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PHYTOCHEMICAL CHARACTERISATION AND ANTI-MICROBIAL ACTIVITY OF VITEX NEGUNDU LEAVES

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ABSTRACT: *Fresh leaves of vitex negundu were collected and macroscopic and microscopic characters were determined. Soxhlet extraction of the powdered leavers was carried out using petroleum ether (40:60) and chloroform. Idenitification of important phytoconstituents was carried out. Characterization by TLC showed the presence of vitexin. The processed leaf extract was tested for antimicrobial activity. The results indicated antibacterial activity of the extract.*

INTRODUCTION:

Vitex negundu commonly know as 'Lagundi' is distributed throughout India. Roots and bark have been in traditional and herbal use in cough, cold, bronchitis, asthma and inflammations. Among Mundas of chotanagpur, expectorant is prepared form the sap produced after warming green branches of the plant[1]. The plant is used as ethnomedicine to reduce body pain[2]. Literature reveals that the plant extracts possess analgesic and anti-inflammatory activity[3, 4] also the seeds and leaves have mosquito repellant and larvicidal activity[5, 6]. Androgenic effects of the flavonoid rich fraction of the deeds have been studies[7]. Plant extracts as antifungal have shown activity[8, 9.] The antibacterial activity of the plant has not been much explored though activity Against E.Coli has been reported[10]. We therefore bring to light antibacterial activity of the leaf extract of the plant.

MATERIAL AND METHODS

Vitex negundu Linn[11] leaves were collected from October to November and morphological character of the fresh leaves was determined. Dried leaves were pulverized and micropically evaluated. The powdered material was extracted using solvents petroleum ether (40:60) and chloroform in Soxhlet apparatus[12]. Each extract was separately processed by evaporating the solvent first at low temperatures, followed by drying under vacuum in a rotary thin film evaporator at 30^{o}C. Indentification of phytoconstituents[13] showed the presence of alkaloid, sterol and tannin in the petroleum ether extract. Chloroform extract depicted the presence of flavonoids. These were verified using specific n-Butanol: Acetic acid: water solvent system and also located under u.v spectra at 360 nm as mauve coloured bands. Characterization by means of TLC showed the presence of vitexin[14] using the modified solvent system, ethylacetate: formic acid-glacial acetic acid-ehylmenthyl ketone (RF 0.75) in the chloroform extract of the plant.

Antimicrobial activity

The vacuum dried chloroform extract obtained of leaves of *vitex negundu* L. was

weighed (10mg) and dissolved in sterile dimethyl formamide solvent (10ml). From this 1% solution, 100 micrograms per ml concentration was prepared. Also, standard chloram – phenicol solution (100 µg/ml) was prepared.

The gram negative bacterial strains of *klebsiella* pneumoniae, shigella sonnei and proteus mirabilis[15], were taken and subculture of pure strain of the same using peptone water media as culturing medium was prepared and incubated at 37.5^{o}C for one day. The same was used for inoculation. Preparation of nutrient agar plates was done and the plates sterilized by autoclaving at 121^{o}C for 15 min.at 15 p.s.i Sample to the solidified agar medium[16] under aseptic condition. Inoculation of the bacteria was carried out using sterilized metallic loop. Control plates without extract (with dimethyl formamide) was similarly prepared. Incubation of all the plates was done at 37.5^{o}C fro 48hrs. Growth of the microbes was observed for the sample, plates as well as that of the control.

RESULT AND CONCLUSION

The test for antimicrobial activity of the leaf extract of *vitex negundu* Linn. revealed a positive result which offers new scope in combating various diseases. The growth of *Klebsiella pneumoniae*. Shigella sonnei and Proteus mirabilis was found to be inhibited by the leaf extract taken, though the inhibition was less as compared to chloramphenicol using the same (100 µg/ml) concentration. Now, as the leaf extract has shown inhibitory action against E.Coli, *K. Pneumoniae, Sh. Sonnei and Pr. Merabilis, the sensitivity of vitex negundu* to gram negative strains may be predicted

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