

ANTIFUNAGAL NAPHTHOQUINONES FROM FUNGUS *Monacrosporium ambrosium* FROM *Camellia sinensis*

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Tea (*Camellia sinensis*) is a perennial crop that is grown on large continuous areas and creates a stable environment for plant feeding insect pests. The tea shot-hole borer (TSHB) beetle (*Xyleborus fornicatus*) is one such insect pest. TSHB has a symbiotic relationship with the filamentous fungus *Monacrosporium ambrosium* (ambrosia fungus, Syn. *Fusarium ambrosium*). In this study, the focus has been on to identify the naphthoquinone metabolites produced by *M. ambrosium* in a laboratory culture of this fungus, and to evaluate the antifungal activity of the compounds. Usually microorganisms are able to excrete substances that affect the growth and development of other species. Cultures of *Fusarium* sp. are prolific producers of naphthoquinones. During our previous investigations, we have reported antifungal javanicin, dihydroanhydrojavanicin, anhydrojavanicin, 5,8-dihydroxy-2-methyl-3-(2-oxopropyl) naphthalene-1,4-dione, anhydrofusarubin and solaniol. In this study, TSHB beetles were collected from infested tea stems of TRI 2025 from the Tea Research Institute (TRI), Hantana. The fungus was identified as *F. ambrosium* by sequence analysis as well as morphological characteristics. Pure cultures of *M. ambrosium* were inoculated into conical flasks, each containing PDB medium (400 ml) and the flasks were incubated with occasional shaking at room temperature for 28 days. The culture broth was partitioned with EtOAc and the mycelium was extracted into EtOAc. The EtOAc extract was separated using several chromatographic techniques (column chromatography, PTLC, HPLC) to obtain fusarubin, fusarubin methyl ether, fusarnaphthoquinone B, and 2-acetonyl-3-methyl-5-hydroxy-7-methoxynaphthazarin in addition to previously reported techniques. These compounds were identified by the <sup>1</sup>H, <sup>13</sup>C NMR and MS data, and compared with literature reports. All four compounds exhibited the antifungal activity against *Cladosporium cladosporioides* at 64 µg mL<sup>-1</sup>.

**Keywords:** Antifungal, *Camellia sinensis*, *Monacrosporium ambrosium*, Naphthoquinone