PARTIAL PURIFICATION AND BIOCHEMICAL CHARACTERIZATION OF AN EXTRACELLULAR XYLANASE OF *FUSARIUM HETEROSPORUM* NEES

Henn, C[2].; Soster, C. C[2].; Costa, A. M[1].; Simão, R.C.G[2].; Osaku, C. A[2].; Peralta, R, M[1].; Kadowaki, M. K[2].
[1]Depto. Bioquímica – UEM/Maringá-PR/Brazil.
[2]Centro de Ciências Médicas e Farmacêuticas – UNIOESTE/Cascavel-PR/Brazil
E-mail: marinakk@unioeste.br

Xylanases are produced by a large variety of microorganisms. Fungal systems are excellent xylanase producers, but often co-secret cellulases which can adversely affect pulp quality. Based on this, *Fusarium heterosporum* Nees presented cellulase-free xylanase activity induced by corn residues, mainly for corn straw and corn cob (21.15 and 13.26 U/mg protein), respectively. This inducible xylanase was partially purified from the extract of *F. heterosporum* Nees and biochemical characterization was performed. The enzyme was purified from an eight day old culture filtrated in submerged fermentation, by ethanol precipitation followed by gel filtration Sephadex G-100 and ion exchange chromatography CMCellulose columns. The partially purified sample showed maximum activity at pH 6.0, whereas the optimum temperature for enzyme activity was 60ºC and thermal stability up to 55ºC. The xylan hydrolysis activity was inhibited with 5mM Hg^{+2}, Cu^{+2}, Al^{+3}, (48%, 17% and 75%), respectively. ß-mercaptoethanol enhanced the xylanase activity in 24%, Ca^{+2} and Mn^{+2} activated 19% and 38%, respectively. The xylanase hydrolyzed beechwood xylan and birchwood xylan yielded mainly xylose as end products, suggesting it is exoxylanase. Thus, this microorganism can represent a useful tool for saccharify corn xylan, since commercially available enzymes are unable to degrade it.

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