

INTISARI

Lahan budidaya edamame yang digunakan pada penelitian ini memiliki kesuburan tanah rendah. Kesuburan tanah rendah didasarkan pada rendahnya kandungan bahan organik tanah, KPK (Kapasitas Pertukaran Kation), dan ketersediaan unsur hara makro utama yaitu unsur hara N, P, dan K. Penelitian ini dilakukan untuk mengkaji pengaruh pemberian biochar sekam padi dan mikoriza terhadap sifat kimia tanah, efisiensi pemupukan, pengurangan dosis pupuk anorganik, serta produktivitas tanaman edamame. Penelitian dilaksanakan dengan menggunakan Rancangan Percobaan Acak Lengkap (RAL) berbasis 12 perlakuan dan 3 ulangan. Perlakuan pemberian biochar sekam padi 0 dan 2 ton/ha, mikoriza 100 gr/30 kg dan dosis 0 gr/30 kg benih, serta 0, 50, dan 100% dosis rekomendasi pupuk TSP, KCl, Urea, dan ZA. Metode pengambilan sampel jaringan tanaman berupa tajuk, akar, dan polong edamame dilakukan saat masa generatif atau siap panen. Sampel tanah diambil pada kedalaman 0 – 20 cm yang dilakukan setelah panen pada setiap perlakuan. Data penelitian diolah dengan Anova dan DMRT (*Duncan's Multiple Range Test*) dengan taraf 5% untuk menghasilkan informasi mengenai kesesuaian perlakuan yang dikaji. Kesimpulan penelitian yaitu penambahan biochar sekam padi dan mikoriza tidak dapat mengurangi penggunaan pupuk anorganik N, P, dan K pada lahan budidaya tanaman edamame. Perlakuan biochar sekam padi 2 ton/ha berpengaruh nyata terhadap KPK tanah, P tersedia, K tersedia, K total akar dan tajuk, serta serapan hara N dan K tajuk. Penambahan mikoriza berpengaruh nyata terhadap panjang akar, bintil akar, dan bintil akar efektif. Perbedaan penggunaan dosis pupuk anorganik 0%, 50% dan 100% dosis rekomendasi berpengaruh nyata terhadap N total akar dan Serapan hara N dan K tajuk. Penambahan biochar sekam padi, mikoriza, dan dosis pupuk anorganik berpengaruh nyata terhadap kemanisan polong. Tinggi tanaman tertinggi ditunjukkan pada perlakuan biochar 2 ton/ha, tanpa mikoriza, dan 100% dosis pupuk anorganik.

Kata kunci: Inceptisol, Edamame, Biochar, Mikoriza

ABSTRACT

The edamame cultivation area used in this study has low soil fertility. Low soil fertility based on the low of soil organic matter, CEC (Cation Exchange Capacity), N, P, and K nutrient availability on soil. This research aims to determine the effect of rice husk biochar and mycorrhizae on soil chemical properties, fertilization efficiency, dose reduction of inorganic fertilizers, and edamame productivity. The research design used was a factorial Completely Randomized Design (CRD) with 12 factors and 3 replications. The treatments were biochar rice husk 0 and 2 ton/ha, mycorrhizal 0 gr/30 kg and 100 gr/30 kg seeds, 0, 50, and 100% doses of TSP, KCl, Urea, and ZA fertilizers. The method of plant sampling (edamame shoots, roots, and pods) was during the generative period or ready to harvest. Soil sampling was taken at a depth 0 – 20 cm was carried out after harvesting for each treatment. The research data was carried out by the Anova test and Duncan Multiple Range Test (DMRT) with 5% level to produce information regarding the suitability of the treatment. The conclusion of the study was the rice husk and mycorrhizae could not reduce the use of N, P, and K inorganic fertilizers on edamame cultivation land. The rice husk biochar treatment dosage 2 ton/ha had significant effect on KPK, P-available, K-available, N and K uptake of edamame plant. The addition of mycorrhizae significantly affected root length, root nodules, and effective root nodules. Inorganic fertilizer doses (0%, 50%, 100% of the recommended doses) had significant effect on N and K uptake of edamame plants. The addition of rice husk biochar, mycorrhizae, and doses of inorganic fertilizers significantly affected the sweetness of the pods. The highest plant height was shown in the treatment of biochar 2 tons/ha, without mycorrhizae, and 100% dose of inorganic fertilizer.

Key words: Inceptisol, Edamame, Biochar, Mycorrhiza