

ANALISIS VARIASI JENIS DAN DOSIS BIOCHAR TERHADAP PERTUMBUHAN TANAMAN PAKCOY (*Brassica rapa*)

Oleh

Kadek Ayu Natalia Dewi, NIM 2213091010

Jurusan Biologi dan Perikanan Kelautan

ABSTRAK

Pupuk anorganik yang digunakan dalam budidaya pakcoy berpotensi menurunkan pH, mengurangi kandungan bahan organik, dan merusak struktur tanah, sehingga dalam jangka panjang dapat menghambat pertumbuhan tanaman. Hal ini dapat dilihat dari rendahnya produktivitas pakcoy di Bali yaitu 5,583 ton/ha padahal potensi hasilnya sebesar 10 ton/ha. Biochar tempurung kelapa yang kaya akan kalium (K) dan biochar sekam padi yang kaya akan silika (Si) dipandang berpotensi untuk meningkatkan retensi air dan hara, serta mendorong pertumbuhan tanaman pakcoy. Penelitian ini bertujuan untuk mengetahui perbedaan pertumbuhan tanaman pakcoy akibat pemberian variasi jenis biochar (tempurung kelapa/J1 dan sekam padi/J2) dan dosis biochar (0 g, 75 g, 100 g, dan 125 g/2,5 kg media tanah), beserta interaksinya. Penelitian menggunakan rancangan acak lengkap (RAL) faktorial 2×4 dengan delapan kombinasi perlakuan (J1D1–J2D4) dan empat ulangan (32 unit percobaan). Data dianalisis menggunakan *Two-Way ANOVA* pada taraf kepercayaan 95% serta dilanjutkan dengan uji lanjut DMRT ketika asumsi terpenuhi. Hasil penelitian menunjukkan bahwa terdapat perbedaan pertumbuhan pakcoy akibat pemberian variasi jenis dan dosis biochar, dimana tinggi tanaman tertinggi diperoleh pada kombinasi biochar tempurung kelapa dosis 100 g (J1D3) sebesar 28,42 cm, jumlah daun tertinggi dan berat segar tertinggi berturut-turut dihasilkan oleh biochar sekam padi dosis 125 g (J2D4) sebesar 17,75 helai dan 106 g. Adanya interaksi yang signifikan antara jenis dan dosis biochar pada semua parameter menunjukkan bahwa efek dosis tidak bersifat seragam untuk semua jenis biochar, melainkan bergantung pada sifat masing-masing bahan.

Kata Kunci: Biochar, Tempurung Kelapa, Sekam Padi, Pakcoy, Pembenah Tanah

ANALYSIS OF THE EFFECTS OF BIOCHAR TYPE AND DOSAGE ON PAKCOY PLANT GROWTH (*Brassica rapa*)

By

Kadek Ayu Natalia Dewi, NIM 2213091010

Department of Biology and Marine Fisheries

ABSTRACT

Inorganic fertilizers used in pakcoy cultivation have the potential to lower pH, reduce organic matter content, and damage soil structure, which in the long term can inhibit plant growth. This is evident from the low pakcoy productivity in Bali, which stands at 5.583 metric tons per hectare, even though the potential yield is 10 metric tons per hectare. Coconut shell biochar, which is rich in potassium (K), and rice husk biochar, which is rich in silica (Si), are considered to have the potential to increase water and nutrient retention, and encourage bok choy plant growth. This study aimed to determine the differences in pakcoy plant growth resulting from the application of different types of biochar (coconut shells/J1 and rice husks/J2) and biochar doses (0 g, 75 g, 100 g, and 125 g/2.5 kg of growing medium), as well as their interactions. The study employed a completely randomized design (CRD) with a 2×4 factorial layout, consisting of eight treatment combinations (J1D1–J2D4) and four replications (32 experimental units). Data were analyzed using two-way ANOVA at a 95% confidence level, followed by the DMRT post-hoc test when the assumptions were met. The results showed that there were differences in pakcoy growth due to variations in biochar type and dose, with the tallest plant height obtained in the combination of coconut shell biochar at a dose of 100 g (J1D3), at 28.42 cm; the highest number of leaves and fresh weight were produced, respectively, by rice husk biochar at a dose of 125 g (J2D4) at 17.75 leaves and 106 g. The existence of significant interactions between the type and dose of biochar on all parameters indicates that the dose effect is not uniform for all types of biochar, but rather depends on the properties of each material.

Keywords: Biochar, Coconut Shell, Rice Husk, Pakcoy, Soil Conditioner