Comparison of compost derived from different sources for agricultural purposes.

N J G T Bandara[1*] , K M W G Kandawinna[2], K M Mohotti[3]
[1,2] *Department of Forestry and Environmental Science, University of Sri Jayewardenepura*
[3] *Department of Nematology, Tea Research Institute, Thalawakele*

Municipal solid waste (MSW) in Sri Lanka, which consists mainly of organic waste, can be reused for soil conditioning after composting. However, frequent application of compost from solid waste arising not just from households may lead to the accumulation of heavy metals in soils and in recognition standards were prepared by the Sri Lanka Standards Institute to guarantee the safe use of composts. Objectives of this study,

1. Identification of the chemical composition of compost prepared with MSW and bio compost. (Compost prepared by selected biodegradable materials).
2. Identification of the role of microbial activity in MSW and bio compost.

In this study, the heavy metal content (Cd, Cu, Pb, and Zn), nutrient requirements (pH, Organic carbon, N, P, K, Ca and Mg) and microbial activity of compost derived from municipal solid waste and bio compost were compared with each other and with the standards for organic fertilizers in Sri Lanka. Data were analyzed using Mann-Whitney U-Test and Wilcoxon's Signed Rank Test.

Based on the results obtained in this study, heavy metal contents of both types of compost were less than the standard values of Sri Lanka and MSW compost show a higher heavy metal content than bio compost. Organic Carbon, total Nitrogen, pH and microbial activity were less in MSW compost samples than bio compost samples. K_2O, MgO, CaO content is higher in MSW compost samples. The P_2O_5 content of both types of compost is significantly lower than the standard value. Organic Carbon, total Nitrogen, pH and K_2O contents fulfilled the minimum standard values of Sri Lanka while MgO, CaO contents did not fulfil the minimum standard values.

From the results it could be concluded that compost prepared by municipal solid waste does not give harmful health problems to human life and is not dangerous to plant life. But both types of compost do not fulfill the minimum standard levels of nutrient requirement for certain major nutrients. In addition seed germination can be observed in bio compost samples. Hence it could be concluded that bio compost is a better growth media than municipal solid waste compost. The efficiency can be increase by adding essential nutrients to those fertilizers.

* nbandara@sltnet.lk Tel: 011 2804685