SURVEY THE PROCESS OF PRETREATMENT, HYDROLYSIS AND FERMENTATION COFFEE PULP TO PRODUCE BIOETHANOL

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Summary

Coffee pulp is considered as waste from the processing of coffee bean. Coffee pulp represents 40% of the total weight of the coffee cherry. The coffee pulp contains 25.88% cellulose, 3.6% hemicellulose and 20.07% lignin. In this study, the coffee pulp was alkaline pretreated with NaOH 2% (w/v) at temperature 120^{o}C and 20 min treatment time in microwave. After that, the pretreatment biomass was hydrolyzed with enzyme Viscozyme Cassava C (enzyme loading was 25 FPU/g) at temperature 50^{o}C and 96 hours. Finally, the hydrolysis solution was fermented by yeast *S. cereviciae* (3.10^{8} cells/ml) at temperature 35^{o}C and 72 hours. The results achieved by the process were: 46.11% hemicellulose and 76.63% lignin are removed. Under these conditions maximum reducing sugars and glucose concentration production were 37.33 g/l and 24.36 g/l. The maximum production of 10.06 g/l ethanol was obtained. The result indicated that being available in plentiful amounts and non-edible material, the coffee pulp will be a potential feedstock for bioethanol production in Vietnam.

Keywords: *Bioethanol, coffee pulp, fermentation, lignocellulose biomass, hydrolysis, pretreatment.*