



Abstract:

Pretreatment of locally gathered switch grass, *Saccharum spontaneum*, natively known as 'kana' was executed by different physical (Peeling) and chemical methods (Alkaline and Auto hydrolysis) for the maximum sugar recovery through enzymatic saccharification. Substrate pretreated by auto hydrolysis resulted in increased cellulosic and decreased lignin content which consequently gave better saccharification rate of 10.5%. Various external as well as internal parameters were optimized for the recovery of maximum total reducing sugars as well as percentage saccharification. Grinded biomass sample, biomass loading of 0.5 %, sequential addition of hydrolytic enzymes, incubation temperature (80°C), agitation speed (120 rpm) generated improved percentage saccharification of 30.6%. 75 units/ml of endoglucanase with a residence time of 4 hours, 100 units/ml of exoglucanase with retention time of 4 hours and 75 units/ml of β -glucosidase for an activity period of 3 hours gave maximum percentage saccharification of 40.5 %. Addition of endoglucanase prior to exoglucanase resulted in better bioconversion than the opposite sequence of addition.