

RINGKASAN

Carollina Dea, 2020330014. Penggunaan Komposisi Arang Sekam Padi dan Pupuk Kandang Kambing Terhadap Beberapa Sifat Kimia Tanah Tambang Galian C. Pembimbing Utama: Prof. Dr. Ir Eko Handayanto, M.Sc, Pembimbing Pendamping: Retno Wilujeng, S.P.,M.P.

Dengan kekayaan alam yang melimpah, Indonesia juga menghadapi tantangan degradasi lahan akibat aktivitas pertambangan galian C. Karakteristik tanah pasca tambang yang kurang ideal, seperti rendahnya daya serap air, defisiensi hara, dan kerentanan terhadap erosi, membatasi penggunaannya untuk pertanian. Oleh karena itu, diperlukan rehabilitasi tanah dengan pemanfaatan bahan organik, seperti pupuk kandang kambing maupun arang sekam, untuk meningkatkan kualitasnya agar layak sebagai media tanam.

Studi ini dijalankan di Laboratorium Tanah dan Agronomi, Fakultas Pertanian, Universitas Tribhuwana Tunggadewi pada Agustus sampai dengan September 2024. Penelitian menggunakan tanah pasca tambang galian C, arang sekam padi (ASP), dan pupuk kandang kambing (PKK) dengan 7 perlakuan dan 3 ulangan. Inkubasi berlangsung selama 28 hari, dengan pengamatan pH H_2O , karbon organik, dan fosfor total dengan hari ke-7, 14, 21, dan 28 setelah inkubasi.

Temuan ini menunjukkan bahwa aplikasi arang sekam padi dan pupuk kandang kambing tidak memberikan perbedaan signifikan terhadap pH tanah selama 4 minggu inkubasi. Meskipun demikian, terjadi peningkatan pH sebesar 12,7% dari kondisi awal pada perlakuan P3K3 (ASP 3%/100 g tanah + PKK 3%/100 g tanah), mencapai nilai 6,38 yang tergolong netral hingga sedikit masam. Berbeda dengan pH, pemberian arang sekam padi dan pupuk kandang kambing berpengaruh nyata terhadap karbon organik dan fosfor total, sementara durasi inkubasi tidak menunjukkan perbedaan yang signifikan. Kadar karbon organik tertinggi (2,71%) dicapai pada perlakuan P1K3 (ASP 2%/100 g tanah + PKK 3%/100 g tanah). Sementara itu, perlakuan P3K3 menghasilkan fosfor total tertinggi, yaitu 187,00 ppm.

Kata kunci : Arang sekam padi, Galian C, Karbon organik , Pupuk kandang kambing, Tanah

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Carollina Dea, 2020330014. Use of the Composition of Rice Husk Charcoal and Goat Manure on Several Chemical Properties of Excavated Mining Soil C. Pembimbing Utama: Prof. Dr. Ir Eko Handayanto, M.Sc, Pembimbing Pendamping: Retno Wilujeng, S.P., M.P.

With abundant natural wealth, Indonesia also faces the challenge of land degradation due to C-quarry mining activities. Post-mining soil characteristics that are less than ideal, such as low water absorption capacity, lack of nutrients, and susceptibility to erosion, limit its use for agriculture. Therefore, it is necessary to rehabilitate the soil using organic materials such as goat dung or husk charcoal to improve its quality so that it is suitable as a planting medium.

This research was carried out at the Soil and Agronomy Laboratory, Faculty of Agriculture, Tribhuwana Tunggal University from August to September 2024. The research used post-mining soil C, rice husk charcoal (ASP), and goat dung (PKK) with 7 treatments. and 3 repetitions. Incubation lasted for 28 days, with observations of pH H_2O , organic carbon, and total phosphorus on days 7, 14, 21, and 28 after incubation.

These findings indicate that the application of rice husk charcoal and goat manure did not make a significant difference to soil pH during 4 weeks of incubation. However, there was an increase in pH of 12.7% from the initial conditions in the P3K3 treatment (ASP 3%/100 g soil + PKK 3%/100 g soil), reaching a value of 6.38 which is classified as neutral to slightly acidic. In contrast to pH, the application of rice husk charcoal and goat manure had a significant effect on organic carbon and total phosphorus, while incubation duration did not show a significant difference. The highest organic carbon content (2.71%) was achieved in the P1K3 treatment (ASP 2%/100 g soil + PKK 3%/100 g soil). Meanwhile, P3K3 treatment produced the highest total phosphorus, namely 187.00 ppm.

Key words: Rice husk charcoal, Excavation C, Organic carbon, Goat manure, Soil