

**Bioethanol production from *Miscanthus* in bench-scale**

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Bioethanol researches can solve the problem of fossil fuels such as environment pollution and the limitation of fossil fuels. Nowadays, lignocellulosic biomass is regarded as an alternative energy source to fossil fuels. In this study, *Miscanthus*, as a lignocellulosic biomass, was pretreated by continuous system applied twin-screw extruder. Optimum pretreatment conditions (previous study) were 95°C, 0.4 M NaOH, 80 rpm twin-screw speed, and flow rate of 120 mL/min at 15g/min of raw biomass feeding. We developed all-in-one feeder system for solid-liquid separation, washing, dewatering, and feeding. When the pretreated biomass was put into the reactor for simultaneous saccharification and fermentation (SSF) process, its feed rate and moisture contents were 560 g/h and 60%, respectively. Also, enzymes were put 30 FPU/g cellulose into fermentor according to amount of pretreated biomass. The pH was adjusted 5 with H<sub>2</sub>SO<sub>4</sub> solution for optimum activity of enzymes and yeast (*Saccharomyces cerevisiae* CHY 1011). As a results, the 65.5 g/L of bioethanol was produced 51L from 21kg of raw *Miscanthus*. And the final biomass concentration and ethanol yield were 25.2% and 85%, respectively.