and chloroform extracts of thylaphora asthamatica, aqueous extract shows weakly positive inhibition and chloroform extract shows medium inhibition and the methanol extract showed maximum inhibition against all the bacterial sps. Table 3 expressed the invitro antifungal activity of all the three extracts of T. asthamatica methanoilc extracts of leaves showed maximum inhibition against all the fungal sps.

5 Discussion

The screening of plant extracts and plant products for anti microbial activity has shown that high plants represent a potential source of new anti-infective agents (Cowan, 1999).

The result of the present study reveals that the employed extracts of plant exhibited potential antibacterial activity against the tested pathogens. In the present study the maximum activity against S. *aureus*, followed by *K.pneumonia* and *E.coli* among the other organism have been observed by the *T. asthamatica* leave methanolic extract.

Table 1: Qualitative analysis of Pytochemicals of*T.Asthamatica*.

Components	ME	CE	AE
Alkaloid	+++	+	W.P.
Flavonoid	++	+	–
Tannin	+	–	–
Sopanin	+	–	–
Carbohydrate	W.P.	–	–
Glycosides	+	–	–

ME: Methanol Extract, CE: Chloroform extract, AE: aqueous extract

Table 2: Invitro antibacterial activities of methanol, chloroform, aqueous extract of *T.asthamatica* (values are meaning of three replicate).

Microorganisms	Zone of inhibition (mm)			
	ME	CE	AE	Control
Staphylococcus aureus	22	2	23	–
Proteus mirabills	16	10	12	–
Klebsiella pneumoniae	24	22	10	–
Salmonella typhi	15	10	11	–
Escherichia Coli	12	13	14	–

ME: Methanol Extract, CE: Chloroform extract, AE: aqueous extract

Plant extracts have assumed an increased importance in medicine and in health care industry and further work on the above-suggested aspects may be given prominence the study reveals that usefulness of medicinal plant leaf extracts in the control of disease caused by bacterial and fungal pathogenic species. Thus, it can be very useful, seems to

Table 3: Invitro antifungal activity of methanol, chloroform, aqueous extracts of T.asthamatica (values are mean of three replicates).

Microorganisms	ME	CE	AE	Control
Aspergillus Flavus	Nil	Nil	2	–
Aspergillus niger	2.5	Nil	2	–
Fusarium	1.3	Nil	Nil	–
Curvularia	1.9	Nil	Nil	–

ME: Methanol Extract, CE: Chloroform extract AE: aqueous extract

be a potential source for arresting the growth and metabolic activities of various general bacteria and fungi.

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