

ABSTRACT

Characterization, understanding and overcoming barriers of enzymatic hydrolysis of different cellulosic biomass is essential for the development of economically competitive processes based on enzymatic treatments. This work focused to explore various factors of pretreatment relevant for the improvement of enzymatic hydrolysis/depolymerization of sugarcane bagasse. Four different brands of cellulase enzymes were characterized and formylase-dye was selected on the base of high CMCase & FPase activity. Bagasse was meshed into different sizes, smaller particle size (0.25mm) gave suitable susceptibility to enzyme hydrolysis. The wet oxidation pretreatment studies with acid, alkali and hydrogen peroxide gave positive effect on enzymatic depolymerization. When bagasse was treated with 2% H₂O₂ + 1.5 NaOH at 60°C for 30mins, it became more susceptible for enzymatic depolymerization. After this pretreatment about 50% of the bagasse was depolymerized with 4% enzymes (FPase 27.0 U/ml/min) into detectable sugars.