

Intisari

Penelitian ini bertujuan untuk mengetahui pengaruh pemberian amandemen tanah+mikoriza dan pupuk K₂SO₄ terhadap pertumbuhan dan serapan K jahe merah fase vegetatif aktif pada Andisol. Penelitian ini menggunakan Andisol Gunung Merbabu di Ngablak, Magelang sebagai media dan jahe merah sebagai tanaman indikator. Penelitian dirancang secara Acak Lengkap (RAL) dengan 2 faktor, yaitu amandemen tanah+mikoriza perbandingan 1:1 dengan dosis 10, 20, dan 30 ton/ha dan pupuk K₂SO₄ dengan dosis 0, 240, 480, dan 720 kg/ha. Percobaan dengan perlakuan maupun kontrol negatif (tanah asli) dan kontrol positif (tanah asli+pupuk dasar) diulang 3 kali. Sifat kimia tanah yang diamati meliputi pH, C-organik, bahan organik, dan K tersedia. Karakter agronomis-fisiologis jahe merah yang dinalisis yaitu tinggi tanaman, volume akar, jumlah anakan, serta berat segar dan berat kering tajuk, akar, dan rimpang. Hasil penelitian menunjukkan bahwa pemberian amandemen tanah+mikoriza dan pupuk K₂SO₄ dapat meningkatkan bahan organik dan C-organik pada amandemen+mikoriza dosis 10 ton/ha tanpa pupuk K₂SO₄ dan K-tersedia pada amandemen+mikoriza dosis 10 ton/ha dan pupuk K₂SO₄ dosis 720 kg/ha. Parameter tinggi tanaman jahe merah, volume akar, biomassa total, berat segar akar, berat segar rimpang, berat kering akar, berat kering tajuk, dan serapan K total tanaman paling tinggi diperoleh pada perlakuan amandemen+mikoriza dosis 10 ton/ha tanpa pupuk K₂SO₄. Berdasarkan hasil penelitian, perlakuan yang paling bagus untuk meningkatkan pertumbuhan jahe merah fase vegetatif aktif pada tanah Andisol di Ngablak, Magelang adalah amandemen+mikoriza dosis 10 ton/ha tanpa pupuk K₂SO₄.

Kata kunci: andisol, jahe merah, pupuk K₂SO₄, arang sekam padi, pupuk kandang kambing.

Abstract

This study aims to determine the effect of soil amendment + mycorrhiza and K₂SO₄ fertilizer on the growth and K uptake of red ginger in active vegetative phase on Andisol. This study used Mount Merbabu Andisol in Ngablak, Magelang as the media and red ginger as the indicator plant. The study was designed in a Randomized Complete Block Design (CRD) with 2 factors, namely soil amendment + mycorrhiza in a 1:1 ratio at doses of 10, 20, and 30 tons/ha and K₂SO₄ fertilizer at doses of 0, 240, 480, and 720 kg/ha. Experiments with both treatments and negative control (pure soil) and positive control (pure soil + base fertilizer) were repeated 3 times. Soil chemical properties observed included pH, C-organic, organic matter, and available K. The agronomic-physiological characters of red ginger that were analyzed were plant height, root volume, number of tillers, and fresh weight and dry weight of crown, roots, and rhizomes. The results showed that the application of soil amendments + mycorrhiza and K₂SO₄ fertilizer can increase organic matter and C-organic in amendments + mycorrhiza dose of 10 tons/ha without K₂SO₄ fertilizer and K-available in amendments + mycorrhiza dose of 10 tons/ha and K₂SO₄ fertilizer dose of 720 kg/ha. The parameters of red ginger plant height, root volume, total biomass, root fresh weight, rhizome fresh weight, root dry weight, crown dry weight, and total plant K uptake were highest in the treatment of amendment + mycorrhiza dose of 10 tons/ha without K₂SO₄ fertilizer. Based on the results of the study, the best treatment to increase the growth of red ginger in the active vegetative phase on Andisol soil in Ngablak, Magelang is amendment + mycorrhiza at a dose of 10 tons/ha without K₂SO₄ fertilizer.

Keywords: andisol, red ginger, K₂SO₄ fertilizer, rice husk biochar, sheep manure