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AMYLASES PRODUCTION BY RHIZOSPHERIC FUNGI ASSOCIATED WITH *Opuntia ficus-indica* Mill.

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Roots have great influence on soil that surrounds it (rhizosphere) because it release up 40% of total dry matter produced by photosynthesis of organic carbon as root exudates. Rhizospheric microorganisms act on the nutrients cycling, including starch. Amylases are produced by bacteria, yeasts and fungi, especially filamentous fungi. Amylases include a group of enzymes that act on the starch releasing several products from dextrins to glucose. These enzymes have biotechnological applications in the pharmaceutical, textile, detergent and food industries. This work aimed to evaluate the production of amylases by rhizosphere fungi associated with *Opuntia ficus-indica* Mill's semi-arid. Strains used in this work are from the UNIVÁS Microbiological Collection, maintained with periodical sampling in Petri dishes containing Sabouraud agar media, after reactivation. The production of amylase was tested in TLE liquid medium ($CaCl_2$ 0.1 g L^{-1} KH_2PO_4 7.0 g L^{-1}, K_2HPO_4 2.0 g L^{-1}, $(NH_4)_2SO_4$ 0.1 g L^{-1} , $MgSO_4.7H_2O$ 0.1 g L^{-1} and 0.1 mL of trace elements) containing starch (1%) as carbon source. The inoculated erlenmeyer were incubated in rotary shaker at 28 ° C and 160 rpm. After 24 and 48 hours of incubation 20 mL of media were collected, centrifuged and used for the determination of amylase activity. For the determination of amylase activity were used two different methods: the dextrinifiying activity (FUWA,1954) and saccarifiying method (Miller, 1959). Others parameters evaluated were the mycelial growth and pH change. All tested strains (n = 17) were able to produce amylase dextrinifying activities after 24 h of incubation, with values up to 10 enzyme units per ml of fermented medium. Five of these strains showed increased activity at 48 hours of incubation, and three showed a significant reduction in those values. This reduction of values can be related to the fact that the induction medium not receive glucose addiction, an easily metabolizable carbon source, glucose present (released) in media was consumed. The mean values for saccarifiying activity has significantly increased at 48 hours of incubation, and the number of positive strains, which go from 8 to 10, reaching values up to 15 enzyme units per ml of fermented medium. Dextrinifying and saccarifiying activities of tested strains did not correlate with the pH change or with mycelial growth. The pH soured significantly. We conclude that some of the tested strains are able to starch degradation, with potential for biotechnological application of these, after purification and supplementary tests (times exceeding 48 hours).

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