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Effect of different mixtures of vermicompost and coir dust on soil microbial activity

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Vermicompost is a nutrient-rich, natural fertilizer and soil conditioner. Coir dust, on the other hand, is a widely used component in potting media, despite its poor nutrient contents. A mixture of these two ingredients could thus provide a better growing media for plants. The present laboratory study was undertaken to assess the effect of different mixtures of vermicompost and coir dust on soil microbial activity as measured by carbon mineralization.

Four different vermicompost and coir dust mixtures [100 % vermicompost (T1), 75 % vermicompost : 25 % coir dust (T_2), 50 % vermicompost : 50 % coir dust (T_3) and 25 % vermicompost : 75 % coir dust (T_4)] were applied to the soil. The control soil was free from vermicompost and coir dust (T_5). A Completely Randomized Design (CRD) was used in the experiment with four replicates. Carbon mineralization was determined at 3, 7, 14, 21, 28, 35, 42, 49, 56, 63 and 70 days after the treatments. Data were statistically analyzed using SAS package.

Results at day three showed no significant ($P \leq 0.05$) variation among the treatments. However, treatments T1, T2 and T3 were significantly ($P \leq 0.05$) different from the control at day 7 and treatments T2 and T3 were significantly ($P \leq 0.05$) different at day 14. Since then, significant ($P \leq 0.05$) differences were no longer observed for any treatment until the end of the incubation. In contrast, treatment T2 exhibited higher carbon mineralization than any other treatment throughout the incubation. Results could therefore be concluded that T2 was proved to be the best mixture to enhance the microbial activity.

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