

**TITLE:** Actinomycetes in sediment samples from Cuiabá River, MT.

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**ABSTRACT**

Sediments have great importance in an aquatic environment due to their capacity of retention of compounds, allowing by means of specific analyzes the understanding of the factors occurred in a Watershed. Several bacterial groups, among them Actinomycetes are responsible for the cycling of nutrients and biochemical transformations in the sedimentary system. Actinomycetes are a topic of interest in several areas of knowledge due to metabolic efficiency in both ecological and industrial processes. The objective was to evaluate if the density and the genetic diversity of Actinomycetes present in the bottom sediment of the Cuiabá River, MT is related to seasonal period and sampling points distributed from the source to the Pantanal of Poconé (MT). The collections were made in cross - sectional profile of the river during periods of drought and rainy season. Physical, chemical and microbiological analyzes were carried out using conventional techniques and molecular biology. The Scott-Knott statistical test was applied to compare the means of bacterial density between sampling points and collection points. The Bionumerics 7.0 application was used for the analysis of the bacterial communities. Most of the sediment is composed of fractions of sand and acid pH with minimum variations between sampling points at all collection periods. The results obtained for the variables, Phosphorus, Potassium and Organic Matter, were more representative in the rainy season. The density of Actinomycetes was higher in the rainy season. The diversity and bacterial gene characterization made by BOX-PCR and percentage of similarity evidenced 100% similar strains. Among the sampling points, the point in the Pantanal presented greater grouping with similar strains. The diversity was greater in the rainy season, being in the drought period, 03 groupings were observed 100% similar. As for the dissimilar strains (<70%), it was found that 33 of these are from the rainy season and of that amount, 14 strains correspond to the sampling point in the Pantanal. The statistical method allowed concluding that there was a significant effect for the interaction between the factors: sampling points, collection points and seasonality ( $p < 0.05$ ). Evaluating separately by sample points and period, the statistic confirms the result of the bacterial count, being the rainy season more representative in relation to the means of the bacterial density.

**Keywords:** Actinomycetes; Genetic diversity; Sediment.

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