

Bioactive extracts from an endophytic fungi from *Myristica fragrans*

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This study reports the activity of bioactive extracts of endophytic fungi from condiment plant, *Myristica fragrans*. Morphologically four (A, B, C and D) different types of endophytic fungi were obtained from the triple sterilized leaves of *M. fragrans*. Pure culture of fast growing fungus D was obtained by repeated sub culturing on potato dextrose agar. Pure culture of fungus D was transferred into 1L conical flasks (×90) containing 400 ml of potato dextrose broth (PDB). The flasks incubated at room temperature for seven days and while shaking on 14 days on a laboratory shaker (95 rpm). After completion of 21 days, it was filtered and filtrate was extracted thrice with ethyl acetate (1:1 v/v) and residual mycelium was sequentially extracted using ethyl acetate (EtOAc) and Methanol (MeOH) using sonicator. Two EtOAc extracts were combined based on the thin layer chromatography (TLC) pattern. EtOAc and MeOH crude extracts were preliminary screened for bioassays and 50% inhibition concentration (IC₅₀) was calculated. Adequate level of phytotoxic activity was observed for EtOAc crude extract at 105.12 ppm and 108.22 ppm root and shoot inhibition respectively. MeOH extracts showed moderate level of phytotoxic activity at 603.06 ppm and 990.33 ppm respectively. Brine shrimp toxicity was obtained in both EtOAc and MeOH crude extract showed at 405.38 ppm and 386.44 ppm. EtOAc and MeOH extracts were screened for antifungal activity against *Cladosporium cladosporoides* and only EtOAc extract showed an inhibition zone. Both EtOAc and MeOH extracts showed low antioxidant activity and low activity to α -amylase inhibitory assay. Combined EtOAc extract were subjected to chromatographic separation to furnish 9 compounds. Structure elucidation of isolated compounds and determinations of bioactivities of the isolates are in progress. According to the results, phytotoxicity and cytotoxicity potential was observed in both EtOAc and MeOH extract of endophytic fungi of D. Only EtOAc crude extracts of fungus D showed potential antifungal activity.

Keywords: *bioactivity, secondary metabolites, condiment plants, endophytes*