Antimicrobial activity of Vitex leucoxylon, Vitex negundo and Vitex trifolia

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**ABSTRACT**

In the present study, an attempt was made to investigate the anti-bacterial activity of Vitex leucoxylon, 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 leucoxylon, 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 negundo, Vitex trifolia and Vitex leucoxylon. Verbenaceae family plant (Vitex species) was selected for the study.

**MATERIALS AND METHODS**

Plant Materials: The plants Vitex leucoxylon, 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 leucoxylon, 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°C for 24 hours in the incubator. After 24 hours 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 leucoxylon, 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 leucoxylon, Vitex negundo and Vitex trifolia in combination and separately was studied and the results of zone of inhibition intensities were recorded in Table 1.

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<tr>
<th>Component</th>
<th>Dose (µg/ml)</th>
<th>Zone of Inhibition</th>
<th>Component</th>
<th>Dose (µg/ml)</th>
<th>Zone of Inhibition</th>
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<tbody>
<tr>
<td>Standard ciprofloxacin</td>
<td>10</td>
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<td>Standard ciprofloxacin</td>
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<tr>
<td>Ethanolic extract of Vitex pubescence</td>
<td>500</td>
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<td>Combined ethanolic extracts of two Vitex species</td>
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<td>1000</td>
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<tr>
<td>Ethanolic extract of Vitex penducularis</td>
<td>500</td>
<td>-</td>
<td>Combined ethanolic extracts of two Vitex species</td>
<td>1000</td>
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<td>5mm</td>
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<tr>
<td>Ethanolic extract of Vitex agnuscastus</td>
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</table>

Table 1. Antibacterial activity of Vitex leucoxylon, Vitex negundo and Vitex trifolia
CONCLUSION
Anti-bacterial activity of *Vitex leucoxylon, 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.

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REFERENCES