

Title: SHORT-TERM ALTERATIONS IN MICROBIAL ATTRIBUTES IN A FERRALSOL CULTIVATED WITH MELON IN DIFFERENT SOIL MANAGEMENT SYSTEMS IN GREENHOUSE

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Abstract:

Soil microorganisms are good indicators of soil disturbance and quality. Some management systems can provide alterations in microbial biomass, which can be dependent of the stage and the type of agricultural crop, beyond agricultural systems. In this sense, changes in soil microbial attributes in vegetables and fruits production systems are poor studied, especially when minimum and no-tillage systems are adopted. Thus, the aim of this study was to evaluate the microbial biomass carbon (MBC), the microbial coefficient (qMIC) and the total organic carbon (TOC) alterations in different stages of melon crop (*Cucumis melo* L.) cultivated with different soil management systems in a greenhouse. For this, an experiment was implemented in the randomized blocks design, with six repetitions and three treatments: conventional tillage with complete removal of straw of the plots (CT), minimum tillage with incorporation of the straw (MT) and no-tillage (NT). The cover plant used was the millet (*Pennisetum glaucum* L.). The soil used was a Rhodic Ferralsol. In CT treatment, soil was prepared with double plow and a disk harrow, while in NT the soil wasn't plowed and the straw was kept on the surface. In minimum tillage, just a superficial disk harrow was used. Soil samples were collected in four stages of the melon crop: at the seedling (0 DAS), 30 days after seedling (30 DAS), 60 days after seedling (60 DAS) and at the final of the experiment – 87 days after seedling (87 DAS). The MBC was extracted by irradiation-extraction method and the carbon contents were determined by titration with ferrous ammonium sulfate. The qMIC was calculated as a MBC/TOC ratio. Significant interactions between the period of the sampling and soil management system were found to MBC and qMIC. For COT, just effect of the period of the sampling was found. At 0 DAS, the higher MBC and qMIC contents were found to CT. In the others periods of sampling were observed similar contents of these variables. In CT, the higher contents of MBC and qMIC were found to 0 DAS and 30 DAS. Probably, these initial higher values for CT are related with the intense soil tillage that can momentarily active the soil microorganisms. The TOC contents were increase throughout the experiment.

Key-words: soil quality, soil tillage systems, *Cucumis melo* L.

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