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Effect of bio-fertilizers on microbial count in soil, growth and yield attributes of rainy season tomato

Barinderpal Singh, Kulbir Singh, Dilpreet Talwar and **Madhu Sharma**
Punjab Agricultural University, India

Bio-fertilizers are living microorganisms, derived from roots or soil, which improve the soil microbial content, growth and yield attributes in rainy season tomato. In an experiment, 14 treatments comprising of various combinations of bio-fertilizers, organic manures and chemical fertilizers were compared to assess the impact of different sources of nutrients on performance of tomato. The results revealed that plant height after 30, 60 and 90 days of transplanting, number of branches per plant, number of fruits per plant and leaf surface area was found to be maximum with the application of *Azotobacter* along with recommended dose of fertilizers (T_1). Likewise, application of *Azospirilum* along with recommended dose of fertilizers (T_3) produced maximum fruit weight, fruit diameter and total yield. Highest soil organic carbon content (0.38 %) was observed in the treatments T_{11} (FYM @ 20 t/ha along with *Azotobacter* and *Vesicular-Arbuscular Mycorrhizae* (VAM)) and T_{12} (Farm Yard Manure (FYM) @ 20 t/ha). Highest bacterial count (26.2×10^6) and actinomycetes count (36×10^4) was recorded in treatment T_{12} (FYM @ 20 t/ha). It can be concluded that, the application of *Azotobacter* along with recommended dose of inorganic fertilizers improve vegetative growth, while *Azospirillium* along with recommended dose of inorganic fertilizers improves yield attributes in rainy season tomato as far as the sustainability and environmental considerations are concerned. The present study highlights the need of usage of bio-fertilizers along with organic and inorganic manures/fertilizers to enhance the nutrient availability and improve soil health.

Biography

Barinderpal Singh is currently a student of Master's program in which he is specializing in Vegetable Sciences at Punjab Agricultural University, Ludhiana. He will complete his Master by May 2017. He has been engaged in pioneer research work "Integrated nutrient management in tomato". He has done his Bachelor of Sciences in Agriculture with Horticulture as an elective.

barinderpalsinghbrar@gmail.com

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