ABSTRAK

Kentang (*Solanum tuberosum* L.) merupakan komoditas golongan umbiumbian yang membutuhkan lebih banyak fosfor (P) dibandingkan dengan tanaman lainnya. Tanah Andisol mempunyai beberapa sifat yang menjadi kendala untuk pertumbuhan tanaman, ialah retensi hara P yang cukup tinggi. Sebagian besar hara P terjerat oleh bahan amorf sehingga tidak tersedia bagi tanaman. Pupuk organik hayati merupakan pupuk organik yang diperkaya agensi hayati seperti mikroba pelarut fosfat yang dapat menyediakan hara P bagi tanaman. Penelitian ini bertujuan untuk (1) mengetahui keragaan vegetatif tanaman kentang akibat aplikasi pupuk organik hayati pada tanah Andisol, dan (2) mengetahui keragaan produksi tanaman kentang akibat aplikasi pupuk organik hayati pada tanah Andisol.

Kegiatan penelitian telah dilaksanakan di lahan milik petani kentang di Desa Pekasiran, Kecamatan Batur, Kabupaten Wonosobo, Jawa Tengah pada ketinggian 1.843 m dpl. Penelitian berlangsung pada bulan Juli-November 2022. Penelitian diawali dengan persiapan lahan, penanaman, pemupukan susulan, pemeliharaan, pemanenan dan penanganan pasca panen. Rancangan Rancangan percobaan yang digunakan adalah rancangan acak kelompok (RAK) dengan faktor P0 = cara konvensional petani (kotoran ayam 20 ton/ha, phonska 1 ton/ha dan ZA 250 kg/ha) dan P1 = paket pemupukan (Pupuk organik hayati 20 ton/ha & Pupuk Urea 300 kg/ha, SP-36 500 kg/ha KCL 300 kg/ha, dan Kapur 200 kg/ha). Variabel yang diamati antara lain tinggi tanaman, jumlah daun, jumlah umbi, bobot umbi, volume umbi, diameter umbi, panjang umbi, kandungan pati dan kandungan gula.

Hasil penelitian menunjukan bahwa aplikasi pupuk organik hayati (POH) berpengaruh nyata pada tinggi tanaman, jumlah daun, bobot umbi, volume umbi, panjang umbi, diameter umbi, kandungan pati dan kandungan gula. Hasil terbaik aplikasi POH yaitu dengan tinggi tanaman 63,18 cm, jumlah daun 116,6 helai, jumlah umbi 6,0 biji, bobot umbi 561,8 gram/tanaman, volume umbi 72,37 mm^3, diameter umbi 5,67 cm, panjang umbi 7,39 cm, kandungan pati 26,71%, dan kandungan gula 1,36% dibandingkan dengan cara konvensional (petani). Namun tidak berpengaruh nyata terhadap jumlah umbi per tanaman.

ABSTRACT

Potato (Solanum tuberosum L.) *is a tuber crop that requires more phosphorus (P) than other crops. Andisol soils have several properties that become obstacles to plant growth, namely the high retention of P nutrients. Most of the P nutrients are entangled by amorphous materials so that they are not available to plants. Biological organic fertilizer is an organic fertilizer enriched with biological agents such as phosphate solubilizing microbes that can provide P nutrients for plants. This study aims to (1) determine the vegetative performance of potato plants due to the application of bio-organic fertilizer on Andisol soil, and (2) determine the production performance of potato plants due to the application of bio-organic fertilizer on Andisol soil.*

The research was conducted on potato farmers' land located in Pekasiran Village, Batur Subdistrict, Wonosobo Regency, Central Java at an altitude of 1,843 m above sea level. The research took place in July-November 2022. The research began with land preparation, planting, supplementary fertilization, maintenance, harvesting and post-harvest handling. The experimental design used was group randomized design (RAK) with factors P0 = conventional farmer's method (chicken manure 20 tons/ha, phonska 1 ton/ha and ZA 250 kg/ha) and P1 = fertilization package (biological organic fertilizer 20 tons/ha & fertilizer Urea 300 kg/ha, SP-36 500 kg/ha KCL 300 kg/ha, and Lime 200 kg/ha). Variables observed included plant height, number of leaves, number of tubers, tuber weight, tuber volume, tuber diameter, tuber length, starch content and sugar content.

The results showed that the application of biological organic fertilizers had a significant effect on plant height, number of leaves, tuber weight, tuber volume, tuber length, tuber diameter, starch content and sugar content. The best results due to the application of biological organic fertilizers were plant height 63.18 cm, number of leaves 116.6, number of tubers 6.0 seeds, tuber weight 561.8 gram/plant, tuber volume 72.37 mm^3, tuber diameter 56,7 cm, tuber length 73.9 cm, starch content 26.71%, and sugar content 1.36% compared to the conventional method (farmers). However, it had no significant effect on the number of tubers per plant.