

## ABSTRAK

### PENGARUH TOREFAKSI TERHADAP KARAKTERISTIK PELET BAMBU ANDONG (*Gigantochloa pseudoarundinacea*)

Oleh

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Penelitian ini bertujuan untuk mengkaji perubahan karakteristik pelet bambu andong (*Gigantochloa pseudoarundinacea*) hasil torefaksi. Pelet ditorefaksi selama 50 menit dengan *electric furnace* pada suhu 200°C, 240°C, dan 280°C. Karakteristik yang diamati meliputi sifat fisis (warna, kadar air, kerapatan, penyerapan uap air, dan ketahanan terhadap perendaman air), sifat mekanis (kekuatan tekan), FTIR, analisis proksimat, dan nilai kalor. Nilai ( $\Delta E^*$ ) lebih dari 12 menunjukkan warna pelet bambu andong hasil torefaksi berubah total. Kadar air dan kerapatan berkurang dengan meningkatnya suhu torefaksi. Pelet torefaksi lebih tahan daripada pelet kontrol terhadap perendaman air dan penyerapan uap air akibat sifat hidrofobik meningkat sejalan dengan peningkatan suhu torefaksi. Kekuatan tekan menurun seiring dengan meningkatnya suhu. Torefaksi mempengaruhi gugus fungsi pelet bambu andong. Kadar abu dan zat mudah terbang menurun dengan meningkatnya suhu torefaksi namun karbon terikat dan nilai kalor meningkat.

Kata kunci: bambu andong, *electric furnace*, pelet, torefaksi

## **ABSTRACT**

### ***EFFECT OF TORREFACTION ON CHARACTERISTIC OF ANDONG BAMBOO PELLET (*Gigantochloa pseudoarundinacea*)***

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*This study aimed to evaluate the changes in andong bamboo pellet's characteristics. The pellets were torrefied for 50 min using an electric furnace at 200°C, 240°C, and 280°C. The characteristics analyzed were physical properties (color, moisture content, density, moisture adsorption, and water resistance), mechanical properties (compressive strength), FTIR, proximate analysis, and calorific value. The torrefaction pellet was more resistant to water adsorption, and water immersion due to the hydrophobic properties increased with increasing torrefaction temperature. The compressive strength decreased as increasing the temperature. Torrefaction affected the functional groups of bamboo andong pellets. Ash content and volatile matter decreased as increasing torrefaction temperature however fixed carbon and calorific value increased.*

*Keywords: andong bamboo, electric furnace, pellet, torrefaction*