

**Pengaruh Biochar Tempurung Kelapa dan Pupuk Kandang Sapi Terhadap
Sifat Kimia Tanah dan Produksi Tanaman Sawi
pada Tanah Pasir Pantai**

Oleh : Rahayu

Dibimbing Oleh:
Didi Saidi dan Susila Herlambang

ABSTRAK

Tanah pasir pantai memiliki keterbatasan untuk budidaya tanaman. Biochar tempurung kelapa dan pupuk kandang sapi merupakan amelioran untuk memperbaiki keterbatasan tanah pasir pantai. Penelitian ini bertujuan untuk mengetahui pengaruh biochar tempurung kelapa dan pupuk kandang sapi terhadap sifat kimia tanah dan produksi tanaman sawi pada tanah pasir pantai. Penelitian ini dilaksanakan di Rumah Kaca Fakultas Pertanian, UPN “Veteran” Yogyakarta dari bulan Maret 2019 sampai Mei 2019 kemudian dilakukan analisis di laboratorium. Penelitian menggunakan Rancangan Acak Lengkap (RAL) dua faktor. Faktor pertama adalah dosis biochar tempurung kelapa yaitu B0 = tanpa biochar tempurung kelapa, B1 = biochar tempurung kelapa dosis 10 ton/ha, B2 = biochar tempurung kelapa dosis 15 ton/ha, B3 = biochar tempurung kelapa 20 ton/ha. Faktor kedua adalah dosis pupuk kandang sapi yaitu K0 = tanpa pupuk kandang sapi, K1 = pupuk kandang sapi 10 ton/ha, K2 = pupuk kandang sapi 15 ton/ha, K3 = pupuk kandang sapi 20 ton/ha. Parameter penelitian meliputi tekstur, pH H₂O, C-organik, N-total, KPK, tinggi tanaman, jumlah daun, panjang akar, berat kering dan berat basah tanaman. Data hasil pengamatan dianalisis dengan sidik ragam (ANOVA), untuk mengetahui perbedaan rerata antar perlakuan digunakan Uji Jarak Berganda Duncan atau *Duncan's Multiple Range Test* (DMRT) pada taraf $\alpha = 5\%$. Hasil penelitian menunjukkan bahwa pemberian biochar tempurung kelapa dosis 20 ton/ha (B3) dan pupuk kandang sapi dosis 20 ton/ha (K3) berpengaruh nyata meningkatkan pH H₂O dari 5,85 menjadi 6,90, C-organik dari 0,62% menjadi 1,23%, N-total dari 0,04% menjadi 0,34%, KPK dari 2,04 cmol(+)kg⁻¹ menjadi 4,86 cmol(+)kg⁻¹ dan berat basah tanaman sawi 60,83 gram.

Kata kunci: *biochar tempurung kelapa, pupuk kandang sapi, tanah pasir pantai, tanaman sawi*

**The Effect of Coconut Shell Biochar and Cow Manure on Soil Chemical
Properties and Mustard Plant Production at Coastal Sandy Soil**

By: Rahayu

Supervised by:
Didi Saidi and Susila Herlambang

ABSTRACT

Coastal sandy soil has several limitations for crop cultivation. Coconut shell biochar and cow manure are ameliorants to improve the limitations at coastal sandy soil. The aim of the research was to determine the effect of coconut shell biochar and cow manure on soil chemical properties and mustard plant production at coastal sandy soil. The research was conducted in Greenhouse Faculty of Agriculture University Pembangunan Nasional "Veteran" of Yogyakarta in March to May 2019 and then analyzed in a laboratory. The experiment was arranged in Completely Randomized Design (CRD) by two factors. The first factor was the dosage of coconut shell biochar consisted of B0 = 0 ton/ha, B1 = 10 ton/ha, B2 = 15 ton/ha, and B3 = 20 ton/ha. The second factor was the dosage of cow manure consisted of K0 = 0 ton/ha, K1 = 10 ton/ha, K2 = 15 ton/ha, and K3 = 20 ton/ha. The research parameters were texture, pH H₂O, C-Organic, N-Total, Cation Exchange Capacity (CEC), plant height, number of leaves, root length, dry weight and wet weight of the plant. The results were analyzed with Analysis of Varians (ANOVA), followed with 5% DMRT (Duncan Multiple Range Test) to know the mean differences between treatments. The results showed that the application of coconut shell biochar 20 ton/ha (B3) and cow manure 20 ton/ha (K3) had significant effect to increase pH H₂O from 5,85 to 6,90, C-Organic from 0,62% to 1,23%, N-Total from 0,04% to 0,34%, Cation Exchange Capacity (CEC) from 2,04 cmol(+)kg⁻¹ to 4,86 cmol(+)kg⁻¹ and wet weight of plant 60,83 gram.

Keywords: *coconut shell biochar, cow manure, coastal sandy soil, mustard plant*