

ABSTRAK

KARAKTERISTIK BOBRIKET DARI CAMPURAN TONGKOL JAGUNG DAN KULIT KACANG TANAH DENGAN VARIASI KOMPOSISI PEREKAT GETAH KARET

Zahra, 2026, 39 Halaman, 4 Tabel, 14 Gambar, 4 Lampiran

Pemanfaatan limbah biomassa sebagai sumber energi alternatif merupakan salah satu upaya untuk mengurangi ketergantungan terhadap bahan bakar fosil. Limbah pertanian seperti tongkol jagung dan kulit kacang tanah memiliki kandungan lignoselulosa dan karbon yang cukup tinggi sehingga berpotensi dimanfaatkan sebagai bahan baku biobriket. Penelitian ini bertujuan untuk mengetahui pengaruh variasi komposisi campuran tongkol jagung dan kulit kacang tanah serta variasi konsentrasi perekat getah karet terhadap karakteristik biobriket, sekaligus menentukan komposisi terbaik berdasarkan hasil pengujian. Getah Karet dipilih sebagai perekat karena memiliki daya rekat yang baik serta berpotensi menjadi perekat alami yang ramah lingkungan dalam pembuatan biobriket. Proses pembuatan biobriket meliputi persiapan bahan baku, karbonisasi pada suhu 400°C, penghalusan, pengayakan 60 mesh, pencampuran dengan perekat getah karet, pencetakan, dan pengeringan. Variasi komposisi yang digunakan yaitu 100:0, 75:25, 50:50, 25:75, dan 0:100 dengan konsentrasi perekat getah karet sebesar 5% dan 10%. Karakteristik biobriket yang diuji meliputi kadar air, kadar abu, kadar zat terbang (*volatile matter*), kadar karbon terikat (*fixed carbon*), dan nilai kalor. Hasil penelitian menunjukkan bahwa kadar air berkisar antara 4,50–6,91%, kadar abu 3,55–5,12%, kadar zat terbang 12,90–14,77%, kadar karbon terikat 74,19–77,48%, dan nilai kalor 5.475,75–6.105,99 kal/g. Komposisi terbaik diperoleh pada campuran 0% tongkol jagung dan 100% kulit kacang tanah dengan konsentrasi perekat getah karet 5%, yang menghasilkan kadar air 4,50%, kadar abu 5,12%, kadar zat terbang 12,90%, kadar karbon terikat 77,48%, dan nilai kalor 6.105,99 kal/g. dan memenuhi persyaratan mutu berdasarkan SNI 01-6235-2000

Kata kunci: Biobriket, Tongkol Jagung, Kulit Kacang Tanah, Perekat Getah Karet

ABSTRACT

BIORIQUETTE CHARACTERISTICS FROM A MIXTURE OF CORNCOB AND PEANUT SHELL WITH COMPOSITION VARIATIONS OF RUBBER SAP ADHESIVE

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The utilization of biomass waste as an alternative energy source is one of the efforts to reduce dependence on fossil fuels. Agricultural wastes such as corn cobs and peanut shells contain high amounts of lignocellulosic compounds and carbon, making them potential raw materials for bio-briquette production. This study aimed to determine the effect of variations in the composition of corn cobs and peanut shells, as well as different concentrations of rubber latex adhesive, on the characteristics of bio-briquettes and to identify the optimum composition based on the test results. Natural rubber latex was selected as the binder because of its good adhesive properties and its potential as an environmentally friendly natural binder in biobriquette production. The bio-briquette production process consisted of raw material preparation, carbonization at 400°C, grinding, sieving through a 60-mesh screen, mixing with rubber latex adhesive, molding, and drying. The composition ratios used were 100:0, 75:25, 50:50, 25:75, and 0:100, with rubber latex adhesive concentrations of 5% and 10%. The bio-briquette characteristics evaluated included moisture content, ash content, volatile matter, fixed carbon, and calorific value. The results showed that the moisture content ranged from 4.50% to 6.91%, ash content from 3.55% to 5.12%, volatile matter from 12.90% to 14.77%, fixed carbon from 74.19% to 77.48%, and calorific value from 5,475.75 to 6,105.99 cal/g. The best composition was obtained from 0% corn cob and 100% peanut shell with 5% rubber latex adhesive, producing a moisture content of 4.50%, ash content of 5.12%, volatile matter of 12.90%, fixed carbon of 77.48%, and a calorific value of 6,105.99 cal/g. and meet the quality requirements of SNI 01-6235-2000.

Keywords: *Bio-briquette, Corn Cob, Peanut Shell, Rubber Latex Adhesive.*