

TITLE: Frequency of extracellular enzymes from endophytic Actinobacteria isolated from cerrado

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ABSTRACT:

Bacteria of the order *Actinomycetales* have aroused the biotechnological interest because of their metabolic plasticity that facilitates adaptation in several environments and their metabolic products have been exploited for commercial purposes. In this work, 17 isolates of actinobacteria from cerrado plants were analyzed for the presence and activity of extracellular enzymes: amylase, cellulase, caseinase, gelatinase, esterase, lipase and pectinase. The isolates were cultured in Czapek-Dox medium for 7 days and suspended in bacteriological agar (0.3% m / v), from which aliquots of 10µL were removed and deposited in media specific for each enzyme. The enzymatic repertoire of each isolate depends on factors such as genetic capacity, habitat and stress conditions. It was observed that 12% of the isolates expressed 6 of the 7 enzymes, 47% expressed 5 enzymes, 29% expressed 4 enzymes, 6% expressed 3 enzymes and 6% expressed 2 of the 7 enzymes evaluated. This biochemical versatility, observed in these actinomycetes can be directed to several strategies of biological adaptation. One must consider a function of decomposers of organic matter, an activity that requires a production of several extracellular enzymes that degrade macromolecules, including recalcitrant biopolymers. The enzymatic diversity presented by each isolate is a result of the relation of factors such as: origin, ecological function, genetic material, and environmental stress imposed on it. In this way, it can be presumed that the isolates with greater enzymatic diversity came from diverse environments in questions of nutrition and possibly of associations with their microhabitats and hosts, whereas the isolates less diversity are needed more studies to understand better they are less diverse or if it is not a sufficient stimulus for enzyme expression.

KEYWORDS: Bioprospection, Actinobacteria, Enzymatic Diversity, Cerrado.