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Susceptibility of *Pseudomonas solanacearum* to different solvent extracts of fruit and flower of *Vitex negundo*

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The aim of the study was to investigate the inhibitory effect of different solvent extracts of fruits and flowers of *Vitex negundo* on *Pseudomonas solanacearum*. Dried flowers and fruits of *Vitex negundo* were separately ground into a fine powder and then were successively extracted with dichloromethane, ethyl acetate, and ethanol. The solvent was completely removed from each extract and working stock was prepared in a mixture of acetone and dimethyl sulfoxide (DMSO). Antibacterial activity was detected by agar well diffusion method. Wells (8.0 mm diameter) were made on nutrient agar plate containing 10^6 cells / mL of *P. solanacearum* and then 50 mg / 100 µL of extract was dispensed into the well. Streptomycin (50 µg / 100 µL) and solvent mixture (DMSO and acetone) were used as standard and control respectively. Plates were incubated at 37 °C for 24, 48 and 72 hours and the inhibitory effect was recorded by measuring the zone of inhibition. The extract having the best activity was used for further study with the concentrations of 10, 20, 30, 40 and 50 mg / 100 µL. Each experiment was carried out in triplicate and the data were analyzed statistically. The results showed that the growth of *Pseudomonas solanacearum* was inhibited by all the extracts of both fruits and flowers of *Vitex negundo* and the effect was significantly ($p< 0.05$) different among the test samples. Further, ethyl acetate extract showed higher inhibition than dichloromethane extract of both fruit and flower, and the inhibitory effect of ethanol extract was found to be in between ethyl acetate and dichloromethane. Among the ethyl acetate and ethanol extracts, flowers showed a higher inhibitory effect than fruits but an opposite result was observed with the dichloromethane extract where fruits showed a better effect than flowers. The results obtained by ethyl acetate and ethanol extracts of both fruits and flowers against *Pseudomonas solanacearum* were found to be higher than the result obtained by standard antibiotic, streptomycin. The control experiment indicated that the solvent used to dissolve the extract did not affect the growth of the test organism. Time course analysis of each extract revealed that there was no difference in the inhibitory effect after 24 hrs incubation. The dose-response study demonstrated that the inhibitory effect increased with increasing concentration.

Keywords: Vitex negundo, Pseudomonas solanacearum, Antibacterial activity

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