



Toxicity of the extracts of the fungi *Trichoderma* spp. and *Fusarium* spp. on ants

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Leaf-cutter ants from the genders *Atta* and *Acromirme* are pests to different cultures, mainly those related to agroforestry and forest plantations, attacking different parts of the plants and causing losses in agriculture. Countless agricultural "pesticides" have been used, although biological control is preferable, when available. "Synthetic" insecticides have caused environmental pollution and affected human health in an indiscriminate way. In addition, insects of economic importance have already become pest-resistant to more than thirty different types of insecticides: what has increased the interest in biological control methods based on the use of microorganisms, including endophytic fungi. These organisms colonize the plants' interiors and can protect them against pests, pathogens and environmental adversities, either directly or indirectly, by their metabolites production. Such metabolites can be used as a biological control alternative, once the relationship plant-endophyte represents an inexhaustible and unexplored source of chemical, natural and particular structures. Thus, this paper aimed to select restinga fungi isolates from the LAQUIBIO biological collection for biological control application against leaf-cutter ants. Extracts were produced by cultivating the fungi in a liquid medium; they were then applied on the target insect either orally, or by contact or through exposure to fungi's volatile compounds. Ants were collected in natural anthills, taken to the laboratory and separated in groups into transparent plastic bottles. Each group counted 10 individuals, repeated three times, for a total of 30 ants per treatment. For 10 days, the survival and toxicity effects of the extracts on the individuals were evaluated. More than 60 fungi isolates were tested, and it was possible to select species of *Trichoderma* spp. and *Fusarium* spp. with promising effects on ant mortality when compared to control treatments (sucrose solution without fungus extract). Mortality was higher in treatments involving ingestion of the extracts by the ants, followed by contact. Virtually no effects of volatile compounds on the survival of individuals were observed. These results demonstrate the promising ability of using fungi and their metabolites in biological pest control.

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