

Title: CHARACTERIZATION OF FILAMENTOUS FUNGI ISOLATED FROM *Melocactus* sp. RHIZOSPHERE FOR AMYLASE, PROTEASE AND CELLULASE PRODUCTION

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Abstract:

Enzyme-producing microorganisms are targets of several studies in Brazil since the country imports the majority of the enzymes used in different industrial sectors. Although with great biological diversity, that could be better exploited in order to obtain enzyme-producing organisms with biotechnological interest. In this manner, this study aimed to characterize filamentous fungi from the rhizosphere of the cactaceae *Melocactus conoideus* Buin. & Bred. regarding the production of amylases, proteases, and cellulases. The samples soil were collected in Periperi Municipal Park and its surroundings, in Vitória Conquista/BA, with a total amount of eleven compost samples from randomly assigned areas according to the occurrence of *M. conoideus* in the studying area. For fungi isolation, it was used the serial dilution method followed by plating on YEPG agar, containing 0.1% streptomycin. Once pure fungi cultures were obtained, it was proceeded to morphological characterization and cultivation on distinct culture media for quantitative assessment of enzymes production: Starch agar medium, gelatin-milk agar and carboxymethylcellulose agar for amylase, protease and cellulase detection, respectively. A total of 27 morphotypes were obtained, being 14.8% of them classified as *Penicillium* sp.; 11.1% as *Aspergillus* sp.; 7% as *Cladosporium* sp. and 66.7% of them were classified only to phylum (*Ascomycota*). All isolates of the genus *Penicillium* and *Aspergillus* were producers of the three assessed enzymes, differently from the isolates of the genre *Cladosporium* that produced only amylase. Among the classified isolates only to phylum, one of them did not show any production of enzymes, another one has produced only proteases, other three only amylases, and the remains were producers of the three investigated enzymes. These results indicated that fungal isolates from *M. conoideus* rhizosphere might represent a source of enzymes for industrial and biotechnological interest.

Keywords: Enzymes, industrial, biotechnological

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