

RINGKASAN

Sekam padi merupakan limbah pertanian yang melimpah dan berpotensi dimanfaatkan sebagai bahan bakar alternatif ramah lingkungan. Namun, bentuk fisik dan sifat pembakarannya yang kurang efisien memerlukan proses pengolahan lebih lanjut, salah satunya melalui pembuatan briket arang. Mutu briket arang dipengaruhi oleh berbagai faktor, di antaranya tekanan pemadatan dan konsentrasi perekat yang digunakan dalam proses pembuatannya.

Penelitian ini bertujuan untuk menganalisis pengaruh variasi tekanan pemadatan dan konsentrasi perekat terhadap kualitas briket arang sekam padi yang diukur melalui kadar air, kadar abu, dan nilai kalor. Metode penelitian menggunakan rancangan faktorial dengan dua faktor, yaitu tekanan pemadatan dan konsentrasi perekat, masing-masing terdiri dari tiga taraf perlakuan. Parameter kadar air dan kadar abu diukur secara langsung melalui pengujian laboratorium, sedangkan data nilai kalor diperoleh dari studi literatur penelitian terdahulu yang relevan.

Hasil penelitian menunjukkan bahwa variasi tekanan pemadatan menghasilkan kadar air pada kisaran 5,30%–7,70% dan kadar abu pada kisaran 5,80%–7,70%, seluruhnya memenuhi standar mutu SNI 01-6235-2000 (kadar air $\leq 8\%$ dan kadar abu $\leq 8\%$). Variasi konsentrasi perekat menghasilkan kadar air pada kisaran 5,30%–7,70% dan kadar abu pada kisaran 5,80%–7,70%, yang seluruhnya memenuhi standar SNI. Kombinasi tekanan tinggi dan perekat rendah menghasilkan kadar air (5,30%–6,50%) dan kadar abu (5,80%–7,07%) yang rendah, seluruhnya memenuhi standar SNI. Kesimpulan penelitian ini menunjukkan bahwa tekanan pemadatan dan konsentrasi perekat memengaruhi kadar air dan kadar abu briket arang sekam padi, serta nilai kalor berdasarkan studi literatur menunjukkan bahwa tekanan tinggi cenderung meningkatkan nilai kalor, sedangkan konsentrasi perekat tinggi cenderung menurunkan nilai kalor, mengindikasikan bahwa kombinasi tekanan tinggi dan perekat rendah berpotensi menghasilkan briket dengan mutu terbaik.

SUMMARY

Rice husk is an abundant agricultural waste with the potential to be utilized as an environmentally friendly alternative fuel. However, its physical form and less efficient combustion properties require further processing, one of which is through the production of charcoal briquettes. The quality of charcoal briquettes is influenced by various factors, including the compaction pressure and binder concentration used in the manufacturing process.

This study aims to analyze the effect of variations in compaction pressure and binder concentration on the quality of rice husk charcoal briquettes as measured by moisture content, ash content, and calorific value. The research method employed a factorial design with two factors: compaction pressure and binder concentration, each consisting of three treatment levels. Moisture content and ash content were measured directly through laboratory testing, while calorific value data were obtained from a literature review of relevant previous studies.

The results showed that variations in compaction pressure produced moisture content ranging from 5,30% to 7,70% and ash content ranging from 5,80% to 7,70%, all meeting the quality standards of SNI 01-6235-2000 (moisture content $\leq 8\%$ and ash content $\leq 8\%$). Variations in adhesive concentration produce moisture content in the range of 5,80%–7,70% and ash content in the range of 5,80%–7,70%, all of which meet SNI standards. The combination of high pressure and low adhesive produces low moisture content (5,30%–6,50%) and ash content (5,80%–7,07%), all meeting SNI standards.

The conclusion of this research shows that compaction pressure and adhesive concentration affect the moisture content and ash content of rice husk charcoal briquettes, and calorific values based on literature studies show that high pressure tends to increase calorific value, while high adhesive concentration tends to decrease calorific value, indicating that the combination of high pressure and low adhesive has the potential to produce briquettes with the best quality.