The Enzymatic Activity of Cellobiase in Acidic Conditions

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Abstract

White rot fungi have the abilities to degrade lignin, hydrolyze cellulose, and ferment alcohols. In the production of bioethanol, this could potentially be a significant factor in reducing costs. To search for the optimal conditions for these processes, the cellulase enzymes from the white rot fungus, *Trametes ochracea* were tested under different pH environments. In this experiment, glucose and ethanol levels were tested in order to measure the activity of the enzymes during cellulose saccharification. Because the soils of North Carolina are predominantly acidic, only acidic pH environments were tested, along with a control pH slightly above 7. The fungus was blended into a slurry, which then had the larger particles filtered out, leaving a solution of enzymes and cell mass. In cellulose solutions with pHs 2-7, the enzymes worked at varying efficiency levels to break it down into glucose. The optimal pH for cellulose hydrolysis was found closest to 5, complimenting the data from other previous studies.