

### Chemical pretreatment of Rice straw : Optimization of sugar yield and inhibitors for fermentation

강민수, 박용철, 김경섭, 최재연, 한용우, 김준석\*

경기대학교

(jskim84@kyonggi.ac.kr\*)

Biofuels are an alternative to conventional energy sources that the potential to dramatically reduce our dependence on imported oil. Lignocellulosic biomass is an abundant renewable resource that could be an important raw material for producing biofuels. The holocellulosic component of lignocellulosic biomass is composed of natural sugar that can be used for producing various fuels such as ethanol. In order to be used as raw materials for bioethanol production, lignocellulosic materials, such as rice straw, must undergo a pretreatment process, through which the lignin is removed and cellulose is made more accessible to enzymatic attack during hydrolysis. In this work, study of the bioethanol production process from thermal pretreatment using rice straw was carried out. Selected pretreatment methods (SAA, AP, ACP, AA) followed by a glucose and inhibitor optimization step were evaluated. We were used RSM for conversion rate of glucose and xylose, lignin removal compared with each other, to find the optimum conditions for the pretreatment. We will present our results from various SEM and x-ray diffraction approaches to understanding and optimizing pretreatment processes.