



The effect of microbial soil inoculants on the quality parameters of tomato fruit in organic farming

Eszter Tóth (1), László Csambalik (2), Borbála Biró (3), and Zita Szalai (4)

(1) Szent István University, Faculty of Horticultural Science, Department of Ecological and Sustainable Production Systems, Hungary (sztike2@gmail.com), (2) Szent István University, Faculty of Horticultural Sciences, Department of Ecological and Sustainable Production Systems, (3) Szent István University, Faculty of Horticultural Sciences, Department of Soil Science and Water Management, (4) Szent István University, Faculty of Horticultural Sciences, Department of Ecological and Sustainable Production Systems

In organic farming microbial inoculants are allowed to use in soil fertility management. Microbial soil inoculants might improve soil, and the growth of the plants by a wide variety of mechanisms. Soil microbes can increase the solubility and mobility of the nutrients to be available for the plants, and increase the efficiency of nutrition uptake by producing plant growth regulating materials. Beneficial microorganisms can also serve as biocontrol agents against the soil born pathogens. According to recent research results (Baranski et al. 2014) certain quality parameters of organically grown tomato fruit are better, then in conventional production. For example in organic agricultural practice biologically active compounds of antioxidants are important ingredients of healthy tomato fruits. In present research the lycopene and antioxidant content was examined on organically grown tomato fruits, using various types and combinations of inoculants as “bioeffector” products. Five treatments were applied, containing single and combined components of soil microorganism. Single inoculation was containing biocontrol type of *Trichoderma harzianum* T22 (BE1), plant growth promoting *Pseudomonas* sp (BE2), and phosphorous-mobilizing *Bacillus amyloliquefaciens* (BE3) strains. The combined treatments were containing biotic (BE1) and *Bacillus subtilis* strains in further combination with abiotic zinc (Zn) and manganese (Mn) treatments as industrial products. Tomato (*Lycopersicon esculentum* var. Mobil) was used in the organic field experiment. When combined inoculants were used, more positive effect were found on nutritional quality parameters of tomato. Among microbial inoculums, the combined treatments, including 2 types of microbial inoculums and some of the microelements (Zn, Mn), contributed to higher levels of measured quality parameters in contrast with single treatments. Using more strains in an inoculum completed with abiotic elements might be applied for the healthier tomato fruit production.

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