

TITLE: A diverse and partially cellulolytic fungal community contributes to the diet of three species of the aquatic insect *Phylloicus* (Trichoptera: Calamoceratidae) in Amazonian streams

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ABSTRACT:

We studied fungal taxa associated with the digestive tract (DT) of larval stages of the aquatic shredders *Phylloicus amazonas*, *P. elektoros* and *P. fenestratus* that occur in streams of the Brazilian Amazon Forest. Filamentous fungi were isolated, purified and screened for cellulolytic activity. A total of 33 fungal taxa was identified through the combination of classical and molecular [sequencing of the internal transcribed spacer (ITS) regions of the rDNA] taxonomy. The genus *Penicillium* was the most frequent in DT of *Phylloicus* spp. (18.75%), followed by *Pestalotiopsis* and *Trichoderma* (10.42%, each). The occurrence of fungal taxa among hosts was variable, with more than half of the associated fungi being exclusive of each host species. Only *Pestalotiopsis microspora* and *Penicillium citrinum* were found in the three insect species. A significant portion of the fungal community associated with each host presented cellulolytic activity (± 50 % of the strains associated). Although there was no evidence of species-specific symbiotic interaction between filamentous fungi and their hosts, *Phylloicus* spp. consistently has cellulolytic filamentous fungi associated with their DT, corroborating the possible role of these microorganisms in the conditioning of the vegetal debris consumed by the shredder insects in streams.

Keywords: Aquatic macroinvertebrates; Cellulolytic fungi; Fungal diversity, Fungus-insect interaction.

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