

RINGKASAN

Ultisol merupakan salah satu jenis tanah di Indonesia yang mempunyai sebaran luas mencapai 45.794.000 ha atau sekitar 25% dari total luas daratan Indonesia. Ultisol di Indonesia umumnya belum dimanfaatkan secara optimal. Seiring dengan perkembangan budidaya pertanian, perlu dilakukan usaha memperluas budidaya pertanian dengan memanfaatkan tanah yang terkendala pada sifat fisik atau kimia tanahnya. Tanah yang mempunyai potensi untuk dimanfaatkan untuk hortikultura antara lain Ultisol. Permasalahan tanah ultisol untuk usaha pertanian adalah pH yang rendah, tingkat kejenuhan Al yang tinggi, kandungan hara yang rendah, fiksasi P tinggi serta tanah yang peka erosi. Berbagai permasalahan tersebut dapat di atasi dengan penerapan teknologi seperti pengapuran, pemupukan, dan pengelolaan bahan organik. Tujuan penelitian ini untuk mengetahui pengaruh (1) konsentrasi ekstrak cair dan dosis kompos basis biomassa *Azolla* terhadap ketersediaan P tanah Ultisol (2) konsentrasi ekstrak cair dan dosis kompos basis biomassa *Azolla microphylla* terhadap hasil tanaman pakcoy (3) interaksi konsentrasi ekstrak cair dan dosis kompos basis biomassa *Azolla microphylla* terhadap ketersediaan P tanah Ultisol dan hasil tanaman pakcoy.

Penelitian telah dilaksanakan pada Januari – Mei 2022. Penelitian dilakukan di Kebun Percobaan Fakultas Pertanian Universitas Jenderal Soedirman Penelitian ini terdiri dari 16 kombinasi perlakuan dengan jumlah ulangan sebanyak 4 ulangan, sehingga terdapat 64 unit percobaan. Metode penelitian meliputi perakitan Ekstrak Cair dan kompos basis biomassa *Azolla microphylla*, persiapan sampel tanah, pemupukan, penanaman, pemeliharaan dan pemanenan tanaman. Variabel yang diamati yaitu tinggi tanaman, jumlah daun, bobot segar tanaman, bobot kering tanaman, klorofil, pH H₂O, pH KCl, dan ketersediaan P Ultisol serta serapan P Jaringan Tanaman Pakcoy. Pengambilan sampel jaringan tanaman dilakukan pada saat akhir pertumbuhan vegetatif tanaman yaitu 42 hari setelah tanam.

Perlakuan Ekstrak Cair biomassa *Azolla microphylla* menunjukkan hasil pengaruh nyata terhadap pengukuran ketersediaan P Ultisol. Dosis kompos memberikan pengaruh nyata terhadap variabel bobot kering tanaman dan serapan P jaringan tanaman Pakcoy. Kombinasi Ekstrak Cair dan dosis kompos berbasis *Azolla microphylla* tidak memberikan pengaruh nyata terhadap semua variabel pengamatan.

Kata kunci : ekstrak cair *Azolla*, kompos *Azolla*, pakcoy, ultisol

SUMMARY

Ultisol is one type of soil in Indonesia that has a wide distribution reaches 45,794,000 ha or about 25% of the total land area Indonesia. Ultisols in Indonesia are generally not used optimally. Along with the development of agricultural cultivation, it is necessary to make efforts to expand agricultural cultivation by utilizing soil that is constrained by the physical or chemical properties of the soil. Soils that have the potential to be used for horticulture include Ultisols. Problems with ultisol soils for agriculture are low pH, high Al saturation levels, low nutrient content, high P fixation and erosion sensitive soils. These various problems can be overcome by the application of technology such as liming, fertilization, and organic matter management. The purpose of this study was to determine the effect of (1) concentration of liquid extract and dose of Azolla biomass-based compost on Ultisol soil P availability (2) concentration of liquid extract and dose of Azolla microphylla biomass-based compost on pakcoy plant yields (3) interaction of liquid extract concentration and dose. Azolla microphylla biomass base compost on Ultisol soil P availability and pakcoy yield.

The research was conducted in January – May 2022. The research was conducted at the Experimental Garden of the Faculty of Agriculture, Jenderal Sudirman University. This study consisted of 16 treatment combinations with 4 replications, so that there were 64 experimental units. The research methods include the assembly of liquid extracts and Azolla microphylla biomass base compost, soil sample preparation, fertilization, planting, maintenance and harvesting of plants. The variables observed were plant height, number of leaves, plant fresh weight, plant dry weight, chlorophyll, pH H₂O, pH KCl, and availability of P Ultisol and P uptake of Pakcoy Plant Tissue. Sampling of plant tissue was carried out at the end of plant vegetative growth, which was 42 days after planting.

The treatment of Azolla microphylla biomass Liquid Extract showed a significant effect on the measurement of Ultisol P availability. Compost dose had a significant effect on the variable dry weight of plants and P uptake of Pakcoy plant tissue. The combination of liquid extract and dose of compost based on Azolla microphylla did not significantly affect all observed variables.

Keywords: Azolla liquid extract , Azolla compost, pakcoy, ultisol