

## RINGKASAN

Penelitian ini bertujuan untuk mengetahui pengaruh aplikasi biochar dan asam humat yang dilakukan pada tanah tercemar kadmium, serta mengetahui dosis biochar dan asam humat yang mampu menurunkan cemaran kadmium dan meningkatkan hasil tanaman pakcoy. Penelitian ini dilakukan di Laboratorium Agroekologi Fakultas Pertanian Universitas Jenderal Soedirman, Wahana Laboratorium Semarang, Laboratorium Riset Universitas Jenderal Soedirman, dan *Screenhouse* yang terletak di Kecamatan Sumbang, Kabupaten Banyumas, Provinsi Jawa Tengah. Penelitian dilaksanakan pada bulan Agustus-Desember 2023.

Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) yaitu rancangan perlakuan faktor tunggal yang terdiri atas 10 perlakuan dengan dosis asam humat dan biochar masing-masing, asam humat 0 kg/ha dan biochar 0 ton/ha, asam humat 10 kg/ha dan biochar 5 ton/ha, asam humat 10 kg/ha dan biochar 10 ton/ha, asam humat 10 kg/ha dan biochar 15 ton/ha, asam humat 20 kg/ha dan biochar 5 ton/ha, asam humat 20 kg/ha dan biochar 10 ton/ha, asam humat 20 kg/ha dan biochar 15 ton/ha, asam humat 30 kg/ha dan biochar 5 ton/ha, asam humat 30 kg/ha dan biochar 10 ton/ha, asam humat 30 kg/ha dan biochar 15 ton/ha. Data yang diperoleh dari penelitian dianalisis sidik ragam dan apabila menunjukkan adanya perbedaan nyata maka dilakukan uji lanjut menggunakan DMRT (*Duncan Multiple Range Test*) pada taraf kesalahan 5%.

Hasil penelitian menunjukkan bahwa aplikasi asam humat 30 kg/ha dan biochar 15 ton/ha berpengaruh sangat nyata terhadap kandungan kadmium di dalam tanah dan tanaman pakcoy. Pemberian asam humat dan biochar juga berpengaruh sangat nyata terhadap pH tanah. Namun pemberian asam humat dan biochar tidak berpengaruh nyata terhadap kadar klorofil total, tinggi tanaman, jumlah daun, luas daun, dan bobot segar tanaman.

Kata kunci: asam humat, biochar, pakcoy, kadmium, remediasi

## SUMMARY

*This study aims to determine the effect of biochar and humic acid application on cadmium-contaminated soil, as well as doses of biochar and humic acid for reducing cadmium contamination and increase the yield of pakcoy. This research was conducted at the Agroecology Laboratory of the Faculty of Agriculture, Jenderal Soedirman University, Wahana Laboratorium Semarang, the Research Laboratory of Universitas Jenderal Soedirman, and the Screenhouse located in Sumbang District, Banyumas Regency, Central Java Province.*

*The research was conducted from August 2023 to December 2023. This study used a randomised group design (RAK), a single factor treatment design consisting of 10 treatments with doses of humic acid and biochar of 0 kg/ha humic acid and 0 kg/ha biochar, 10 kg/ha humic acid and 5 kg/ha biochar, 10 kg/ha humic acid and 10 kg/ha biochar, humic acid 10 kg/ha and biochar 15 tonnes/ha, humic acid 20 kg/ha and biochar 5 tonnes/ha, humic acid 20 kg/ha and biochar 10 tonnes/ha, humic acid 20 kg/ha and biochar 15 tonnes/ha, humic acid 30 kg/ha and biochar 5 tonnes/ha, humic acid 30 kg/ha and biochar 10 tonnes/ha, humic acid 30 kg/ha and biochar 15 tonnes/ha. The data obtained from the study were analysed using variance analysis, and if there were significant differences, further tests were conducted using the DMRT (Duncan Multiple Range Test) at the 5% error level.*

*The results showed that the application of humic acid (30 kg/ha) and biochar (15 kg/ha) had a very significant affect on cadmium content in the soil and pakcoy plant. Humic acid and biochar applications also significantly affected soil pH. However, the application of humic acid and biochar did not significantly effect on total chlorophyll content, plant height, number of leaves, leaf area, and plant fresh weight.*

*Keywords: humic acid, biochar, pakcoy, cadmium, remediation*