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AEROBIC COMPOSTING OF MIXING SEWAGE SLUDGE WITH GREEN WASTE FROM LAWN GRASS

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Abstract

Biological decomposition process is an important goal in terms of pollution reduction. By composting, the organic waste can be converted into compost and can be used for agricultural purposes, to improve the soil quality. The present study aimed to evaluate the behavior of materials such as sewage sludge and green waste during composting, their compatibility in mixtures and the quality of the end product. Also, the study highlighted the technical and operational characteristics of a composting system on a laboratory scale. The main advantage of this laboratory scale experiment is the reduced processing time and the fact that it can be fast adapted to different experimental conditions. The pilot scale experiment allowed to investigate the dynamics of main parameters during the composting process and provide the basis for an efficient design process. The elaborated composting process is a convenient, cost-effective and environmentally friendly process for biodegradable organic waste management, being also a feasible and controllable process. The best intervals for physico-chemical parameter values that were obtained at the end of the composting process are: pH in the range of 8.2 ÷ 8.6; moisture content in the range of 59.9 % ÷ 65.8 %; organic matter in the range of 81.9 % ÷ 91.6 %; the C/N ratio in the range of 17.5 ÷ 18.7. The obtained results show that all composting variants lead to the production of a quality compost that can be used in agriculture.

Key words: bioreactor, compost, environment, green waste, sewage sludge

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