

Hydrolysis of wastepaper by *Trichoderma reesei* enzyme components

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Five cellulase enzyme components (two cellobiohydrolases (CBH I and II) and three endoglucanases (Endo I, II and III) components were isolated and partially purified from a commercial cellulase derived from the filamentous aerobic fungus, *Trichoderma reesei*. These cellulase enzyme components were investigated for their individual ability to produce reducing sugars from different wastepaper materials, as well as their ability to act synergistically with one another to effect the hydrolysis of the above mentioned grades of wastepaper.

Both cellobiohydrolases (CBH I and II) and all three endoglucanases (Endo I, II and III) isolated from the commercial *T reesei* cellulase system were able to produce reducing sugars from all grades of wastepaper investigated when acting alone. The greatest amount of reducing sugars were produced by CBH II from brown wrapping paper. Also, the grades of wastepaper investigated appeared to differ in their susceptibility towards hydrolysis by isolated *T reesei* enzyme components, with the highest susceptibility demonstrated by brown wrapping paper and the lowest susceptibility was demonstrated by newspaper.

Exo-exo cellulase synergism and synergism involving the two cellobiohydrolases and an endoglucanase were observed during the hydrolysis of the different grades of wastepaper by the cellulase enzyme components of *T reesei* cellulase system. No endo-endo cellulase synergism was observed during the hydrolysis of wastepaper materials by endoglucanase enzyme components of *T reesei* cellulase system. KEYWORDS Wastepaper, cellulase components, *Trichoderma reesei*, synergism