

**TITLE:** ENZYME ACTIVITIES IN ENDOPHYTIC FUNGI FROM *CROTON ARGYROPHYLLOIDES*

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**ABSTRACT:**

The use of enzymes in the market is growing recurrently, with a range of applications in industrial processes. Seeking to appreciate the effects of *Croton argyrophylloides*, a plant popularly known as marmeleiro prateado or sacatinga, commonly found in northeastern Brazil and generally used in folk medicine, this study aims to identify the enzymatic activity in 4 endophytic fungi isolated from *C. argyrophylloides*, as follows *Aspergillus niger*, *Fusarium sp.*, *Nigrospora sp.* and *Monilia sp.*. Strains were carried out in specific culture media, made in duplicate, seeking to analyze enzymatic index (IE), being the mean diameter of the degradation halo to the mean diameter of the colony ratio, for which IE=2 was considered to be a strong positive, and enzymatic activity (PZ), being the mean diameter of the colony to the mean diameter of the colony plus the mean diameter of the degradation halo ratio, being considered negative for  $PZ \geq 1$ , weak positive for  $0.64 \leq PZ < 1$  and strong positive when  $PZ < 0.64$ . The tests aimed to find activities of proteases, amylases, chitinases, lipases, gelatinases, cellulases and deoxyribonucleases (DNases). The cultures were incubated at 37°C for 7 days with consecutive readings of colony and halo growth, when present. For the final reading, the cultures were subjected to specific developer solutions or incubated at 8°C 24 hours before running tests. In *Monilia sp.* proteolytic and chitinolytic activity were observed, with IE=1.56, PZ=0.39 and IE=1.08, PZ=0.39 respectively. *Aspergillus niger* showed proteolytic activity in whole milk tests, with IE=1.76 and PZ=0.36 and albumin, with IE=0.24 and PZ=0.80, and chitinolytic activity, with IE=0.67 and PZ=0.59. In *Fusarium sp.* proteolytic activities, IE=1.06 and PZ=0.48; lipolytic, IE=0.78 and PZ=0.56; amylolytic IE=1.44 and PZ=0.40 and gelatinolytic, IE=0.85 and PZ=0.53 were present. In *Nigrospora sp.* proteolytic activity, IE=1.23 and PZ=0.44; lipolytic IE=0.79 and PZ=0.55 and gelatinolytic, IE=0.92 and PZ=0.51 were found. Enzymatic activity of cellulase and DNases were not found in the endophytic fungi studied. Considering the present study, it was possible to detect weak enzymatic activity in the 4 fungi tested and strong proteolytic enzymatic activity in *A. niger*, enzyme with great commercial importance, and wide utility, as in the food industry or in the production of detergents, for example. Which promotes the obtaining of proteolytic enzymes from isolates of *A. niger* in *C. argyrophylloides*.

**Keywords:** endophytic fungal, enzymatic activity, marmeleiro prateado.

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