



***Arcopilus amazonicus*, chemical and biological study of a new species of endophytic fungus.**

Aline O. dos Santos¹, Thiago F. Sousa², Felipe M. A. da Silva³, Célio F. F. Angolini⁴, Rodolfo D. Lima⁵, Gilvan F. da Silva⁶, Hector H. F. Koolen¹

¹Metabolomics and Mass Spectrometry Research Group, Amazonas State University;

²Department of Microbiology, Federal University of Viçosa; ³Department of Chemistry, Federal University of Amazonas; ⁴Center of Human and Natural Sciences, Federal University of ABC;

⁵Biotechnology and Mass Spectrometry Research Group, Federal University of Ceará;

⁶Laboratory of Molecular Biology, Brazilian Agricultural Research Corporation of the Western Amazon.

alineoliveiradosantos93@gmail.com/hkoolen@uea.edu.br

Fungi are present in different ecosystems and their evolutionary success must include various levels of abilities, including the association with other organisms, also called symbiosis.^[1] Although some symbiotic relationships are harmful to the host, endophytes display a balance relationship with its host plant.^[2] Endophytes are still poorly studied, especially regarding their chemical diversity and biotechnological potential. Isolated as an endophyte from *Paullinia cupana* roots, the fungus *Arcopilus amazonicus* is a new species of the recently described *Arcopilus* (former *Chaetomium globosum* complex). Taking into account the new chemical possibilities of this new species, this work aimed the biotechnological prospection of extracts from this new species. For this, extracts obtained from submerged cultivation of monosporic isolates in PD broth were analyzed by HPLC-HRMS/MS and obtained a chromatogram (1) with the constituents present and Molecular Networking analysis was realized. The main constituents were purified by classical chromatography approaches, and the obtained compounds assayed against a panel of fungal pathogens of guaraná crops. The chemical profiles showed an overproduction of the polyketide oosporein (2), besides the production of orcinol (3). Moreover, β -naphthol and 4-hydroxybenzoic acid were isolated as minor constituents. A modest antifungistatic activity was observed at the antibiosis, but no activity was observed for the main constituents. The obtained results indicate the potential of Amazon crops to provide new interesting fungi species, as well of prolific producers of specific natural products.

[1] AANEN, D. K. As you reap, so shall you sow: Coupling of harvesting and inoculating stabilizes the mutualism between termites and fungi. *Biology Letters*, 2006.

[2] SCHULZ, B. et al. Endophytic fungi: A source of novel biologically active secondary metabolites. *Mycological Research*, 2002.

