

Determination of Effect Factor for Effective Parameter on Saccharification of Lignocellulosic Material by Concentrated Acid

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Abstract : Tamarisk usage as a new group of lignocelluloses material to produce fermentable sugars in bio-ethanol process was studied. The overall aim of this work was to establish the optimum condition for acid hydrolysis of this new material and a mathematical model predicting glucose release as a function of operation variable. Sulfuric acid concentration in the range of 20 to 60%(w/w), process temperature between 60 to 95oC, hydrolysis time from 120 to 240 min and solid content 5,10,15%(w/w) were used as hydrolysis conditions. HPLC was used to analysis of the product. This analysis indicated that glucose was the main fermentable sugar and was increased with time, temperature and solid content and acid concentration was a parabola influence in glucose production. The process was modeled by a quadratic equation. Curve study and model were found that 42% acid concentration, 15 % solid content and 90oC were in optimum condition.

Keywords : fermentable sugar, saccharification, wood, hydrolysis

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