ABSTRACT

EKA YULIANA. Bioethanol Production from Sago Pith using Enzymes and Yeast from Local Isolates. Under the direction of ANJA MERYANDINI and TITI CANDRA SUNARTI.

Starch and fiber from Sago palm can be used for making bioethanol. Starch are accumulate in the pith core of sago palm steam. The pith was pretreated with conventional heating (autoclaving) or microwave. After pretreatment, the sago pith was hydrolysed using α-amylase at 95 °C. The saccharification of sago pith was conducted using consortia of three enzymes (amyloglucosidase, cellulase and xylanase) at 60 °C. Hydrolysis of sago pith was done with these commercial degrading enzymes and self-prepared enzymes from local isolates of cellulolytic and xylanolytic bacteria. Yeast used at the fermentation process was isolated from rotten fruits. Selection of yeast was based on their ability to consume mixed substrates of xylose and glucose; and the ethanol production. After 72 hours of fermentation the ethanol production was analyzed using Gas Chromatography. Ethanol produced from conventional heating was greater than microwave heating by using yeast isolate MP (8.11%).

Keywords: bioethanol, sago pith, enzymatic hydrolysis, local isolates