

New Bioactive poliketide from endolichenic fungus, *Curvularia trifolii*, inhabiting the lichen, *Usnea* sp. collected from Haggala Botanical Garden.

K.A.U. Samanthi¹, S Wickramaarachchi¹, E.M.K Wijerathne², P.A Paranagama¹

Endolichenic fungi (ELF), which live in healthy tissues of lichens, are one of the promising producers of structurally diverse novel bioactive secondary metabolites. It has been reported that endolichenic fungi are rich sources for the discovery of new compounds with significant medicinal values and this was demonstrated by isolation and identification of new anticancer, antifungal, antibacterial and antioxidant agents from endolichenic fungal extracts. In Sri Lanka, research group of University of Kelaniya initiated a research program on ELF and have isolated few interesting bioactive poliketides from ELF of three lichen species available in Sri Lanka. They have shown great potential to be a source for novel bioactive natural products.

The objectives of this study were isolation and identification of bioactive compounds of the endolichenic fungus, *Curvularia trifolii* isolated from the lichen *Usnea* species. In a continuation of our chemical investigations in search of secondary metabolites of endolichenic fungi with medicinal value led to the isolation of few bioactive compounds. In this present study, *C. trifolii* was grown in large scale and incubated at room temperature for 10 days. The metabolites were extracted into ethyl acetate (EtOAc). Antibacterial, anticancer and insecticidal activities of the EtOAc extract were evaluated using in-vitro bioassays. The EtOAc extract was subjected to a silica gel column chromatography resulting, one major compound with high bioactivities. The isolated pure white crystalline compound was identified as 1,14-dihydroxy-6-methyl-6,7,8,9,10,10 α ,14,14 α -octahydro-1H-benzo[f][1]oxacyclododecin-4(13H)-one using ¹H, ¹³C NMR, 2D NMR and MS data. The compound was found to possess antibacterial activity against three test pathogens, anticancer activity at (NCIH-460), (MCF-7), (SF-268), (PC3M), and (MDA-MB-231) cell lines and insecticidal activity.

Key words: Anticancer activity, endolichenic fungi, antibacterial activity, Curvularia trifolii

¹ Department of Chemistry, University of Kelaniya, Sri Lanka. priyani@kln.ac.lk

² SW Center for Natural Products Research and Commercialization, School of Natural Resources and the Environment, College of Agriculture and Life Sciences, University of Arizona, Tucson, United States.