279/D

Inhibitory effect of *Allium sativum* on pathogenic bacteria

M K Pathmanathan*, E C Jeyaseelan and K Uthayarasa
Department of Botany, Faculty of Science, University of Jaffna, Jaffna, Sri Lanka

The goal of the present study was to authenticate the antibacterial activity of different solvent extracts of *Allium sativum* (garlic bulb) obtained by sequential hot extraction method using soxhlet apparatus. Garlic bulbs were dried in an oven at 40 ^{o}C and powdered. This powder was extracted using dichloromethane, ethyl acetate, ethanol, methanol and water. Solvent from each extracts was completely evaporated. Working stock was prepared in the mixture of acetone and DMSO. Antibacterial activity of these extracts was assessed by agar well diffusion method against *Staphylococcus aureus, Pseudomonas aeruginosa* and *Escherichia coli.* Nutrient agar plate containing $_{10}^{6}$ cells / ml of bacterium was prepared and allowed to set. The well of 8.0 mm of diameter was made on it and 50 mg / 100 µl of each extract was inoculated into the well. Streptomycin was used as standard and the solvent mixture of DMSO and acetone was used as control. The antibacterial activity was recorded by measuring the zone of inhibition after 24 hours of incubation at 37 ^{o}C. Each experiment was carried out in triplicates and the mean value was taken. The result demonstrated that all the test samples except water extract had the ability to inhibit all the test organisms at 50 mg / 100 µl concentration and the degree of zone of inhibition was in the range of 11.0 ± 0.26 mm to 22.0 ± 0.18 mm. *Pseudomonas aeruginosa* and *Staphylococcus aureus* were found to be highly sensitive to methanol and ethyl acetate extract respectively. Dichloromethane and ethanol extracts on *Pseudomonas aeruginosa* and *Staphylococcus aureus*, ethyl acetate extract on *Pseudomonas aeruginosa* and methanol extract on *Staphylococcus aureus* showed moderate inhibition. *E. coli* was found to be less sensitive to all the test samples except methanol extract which expressed moderate inhibition. The standard experiment demonstrated that the zone of inhibition produced on *Pseudomonas aeruginosa and Staphylococcus aureus* by streptomycin, methanol and ethyl acetate extracts was almost similar.

Financial assistance by the National Science Foundation (Grant No. - RG/2006/HS/05) is acknowledged.

*sumpath17@yahoo.com Tel: 021-2229645