DISCOVERING NEW BIOACTIVE MOLECULES FROM ENDOLICHENIC FUNGI, *Curvularia trifolii* and *Penicillium citrinum*

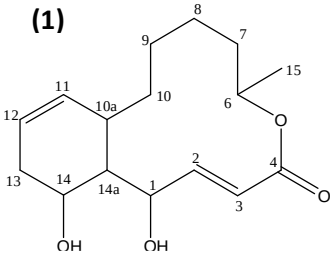
Priyani A. Paranagama*, Upamalika Samanthi, Suranga Wickramaarachchi, Kithsiri M. Wijeratne

*[1]*Department of Chemistry, University of Kelaniya, Sri Lanka*

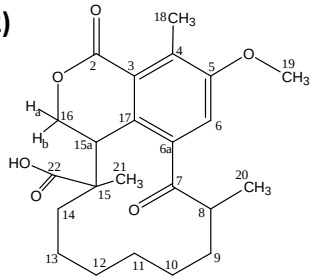
[2] SW Center for Natural Products Research and Commercialization, School of Natural Resources and the Environment, College of Agriculture and Life Sciences, University of Arizona, 250 E. Valencia Road, Tucson, Arizona 85706-6800, United States

Endolichenic fungi are microorganisms living in the thalli of lichens that are analogous to the plant endophytic species inhabiting the intercellular spaces of the hosts. The diversity and prevalence of endolichenic fungi have not been studied extensively and there are only a few recorded studies on isolations and identifications of endolichenic fungi. The endolichenic fungi available in Sri Lanka are still an untapped source of bioactive natural products since their identity and the chemistry of their secondary metabolites have not been explored thoroughly. In our ongoing research programme on searching for new bioactive compounds from endolichenic fungi, we have investigated an endolichenic fungi, *Curvularia trifolii* and *Penicillium citrinum* isolated from the lichens, *Usnea sp.* and *Parmotreama* sp. collected in the Hakgala Botanical Garden, Sri Lanka. Ethyl acetate extracts of two endolichenic fungi, *C. trifolii* and *P. citrinum* led to isolation of four new compounds, **1- 4**. The structures of the new compounds were determined on the basis of their 1D NMR, 2D NMR and FABMS spectroscopic data. The new compounds, **1 - 4** showed radical scavenging activities with IC_{50} values of 4.0±2.6 mg/mL, 1.3±0.2 mg/mL, 159.7±22.3 µg/mL and 68.6±4.3 µg/mL respectively in DPPH antioxidant assay and antioxidant activity of the compound **2** was comparable to the standard antioxidant compound, BHT. Moreover, the new compound, **2** were evaluated for their anti-inflammatory activity and exhibited significant activity comparable to the standard anti-inflammatory drug, Aspirin. The Compound **1** was evaluated for inhibition of cell proliferation in a panel of five cancer cell lines NCI-H460, MCF-7, SF-268, PC-3M, and MIA Pa Ca-2 and exhibited >90% inhibitory activity at 5 µg/mL with all the above cell lines.

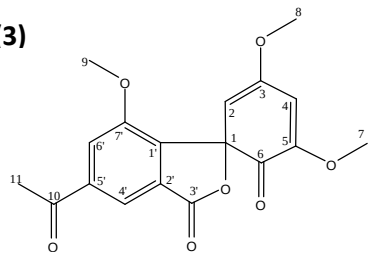
(1)



(2)



(3)



(4)