OCCURRENCE OF FUNGI ASSOCIATED WITH DIGESTIVE TRACT OF MACROINVERTEBRATES OF THE GENUS Triplectides IN A ATLANTIC RAIN FOREST STREAM

Autores Silva, J.B.A. [1], Casotti. C.G.M. [2], Moretti, M.S. [2], Morais, P.B. [1]
Institution [1] UFT - Universidade Federal do Tocantins (Avenida NS 15 ALC NO 14, 109 Norte – Palmas – TO), [2] Universidade de Vila Velha (Avenida Comissário José Dantas de Melo, 21 - Boa Vista, Vila Velha – ES)

Abstract:
Studies on the interactions between fungi and insects are rare especially those involving filamentous fungi and aquatic insects. Most of these interactions are based on nutritional and maturational factors of the mutualistic insects. A group of aquatic insects break down the coarse particulate organic matter and thus contribute to carbon cycling in streams that is primarily done by fungi. It is hypothesized that the microbiota associated with the digestive tract of fragmenter insects helps in the degradation of plant detritus that those insects break down. The objective of this study is to verifiy the occurrence of fungi in the digestive tract of fragmenters of the genus Triplectides collected along a 200m area in Santa Clara stream, in Santa Leopoldina – ES. The insects were dissected on sterile glass slides and the intestinal content was transferred to an Eppendorf tube containing sterile water and homogenized. An aliquot of 100µL was inoculated in triplicate Petri dishes containing Potato Dextrose Agar added with cloramphenicol and incubated at 18ºC to simulate the stream water temperature. After 3, 5, 7, 14 and 21 days fungal colonies were described and purified for further identification. The isolation resulted in 94 fungi grouped as 35 morphospecies from intestinal tracts of ten insects. Frequency of colonization was calculated as: $\frac{Nd}{Nt}$ x 100 where *N*d and *N*t correspond to the number of insects colonized by a fungal morphospecies and the total number of insects. In general, six morphospecies colonized between 70 and 50% of the insects, whereas the majority of fungi occurred in only one insect. The high frequency of occurrence of fungi in the intestinal tract of fragmenters may suggest an association between insects and fungi and further investigation on the celullolytic ability of these fungi may reveal their role in the digestion of plant detritus by the insect or a possible role as food item in Triplectides diet in streams of the Atlantic Rain Forest.

Key words: Fragmenter insects, Plant decomposition, Celullolytic fungi, Aquatic carbon cycle .
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