

A COMPARISON OF THE PERFORMANCE OF THREE KINDS OF HOUSEHOLD COMPOSTING UNITS

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Today with the rapid urbanization, household waste generation has increased significantly. As a result, composting has gained a renewed interest as a practical solution and an ideal alternative for land filling and incineration. Interested parties such as researchers and NGOs have developed various composting units and three such composters have been selected for comparison of performance. The selected composters namely, Garby (trade name), Aluminium Composter for kitchen waste disposal, and Concrete Composter have been installed at three houses in the vicinity of Faculty of Engineering, Peradeniya.

The objective of the study was to compare the performance of the three composters and look into the possibilities of adopting the composters to suit the life style, income, and yard size of homeowners. Observations on temperatures and volumes have been made daily for almost over one month and are to be continued. In addition, appearance of white worms/tiger worms, change in odour, atmospheric conditions and any other significant changes are being recorded. The highest temperature recorded in the composters so far was 45 °C and it is expected to carry out the study until temperatures in the range of 55 °C – 65 °C are reached. This is to obtain a final compost free of pathogens, weeds, and fly breeding.

The Garby being a SLAAS award-winning product accommodates a volume of about 300 litres, made of coarse concrete (no effect on environment), can be easily transported and installed. However non-inclusion of reinforcements may damage the structure when subjected to tensile forces. The unit cost of a Garby is about Rs.1100/=.

The Aluminium Composter designed and developed at the Department of Chemical Engineering, Peradeniya is fabricated from a thin perforated aluminium sheet. It is lightweight, easy to fabricate, and costs Rs.600/=. However, the supporting wooden legs may deteriorate over time.

The Concrete Composter which is another product of the university has slanted sidewalls and is a robust structure than the other two with better aesthetic appeal. This is expected to last for about 15 years, compared to 10 years for Garby and 3 years for the Aluminium Composter. The Concrete Composter weighs about 40 kg requiring two persons to shift it to a new location and the approximated cost is Rs. 750/=.

A modified household composter, combining the strengths of the composters subjected to comparison study, is at the preliminary design stage. The new composter is expected to be fabricated using coarse concrete, reinforcements, and a perforated aluminium lid, with an approximated total cost of Rs.800/=.