

**PRODUCTION OF BIOETHANOL FROM COCONUT
(*Cocos nucifera*) HUSK BY ENZYMATIC HYDROLYSIS
USING *Aspergillus niger***

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ABSTRACT

PRODUCTION OF BIOETHANOL FROM COCONUT (*Cocos nucifera*) HUSK BY ENZYMATIC HYDROLYSIS USING *Aspergillus niger*

Coconut (*Cocos nucifera*) husk were abundant in Malaysia and it was employed as raw material in production of bioethanol. The conventional ethanol from petroleum-based would cause environmental hazard and it was known as non-renewable resource. The objectives of this study to synthesis bioethanol from coconut husk, to determine the ability of *Aspergillus niger* in hydrolysis of cellulose into glucose and to determine the optimum temperature for fermentation process. There were four steps that should be followed sequentially in order for bioethanol production; there were pretreatment, enzymatic hydrolysis, fermentation and distillation. Within seven days of hydrolysis process, the result showed that, the reducing sugar production was increased from 0.01 mg.ml⁻¹ to 1.60 mg.ml⁻¹. The temperature for fermentation process was manipulated into three different temperatures, 26°C, 30°C and 34°C. Among those three (3) temperatures, 26°C showed the highest concentration of bioethanol, 0.27%. Bioethanol from coconut husk showed peak at 3434.06 nm. It indicated the presence of of hydroxyl group (OH) which was the properties of ethanol. As a conclusion, *Aspergillus niger* had the ability to hydrolyse cellulose into monomeric sugar and 26°C was determined as the optimum temperature for the fermentation process.