

SELECTION OF FUNGY ISOLATED FROM MINE OF SOSSEGO, CANAÃ DOS CARAJÁS-PA, WITH POTENTIAL FOR USE IN THE BIOREMEDIATION OF HEAVY METALS

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Contamination by heavy metals due to accident or inappropriate disposal of industrial waste is one of the most important environmental pollution problems. New technological processes for the treatment of effluents and waste have been created, aiming at the treatment and maintenance of the environmental balance. Bioremediation is a low-cost and efficient technology when compared to conventional techniques for the treatment of contaminated areas, which consists in the degradation, reduction and transformation of pollutants through the activity of microorganisms (bacteria and fungi) present or added in the contaminated environment. The objective of this work was to select isolated fungi from tailings of the Sossego Mine, in Canaã-dos-Carajás, in the state of Pará, which have potential as a bioremediation agent for heavy metals. The fungi were inoculated with 7 mm of diameter from reproductive mycelium in the central part of the Petri dish, containing Agar Potato Dextrose (BDA) culture medium, with lead (Pb) and zinc (Zn) in concentrations of 200 to 1000 ppm. In the control sample, only the metal-free BDA medium was used. Fungal colonies were measured with the ruler at two-day intervals to evaluate the growth of reproductive and vegetative mycelium. The fungal strains were characterized by the microculture technique. FR02 and FR03 isolated were selected and characterized as filamentous, presenting hyaline and septate hyphas, and reproductive structure in the form of conidiophore with microconidia. The strains have been shown to be tolerant to Pb and Zn at the concentrations tested. In the macroscopic analysis of the reproductive mycelium, it was observed that the FR02 and FR03 strains presented modifications in the relief and texture of the colony in concentrations of metals of 400 and 600 ppm of Pb and in all the concentrations of Zn, taking into consideration the control plate that presented diameter of 8.3 cm. FR03 strain did not show uniform growth of the reproductive mycelium, being the growth distributed in the borders or of random form in the plates. It can be inferred that this variation comes from the action of the metal in the growth of the fungus. The fungi used in the experiment are promising heavy metal bioremediation agents. More complex studies will be conducted to evaluate the ability of these fungi to bioaccumulate heavy metals.

Keywords: Bioremediation, Canaã-dos-Carajás, heavy metals, microorganisms.