



2014

SLAAS

Sri Lanka Association for the Advancement of Science

Proceedings of the 70th Annual Sessions

Part I: Abstracts



603/ E2

In vitro antibacterial activities of secondary metabolites found in the endolichenic fungus, *Curvularia trifolii* inhabiting the lichen, *Usnea* sp. from Hakgala montane forest in Sri Lanka

S N Devpura, K A U Samanthi and P A Paranagama*

Department of Chemistry, Faculty of Science, University of Kelaniya, Kelaniya

Lichen thalli represents a complex ecosystem that harbours diverse endolichenic fungal species. Endolichenic fungi (ELF) are remarkable organisms that readily produce a wide range of novel bioactive secondary metabolites. This study was aimed at uncovering a lead compound with antibacterial activity among the secondary metabolites of the endolichenic fungus, *Curvularia trifolii* isolated from the lichen, *Usnea* sp. from the Hakgala montane forest in Sri Lanka. The antibacterial activities were evaluated against two Gram-positive bacteria *Staphylococcus aureus*, *Bacillus subtilis* and Gram-negative bacterium *Escherichia coli*. The conventional agar well diffusion method was used to evaluate the antibacterial potential of the crude extract. Microplate Alamar blue assay was conducted for the determination of minimum inhibitory concentration (MIC). In both assays, Azithromycin was used as the positive control while the solvent DMSO was used as the negative control. The ELF, *Curvularia trifolii* isolated from a previous study was cultured in Potato Dextrose Broth (PDB) and secondary metabolites of the fungus were extracted with EtOAc (2 L) after a two week incubation period. The presence of antibacterial activity in the EtOAc extract (400 µg) was shown using the Agar well diffusion method. A bioassay guided fractionation was conducted using hexane, chloroform and 60% methanol. Antibacterial screening showed that the chloroform extract had higher bactericidal activity against *E. coli* (10 µg/mL). The chloroform extract was further fractionated using silica gel column chromatography and preparative TLC and a pure compound was isolated and subjected to the antibacterial assay. The results of the bioassay revealed that MIC values of unidentified pure compound are 166 µg/mL, 166 µg/mL and 416 µg/mL against *S. aureus*, *B. subtilis* and *E. coli*, respectively.

Keywords: Alamar blue assay, antibacterial activity, *Curvularia trifolii*, endolichenic, microplate