

EFFECT OF ORGANIC MANURES ON DRY MATTER YIELD OF TOMATO AND MICROBES ON NUTRITIONAL STATUS OF ORGANIC MATTER RICH SOILS

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Organic agriculture is a sustainable and viable alternative to conventional agriculture. But it yields low when compared to conventional farming mainly due to the only use of organic matters and bio control of pathogens. The objectives of the study are to find a solution to increase the production by using suitable organic manure and to search the availability of nutrients by the use of microbes.

Two experiments were conducted and of which one was a house experiment to study the effect of different organic manures on dry matter yield of tomato under controlled environment and to find the best organic manure. Four organic manure treatments with tank bed humus, microbially enhanced enriched humus compost, vermicompost and a control were used for the experiment. Polythene bags filled with 4 kg of soil were mixed with 200 g of organic manure to give the level of 5%. Experiment design used was Randomized Complete Block Design with four replicates. Tomato variety T-V245 was selected for the study. Soil analysis was conducted for initial soils and soil samples were taken at the incubation period with one month interval for consecutive three months. Data were statistically analyzed with analysis of variance using Statistical Analysis System. The other one was a laboratory experiment to study the effect of microbes *Trichoderma viridae* and *Trichoderma japonica* on soil, soils enriched with humus and microbially enhanced enriched humus on soil nutritional status. Ten percent of each of

the organic matter and 4% of each microbial culture were added and treatments were maintained at field capacity moisture level during the incubation.

There was a significant difference among the treatments of green house experiment and the vermicompost gave the highest yield and the best performance while the microbially enhanced enriched humus, humus and compost gave good performances. There was a significant difference among the treatments of incubation experiment for pH, EC, available K and P, but not for available N. The microbes did not have an effect on pH, EC, available N, P and K for a marked extent under the given environment with the time.

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