

ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh variasi ukuran partikel, dan gaya tekan pada kualitas biopelet dari limbah baglog jamur tiram terhadap nilai kadar air, densitas, dan nilai kalor. Parameter yang digunakan pada penelitian ini adalah ukuran partikel, dan gaya tekan. Terdapat tiga level untuk setiap parameter. Parameter ukuran partikel terdiri dari 20 mesh, 40 mesh, dan 60 mesh. Parameter gaya tekan terdiri dari 2 ton, 3 ton, dan 4 ton. Metode yang digunakan pada penelitian ini menggunakan metode statistik *Analysis of Variance* (ANOVA) dua arah. Hasil penelitian ini menunjukkan bahwa parameter ukuran partikel dan gaya tekan berpengaruh signifikan terhadap nilai kadar air, densitas, dan nilai kalor. Semakin kecil ukuran partikel atau semakin besar ukuran partikel dan semakin besar gaya tekan menghasilkan nilai kadar air yang rendah dan densitas yang tinggi. Nilai kadar air terendah 5,27% diperoleh dari variasi ukuran mesh 60 dan gaya tekan 4 ton. Nilai kadar air tertinggi 9,49% diperoleh dari variasi ukuran mesh 20 dan gaya tekan 2 ton. Nilai densitas terendah 1,199 g/cm³ diperoleh dari variasi ukuran mesh 20 dan gaya tekan 2 ton. Nilai densitas tertinggi 1,401 g/cm³ diperoleh dari variasi ukuran mesh 60 dan gaya tekan 4 ton. Nilai kalor terendah 2145 kal/g diperoleh dari variasi ukuran mesh 40 dan gaya tekan 3 ton. Nilai kalor tertinggi 2629 kal/g diperoleh dari variasi ukuran mesh 20 dan gaya tekan 2 ton.

Kata kunci : Analisis pengaruh, Biopelet, Limbah baglog jamur tiram, Nilai kadar air, Densitas, Nilai kalor, *Analysis of Variance* (ANOVA).

ABSTRACT

This study aims to analyze the effect of mesh size variations and compression force on the quality of biopellets from oyster mushroom baglog waste on water content, density, and calorific value. The parameters used in this study are mesh size and compression force. There are three levels for each parameter. The mesh size parameter consists of 20 mesh, 40 mesh, and 60 mesh. The compression force parameter consists of 2 tons, 3 tons, and 4 tons. The method used in this study uses the two-way Analysis of Variance (ANOVA) statistical method. The results of this study indicate that the mesh size and compression force parameters have a significant effect on the water content, density, and calorific value. The smaller the particle size or the larger the mesh size and the greater the compression force, the lower the water content and high density. The lowest water content value of 5.27% was obtained from a variation of mesh size 60 and a compression force of 4 tons. The highest water content value of 9.49% was obtained from a variation of mesh size 20 and a compression force of 2 tons. The lowest density value of 1.199 g/cm³ was obtained from the variation of mesh size 20 and a pressing force of 2 tons. The highest density value of 1.401 g/cm³ was obtained from the variation of mesh size 60 and a pressing force of 4 tons. The lowest calorific value of 2145 cal/g was obtained from the variation of mesh size 40 and a pressing force of 3 tons. The highest calorific value of 2629 cal/g was obtained from the variation of mesh size 20 and a pressing force of 2 tons.

Keywords: Influence analysis, Biopellet, Oyster mushroom baglog waste, Water content value, Density, Calorific value, Analysis of Variance (ANOVA).