

Preliminary kinetic studies of cellulase from *Trichoderma reesei*

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The hydrolysis of wood based materials (cellulose) can produce reducing sugars (RS) like glucose which in turn can be fermented to ethanol (fuel). Glucose in cellulose is cemented by hemicellulose and lignin and this makes cellulose highly impenetrable for the enzyme systems of cellulase. To improve the sugar production concentration optimum enzymatic conditions were established and coupled to this substrate saturation studies were done. The activity assay shows a slightly higher concentration of reducing sugars (RS) for microcrystalline cellulose (MCC) than for office paper (OP) and filter paper. There is a three fold (310%) increase in activity after desalting the enzyme when using OP as substrate, and a 10% increase when using MCC. The results show a preference for MCC as substrate and less for OP and filter paper. Optimum pH and temperature were established at 4 and 50 C respectively. A gradual increase in RS is seen with a plateau after 60 min at all fixed substrate concentrations. More kinetic data is needed to understand the dynamics of mechanisms involved and to improve the production of RS.

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