

ABSTRAK

Dzakiya Fathiarrahma Kancana. 2026. Respons Pertumbuhan dan Hasil Tanaman Pakcoy (*Brassica rapa* L.) terhadap Aplikasi Biochar Tempurung Kelapa pada Tanah Tercemar Kadmium (Cd) Limbah Tekstil. Di bawah bimbingan Cecep Hidayat dan Yati Setiati Rachmawati.

Aktivitas industri tekstil di rancaekek menyebabkan akumulasi logam berat, khususnya kadmium (Cd) pada tanah pertanian sehingga menurunkan kualitas lahan dan meningkatkan potensi pencemaran tanaman. Aplikasi biochar tempurung kelapa menjadi upaya untuk menstabilkan logam berat di tanah dan menurunkan ketersediaannya bagi tanaman. Penelitian ini bertujuan untuk mengetahui pengaruh aplikasi biochar tempurung kelapa terhadap pertumbuhan dan hasil tanaman pakcoy pada tanah tercemar kadmium (Cd) limbah tekstil, serta menentukan dosis biochar terbaik. Penelitian ini dilaksanakan di Rancaekek, Kabupaten Bandung, Jawa Barat. Metode penelitian menggunakan Rancangan Acak Kelompok (RAK) non-faktorial lima perlakuan dan lima ulangan. Hasil penelitian menunjukkan bahwa aplikasi biochar tempurung kelapa berpengaruh terhadap jumlah daun, namun tidak berpengaruh terhadap jumlah klorofil. Pemberian biochar tempurung kelapa 20 g polybag⁻¹ merupakan perlakuan terbaik dalam meningkatkan jumlah daun tanaman pakcoy (*Brassica rapa* L.) pada tanah tercemar kadmium (Cd) limbah tekstil.

Kata kunci: Biochar tempurung kelapa, Kadmium (Cd), Limbah tekstil, Tanah tercemar, Tanaman pakcoy

UNIVERSITAS ISLAM NEGERI
SUNAN GUNUNG DJATI
BANDUNG

ABSTRACT

Dzakiya Fathiarrahma Kancana. 2026. The Response of Pakcoy (*Brassica rapa* L.) Growth and Yield to the Application of Coconut Shell Biochar on Soil Contaminated with Cadmium (Cd) from Textile Waste. Under the guidance of Cecep Hidayat and Yati Setiati Rachmawati.

Textile industry activities in Rancaekek have led to the accumulation of heavy metals, particularly cadmium (Cd), in agricultural soil, thereby degrading soil quality and increasing the potential for crop contamination. The application of coconut shell biochar is an effort to immobilize heavy metals in the soil and reduce their availability to plants. This study aims to determine the effect of coconut shell biochar application on the growth and yield of pak choi in soil contaminated with cadmium (Cd) from textile waste, as well as to identify the optimal biochar dosage. The study was conducted in Rancaekek, Bandung Regency, West Java. The research design employed a non-factorial Randomized Block Design (RBD) with five treatments and five replicates: coconut shell biochar. The results showed that the application of coconut shell biochar had a significant effect on the number of leaves but did not affect the chlorophyll content. The application of 20 grams of coconut shell biochar per polybag was the most effective treatment for increasing the number of leaves on pak choi (*Brassica rapa* L.) plants grown in soil contaminated with cadmium (Cd) from textile waste.

Keywords: Coconut shell biochar, Cadmium (Cd), Textile waste, Contaminated soil, Pak choi