

# **PENGARUH VARIASI KOMPOSISI CAMPURAN KULIT PISANG KEPOK DAN AMPAS TEBU TERHADAP KUANTITAS BIOETANOL**

Rions Puked Naladna Sudnarzasu, Mokh Hairul Bahri, Rohimatush Shofiyah  
Program Studi Teknik Mesin Fakultas Teknik Universitas Muhammadiyah Jember  
Jl. Karimata No. 49, Jember, 68121, Indonesia

Email : [rionspuked97@gmail.com](mailto:rionspuked97@gmail.com)

## **ABSTRAK**

Pemanfaatan bahan bakar nabati menjadi bioetanol semakin berkembang penerapannya, berdasarkan peraturan menteri ESDM tahun 2008 no. 32. Hal tersebut dilatarbelakangi kebutuhan bahan bakar dan kegiatan impor BBM yang meningkat. Oleh karena itu, pada penelitian ini akan dilakukan pemanfaatan limbah/sampah biomassa seperti, kulit pisang kepok dan ampas tebu. Penelitian ini bertujuan untuk mengetahui nilai kalori dan kadar bioetanol paling optimum dari variasi campuran kulit pisang dan ampas tebu dengan variasi massa ragi 56 gram, 84 gram 70 gram, HCl 250 ml, 350 ml, 400 ml, NPK 300 gram, 350 gram, 250 gram, Urea 300 gram, 400 gram, 250 gram, Tetes Tebu 300 ml, 500 ml, 600 ml dengan waktu fermentasi 14 hari. Penelitian ini dilakukan dengan beberapa tahapan: *pretreatment*, hidrolisis, fermentasi, destilasi, uji kalori dan uji kadar alkoholmeter. Hasil uji kadar bioetanol paling optimal adalah 61 % pada komposisi kulit pisang 3 kg (dibagi 3 wadah) dan ampas tebu 3 kg (dibagi 3 wadah) yang menggunakan ragi 70 gram, HCl 0,32 M 350 ml, NPK 250 gram, Urea 250 gram, Tetes Tebu 600 ml. Hasil uji kalori ampas tebu adalah 4,021 Kal/gr dan kulit pisang kapok adalah 4,259 Kal/gr.

**Kata kunci : Kulit Pisang Kepok, Ampas Tebu, Hidrolisis, Fermentasi, Destilasi,  
Bioetanol, Alkoholmeter, dan Bom Kalorimeter.**

# **THE EFFECT OF THE VARIATION OF THE COMPOSITION OF THE KAPPOK BANANA LEATHER MIXED COMPOSITION ON THE QUANTITY OF BIOETANOL**

Rions Puked Naladna Sudnarzasu, Mokh Hairul Bahri, Rohimatush Shofiyah  
Mechanical Engineering Study Program, Faculty of Engineering, University of

Muhammadiyah Jember

Jl. Karimata No. 49, Jember, 68121, Indonesia

Email: rionspuked97@gmail.com

## **ABSTRACT**

The use of biofuels into bioethanol is increasingly being applied, based on the 2008 Minister of Energy and Mineral Resources regulation no. 32. This was motivated by the increasing demand for fuel and fuel import activities. Therefore, this research will carry out the utilization of waste / biomass such as banana peels and bagasse. This study aims to determine the optimum caloric value and bioethanol content from variations in the mixture of banana peels and bagasse with variations of yeast mass 56 grams, 84 grams, 70 grams, HCl 250 ml, 350 ml, 400 ml, NPK 300 grams, 350 grams, 250. gram, Urea 300 grams, 400 grams, 250 grams, 300 ml, 500 ml, 600 ml Sugarcane Drops with a fermentation time of 14 days. This research was conducted in several stages: pretreatment, hydrolysis, fermentation, distillation, calorie test and alcohol meter test. The most optimal bioethanol content test result is 61% in the composition of 3 kg banana peel (divided by 3 containers) and 3 kg bagasse (divided by 3 containers) using 70 grams of yeast, 0.32 M 350 ml HCl, 250 gram NPK, 250 Urea gram, 600 ml Sugarcane Drops. The results of the caloric test result of bagasse calorie are 4.021 cal/gr and kapok banana peel is 4.259 cal/g.

**Keywords:** Kepok Banana Peel, Bagasse, Hidrolysis, Fermentation, Destilation, Bioethanol, Alcoholmeter, dan Bomb Calorimeter.

