Intisari

Penelitian ini bertujuan untuk mengetahui sifat kimia tanah yang mempengaruhi ketersediaan dan serapan Si pada beberapa fase pertumbuhan tanaman padi pada lahan sawah konvensional dan organik di Kecamatan Juwiring dan Imogiri. Pengambilan sampel tanah dilakukan sebanyak lima kali, yaitu sebelum tanam, pembibitan, pembentukan anakan, vegetatif maksimum, dan panen. Kandungan Si tersedia tanah dianalisis menggunakan metode buffer P dengan pH 6,2 dan Kandungan total Si jaringan dianalisis menggunakan metode destruksi basah dengan larutan kimia asam perklorat dan asam nitrat. Hasil penelitian menunjukkan Si tersedia tanah di Kecamatan Juwiring paling tinggi yaitu sebesar 1498,24 mg/kg, sedangkan di Kecamatan Imogiri sebesar 1482,09 mg/kg pada sistem organik dan 1485,89 mg/kg pada sistem konvensional. Kandungan total Si jaringan di Imogiri organik 0,28%, Imogiri konvensional 0,29%, dan Juwiring konvensional 0,29%. Hasil serapan menunjukkan perbedaan pada ketiga tempat yaitu 231,72 mg/g tanaman pada Imogiri organik, 150,83 mg/g tanaman pada Imogiri konvensional, dan 130,51 mg/g tanaman pada Juwiring konvensional. Hasil analisis untuk parameter fisika dan kimia lainnya tidak terdapat beda nyata antara sitem pertanian organik dengan konvensional.

Kata kunci : pertanian organik dan konvensional, Si tersedia tanah, Si total jaringan, serapan Si padi

Abstract

This study was aimed to determine the soil chemical properties affecting the availability and uptake of Si on several growth stages of rice conventional and organic rice field in Juwiring and Imogiri. Soil sampling were conducted at five stages of rice growth, ie before planting, seedling, tillering, maximum vegetative, and harvesting. The content of available Si in soil were analyzed using a buffer-P method with pH 6.2 and a total Si in plant tissue was analyzed using wet destruction method with perchloric acid and nitric acid. The results showed that soil with the highest available Si found in Juwiring was 1498.24 mg/kg, while in Imogiri soil available Si was 1482.09 mg/kg in organic systems and 1485.89 mg/kg in the conventional system. The total Si content in plant tissues in Imogiri organic was 0.28%, Imogiri conventional was 0.29%, and Juwiring conventional was 0.29%. The results also showed that Si uptake of rice in Imogiri organic, Imogiri conventional, and Juwiring conventional were 231.72 mg/g crops, 150.83 mg/g crops, and 130.51 mg/g crops respectively. However, there were no significant results in the relationship in other parameters of soil physical and chemical analysis between organic system and conventional system.

Keywords: organic and conventional farming, available Si in soil, Si total tissue, Si uptake of paddy plant