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NOTE

Antimicrobial Activity of Successive Extracts of *Thevetia neriifolia*

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Antimicrobial activity of successive extracts of *Thevetia neriifolia* (Apocynaceae family) leaves in petroleum ether, benzene, chloroform, acetone and ethanol extract were investigated against a panel of bacteria and fungi using zone of inhibition by agar well diffusion method. The microorganisms used in test were *Escherichia coli, Staphylococcus aureus, Pseudomonas vulgris, Klebsiella, Salmonella typhi, Bacillus subtilis, Salmonella paratyphi, Aspergillus niger* and *Aspergillus fumigatus*. All extracts showed activities against bacteria and fungi.

Key Words: *Thevetia neriifolia*, Antibacterial, Antifungal.

The genus *Thevetia* belongs to family Apocynaceae. They occur in tropical as well as sub-tropical part of the world. *Thevetia neriifolia* species is famous for their cardiac glycosides[1]. The tree has been used in the indigenous system of medicine, as an acrid purgative and emetic and was known to provide a remedy for intermittent fever[2]. Kernels are used as an insecticide[3], oil distillates from seeds has bactericidal activity[4]. Antifungal activities were detected in the floral extracts[5]. Larvicidal activity and nematicidal activity were also reported[6]. In this paper, the antibacterial and antifungal activity of successive extracts from dried leaves of *Thevetia neriifolia* are reported.

The plant material was obtained from the Yellagiri Hills, Vellore District, identified in School of Biosciences, VIT University. The collected leaves were air-dried for a week at room temperature and stored for further use.

Preparation of extracts: About 50 g of the air dried leaves was extracted using petroleum ether, benzene, chloroform, acetone and ethanol in a soxhelet apparatus. After each extraction the solvents are removed by rotary flash evaporator and to obtain green solid mass, except petroleum ether extract which was obtained as brownish yellow gummy residue.

Antimicrobial assay: The microorganisms were obtained from School of Bioscience, VIT University, Vellore. The antimicrobial activity was assayed by using the well diffusion method[7] by measuring the zone of inhibition in mm. All the compounds were screened *in vitro* for their antimicrobial activity against different bacterial and fungal strains.

The organism includes *Escherichia coli, Staphylococcus aureus, Pseudomonas vulgris, Klebsiella, Salmonella typhi, Bacillus subtilis* and *Salmonella paratyphi* at 5 µL conc. standard drug penicillin was used for comparison purpose. Different

fungal species used for the screening are: *Aspergillus niger* and *Aspergillus fumigatus*. Standard drug oflaxicin was used for comparison purpose.

The compounds showed varying degree of antimicrobial activity. The details of *in vitro* activity profile of the crude extracts were given in Table-1. All extracts were exhibited good activity against panel of microorganisms.

TABLE-1
ZONES OF INHIBITION (cm) FOR THE TESTED ORGANISMS WITH SUCCESSIVE EXTRACTS OF *Thevetia neriifolia* LEAVES

Organisms	Extracts					
	PE	B	CF	A	E	S
E. coli	–	–	0.7	0.7	0.8	1.0
Kleb	–	0.6	–	0.2	0.3	0.3
P. vulgaris	0.6	–	0.6	–	–	0.7
S. typhi	0.4	0.6	–	0.8	0.4	0.4
S. aureus	–	–	0.8	0.8	0.9	0.9
S. paratyphi	–	–	–	0.7	0.7	0.7
B. subtilus	0.4	–	–	–	–	0.7
A. niger	0.4	–	0.3	0.5	0.2	1.0
A. fumigaters	0.2	0.3	0.2	–	0.3	1.1

PE = Petroleum ether, B = Benzene, CF = Chloroform, A = Acetone, E = Ethanol,
S = penicillin (standard antibiotic for bacterial), oflaxicin (standard antibiotic for fungi).

The zone of inhibition in cm for tested organisms with successive petroleum ether, benzene, chloroform, acetone and ethanol extracts of *Thevetia neriifolia* leaves and standard antibiotics by Agar well diffusion method. It was observed that, all extracts of leaf samples had a very good antimicrobial activity (between the ranges of 0.4-1.0 cm) towards most of microorganisms used in the study. The ethanol and acetone extracts inhibits most of the bacteria except *Pseudomonas vulgris* and *Bacillus subtilis* followed by chloroform extract exhibit good antibacterial activity against *Escherichia coli, Staphylococcus aureus* and *Pseudomonas vulgris*. The petroleum ether, chloroform and ethanol extracts inhibits *Aspergillus niger* and *Aspergillus fumigatus* compare to other extracts. The antimicrobial potency of this species may be attributed to the combined effect of chemical groups in each extracts. The results of the entire study reveal that the *Thevetia neriifolia* plant leaf possesses potential antimicrobial activity against the pathogens used for screening. The findings in the present investigation offer a scientific support to the ethanomedicinal use of plant *Thevetia neriifolia*.

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