The effect of type and ratio of vermicompost on selected growth indices and nutrients content of tomato at greenhouse conditions

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Abstract

This study was conducted to investigate the effect of type and ratio of vermicompost on tomato growth, with five different types of vermicompost (platanus leaves, maple leaves, pruning apple trees and grape, waste of herbal extracts and azolla residues) and four ratios of vermicompost to peat and perlite (2:1 v/v) as 0, 1:3, 2:3 and 3:3, at greenhouse conditions. Results showed that type of vermicompost had a significant effect (P≤ 0.05) on plant height, shoot dry weight, root dry weight, number of internodes and stem diameter. The interaction between type and ratio of vermicompost had significant effect on root and shoot dry weight, stem diameter, nitrogen (N) percent, and potassium (K) percent. The highest effect on shoot dry weight, stem diameter and the N percentage was observed in the ratio of 2:3 vermicompost of azolla residues. The amount of K in the ratio of 2:3 vermicompost of maple leaves increased 66.18% as compared to the control treatment. Also, different ratios of vermicompost increased percentage of phosphorus and concentration of iron and zinc, as compared to peat+ perlite treatment. Generally, different types and ratios of vermicompost compared to peat+ perlite medium had a positive effect on growth indices and mineral concentration in the tomato plant.

Keywords: Vermicompost, Organic residues, Peat and perlite, Tomato plant.

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