

METABOLITES OF AN ENDOPHYTIC FUNGUS FROM A COMMON WEED
Acalypha indica

**D. Dissanayake¹, K. Samarakoon¹, N.R. Amarasinghe², D. Yakandawala³, N.S. Kumar¹,
N.K.B. Adikaram¹, L. Jayasinghe^{1*}, H. Araya⁴ and Y. Fujimoto^{1,4}**

¹National Institute of Fundamental Studies, Kandy, Sri Lanka

²Department of Pharmacy, Faculty of Allied Health Sciences, University of Peradeniya, Peradeniya, Sri Lanka

³Department of Botany, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka

⁴School of Agriculture, Meiji University, Kawasaki, Japan

*lalith.ja@nifs.ac.lk

Weeds are the worst agricultural and environmental pests worldwide. The use of synthetic weedicides has become a major issue in health and day-to-day living. Hence, the introduction of eco-friendly weedicides will be beneficial. We focused on isolating phytotoxic compounds from the fungi associated with common weeds found in Sri Lanka. These weeds can grow in harsh conditions and establish in any environment; hence, the fungi associated with *Acalypha indica* were studied. An endophytic fungus was isolated from the triple sterilized healthy leaf segments (5 × 5 mm) of *A. indica*. Pure cultures were inoculated into potato dextrose broth media (400 mL × 90), allowed to stand for seven days and then incubated at room temperature for another 14 days while shaking every other day on a laboratory shaker. After 21 days, the fungal broth was filtered to separate the mycelium. The filtered broth was sprayed onto two-weeks old cucumber plants, and observations were recorded every 24 h up to 5 days. No visible necrotic symptoms were observed despite slight growth retardation. The broth was extracted with ethyl acetate (EtOAc). The mycelium was sequentially extracted with EtOAc and methanol (MeOH). The crude EtOAc and MeOH extracts were subjected to phytotoxic assay against lettuce seed germination inhibition assay in triplicates (five days in dark conditions). Abscisic acid was used as a positive control. The broth EtOAc extracts showed 83% and 79%, while the mycelium EtOAc extract showed 44% and 97% shoot and root inhibition, respectively, at 1000ppm. The broth EtOAc extract was subjected to chromatographic separation over column chromatography, PTLC and HPLC to furnish two new compounds, (4*E*,6*E*)-undeca-4,6,10-triene-2,8,9-triol and (6*E*,8*E*)-9-(3-hydroxy-(2-hydroxymethyl)phenyl) nona-6,8-diene-2,4,5-triol, in addition to known compounds, 19,20-epoxycytochalasin C, methyl (2*E*)-3-(4-methoxyphenoxy)-2-propenoate, clonostachdiol and (4*E*,6*E*,10*E*)-trideca-4,6,10,12-tetraene-2,8-diol.

Financial assistance from the National Research Council (Grant No. NRC/EWC/18-03) is acknowledged.

Keywords: *Acalypha indica*, Endophytic fungi, Phytotoxicity, Weedicides