

ABSTRACT

The increasing dependence on fossil fuels necessitates the exploration of alternative energy sources to reduce this reliance. Bioethanol, as a renewable and environmentally friendly energy source, can be produced from plant materials. This study aims to analyze the alcohol content, calorific value, and yield in the production of bioethanol using pineapple peels and rice husks as raw materials. Data were analyzed using two-factor ANOVA with Minitab 19 software. The results indicate that the highest alcohol content reached 49%, while the lowest was 35%. The highest calorific value was 3154 kcal/kg, and the lowest was 3097 kcal/kg. The yields obtained ranged from 10.7% to 8.4%. Although the alcohol content exhibited variation, all values fell short of the SNI (Indonesian National Standard) requirement of a minimum alcohol content of 99.5%. Therefore, an evaluation of the production process, selection of raw materials, and microorganisms used is necessary to improve the quality of the bioethanol produced.

Keywords : Bioethanol, alcohol content, calorific value, yield.

ABSTRAK

Ketergantungan terhadap bahan bakar fosil semakin hari makin meningkat, tentunya diperlukan energi alternatif untuk mengurangi ketergantungan tersebut. Bioetanol merupakan salah satu energi terbarukan yang ramah lingkungan karena menggunakan bahan baku dari tumbuhan. Penelitian ini bertujuan untuk mengetahui kandungan kadar alkohol, nilai kalor dan randemen pada pembuatan bioetanol menggunakan bahan baku kulit nanas dengan sekam padi. Teknik analisis data yang digunakan adalah ANOVA dua faktor menggunakan *software minitab* 19. Hasil penelitian ini menunjukkan kadar alkohol tertinggi yaitu 49% dan terendah 35%, untuk nilai kalor tertinggi yaitu 3154 kkl/kg dan terendah 3097 kkl/kg, sedangkan randemen tertinggi yaitu 10.7% dan terendah 8.4%.

Kata kunci: bioetanol, kadar alkohol, nilai kalor, randemen