

## Production of Ethanol from Mission Grass

**Authors :** Darin Khumsupan, Tidarat Komolwanich, Sirirat Prasertwasu, Thanyalak Chaisuwan, Apanee Luengnaruemitchai, Sujitra Wongkasemjit

**Abstract :** Bioethanol production has become a subject of interest for many researchers due to its potential to replace fossil fuels. Since the most popular sources of bioethanol originate from food crops including corn and sugarcane, many people become more concerned with increasing demand for food supply. Lignocellulosic biomass, such as grass, could be a practical alternative to replace the conventional fossil fuels due to its low cost, renewability, and abundance in nature. Mission grass (*Pennisetum polystachion*) is one of the candidates for bioethanol production. This research is focused on the detoxification and fermentation of hydrolysate from mission grass. Glucose in the hydrolysate was detoxified by overliming process at various pH. Although overliming at pH 12 gave the highest yeast population, the ethanol yield was low due to glucose degradation. Overliming at pH 10 showed the highest yield of ethanol production. Various strains of Baker's yeast (*Saccharomyces cerevisiae*) will be utilized to produce ethanol at the optimal overliming pH.

**Keywords :** *Pennisetum polystachion*, lignocellulosic biomass, bioethanol production, detoxification, overliming, *Saccharomyces cerevisiae*

**Conference Title :** ICCEE 2014 : International Conference on Chemical and Environmental Engineering

**Conference Location :** Barcelona, Spain

**Conference Dates :** February 27-28, 2014