Title The Effect of Spent Mushroom Compost on the Dry Matter and Mineral Content of Pepper (Piper nigrum) Grown in Greenhouse

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Abstract

This research was carried out to determine the effects of spent mushroom compost (SMC) as an organic material source for pepper grown in greenhouse soil. SMC was collected from mushroom cultivation plant in Korkuteli representative of the major mushroom growing area of Turkey. Pepper plants were grown in pots containing different amounts of SMC (corresponding to 0, 15, 30 and 60 ton ha^{-1}, as dry weight basis). Red Mediterranean soil collected from the surface (0-30cm) of fields cropped in a wheat-corn rotation in Antalya (Turkey) was used as an experimental soil. The heavy metal content of untreated greenhouse soil was well within the accepted normal range of values. The effects of SMC on dry matter, N, P, K, Ca, Mg, Fe, Zn, Cu, Ni, Cd and Pb contents of pepper were determined. SMC applications caused statistically important effects on dry matter yield, and N, P, K, Fe and Zn contents in the pepper plant. SMC applications increased yield until 30 ton ha^{-1}, higher application rates of SMC compost depressed plant growth. All spent mushroom compost treatments, except control resulted in higher mineral content. However, no important changes in heavy metals were detected. All metal concentrations were below the phytotoxic maximum limits. The best result in regard to productivity was obtained at 30 $tonha^{-1}$ SMC applications. At 60 ton ha^{-1} SMC applications pepper yield was depressed due to the high salt content. This research showed that SMC could be applied in greenhouse soil at the agronomic rates without heavy metal and salinity defects.