

TITLE: ISOLATION OF ENDOPHYTIC FUNGI IN ENVIRONMENTS WITH AND WITHOUT TRACES OF MERCURY CONTAMINATION, PANTANAL OF MATO GROSSO

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Abstract:

The mining activity in Mato Grosso is an economic source for many cities, especially in Poconé, where this activity is responsible for significant change in the landscape and the contamination of the ecosystem by mercury. This results in serious damage to biota enhanced by bioaccumulation capacity. Mercury is toxic to all organisms, however, some microorganisms have innate or acquired tolerance to metal. Therefore, our hypothesis is based on the premise that plants in contaminated environments with mercury harbor a specific community of endophytic fungi, therefore, variations in the colonization frequency of the endophytes in these plants are expected, when compared to places without contamination. Roots of *Aeschynomene fluminensis* and *Polygonum acuminatum* from two environments - contaminated (Dam Jurumirim) and other uncontaminated (East and Pirizal) located in the municipality of Pocone, have collected. Soil samples were analyzed to confirm the presence and/or absence of the contaminant. These roots have disinfected (70% alcohol and sodium hypochlorite 1.5%). After disinfection fragments roots were transferred to Petri dishes containing PDA medium supplemented with 30 µg.mL⁻¹ of HgCl₂. The endophytic fungi were grouped in morphotypes and to confirm the group, microscopic characteristics were observed from permanent slides obtained through microculture. One hundred and eighty fungal isolates were obtained and distributed into seventy-three morphotypes. The number of isolates was greater in the contaminated environment with 111 isolated. M20, M1 and M2 were the most frequent morphotypes (13.52, 7.05 and 5.8%, respectively). All plants had roots colonized by endophytic fungi, however, the highest average values for the frequency of colonization were observed to *P. acuminatum* (54.09 ± 16.01%) and *A. fluminensis* (46.66 ± 13.02%) coming from the environment contaminated by mercury. This result confirms our hypothesis, since the difference in terms of colonization and number of isolates of endophytic fungi were observed, whose values were higher in the mercury contaminated area.

Keywords: Poconé, resistance, heavy metal, mining of gold

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