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Biochemical characterization of an isolated 50 kDa beta-glucosidase from the thermophilic fungus *Myceliophthora thermophila* M.7.7

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Abstract

This study characterized a 50 kDa β -glucosidase (BGL50) produced by the thermophilic fungus *Myceliophthora thermophila* M.7.7 in solid state cultivation using a mixture of (1:1) sugarcane bagasse and wheat bran. The crude extract zymogram showed two isoforms of β -glucosidase with approximately 50 and 200 kDa, which were separated by gel filtration chromatography. The characterization of BGL50 showed optimum activity at 60 °C and pH 5.0 when 4-nitrophenyl β -D-glucopyranoside (pNPG) was used as the substrate, whereas when using cellobiose, the highest activity was observed at 50°C and pH 4.5. Several ions and reagents produced different effects on the enzyme activity depending on the substrate and there was complete inhibition with Cu^{2+} and Fe^{3+} for both substrates. In addition, nine phenolic compounds showed no inhibitory effects on the

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