

ABSTRAK

PENGARUH VARIASI KOMPOSISI CAMPURAN TONGKOL JAGUNG (*Zea mays* L.) DAN KULIT KOPI ROBUSTA (*Coffea canephora*) SERTA VARIASI KONSENTRASI PEREKAT MOLASE TERHADAP KARAKTERISTIK BIOBRIKET

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Pemanfaatan biomassa sebagai sumber energi alternatif merupakan salah satu upaya untuk mengurangi ketergantungan pada bahan bakar fosil. Limbah pertanian dan perkebunan seperti tongkol jagung dan kulit kopi, yang kaya lignoselulosa dan karbon, dapat digunakan sebagai bahan baku biobriket. Penggunaan limbah ini diharapkan dapat meningkatkan nilai guna serta mendukung pengembangan energi terbarukan. Penelitian ini bertujuan untuk mengetahui pengaruh variasi rasio campuran tongkol jagung (*Zea mays* L.) dan kulit kopi robusta (*Coffea canephora*) terhadap karakteristik biobriket dengan menggunakan perekat molase. Penelitian ini menggunakan metode eksperimen dengan variabel rasio tongkol jagung dan kulit kopi 100:0, 75:25, 50:50, 25:75, dan 0:100 dan konsentrasi molase 10% dan 15%. Pengujian karakteristik meliputi kadar air, kadar abu, *volatile matter*, *fixed carbon*, dan nilai kalor. Komposisi optimal adalah campuran 50% tongkol jagung dan 50% kulit kopi dengan perekat molase 15%, menghasilkan kadar air 7,79%, kadar abu 13,17%, *volatile matter* 11,88%, *fixed carbon* 67,16%, dan nilai kalor 5.439,6741 kal/gr. Berdasarkan hasil penelitian, biobriket dari campuran tongkol jagung dan kulit kopi dengan perekat molase berpotensi sebagai bahan bakar alternatif yang ramah lingkungan dan memiliki kualitas yang memenuhi Standar Nasional Indonesia (SNI) 01-6235-2000.

Kata kunci: Biobriket, Tongkol Jagung, Kulit Kopi, Molase.

ABSTRACT

THE EFFECT OF MIXTURE COMPOSITION VARIATION OF CORNCOB (*Zea mays* L.) AND ROBUSTA COFFEE HUSK (*Coffea canephora*) WITH VARIOUS CONCENTRATIONS OF MOLASSES ADHESIVE ON BIOBRIQUETTE CHARACTERISTICS

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*The utilization of biomass as an alternative energy source represents an effort to reduce dependence on fossil fuels. Agricultural and plantation residues such as corncobs and coffee husks, which are rich in lignocellulose and carbon, can serve as raw materials for biobriquettes. The use of these residues is expected to enhance their utility value and support the development of renewable energy. This study aims to examine the effects of varying mixture ratios of corncobs (*Zea mays* L.) and robusta coffee husks (*Coffea canephora*) on the characteristics of biobriquettes produced with molasses as a binder. The research employed an experimental method with mixture ratios of corncobs and coffee husks 100:0, 75:25, 50:50, 25:75, and 0:100 and molasses concentrations of 10% and 15%. The characteristics tested included moisture content, ash content, volatile matter, fixed carbon, and calorific value. The optimal composition was a mixture of 50% corncobs and 50% coffee husks with 15% molasses binder, yielding a moisture content of 7.79%, ash content of 13.17%, volatile matter of 11.88%, fixed carbon of 67.16%, and a calorific value of 5,439.67 cal/g. Based on these findings, biobriquettes derived from corncob–coffee husk mixtures with molasses binder show potential as environmentally friendly alternative fuels that comply with the Indonesian National Standard (SNI) 01-6235-2000.*

Keywords: *Biobriquette, Corncob, Coffee Husk, Molasses.*