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# ANTIBACTERIAL ACTIVITY OF *VITEX PUBESCENCE, VITEX PENDUCULARIS* AND *VITEX AGNUSCASTUS*

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**ABSTRACT**

In the present study, an attempt was made to investigate the anti-bacterial activity of *Vitex pubescence Vitex penducularis* and *Vitex agnuscastus.* 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 and combined extracts of the plants were also tested for the significance of antibacterial activity.

**KEY WORDS:** Antibacterial activity, Plant extracts, *Vitex pubescence, Vitex penducularis, Vitex agnuscastus*

## 1. INTRODUCTION

Herbal medicine – The screening of phytochemical constituents of plants *Vitex leuocoxylon, Vitex negundo and Vitex trifolia* indicated the presence of carbohydrates, flavonoids, alkaloids and steroids in common The plants contains more metabolites there is need for further investigations using fractionated extracts and purified chemical components 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 outside of conventional medicine. Verbenacea family plant (*Vitex* species) *Vitex pubescence, Vitex penducularis* and *Vitex agnuscastus* were selected for the study of Antimicrobial activity of the extracts of the three plants.

## 2. MATERIALS AND METHODS

**Plant Materials:** The plant material of *Vitex pubescence Vitex penducularis* and *Vitex agnuscastus* were Authentified by Dr. A.Ravi Kumar Dept of Pharmacognosy Bapatla College of Pharmacy Bapatla and were collected from different areas such as Guntur and Prakasham districts of Andhra Pradesh, India.

**Solvent Extraction:** The leaves of *Vitex pubescence Vitex penducularis* and *Vitex agnuscastus* 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, labelled 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:**

**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 dilutions of extracts of *Vitex pubescence Vitex penducularis* and *Vitex agnuscastus* and solutions of combined extracts *Vitex pubescence Vitex penducularis* and *Vitex agnuscastus* respectively were poured in the wells with the help of a sterile syringe needle. In each Petri plate a well was prepared for standard i.e., ciprofloxacin 10µg/ml solution. 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.

## 3. RESULTS AND DISCUSSION

The present study includes the antibacterial activity of extracts of leaves of *Vitex pubescence, Vitex penducularis* and *Vitex agnuscastus* and in combination with the leaf extracts of *Vitex pubescence Vitex penducularis* and *Vitex agnuscastus* of selected two species separately *Vitex agnuscastus Vitex pubescence* and *Vitex penducularis* and *Vitex pubescence* and results of zone of inhibition were reported in the table.1.

**Table.1.Antibacterial activity of *Vitex pubescenceVvitex penducularis Vitex agnuscastus***

| Component | Dose | Zone of inhibition (mm) | |
|---|---|---|---|
| | | ***E.Coli*** | ***B.Subtilis*** |
| **Standard Ciprofloxacin** | 10 µg/ml | 20mm | 22mm |
| **Ethanolic extract of *Vitex pubescence*** | 500µg/ml | - | - |
| | 750µg/ml | - | - |
| | 1000µg/ml | 3mm | 4mm |
| **Ethanolic extract of *Vitex penducularis*** | 500 µg/ml | - | - |
| | 750µg/ml | - | - |
| | 1000µg/ml | 5mm | 6mm |
| **Ethanolic extract of *Vitex agnuscastus*** | 500 µg/ml | - | - |
| | 750µg/ml | - | - |
| | 1000µg/ml | - | - |
| **Combined Ethanolic extracts of two *Vitex* species** | 1000µg/ml | - | - |
| | 1500µg/ml | 9mm | 11mm |
| | 2000µg/ml | 14mm | 17mm |
| **Combined Ethanolic extracts of two *Vitex* species** | 1000µg/ml | - | - |
| | 1500µg/ml | 4mm | 5mm |
| | 2000µg/ml | 3mm | 4mm |

**- Not Done**

**4. CONCLUSION:** The selected three plants posse's significant antimicrobial activity in combined extracts of selected species.

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