PRODUCTION OF GLUCOSE FROM OIL PALM FOLIAGES
BY USING AMMONIA PRETREATMENT

TAY QIAO ROU

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Faculty of Chemical Engineering
Universiti Teknologi Malaysia

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ABSTRACT

The study explored glucose production from lignocellulosic materials (oil palm foliages). Throughout the experiment, oil palm foliages had gone through two major processes, ammonia pre-treatment and concentrated sulphuric acid hydrolysis. Ammonia pre-treatment was a preliminary treatment for removal of lignin (one of the three major chemical components comprised in plant fiber). Concentrated sulphuric acid hydrolysis is the chemical conversion of pretreated polysaccharide into monosaccharide (glucose). In this study, three different parameters in ammonia pretreatment were investigated; temperature, solid to liquid (S/L) ratio, and ammonia concentration. The final product had undergone DNS analysis to validate the presence of glucose. Glucose concentration was then verified and determined from standard glucose calibration graph. The optimum condition of ammonia pretreatment was identified by analyzing the amount of glucose production. The optimum condition with the highest glucose release, which was approximately 51 g/L, was observed with S/L ratio of 1:12, an ammonia concentration of 7%, and at temperature of 40°C.
ABSTRAK

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