

Effect of different rates of spent mushroom compost and rootstock type on growth and yield of greenhouse tomato cv. Synda

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Abstract

In order to investigate the effects of spent mushroom compost and grafting on growth and yield of greenhouse tomato cv. Synda, a factorial experiment based on completely randomized design with 5 replications was carried out in Greenhouse of Mohagheh Ardabili University in 2012. Tomato plants as scion, grafted on Synda and rootstocks of Yedi and Kingkong, and none-grafted plants (as control) were transplanted in beds containing different rates of spent mushroom compost (0, 15, 30, 45 and 60 percent). The base substrate consisted of two parts field soil and one part sand. At the end of the experiment, number of leaves, plant height, chlorophyll content, leaf area, stomatal conductance, number of days to flowering, number of fruits, average fruit weight and yield were determined. Results indicated that plants grown on beds containing 60% spent mushroom compost had the highest value for traits such as number of leaves, leaf area, plant height and chlorophyll content. Increasing the percentage of spent mushroom compost in the substrate increased number of fruits per plant, but decreased mean weight of fruits. Grafting of Synda tomato plants on Yedi and Kingkong rootstock improved some of the vegetative characteristics. Plant grafted on Kingkong rootstock had higher plant height and leaf area. While, plants grafted on Yedi rootstock had higher leaf dry weight. The highest fruit yield (956.61 and 953.85 gr per plant) was obtained by self-grafted and 30% spent mushroom compost and plants grafted on Yedi rootstock grown on beds containing 45% spent mushroom compost. In general, using suitable rootstocks and application of spent mushroom compost in the substrate can increase vegetative growth and yield of tomato plants cv. Synda via extending photosynthetic areas of the plants.

Keywords: Grafting, Vegetative characteristics, Yield, Compost.

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