Compost tea effects on yield of organic tomato in greenhouse condition

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Abstract:

With acceptance and utilization of chemical pesticides declining, some vegetable producers are turning to alternative methods to manage plant health issues (Tafaghodinia & Kamalpour 2002). Compost tea (CT) has provided control of some foliar pathogens and may provide benefits beyond disease suppression (Weltzein, 1991). In this method evaluated the effects of compost tea on crop production of organic tomato in greenhouse condition. To achieve this research, greenhouse all windows and entrance equipped with net to prevent of pest. 10 tomatoes plants implanted in two different rows. One of these plots treated with compost tea and the other one was selected as a check row. Yield of 6 plants weighed during two months in two rows. The results for tomatoes yield showed the marketable yield for tomato crop showing clearly the good effect of compost tea when it is applied. The analysis of variance showed there are significant different between the average yield of compost tea treatment and control.

Keywords: Compost tea, Greenhouse, organic, Pesticide

1. Main text :

1.1. Introduction:

Supply of nutrients to the soil is very important for organic farmers. Soil management in organic agriculture improves the soil fertility supplying with composted material (Willer & Yussefi 2005). Organic composts and other solid manures are great but they take a while to break down in the soil and become available to plants. So, for the
successful growing of tomato, use of compost tea has a role. As a liquid fertilizer, its high nutrient value and rapid availability makes it a great tonic for plants. Because it is rich in the microorganisms that recycle organic matter, compost tea also boosts the plant and soil enhancing activity of soil life.

2.1. Methods:
In this method, a field experiment was carried out in experimental greenhouses of the Iranian Research Organization for Science and Technology (IROST) which is located almost in southwestern of Tehran to evaluate the effects on organically cultivated tomato growth by Compost tea in comparison to check row. At first ٠١ seedling tomatoes were seeded in two rows of the greenhouse, then one of these rows treated with compost tea and the other was considered as check row. Each week the amount of ٠٥٠ cc compost tea (EC ٨.٨) was added to each plant in a row that was known as a treatment row. From the first week of April began harvesting fruits and Yield of ٦ plants weighed during two months in two rows.

3.1. Results and Discussion:
Data were analysed with Design Expert ver.٦. In diagnostic part, straight line of data indicated no abnormalities. The plot of Residuals vs. Predicted noticed that reflects the number of standard deviations between the actual and predicted response values. Only the Studentized form of residuals will produce valid diagnostic graphs. And outlier t plot did not show any points outside the plus and minus ٥.٣ standard deviation limits. The results for tomatoes yield showed the marketable yield for tomato crop showing clearly the good effect of compost tea when it is applied(Fig ١). The analysis of variance showed there are significant different between the average yield of compost tea treatment and control (p<٠٠٠.٠٠). The results obtained during the tomato development cycle showed us good vegetative growth.
Conclusions:

Compost tea in organic tomato crop production in specific and in general plays an important role agro-ecosystem management. Compost tea not only reduces the risks of disease in greenhouse environment also this method can be replaced with other method such as chemical fertilizers to increase on tomato crop production.

References:

1. Tafaghodinia, B., kamalpour, M. \(\text{(9002)}\) compost tea, Sepehr Publication, Tehran, Iran, \(\text{ voluntariness}\).
3. Willer, H. Yussefi, M. \(\text{(0505)}\) The world of organic agriculture statistics and emerging trends.pp:\(\text{1-76}\).