

ANTIMICROBIAL POTENTIAL OF *VITEX TRIFOLIA* Linn**V.GEETHA , A.DOSS and A.PICHAJ ANTHONI DOSS ***Department of Microbiology, Karpagam Arts and Science College,
Coimbatore-641 021

*Karpagam Medical and Research Foundation, Coimbatore-641 021.

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ABSTRACT : *Vitex trifolia* (Local name - Nirnocchi, sirunocchi) is well known for its medicinal property. The present investigation encompasses evaluation of antibacterial potential of *Vitex trifolia* against certain pathogenic bacterial strains. Preliminary phytochemical studies were also made and results are given.

INTRODUCTION

Vitex trifolia (Family-Verbenaceae) is an aromatic shrubby tree, which can up grow to 4m and is found from the foot of the Himalayas southwards throughout the greater part of India. Barks pale, grey, smooth; leaves variable, simpler trifoliate; leaflets mostly sessile, elliptic, flowers blue or purple in terminal, pedunculate, panicle cymes, drupes globose. The leaves are much used medicinally. The powdered leaves possess insecticidal and antibacterial activity¹. The fruit is employed in amenorrhoea². The leaves and twigs yield 0.11-0.28% of essential oil. The constituents of the oil are 1-alpha pinene, camphene, terpinyl acetate and a diterpene alcohol. The leaves also contain aucubin, agnuside, casticin, orientinluteolin-glucoside.³ The fruit contains a new alkaloid vitricine(0.01%)⁴. The present communication attempts to prove the efficacy of *Vitex trifolia* against certain pathogenic bacteria.

MATERIALS AND METHODS

The leaves of *Vitex trifolia* were collected from rural areas of Coimbatore. It was identified and authenticated in Botanical Survey of India (Southern Circle)

Coimbatore. The collected leaves were shade dried and powdered. About 50grams of powder was extracted with different solvents of increasing order of polarity. They include Petroleum ether, Chloroform, Methanol and Hot Water. The crude extracts were made to different concentrations (100mg/ml, 50mg/ml, 25mg/ml) and were tested against certain bacterial pathogen namely *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Streptococcus pyogenes* and *Klebsiella pneumoniae*. Cultures were collected from Department of Microbiology, Karpagam Arts and Science College, Coimbatore. Disc diffusion method was adapted to test the antibacterial activity.⁵ After period of incubation, zone of inhibition was observed and measured. Preliminary phytochemical studies were also done to detect for the presence of various chemical components in the plant extracts.⁶

RESULTS AND DISCUSSION:

The results of the antibacterial assay and phytochemical studies are presented in Table 1 and in Table 2 respectively. *In vitro* antibacterial studies showed significant

zones of inhibition (in mm) against the tested pathogenic bacteria. Chloroform extracts showed significant activity against *P.aeruginosa* and *K.pneumoniae*. Water extract exhibited moderate activity against *S.aureus*. Phytochemical analysis of the leaves of *V.trifolia* showed the presence of saponins, tannins, flavonoids and glycosides in different solvent extracts.

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Table : 1. Antibacterial activity of different solvent extracts of *Vitex trifolia* leaves*

Extracts	Concentration	<i>Pseudomonas aeruginosa</i>	<i>Klebsiella pneumoniae</i>	<i>Streptococcus pyogenes</i>	<i>Staphylococcus aureus</i>
Petroleum ether	100 mg / ml	5	18	18	14
	50 mg / ml	14	16	15	11
	25 mg / ml	9	9	12	10
Choloroform	100 mg / ml	22	22	20	19
	50 mg / ml	18	18	18	18
	25 mg / ml	5	16	14	14
Methanol	100 mg / ml	17	18	17	15
	50 mg / ml	15	15	15	13
	25 mg / ml	11	12	13	9
Water	100 mg / ml	19	19	18	24

	50 mg / ml	15	17	15	23
	25 mg / ml	15	15	13	14
Chloram ^b .	30µg / disc	17 mm	22 mm	30 mm	22 mm

* Inhibition zones

^b Chloramphenicol reference compound

Table : 2 - Preliminary phytochemical screening of the *V.trifolia* leaves

Extracts	Alkloids	Saponin	Tannin	Flavonoid	Steroids	Glycoside
Petroleum ether	-	-	-	-	-	-
Chloroform	-	-	-	-	-	-
Methanol	-	-	+	+	-	+
Water	-	+	-	-	-	+

+ Presence of the compound

- Absence of the compound