Composting of rice straw with effective microorganisms (EM) and its influence on compost quality.

ABSTRACT

This study aims to assess the effect of EM application on the composting process of rice straw with goat manure and green waste and to evaluate the quality of both compost treatments. There are two treatment piles in this study, in which one pile was applied with EM and another pile without EM. Each treatment was replicated three times with 90 days of composting duration. The parameters for the temperature, pH, TOC and C/N ratio, show that decomposition of organic matter occurs during the 90-day period. The t-test conducted shows that there is a significant difference between compost with EM and compost without EM. The application of EM in compost increases the macro and micronutrient content. The following parameters support this conclusion: compost applied with EM has more N, P and K content ($P < 0.05$) compared to compost without EM. Although the Fe in compost with EM is much higher ($P < 0.05$) than in the compost without EM, for Zn and Cu, there is no significant difference between treatments. This study suggests that the application of EM is suitable to increase the mineralization in the composting process. The final resultant compost indicated that it was in the range of the matured level and can be used without any restriction.

Keyword: Effective microorganisms (EM); Rice straw; Composting; Nutrients contents; Heavy metals contents.