

TITLE: CHARACTERIZATION OF ENDOFITIC BACTERIA OF ROOTS OF THE PALM BABAÇU AND LEGUMINOUS "SABIÁ", AS WELL AS THE CAPACITY OF PRODUCTION OF EXTRACELLULAR ENZYMES.

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ABSTRACT:

The babassu palm (*Attalea speciosa* Mart., Arecaceae) is a dominant and ruderal component in the central-northern landscapes of Maranhão and other peripheral regions of Amazonia. Leguminous plants, on the other hand, are known to produce strong allelopathic substances, for example alkaloids, among others, and are known to have microbial associations of high ecological importance (Ecosystem Functions). The knowledge of the microbial diversity and the enzymatic and functional potential of the microbiota acquire importance in the context of soil quality. The present project aimed to characterize the endophytic bacteria of the roots of the babassu palm and the "sabiá" leguminous, as well as the production capacity of extracellular enzymes of ecological interest. To that end, fifteen fine roots (<2 mm) had been collected inside the plots with sabiá and babassu, obtained through a sample composed of three soil monoliths, in two different periods ("sabiá" leguminous tree and babassu palm). After the root process were placed in falcon tubes, placed in styrofoam with ice-gel and transported to the Microbiology Laboratory in CEUMA University, where root disinfection was carried out for the isolation of endophytic bacteria. After obtaining pure cultures, the quantification, morphological characterization of the isolates and Gram staining were performed, followed by qualitative tests in Petri dishes containing adequate media and the specific carbon sources for the induction of each enzyme. The results of the morphological characteristics showed that there is high phenotypic diversity in root systems. Out Of the 58 bacteria isolated from the roots of the babassu palm and the "sabiá" leguminous, 15% presented red staining, being classified as Gram negative and 17% classified as Gram positive. The results showed that the isolates of the babassu palm and the "sabiá" leguminous produced extracellular enzymes. Out Of the 43 isolates of the babassu palm, 51.1% presented lipolytic activity; 11.6% amylolytic activity; followed by cellulase and lipase which had the same percentage of 13.9%. Of the 15 isolates of the leguminous, 13.3% presented lipase and amylase production, followed by 6.6% of the cellulase activity and did not present proteolytic activity. In addition to environmental and agricultural relevance, the microbial ability to secrete enzymes suggests both bacteria have biotechnological potential for the production of enzymes of commercial interest.

Keywords: microorganisms, ecosystem functions, pre-Amazonia maranhense.

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