Cellulases and Hemicellulases from Endophytic Species of *Acremonium*

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Cellulases and hemicellulases are enzymes which have been applied in the paper, textile and food industries and recently have been studied for ethanol production from hydrolyzed lignocellulosic biomass. In this work, two *Acremonium* species (*Acremonium zea* EA0802 and *Acremonium* sp. EA0810) were examined in relation to their ability to produce FPases, endoglucanases, ß-glucosidases, xylanases, a-galactosidases, a-arabinofuranosidases and ß-xylosidases in different carbon sources. The fungi were cultivated in submerged culture (SC) containing arabinose, xylose, oat spelt xylan, sugar cane bagasse or corn straw as a carbon source. Enzyme production in solid state fermentation utilizing sugar cane bagasse or corn straw as a carbon source was also tested. The highest FPase, endoglucanase and xylanase productions were obtained when the fungi were cultivated in SC containing sugar cane bagasse and corn straw as a carbon source. *Acremonium* sp. EA0810 produced the highest amounts of ß-glucosidase when it was cultivated in SC using xylose as carbon source. *Acremonium zea* EA0802 produced greatest quantities of a-arabinofuranosidase and a-galactosidase in SC utilizing xylan as a carbon source. FPase, endoglucanase, ß-glucosidase and xylanase from *Acremonium* sp. EA0810 were found to have optimum pH and temperatures of 6.0, 55°C; 5.0, 70ºC; 4.5, 60°C and 6.5, 50°C, respectively. a-Arabinofuranosidase and a-galactosidase from *Acremonium zea* EA0802 have optimum pH and temperatures of 5.0, 60°C and 4.5, 45°C, respectively. Endoglucanase and xylanase biochemical characteristics are appropriate for industrial application. An enzymatic extract containing endoglucanase and xylanase activities was submitted to zymogram analyze and one form of each enzyme was detected.

Key words: cellulases, hemicellulases, *Acremonium,* endophytic

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