Intisari

Penelitian ini berjudul "Kandungan Asam Amino dan Gula Amino pada Tanah Sawah Sistem Pertanian Organik dan Konvensional di Mojogedang, Karanganyar". Tujuan penelitian adalah mengidentifikasi kandungan N-Organik tanah dan mengamati sifat-sifat kimia tanah pada sawah sistem pertanian organik dan konvensional. N-Organik adalah sumber N yang utama bagi tanaman karena setelah mengalami proses mineralisasi nitrogen organik tanah dapat diubah menjadi nitrogen inorganik tanah sehingga tersedia bagi tanaman. Nitrogen organik yang diamati adalah asam amino dan gula amino. Pengambilan sampel dilakukan pada 5 lahan di desa Pereng dan desa Gentungan kecamatan Mojogedang, yaitu sawah konvensional, semi organik, organik 3 tahun, organik 6 tahun, dan organik 9 tahun. Masing-masing lahan diambil 3 kedalaman, yaitu 0-15 cm, 15-30 cm, dan 30-45 cm dengan masing-masing 3 ulangan. Hasil analisis menunjukkan sawah dengan sistem pertanian organik mengandung nitrogen organik tanah yang lebih tinggi dibandingkan sistem pertanian konvensional. Kandungan nitrogen organik tertinggi didominasi asam amino kemudian gula amino. Kandungan asam amino dan gula amino sawah sistem pertanian organik meningkat secara relatif dibandingkan sawah sistem pertanian konvensional. Selain itu sawah dengan sistem pertanian organik memperbaiki sifat kimia tanah dengan meningkatkan kandungan nitogen organik, nitrogen inorganik, C-Organik, kandungan humat dan fulvat, pH, DHL, KPK, serta unsur hara dalam tanah dibandingkan dengan sistem pertanian konvensional.

Kata kunci : nitrogen organik, pertanian organik, pertanian konvensional, sifat kimia tanah

Abstract

This research entitled "Amino Acid and Amino Sugar Content in Paddy Soil of Organic and Conventional Farming Systems in Mojogedang, Karanganyar". The purpose of this research was to identify soil organic-N content and observe the chemical properties of soil in paddy soil of organic and conventional farming systems. Organic-N is the main source of N for plants because, after mineralization, soil organic nitrogen can be converted into soil inorganic nitrogen which is available for plants. The soil organic nitrogen observed are amino acid and amino sugar. Sampling was carried out on 5 fields in Pereng village and Gentungan village in Mojogedang sub-district, namely paddy soil of conventional, semi-organic, 3 years organic, 6 years organic, and 9 years organic. Soil samples was collected from 3 depths, namely 0-15 cm, 15-30 cm, and 30-45 cm with 3 replications. The analysis showed that paddy soil with organic farming systems contains soil organic nitrogen which is higher compared to conventional farming systems. The highest organic nitrogen content is dominated by amino acid then amino sugar. Amino acid and amino sugar content in paddy soil of organic farming systems increase relatively compared to conventional farming systems. In addition, paddy soil with organic farming systems was improved by soil chemical properties which includes content of organic nitrogen, inorganic nitrogen, C-Organic, humic and fulvic content, pH, EC, CEC, and nutrients in the soil compared to conventional farming systems.

Keywords : organic nitrogen, organic farming systems, conventional farming systems, soil chemical properties