

**BIOACTIVE EXTRACTS FROM AN ENDOPHYTIC FUNGI FROM  
*Zingiber officinale***

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Plant endophytic fungi have been recognized as an important source of natural products with potential application in industries. The chemistry and bioactivity of endophytic fungi in rhizome of *Zingiber officinale* were investigated to find the possible application in health and agriculture. Triple sterilized rhizome segments of *Z. officinale* were placed on potato dextrose agar (PDA) medium and incubated at room temperature in darkness. Pure culture of endophytic fungi was fermented in 12 L of potato dextrose broth (PDB) medium while shaking at room temperature for 21 days. The medium was filtered and filtrate was extracted with ethyl acetate (EtOAc) and residual mycelium was extracted using EtOAc and methanol (MeOH). Based on thin-layer chromatography (TLC), two EtOAc extracts were combined. EtOAc and MeOH crude extracts of endophytic fungi of *Z. officinale* were screened for antioxidant activity using DPPH radical scavenging method, phytotoxicity by lettuce seed germination assay, brine shrimp toxicity against *Artemia salina*,  $\alpha$ -amylase inhibition activity and antifungal activity against *Cladosporium cladosporoides*. Phytotoxicity was observed for EtOAc crude extract at 525.97 mg L<sup>-1</sup> and 483.94 mg L<sup>-1</sup> root and shoot inhibition, respectively. Moderate level of brine shrimp toxicity was shown in both EtOAc and MeOH extracts at 503.70 mg L<sup>-1</sup> and 444.67 mg L<sup>-1</sup>, respectively. Only EtOAc extract showed an inhibition zone against *C. cladosporioides*. Both EtOAc and MeOH extracts showed low antioxidant activity and low activity to  $\alpha$ -amylase inhibitory assay. EtOAc extract was subjected to chromatographic separation over silica gel, reverse phase silica, sephadex LH-20 and preparative thin-layer chromatography to furnish eight compounds. Structure elucidation of isolated compounds and determinations of bioactivities of the isolates are in progress. According to the results of this study, antifungal, phytotoxicity and cytotoxicity potential was observed in EtOAc extract of endophytic fungi of *Z. officinale*.

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