

Use of effective microorganisms for rapid composting of mixed garden waste and kitchen waste in windrows at University of Kelaniya

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Abstract

Composting is used and recommended extensively worldwide as an effective way of handling degradable organic waste by various microorganisms and small invertebrates. This natural process normally takes about 12 weeks in favorable temperature and moisture levels for its completion.

Effective microorganisms (EM) are a group of specially selected and cultured microorganisms that can be used to accelerate a normal biological process done by conventional microorganism that are naturally present in the medium. EM used in Takakura method is been widely practiced for kitchen waste composting in small quantities throughout the South East Asian region. The present study was carried out to assess the efficacy of Takakura method over windrows of organic mixed garden waste and kitchen waste, in the University of Kelaniya. In order to make Takakura piles, 2 fermentation solutions and seed compost were prepared. The conventional piles were also made using the same waste materials and quantities used for Takakura method. Three replicates were arranged for each setup. The piles were maintained for 60 days and temperature, pH, organic carbon percentage, total nitrogen percentage, settlement, odor and color were monitored. Selected parameters of resultant compost from both piles were also tested and compared with Sri Lankan Standards 1246:2003.

Results revealed that the parameters monitored from both piles during the composting process were not significantly different. Some selected parameters of resultant compost from both piles were comparable to SLS 1246:2003 suggesting that the resultant compost could be used as a soil amendment. However, Takakura method is not significantly beneficial over the conventional method in mixed garden waste and kitchen waste composting.

Keywords: Effective microorganisms, Takakura method, compost, windrows