

Purification and some properties of *Aspergillus pulverulentus* β -xylosidase with transxylosylation capacity

Abstract

Two β -xylosidases [EC 3.2.1.37], β -Xyl I (molecular mass 180 kDa, pI 4.7) and β -Xyl II (molecular mass 190 kDa, pI 3.5), derived from *Aspergillus pulverulentus* were separated and purified by successive chromatographies and their characterization and transxylosylation were studied. β -Xyl I and β -Xyl II were stable at temperatures up to 50°C and from pH 1.5 to 6.5 and 2.5 to 7.0, respectively, while their highest activities were in the pH ranges 2.5–3.5 and 4.0–5.0 at 60°C. Although both enzymes were strongly inhibited by N-bromosuccinimide, the inhibitory effect of HgCl₂ was not significant on either. The two enzymes exhibited different resistances against AgNO₃, glucono 1,5-lactone and nojirimycin. They were shown to have broad acceptor specificity in transferring the xylosyl residue of xylooligosaccharides to various alcohol and phenolic compound acceptors. In the presence of 25% or more 2-propanol, the synthesis of the transfer product, 2-propyl β -xyloside, was closely consistent with the theoretical yield.