Isolation of Antibacterial Compounds from the Endophytic Fungus *Curvularia lunata*

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Bacteria showing resistance to the existing antibiotics have become a human health crisis in the World. Thus there is an essential need to find novel antibacterial compounds as a solution to this antibiotic resistance issue. Cyperaceae family plants are rich reservoirs of endophytic fungi which are potential synthesizers of antibacterial secondary metabolites. Purification of the antibacterial compound/s from an endophytic fungal strain isolated from *Cyperus iria* was the aim of this study. A crude extract of an endophytic fungal culture which was identified as *Curvularia lunata* showed antibacterial activity against Gram Positive *Staphylococcus aureus* and *Bacillus subtilis*. Therefore, this fungus was grown in 150 Petri dishes using potato dextrose agar, incubated for 21 days, extracted into ethyl acetate and the antibacterial activity of the crude extract was tested against *S. aureus* and *B. cereus* at 400 µg/disc concentration. Purification of the active compounds was carried out using bio assay guided chromatographic methods. The crude extract (420 mg) was first fractionated by solvent-solvent partitioning, using hexane, chloroform, ethyl acetate and water as the solvents. The active chloroform fraction was further purified by Sephadex LH20 size exclusion chromatography using methanol and eluted fractions were combined according to their TLC profiles. The combined fractions (A-E) were tested for antibacterial activity. Fraction C from size exclusion chromatography showed antibacterial activity with 13 and 16 mm inhibition zones against the *S. aureus and B. cereus* respectively, Fraction D showed antibacterial activity with 11 mm inhibition zone against the *B. cereus* at 400 µg/disc. The TLC profiles showed fraction C is close to purity while fraction D consists of many compounds. According to the proton NMR spectrum, the fraction C is an aromatic compound. Further purification of fractions may lead to a potential antibacterial agent.

Keywords: Cyperus iria, *Curvularia lunata*, Antibacterial, Secondary metabolites

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