

Charaterization of Alkaline pretreatment of Empty fruit bunch for enzymatic hydrolysis

강민수, 안수진, 박용철, 김준석*

경기대학교

(jskim84@kyonggi.ac.kr*)

Agricultural waste biomass such as EFB (Empty Fruit Bunch; Palm residue) becomes increasingly important in the production of fuel ethanol and fine chemicals. Generally, to change these valuable chemicals requires enzymatic hydrolysis process for producing sugar. To characterization of EFB for the fermentable sugar production in enzymatic hydrolysis, soaking, autoclave and percolation process using sulfuric acid (H_2SO_4), sodium hydroxide (NaOH) and sodium carbonate (Na_2CO_3) was investigated. Alkaline is effective in delignifying and acid is effective in xylan hydrolysis. Both solutions are increasing the glucan digestibility for efficient enzymatic hydrolysis. The pretreatment was performed within the range 60 ~ 80°C using soaking process, 121 °C using autoclave process and 140 ~ 200°C using percolation process, under various concentration of sodium carbonate (1~3 wt.%), sodium hydroxide (1~5 wt.%) and sulfuric acid (1~5 wt.%), at 1:10 solid-liquid ratio. The wet pretreated residue were conducted with enzymatic hydrolysis.