

Title: PROSPECTING OF ENZYMES WITH BIOTECHNOLOGICAL INTEREST OF STREPTOMYCES SP

Authors: Aquino, V.H.R. ¹, Miléo, F.L. ¹, Silva, D.F. ¹, Gazel, C.L.L.¹, Santos, I.N. ¹, Escher, S.K.S.^{1,2}, Araújo, J.M. ², Amorim, E.L.C. ²

Institution: ¹ UFOPA – Universidade Federal do Oeste do Pará (Rua Vera Paz, s/n, Bairro Salé, Laboratório de Microbiologia, Instituto de Saúde Coletiva, Santarém- PA), ² UFPE- Universidade Federal de Pernambuco (Avenida Arthur de Sá, s/n, Cidade Universitária, Departamento de Antibióticos, Centro de Ciências Biológicas, Recife-PE)

Abstract:

The actinobacteria are Gram-positive bacteria morphologically similar to fungi for the development of aerial hyphae and vegetative mycelium in their life cycle, are widely distributed in the nature being an important component of the soil microbial population. These bacteria produce secondary metabolites with large applicability, among which stand out antibiotics and extracellular enzymes such as cellulases, chitinases, proteases and amylase. These enzymes are involved in mineralization of nutrients and decomposition processes of recalcitrant organic molecules present in the soil. The objective of this study was to evaluate the ability of four strains of *Streptomyces* sp to produce enzymes with biotechnological interest. To evaluate the production of lipase and catalase, the strains were inoculated in the Sierra medium with Tween 80 as the carbon source and the NB culture medium, respectively. The plates were incubated at 30 ° C for 10 days, being subsequently made the revelation of catalase with hydrogen peroxide (H₂O₂). The Protease production was assessed by the ability to degrade the gelatin after 20 days of incubation at 30° c. For pectinase evaluation was used the medium containing citrus pectin after growing for 7 days at 30 ° C was performed the revelation with potassium iodide. The amylase production was evaluated cultivating in starch agar medium for 10 days at 30 ° C, being revealed the activity with addition of iodine solution. All strains produce catalase, however, none of them produces gelatinase. As MPO-1 strain produces lipase, as only MPO-12 strain produces amylase. The pectinase production was observed in MPO-1 and MPO-12 strain. The production of enzymes by actinomycetes has both ecological function as antagonistic, inhibiting the growth or development microorganisms competitors. The strains of *Streptomyces* sp isolated of Amazonian soil were able to produce enzymes in the tested substrates, showing a promising source of production of metabolites of great industrial and pharmaceutical interest.

Keywords: Streptomyces, Rhizospheric soil, enzyme activity

Promotion Agency: CNPq