PRODUCTION OF BIOETHANOL FROM *Durio zibenthinus* FRUIT PEEL BY USING ENZYMATIC HYDROLYSIS AND FERMENTATION

WAN MOHAMAD FARHAN BIN WAN AHMAD

Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Biology
in the Faculty of Applied Sciences
Universiti Teknologi MARA

JANUARY 2017

ABSTRACT

PRODUCTION OF BIOETHANOL FROM *Durio zibenthinus* FRUIT PEEL BY USING ENZYMATIC HYDROLYSIS AND FERMENTATION.

Bioethanol is identified as the lead potential of alternative energy. Scientist has experimenting on various source of organic matter to transform it into bioethanol. In this research, the subject that is identified to be a potential bioethanol resources are durian fruit peel due to its potential glucose content. The objective of this research is to identify the potential of *Durio zibenthinus* fruit's peel as source of bioethanol production, to determine the presence of concentration of bioethanol in the fruit peel. The method used in this research are the spectrophotometer UV-light analysis for quantitative analysis and Fourier Transform Infrared (FTIR) analysis for qualitative data. Whereas the method conducted, the pH of the sample for 168 hours were taken to analyze the suitable pH for the fermentation process to occur. The result showed the declining activity for the bioethanol production for first 48 hours and then inclining after the next hour. This showed the activity of bioethanol production is present during the fermentation process. In the qualitative result, the presence of bioethanol wavelength structure was focused in the data. The wavelength structure in the result satisfied the requirements that are needed for indication of bioethanol presence. So that the bioethanol presence in pre and post fermentation in durian peel sample can be proved. As a conclusion, the objective of this research to discover the potential of durian fruit peel as a bioethanol resource was achieved by proving the inclining concentration of bioethanol during fermentation process and the detection of bioethanol wavelength in FTIR test.

TABLE OF CONTENT

LIST OF TABLES