



## DIVERSITY AND AMYLOLYTIC AND CELLULOLYTIC CAPACITY OF BACTERIA ASSOCIATED WITH THE RHIZOSPHERIC SOIL OF CEIBA PENTANDRA (L.) GAERTN

I Integrative International Congress on Animal and Environmental Health, 1ª edição, de 25/06/2024 a 28/06/2024  
ISBN dos Anais: 978-65-5465-100-4

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### RESUMO

Popularly known as Samaúma, *Ceiba pentandra* (L.) Gaertn belongs to the Malvaceae family, is a large tree native to Brazil, and can be distributed in pantropical humid forests, with commercial and phytotherapeutic value. The area of intense biological activity around plant roots is called the rhizosphere. Interactions between roots, microorganisms, and soil occur there, creating a vast chemical and biological diversity essential for plant homeostasis. Therefore, the present research aimed to verify the diversity of bacteria associated with the rhizospheric soil of *Ceiba pentandra* and evaluate their enzymatic potential for the production of amylases and cellulases. The soil was collected close to the plant root, and the control/non-rhizospheric soil was collected at a location 20 m away from the roots. The soils were removed from a depth of 20 cm to 60 cm. The samples were analyzed at the Bacteriology Laboratory (LABAC)-UFOPA. After serial dilution, 100 µL of each dilution was removed and inoculated on plates containing Plate Count Agar that were incubated in a bacteriological oven at 37 °C for 24 h. Different colonies were selected based on morphology, color, and texture and inoculated into tubes containing Tryptic Soy Agar for isolation and purification. Biochemical identification was performed using Bergey's key. Enzymatic tests were carried out to verify the amylolytic and cellulolytic capacity of the bacterial strains. From the rhizospheric soil, 16 strains were obtained, the most common genus being *Corynebacterium* sp. (50%), followed by *Bacillus* sp. (44%) and *Lactobacillus* sp. (6%). From the control soil, 23 strains were identified, with *Corynebacterium* sp. being the most common genus (65%), followed by *Bacillus* sp. (26%) and *Staphylococcus* sp. (9%). The 16 strains from rhizospheric soil were subjected to enzymatic tests, in which one strain belonging to the genus *Bacillus* sp. showed a positive result for amylase, 8 strains showed a positive result for cellulase, of these, 5 belonged to the genus *Bacillus* sp., and 3 to the genus *Corynebacterium* sp. From the control soil, 23 strains were subjected to testing, of which 2 strains belonging to the genera *Bacillus* sp. and *Corynebacterium* sp. tested positive for amylase, 6 strains tested positive for cellulase, 3 strains belonging to the genus *Corynebacterium* sp. and 3 strains belonging to the genus *Bacillus* sp. The results obtained from the 39 strains analyzed provide an insight into the microbiota in rhizospheric and non-rhizospheric soils, revealing the importance of studying these environments and their enzymatic potential.

**PALAVRAS-CHAVE:** *Ceiba pentandra* (L, ) Gaertn, cellulolytic capacity, amylolytic capacity, bacteria diversity, rhizospheric soil

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