ABSTRAK

PENGARUH VARIASI TEMPERATUR KARBONISASI TERHADAP KARAKTERISTIK BIOBRIKET LIMBAH BAGLOG JAMUR TIRAM SEBAGAI BAHAN BAKAR ALTERNATIF

(Aulia Islamia, 2025, Skripsi, 39 Halaman, 5 Tabel, 10 Gambar, 4 Lampiran)

Krisis energi dan tingginya ketergantungan terhadap bahan bakar fosil mendorong pencarian sumber energi terbarukan yang ramah lingkungan. Salah satu alternatifnya adalah pemanfaatan limbah biomassa, seperti baglog jamur tiram (Pleurotus ostreatus), sebagai bahan baku biobriket. Penelitian ini bertujuan untuk mengetahui pengaruh variasi temperatur karbonisasi pengarangan (300°C, 350°C, 400°C, 450°C, dan 500°C) terhadap karakteristik biobriket yang meliputi kadar air, abu, zat terbang, karbon terikat, dan nilai kalor. Proses pembuatan biobriket diawali dengan karbonisasi limbah baglog menggunakan furnace, dilanjutkan dengan pencampuran perekat tepung tapioka kemudian dicetak menggunakan alat briket metode *compacting*. Pengujian karakteristik biobriket dilakukan berdasarkan parameter analisis proksimat (kadar air, kadar abu, kadar zat terbang, dan karbon terikat), dan nilai kalor. Hasil penelitian menunjukkan bahwa semakin tinggi temperatur karbonisasi, maka kadar air dan zat terbang cenderung menurun, sedangkan karbon terikat dan nilai kalor meningkat. Temperatur terbaik dalam penelitian ini berada pada 500°C dengan kadar air sebesar 3,26%, kadar abu 4,61%, nilai karbon terikat 81,54% dan nilai kalor sebesar 5.817,39 kal/gram. Limbah baglog jamur tiram terbukti memiliki potensi sebagai bahan baku energi alternatif yang layak dikembangkan.

Kata kunci: *Biobriket, baglog jamur tiram, temperatur karbonisasi, karakteristik briket, nilai kalor.*

ABSTRACT

THE EFFECT OF CARBONIZATION TEMPERATURE VARIATION ON THE CHARACTERISTICS OF BIO-BRIQUETTES FROM OYSTER MUSHROOM BAGLOG WASTE AS AN ALTERNATIVE FUEL

(Aulia Islamia, 2025, Thesis, 39 Pages, 5 Tables, 10 Pictures, 4 Attachments)

The energy crisis and high dependence on fossil fuels have encouraged the search for environmentally friendly renewable energy sources. One alternative is the use of biomass waste, such as oyster mushroom (Pleurotus ostreatus) baglogs, as raw material for biobriquettes. This study aims to determine the effect of variations in carbonization temperatures (300°C, 350°C, 400°C, 450°C, and 500°C) on the characteristics of biobriquettes, including moisture, ash, volatile matter, bound carbon, and calorific value. The biobriquette manufacturing process begins with the carbonization of baglog waste using a furnace, followed by mixing tapioca flour adhesive and then molding using a compacting briquette tool. Testing of biobriquette characteristics is carried out based on proximate analysis parameters (moisture content, ash content, volatile matter content, and bound carbon), and calorific value. The results show that the higher the carbonization temperature, the moisture and volatile matter content tends to decrease, while the bound carbon and calorific value increase. The best temperature in this study was 500°C with a moisture content of 3.26%, ash content of 4.61%, a bound carbon value of 81.54%, and a calorific value of 5,817.39 cal/gram. Oyster mushroom baglog waste has been proven to have potential as an alternative energy raw material worthy of development.

Keywords: *Biobriquette, oyster mushroom baglog, carbonization temperature, briquette characteristics, calorific value.*