Antimicrobial activity of *Vitex leucoxylon, Vitex negundo* and *Vitex trifolia*

*** K. Phani and A Ravi Kumar**

* Department of Pharmacognosy, Bapatla College of Pharmacy Bapatla, India

***Corresponding author: E-Mail: phanikodali.1@gmail.com**

ABSTRACT

In the present study, an attempt was made to investigate the anti-bacterial activity of *Vitex leuocoxylon, Vitex negundo and Vitex trifolia.* The crude drug powder extracts of the leaves of the above plants were taken for the study. The antibacterial activity was performed by using both gram positive and gram negative organism viz., *B.subtilis* and *E.coli* respectively.

Key words: Antibacterial activity, Plant extracts, *Vitex leuocoxylon, Vitex negundo, Vitex trifolia*

INTRODUCTION

Herbal medicine – It is also called botanical medicine or phytomedicine-refers to using plants seeds, flowers, roots for medicinal purpose. Herbalism has a long tradition of use of *Vitex leuocoxylon, Vitex negundo and Vitex trifolia.* Verbenacea family plant (*Vitex* species) was selected for the study.

MATERIALS AND METHODS

Plant Materials: The plants *Vitex leuocoxylon, Vitex negundo* and *Vitex trifolia* were authentified and collected from different areas Guntur, Prakasham districts of Andhra Pradesh.India .

Solvent Extraction: The leaves of *Vitex leuocoxylon, Vitex negundo* and *Vitex trifolia* were collected, washed, dried and powdered separately. 50g of dried powder of the leaves was weighed and transferred into a conical flask and it was macerated with sufficient amount of ethanol for about a week days. The whole mixture was filtered and filtrate was collected, concentrated in a china dish on a hot plate till the residue was obtained. The extract was collected, labeled and stored for further experimental use.

Microorganisms: The test organisms used were *E.coli* (ATCC 25922) a Gram –ve strain and *B.subtilis* (ATCC 21332) a Gram +ve strain. The strains were sub-cultured on nutrient agar slants and were incubated for 24 hrs.

Antibacterial activity: Anti bacterial activity was determined by applying agar well diffusion method.

Agar well diffusion method: Required glass ware was washed and dried in a hot air oven. The sterilized agar medium was transferred into the Petri dishes, was allowed to solidify at room temperature. The selected test organism was spread over the solidified agar with the help of a swab stick. Sterile borer was used to make wells of 8mm diameter. The Petri plates were placed in a refrigerator for 5min to allow diffusion. Later the Petri plates were incubated in inverted position at 37^0 C for 24 hours in the incubator. After 24hours the zone of inhibition was observed and diameter in mm was measured and recorded.

Qualitative analysis for Phytochemical Constituents: The extracts and crude dried powders of *Vitex leuocoxylon, Vitex negundo and Vitex trifolia* were subjected to chemical tests in identification of various constituents.

RESULTS AND DISCUSSION

In the present study the antibacterial activity of extracts of leaves of *Vitex leuocoxylon,Vitex negundo* and *Vitex trifolia* in combination and separately was studied and the results of zone of inhibition intensities were recorded in Table.1.

Table.1.Antibacterial activity of *Vitex leuocoxylon, Vitex negundo and Vitex trifolia*

Component	Dose (µg/ml)	Zone of Inhibition		Component	Dose (µg/ml)	Zone of Inhibition	
		E.Coli	***B.Subtilis***			***B.Subtilis***	***E.Coli***
Standard ciprofloxacin	10	20mm	22mm	Standard ciprofloxacin	10	20mm	22mm
Ethanolic extract of *Vitex pubescence*	500	-	-	Combined ethanolic extracts of two *Vitex* species	500	-	-
	750	-	-		750	-	-
	1000	5mm	6mm		1000	-	-
Ethanolic extract of *Vitex penducularis*	500	-	-	Combined ethanolic extracts of two *Vitex* species	1000	-	-
	750	-	-		1500	7mm	8mm
	1000	6mm	7mm		2000	5mm	7mm
Ethanolic extract of *Vitex agnuscastus*	500	-	-				
	750	-	-				
	1000	-	-				

CONCLUSION

Anti-bacterial activity of *Vitex leuocoxylon, Vitex negundo and Vitex trifolia was studied.* The crude drug powder extracts of the leaves of the above plants has shown significant antimicrobial activity. The antibacterial activity performed using both gram positive and gram negative organisms viz., *B.subtilis* and *E.coli* respectively. We can conclude that the selected plants have antibacterial activity.

AKNOWLEDGEMENTS

The author is thankful to HOD's of Department of Pharmacognosy and HOD Department of Biotechnology Bapatla College of Pharmacy, Bapatla for giving necessary assistance in completion of the project work.

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