

Effect of organic manures on dry matter yield of tomato and the effect of *Trichoderma* spp. on nutritional status of organic matter enriched soils

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Abstract

Organic agriculture is a sustainable and viable alternative to conventional agriculture. But crop yields are generally low mainly due to the use of organic materials and natural biological processes. This study aims to find some solutions to increase tomato (*Lycopersicon esculentum*) production by using organic manure and enhancing the availability of nutrients through microbes. Two experiments were conducted. One was a green house experiment to study the effect of different organic manures on tomato dry matter yield under controlled environment and to find out the best organic manure. Organic manures such as tank bed humus, microbially enhanced enriched humus, compost and vermicompost were added at 5% on dry weight basis of the soil. The other one was a laboratory experiment of an incubation study to observe the effect of microbes *Trichoderma viride* and *Trichoderma japonica* on soil, soils enriched with humus and microbially enhanced enriched humus on soil nutritional status. Here 10% of each of the organic matter and 4% of the each microbial culture on dry weight basis of the soil were added to the relevant treatments and maintained at field capacity moisture level during the incubation. There was significant difference among the treatments in the green house experiment and the vermicompost gave higher yield microbially enhanced enriched humus, humus and compost, respectively. There was significant difference among the treatments of incubation experiment for pH, EC, available K and P, but not for available N. The microbes were not causing changes under the given environment in pH, EC, available N, P and K for a marked extent with the time. Instead the soil is fixing some nutrients.

Keywords: Organic farming, Compost, Vermicompost, Humus, Microbially Enhanced Enriched Humus, *Trichoderma* spp, Available N, P, K, Tomato.