

Low cost Production of Amylolytic Enzymes by Microorganisms isolated from Cassava (*Manihot esculenta*) Rhizosphere: first steps for the industrial application  
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Amylase is one of the most used enzymes in food, textile and pharmaceutical industries and have, recently, gain pivotal role in energy industry for the production of starch-based ethanol. Amylolytic microorganisms, commonly present in the rhizosphere of amylaceous roots, as potato, cassava, etc, produce and secretes amylolytic enzymes. In this work, we isolated microorganisms from the rhizosphere of cassava (*M. esculenta*) and sweet potato (*Ipoema batatas*) and select them by the capacity to grown in solid medium containing purified starch as unique carbon source. Evaluation of amylase-secreting microorganisms were done by the enzymatic index, expressed by the presence of a clear halo when stab-inoculated cultures were treated with 0.1 % lugol. Two colonies displayed enzymatic index greater then 2.0 and were selected for amylase production experiments in liquid medium. Bacterial growth, starch hydrolysis and reducing sugars production were followed up to 50 hours. One bacterial colony were able to hydrolyse starch in liquid medium with concomitant bacterial growing and reducing sugar production. Supernatant of bacterial culture were tested for the presence of soluble amylase. Amplification of rRNA 16s gene were performed to genetic identification of the selected bacterium. Scaling up of amylase production process shell be performed in order to evaluate the industrial application of such method since microorganism source and selection, as well as amylase production were conducted in low cost substrates, what makes this method a low-cost process scalable for industrial ends.

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