

# Impact of Organic Fertilizer on the Nutritional Composition of Tomato (*Solanum lycopersicum* L.) Fruits

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Organic fertilizers generally comprise a variety of plant-derived materials, animal manures and agricultural by-products. The use of organic fertilizers has the advantages of improving soil quality and mitigating problems associated with synthetic fertilizers. The present study's objective was to investigate the impact of organic fertilizer on the nutritional composition of tomato fruits (*Solanum lycopersicum* L.). Two commonly cultivated tomato hybrid varieties "Thilina" and "Padma" were grown in poly pots containing three different substrates; topsoil supplement with recommended levels of commercial organic fertilizer composed of a mixture of cow manure, plant residues and biochar (T1), NPK chemical fertilizer (T2) and no added fertilizer (T3). P, K and organic C content of soil were analyzed by standard methods. Total soluble sugars, lycopene, carotene, vitamin C and K contents of ripe fruits were analyzed. Analysis of the soil showed that addition of organic fertilizer significantly improved the P, K and organic C contents in the soil. However, the P and K contents were relatively lower when compared to chemical fertilizer-added soil. In contrast, organic C content was significantly higher in organic fertilizer-added soil. In comparison to plants grown under chemical fertilizer, lycopene content of tomatoes of both "Thilina" and "Padma" varieties increased by 50% and 48% respectively, and soluble sugar content was increased by 46.2% in "Thilina" and 62.0% in "Padma" varieties. carotene was increased under the application of organic fertilizer but vitamin C contents of fresh tomatoes were lower in "Thilina" and "Padma" varieties by 8.6% and 7.0%. The K content of tomato was not significantly affected by organic fertilizer. Taken together, the results suggest that recommended levels of organic fertilizer can be successfully used to improve the nutritional quality of tomatoes.

Keywords: Fertilizers, Lycopene, Nutrients, Soil