

RINGKASAN

Silika merupakan unsur yang bermanfaat bagi pertumbuhan tanaman dan secara agronomis penting untuk meningkatkan dan mempertahankan produktivitas padi. Ketersediaan silika pada lahan pertanian di Indonesia pada umumnya masih rendah. Pemupukan silika diperlukan guna meningkatkan ketersediaannya bagi tanaman padi sawah. Tujuan dari penelitian ini yaitu mengetahui pengaruh macam pupuk silika alami, ukuran pupuk silika alami, dan interaksi antara keduanya terhadap karakteristik pertumbuhan tanaman, karakteristik produksi tanaman dan karakteristik fisiologi tanaman padi pada tanah inceptisol.

Penelitian ini dilakukan di Laboratorium Ilmu Tanah Fakultas Pertanian, Laboratorium Agrohorti Fakultas Pertanian, dan *screen house* Fakultas Pertanian, Universitas Jenderal Soedirman. Penelitian ini dimulai bulan Agustus sampai dengan Desember 2021. Penelitian ini dirancang menggunakan Rancangan Acak Kelompok Lengkap (RAKL) dengan 2 faktor perlakuan dan 3 ulangan. Faktor Pertama yaitu macam pupuk yang terdiri dari F0 = Kontrol, F1 = Bahan utama (50% Zeolit, 25% SCB, 25% Sekam Padi) + bahan perekat (3% Vertisol dan 2% Kapur), F2 = Bahan utama (50% Zeolit, 25% SCB, 25% Sekam Padi) + bahan perekat (1% Vertisol), F3 = Bahan utama (25% Zeolit, 50% SCB, 25% Sekam Padi) + bahan perekat (3% Vertisol dan 2% Kapur), F4 = Bahan utama (25% Zeolit, 50% SCB, 25% Sekam Padi) + bahan perekat (1% Vertisol), F5 = Bahan utama (25% Zeolit, 25% SCB, 50% Sekam Padi) + bahan perekat (3% Vertisol dan 2% Kapur) dan Faktor kedua yaitu ukuran pupuk yang terdiri dari C1 = Ukuran 1-3 mm, C2 = Ukuran 3-5 mm. Variabel penelitian yaitu tinggi tanaman, jumlah anakan per rumpun, jumlah anakan produktif (batang), jumlah gabah bernas dan jumlah gabah hampa (biji), bobot segar tanaman, bobot kering tanaman, bobot gabah bernas per rumpun, bobot 1000 gabah bernas, uji kualitatif kandungan tanin (warna), uji kandungan prolin (ppm).

Macam pupuk silika alami, ukuran pupuk silika alami, interaksi antara keduanya tidak berpengaruh terhadap semua variabel pengamatan meliputi karakteristik pertumbuhan tanaman, karakteristik produksi tanaman dan karakteristik fisiologi tanaman karena keberadaan unsur silika di tanah diduga sudah mencukupi kebutuhan tanaman sehingga penambahan melalui pupuk silika alami tidak efektif.

SUMMARY

Silica is an element that is beneficial for plant growth and is agronomically important for increasing and maintaining rice productivity. The availability of silica on agricultural land in Indonesia is generally still low. Silica fertilization is needed to increase its availability for lowland rice plants. The purpose of this study was to determine the effect of the type of natural silica fertilizer, the size of the natural silica fertilizer, and the interaction between the two on plant growth characteristics, plant production characteristics and physiological characteristics of rice plants on inceptisol soils.

This research was conducted at the Laboratory of Soil Science, Faculty of Agriculture, Laboratory of Agrohorti, Faculty of Agriculture, and the screen house of the Faculty of Agriculture, Jenderal Sudirman University. This study started from August to December 2021. This study was designed using a Completely Randomized Block Design (RAKL) with 2 treatment factors and 3 replications. The first factor is the type of fertilizer consisting of F0 = Control, F1 = Main ingredient (50% Zeolite, 25% SCB, 25% Rice Husk) + adhesive (3% Vertisol and 2% Lime), F2 = Main ingredient (50% Zeolite, 25% SCB, 25% Rice Husk) + adhesive (1% Vertisol), F3 = Main ingredient (25% Zeolite, 50% SCB, 25% Rice Husk) + adhesive (3% Vertisol and 2% Lime) , F4 = Main ingredient (25% Zeolite, 50% SCB, 25% Rice Husk) + adhesive (1% Vertisol), F5 = Main ingredient (25% Zeolite, 25% SCB, 50% Rice Husk) + adhesive (3% Vertisol and 2% Lime) and the second factor is the size of the fertilizer consisting of C1 = Size 1-3 mm, C2 = Size 3-5 mm. The research variables were plant height, number of tillers per clump, number of productive tillers (stems), number of pithy grain and number of empty grain (seeds), plant fresh weight, plant dry weight, weight of pithy grain per clump, weight of 1000 pithy grain, qualitative test. tannin content (color), proline content test (ppm).

Types of natural silica fertilizers, the size of natural silica fertilizers, the interaction between the two does not affect all observational variables including plant growth characteristics, plant production characteristics and plant physiological characteristics because the presence of silica in the soil is thought to be sufficient for plant needs so that the addition of natural silica fertilizers does not effective.