

## **High quality compost production using waste from coco-peat manufacturing process**

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Composting of waste coir pith together with other agricultural by-products and green manure such as foliage and stem parts of banana and *Gliricidia sepium*, moistening with the effluent from the coco peat manufacturing process was compared with standard composting protocol with respect to production quality and cost of production. The compost recipes were formulated based on the C: N ratios of the ingredients (raw materials). Composting was carried out by sequential layering of coir pith with other ingredients. Treatment 1-3 contained all the ingredients in different ratios while treatment 4 (control) did not contain coir pith as an ingredient. Composting treatments 1-3 were wetted with the effluent solution from the coco-peat processing factory while treatment 4 was treated with water, maintaining the moisture content of the sample heaps at 50-60%. The final compost quality was measured in terms of organic C, total N, P, K, Ca and Na contents, pH value and C: N ratio.

Composting formulae were analyzed sequentially and the final analysis was done in six months' time, the standard composting period. Standard protocol, which did not contain coir pith (Treatment 4) had a significantly higher ( $p \leq 0.05$ ) pH value of 8.20 at the end, compared to other treatment combinations where pH was at the range of 7.15 - 7.39. Carbon content was in a decreasing trend during the time of composting in all the treatments, ending-up at 13.36– 22.74%. The total N content of the compost ranged between 1.89- 2.34%. At the end of composting process, the C: N ratio of different composting formulae did not differ significantly and it ranged within 7-10:1. Except Treatment 3, all other treatments showed fairly high K contents and Ca contents, satisfying the Sri Lankan standards for composts. However, the mean P contents were slightly below the standards in all treatments. With respect to the final compost quality, treatment 1 and treatment 2 were not significantly different in terms of the most of the parameters tested. Accordingly, the materials used and procedure practiced in treatment 1 could be identified as the most appropriate for producing high quality compost which is comparable with the national standards.