

Pretreatment Tandan Kosong Sawit Sebagai Bahan Baku untuk Produksi Bioetanol

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ABSTRACT

Crude oil is a nonrenewable and limited supply of energy with an increasing demand. Therefore, it is necessary to find alternative energies to fulfill this demand. Bioethanol is one of renewable alternative energy. Its main raw material is glucose. Glucose can be obtained by hydrolyzing biomass. Biomass used for this research was empty palm stem.

The objection of the research was measuring concentration decomposition of hemi cellulose sugar of empty palm stem. The glucose in hydolisat was analyzed with Nelson-Somogyi reagent, and spectrophotometry visible.

The variable of this research were particle size (bigger and smaller than 10 mesh) and solvent concentration (H_2SO_4 and NaOH , 0 %, 1% and 1.5%). The time of prehydrolysis was 30, 60 and 120 minute at the boiling point solution. The research showed that the biggest concentration of glucose was 4.30393 $\mu\text{g/ml}$ for particle smaller than 10 mesh and 2.5198 $\mu\text{g/ml}$ for particle bigger than 10 mesh with the concentration of H_2SO_4 solvent 1 % at the time 60 minute. For the concentration on NaOH 1 %, the biggest glucose concentration was also obtained with 5.0711 $\mu\text{g/ml}$ for for particle size smaller than 10 mesh and the time of prehydrolysis was 60 minute. 2.859 $\mu\text{g/ml}$ particle size bigger than 10 mesh and the time of prehydrolysis was 30 minute.

Keyword : Bioethanol, empty palm stem, glucose, spectrophotometry visible