

EFFECT OF GLYCOSYLATION ON THE β -XYLOSIDASES FROM *ASPERGILLUS VERSICOLOR*

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Aspergillus versicolor produces β -xylosidases with different biochemical properties and different degree of glycosylation when grown on xylan or xylose (Andrade et al.2004, Proc. Biochem. 39, 1931-1938).

Here we investigated the biochemical properties of these two β -xylosidases after deglycosylation. The purified enzymes were deglycosylated with endo-H or PNGaseF for 24 h at 37 °C. After this treatment both enzymes migrated faster in PAGE exhibiting the same R_f . On SDS-PAGE both enzymes showed similar migration. The temperature optima of xylan-induced and xylose-induced β -xylosidases was 45 °C and 40 °C, respectively, and of 35 °C after deglycosylation. The xylan-induced enzyme was more active at acidic pH than the xylose-induced enzyme (pH optimum 5.5). After deglycosylation the pH activity profiles of both enzymes overlapped (pH optimum 6.0). The thermal resistance of the enzymes at 45 °C showed a half-life of 15 min and 9 min for xylose- and xylan-induced enzymes, respectively. After deglycosylation both exhibited identical profiles of thermal inactivation (half-life of 7.5). The xylan-induced enzyme was activated by calcium, barium, magnesium, and cobalt, and inhibited by aluminum, while the xylose-induced enzyme was not affected by these ions. After deglycosylation the xylan-induced enzyme lost sensitivity to these ions, and the xylose-induced enzyme remained unaffected. Altogether these data supported the view that the differences observed for the xylan-induced and xylose-induced enzymes resulted from a different degree of glycosylation.

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