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PHYTOTOXICITY OF SOLVENT EXTRACTS FROM AN ENDOPHYTIC FUNGUS ISOLATED FROM *Cardiospermum halicacabum*

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Endophytic fungi are a promising source of bioactive substances. Naturally derived secondary metabolites from endophytic fungi may provide a source of environmentally friendly weedicides. This study investigated the phytotoxic activity of solvent extracts from an endophytic fungus isolated from fresh, mature leaves of *Cardiospermum halicacabum* (Sapindaceae) collected from the Central Province of Sri Lanka. Endophytic fungus KS/CH/F was isolated from triple sterilized leaf segments placed on potato dextrose agar (PDA). Pure fungal strains were cultured on a large scale in potato dextrose broth (PDB) medium for five weeks. The resulting culture broth was filtered, and broth and mycelium were separately extracted with Ethyl acetate (EtOAc). The freshly filtered broth was used for broth spraying assay for three-week-old cucumber (*Cucumis sativus*) plants, and observations were taken until seven days. The two EtOAc extracts were combined based on thin-layer chromatography and screened for phytotoxicity using lettuce (*Lactuca sativa*) seed germination inhibition bioassay and leaf puncture assay using two-week-old cucumber leaves. The combined EtOAc extract was subjected to column and thin-layer chromatography (silica gel column followed by Sephadex LH-20 and PTLC) to give seven compounds. Broth spraying assay showed wilting symptoms, and leaf necrosis appeared from day one of spraying and most of the plants were completely wilted by day three, with others having leaf necrosis. Leaf puncture assay for the EtOAc extract at 1000 mg L^{-1} showed increased leaf necrosis from 24 to 72 h. The EtOAc extract showed 100% root inhibition and 99.2% shoot inhibition at 1,000 mg L^{-1} with IC_{50} value of 97.05 mg L^{-1} and 241.46 mg L^{-1} for root and shoot inhibition, respectively. Molecular identification of the fungus and structure elucidation of the isolated compounds are in progress. The present work has demonstrated that solvent extracts from this endophytic fungus show phytotoxic activity and could be used to develop eco-friendly weedicides.

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Keywords: *Cardiospermum halicacabum*, Endophytic fungi, Phytotoxicity