

**TITLE:** MICROBIAL VIABILITY AND TEMPERATURE MONITORING DURING THE PROCESS OF COMPOSTING FROM VEGETABLE RESIDUES

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**ABSTRACT:**

The production of vegetal residues in Brazil has been growing along the increase of population, being the composting a sustainable method for the management of these residues in agroecosystems. The knowledge of the composition and microbial structure of the ecosystem in composting is necessary to control the process and to determine the quality of the compost, being the temperature a critical factor in the selection of several decomposing microorganisms. This study aimed to verify the composting process from vegetable waste of the Federal University of Lavras - UFLA restaurant, through the addition of natural EM (Effective Microorganisms) and commercial compost accelerator. Composting was performed in the UFLA Agriculture sector, where three treatments were done: (1) EM; (2) compost accelerator<sup>®</sup> and (3) control treatment without the addition of microorganisms. The samples were collected at 0, 5 and 10 days during of composting. The temperature was measured using a digital thermometer. For microbiological analysis, 25 g of the sample was added in 225 mL of peptone water 0.1%, equivalent to 10<sup>-1</sup> dilution, and serial dilutions were then performed until 10<sup>-8</sup>. For the counting of mesophilic heterotrophic bacteria, the pour-plate technique was used the Nutrient Agar (NA) added with nystatin and incubated at 37°C during 48 h. For the counting of filamentous fungi and yeasts the spread-plate technique was used the Potato Dextrose Agar (PDA), plates were incubated at 25°C for 7 days. The temperature remained in the mesophilic phase during the 10 days of composting, from 30°C to 36°C at 0 and 5 days and drop to 28.5°C at time 10. The population of mesophilic bacteria was similar in treatments but different in relation to time, varying between 7.44 log CFU.g<sup>-1</sup> and 9.34 log CFU.g<sup>-1</sup> at time 0 and 10 days, respectively. The population of filamentous fungi and yeasts showed no difference between treatments, with an increase in the microbial population between the times, ranging from 6.34 log CFU.g<sup>-1</sup> to 7.49 log CFU.g<sup>-1</sup> at time 0 and 10 days, respectively. The addition of natural EM and commercial compost accelerator didn't influence the composting process until the date analyzed.

**KEYWORDS:** Bacteria; Yeast; Probiotics; Agroecosystem.