

Phytotoxic naphtho- γ -pyrones from endophytic *Aspergillus niger* isolated from *Bacella alba*

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The management of weeds has been a major problem since the beginning of agricultural practices. In the modern world a large amount of synthetic herbicides are used to control weeds. However, the overuse of synthetic herbicides has resulted in negative effects on the environment, human health and increased the occurrence of herbicide resistant weeds. In a continuation of our studies towards the search for phytotoxic compounds from Sri Lankan flora, phytotoxic activity of secondary metabolites produced by endophytic fungi, *Aspergillus niger* from *Bacella alba* (Bacellaceae) was screened. *B. alba* is an allelopathic plant that grows in tropical and subtropical regions of the world and it is widely eaten as a leafy vegetable. The plant is traditionally used to treat for ulcers, burns, boils, abscess and swellings. *A. niger* was isolated as an endophytic fungus from the leaf of *B. alba* for the first time. *A. niger* was cultured in potato dextrose broth for three weeks and the medium was extracted with EtOAc. Chromatographic separation of the EtOAc extract over silica gel followed by PTLC furnished five naphtho- γ -pyrones, TMC 256A1 (1), rubrofusarin B (2), foncesin B (3), aurasperone A (4), fonsecinone A (5) and ergosterol (6). Among these compounds, 1, 2&3 showed high phytotoxic activity towards lettuce (*Lactuca sativa*) seed germination bioassay. IC₅₀ values of percentage root growth inhibition of 1, 2&3 were 45.4, 49.7 and 47.8 ppm, respectively, while IC₅₀ values of percentage shoot growth inhibition of 1, 2&3 were 49.7, 48.7 and 48.2 ppm, respectively.

Keywords: *Aspergillus niger*; *Bacella alba*; endophytic fungi; phytotoxicity