

Comparison of the efficiency of selected compost bins in composting of kitchen and mixed garden waste

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Abstract

Composting in bins is a commonly practiced method for the disposal of urban or suburban domestic waste. Adapting to this method significantly minimizes the accumulation of degradable organic waste at landfills. However, several configurations of compost bins are available in the local market. This study was planned to compare the efficiency of two types of compost bins in composting of kitchen and mixed garden waste, to evaluate the associate issues of each bin and to evaluate the selected parameters of resultant compost produced from each bin. The two types of bins included the compost bin available in Arpico super centers and the bin type developed by the Western Province Waste Management Authority (WMA).

During the decomposition period, moisture and aeration were maintained at optimum levels. The temperature, pH, organic carbon, total nitrogen, odour, number of worms and leachate were measured. The colour, odour, organic carbon content and total nitrogen content of the resultant compost samples were tested and compared with Sri Lankan Standards 1246:2003. Microsoft Excel and Minitab 14 were used to analyze data.

The results revealed that there were no significant differences in tested parameters between the WMA compost bin and the Arpico compost bin. Hence, the results suggest that the two types of bins could be used in composting the domestic degradable organic waste in urban/sub urban areas. The tested parameters of resultant compost were comparable to Sri Lankan Standards 1246:2003 except C and C/N ratio. The resultant compost is therefore, more suitable as a soil amendment.

Keywords: compost bins, kitchen waste, leachate, worms, odour