

ABSTRACT

CHARACTERISTICS TEST OF COMPOST PELLETS ENRICHED WITH NPK FERTILIZER AND BIOCHAR FROM OIL PALM OF EMPTY BUNCH (TKKS)

By

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Compost applications require high doses due to low nutrient content. In addition, crumb compost is bulky and has a low density, making it difficult to handle and transport. This study aims to determine the effect of adding oil palm empty fruit bunches (TKKS) charcoal and the addition of NPK fertilizer (as raw material for making pellets) on the physical characteristics of pellet compost. The study was arranged in a factorial completely randomized design (RALF) consisting of 2 factors, namely the biochar factor of Oil Palm Empty Fruit Bunches (dose 0, 10, 20) % and the NPK fertilizer factor (dose 0, 3, 6) %. All treatment combinations were carried out with 3 replications. The parameters observed in this study were water content, diameter, density, solubility, hygroscopicity, wettability index, compressive strength, vibration resistance, hardness, color, pH, and NPK content. The results showed that the addition of OPEFB charcoal had a significant effect on the results of testing water content, bulk density, particle density, solubility, hygroscopicity, compressive strength, resilience, vibration resistance, pH value, and NPK content. The addition of NPK fertilizer had a significant effect on the test results of solubility, hygroscopicity and pH value. The interaction effect of the addition of OPEFB charcoal and the addition of NPK fertilizer significantly affected the results of bulk density testing, testing water content, solubility, compressive strength, vibration resistance, pH value, and NPK content. The results showed that the combination treatment of adding 10% EFB charcoal and adding 6% NPK fertilizer produced the best compost pellets in terms of pellet characteristics.

Keywords: compost fertilizer. pellet, NPK, oil palm of empty bunch, strength

ABSTRAK

UJI KARAKTERISTIK PUPUK KOMPOS PELET YANG DIPERKAYA DENGAN PUPUK NPK DAN ARANG TANDAN KOSONG KELAPA SAWIT (TKKS)

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Kompos memiliki kandungan hara yang rendah sehingga memerlukan dosis yang tinggi untuk aplikasinya. Selain itu, kompos remah memiliki masa jenis yang rendah sehingga menyulitkan dalam penanganan dan transportasinya. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan arang tandan kosong kelapa sawit (TKKS) dan penambahan pupuk NPK (sebagai bahan baku pembuatan pelet) terhadap karakteristik fisik pupuk kompos pelet yang dihasilkan. Penelitian disusun dalam Rancangan Acak Lengkap Faktorial (RALF) yang terdiri dari 2 faktor yaitu faktor dosis *biochar* Tandan Kosong Kelapa Sawit (dosis 0, 10, 20) % dan faktor dosis pupuk NPK (dosis 0, 3, 6) %. Semua kombinasi perlakuan dilakukan dengan 3 kali ulangan. Parameter yang diamati pada penelitian ini yaitu kadar air, diameter, massa jenis, kelarutan, higroskopisitas, kebasahan, kuat tekan, ketahanan getar, ketahanan banting, warna, pH, dan kandungan NPK total. Hasil penelitian menunjukkan penambahan arang TKKS berpengaruh nyata terhadap hasil pengujian kadar air, massa jenis curah, massa jenis partikel, kelarutan, higroskopisitas, kebasahan, kuat tekan, ketahanan banting, ketahanan getar, warna, nilai pH, dan kandungan NPK. Penambahan pupuk NPK berpengaruh nyata terhadap hasil pengujian kelarutan, higroskopisitas dan nilai pH. Pengaruh interaksi penambahan arang TKKS dan penambahan pupuk NPK berpengaruh nyata terhadap hasil pengujian massa jenis curah, pengujian kadar air, kelarutan, kuat tekan, ketahanan getar, nilai pH, dan kandungan NPK. Hasil penelitian menunjukkan bahwa perlakuan penambahan arang TKKS 10% dengan penambahan pupuk NPK sebesar 6% sebagai bahan baku pembuatan kompos pelet menjadi perlakuan yang paling baik ditinjau dari karakteristik pelet.

Kata kunci: Pupuk kompos, pelet, NPK, tandan kosong kelapa sawit, kekuatan