

TITLE: PROSPECTING MICRORGANISMS FOR BIOFUEL PRODUCTION PROSPECT OF MICRORGANISMS FOR BIOFUEL PRODUCTION

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ABSTRACT: Hydrolytic enzymes they play an important role in several processes of biotechnological interests. Among these processes, the use of biomass for the production of biofuels, as an alternative to non-renewable sources, has produced high levels of interest due to climate change. Therefore, The objective of this work was to evaluate and select microorganisms (yeasts, fungi and actinomycetes) producing the hydrolytic enzymes amylase, cellulase, lipase and xylanase, with potential for the production of bioethanol and biodiesel. A total of 13 isolates of actinomycetes, 16 yeasts and 16 fungi cultured in solid culture medium with four different sources of carbon (soluble starch, carboxymethylcellulose - CMC, olive oil and xylan) were evaluated after of seven day incubation period at the temperature 30°C in triplicate. The evaluation of the enzymatic activity was performed by means of the enzymatic index (EI) obtained from the relationship between the diameter of the halo hydrolysis (mm) and the diameter of the colony (mm), being classified as microorganisms potentially producing enzymes those whose IE \geq 2,0. Among the actinomycetes, amylase production was observed in 76,9% of the tested isolates, 92,3% evaluated for cellulase production, 30,8% for lipase and 7,7% for xylanase, with IE values varying from 2,0 to 5,53. With regard to fungi and yeasts, it was observed that these microorganisms were inefficient for the production of the hydrolytic enzymes evaluated, with IE \leq 2,0. Results demonstrate the high potential of actinomycetes for prospecting in biotechnological processes of interest to the biofuels industry.

Keywords: Hydrolytic enzymes; Amylase; cellulase; lipase; xylanase

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