

Synergistic cellulase activity of Effective Microorganisms

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The biomass is composed of cellulose, hemicelluloses, and lignin. This renewable biomass attracts global attention as an energy resource, mainly for bio-ethanol production from the fermentable sugars contained in the carbohydrate polymers. The solution of Effective Microorganisms (EM) contain many species of beneficial microbes. Particularly, typical featured of EM has been already known can do antioxidant activity which influence on degradation of cellulose in agriculture. The enzymatic saccharification of biomass with the EM is possible to work synergistic. The objectives of this study were to investigate the improving of glucose production of initial rate and thermostability with additional EM and various antioxidants.

Two commercial enzyme, Celluclast and Novozyme 188 were used. The EM, EM filtrate and antioxidants has been known components of EM that be dissolved in aqueous state. Enzyme activity measured that Filter Paper assay and CMCase activity assay are often represented by carboxymethyl cellulase activity, by DNS reagent with glucose as a standard.