

## 06-06 Vast amount of metabolites determined by UPLC-MS from Scots pine roots associated bioactive endophytic fungi

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Endophytes are ubiquitous microorganisms living asymptotically inside plant cells and tissues. This host-endophyte interaction is considered mutually beneficial to both of the symbionts. Endophytes are known to produce an enormous amount of pharmacologically interesting metabolites with various bioactive properties. Three endophytic fungi species isolated from the roots of Scots pine seedlings growing on Finnish peatland forest were investigated for their bioactive properties. These fungal isolates were identified according to their ITS region nucleotide sequence being *Acephala applanata* (A), *Phialocephala fortinii* (R), and *Humicolopsis cephalosporioides* (S16), which are common dark septate endophytes (DSE) or DSE-like fungi from boreal forest tree root systems. Fungal species were subjected to bioactivity guided fractionation according to their antioxidant and antimicrobial characteristics and these yielded to 4 (A), 9 (R) and 6 (S16) HPLC subfractions (using preparative HPLC Shimadzu Prominence system) from the water soluble fungal extracts.

These fractions were fingerprint analyzed by UHPLC-ESI-Orbitrap-MS and tentative identifications were made using natural product libraries including Thermo Compound Discoverer application. Over 250 different compounds were detected and majority of these belonged to dipeptides or other amino acid derived compounds. Further analysis of the bioactive potential for the identified compounds or compound groups is ongoing.