

ABSTRACT

OPTIMALIZATION OF REDUCING SUGAR PRODUCTION FROM CASSAVA WASTE AS RAW MATERIAL OF BIOETHANOL WITH ULTRASONICATION PRETREATMENT

By

Juwita Ratna Sari

This study was conducted in an effort to optimize the production of reducing sugar from cassava waste with the aid of ultrasonication pretreatment, with the main focuss to investigate the effect of ultrasonication time and hydrolysis time on the reducing sugar content of the hydrolizates. The hydrolizate with the highest reducing sugar content was subjected to fermentation experiments using the powdered bark of Raru tree and *Saccharomyces cerevisiae*. The bioethanol produced was analyzed by gas chromatography method using flame ionisation detector. The results obtained demosntrated that utasonication pretreatment led to improved hydrolysability of the sample, as indicated by very significant increased of reducing sugar produced compared to that produced from untreated sample. Fermentation experiments indicated that the reducing sugar produced can be converted into bioethanol by both fermenting agents, however the bark of Raru tree is less effective than *Saccharomyces cerevisiae*.

Keyword: cassava waste, ultrasonication, hydrolysis, fermentation, bark of Raru tree, *Saccharomyces cerevisiae*.