

MATURITY EVALUATION OF COMPOSTING: A CASE STUDY

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Maintaining the quality of raw materials and careful monitoring of the composting process is crucial to get maximum benefits from the compost manure. The high-quality compost should be both stable and mature. This study aimed to evaluate the maturity of the compost produced by abundantly available raw materials. A composting pile was prepared in the faculty farm, Faculty of Agriculture, Rajarata University of Sri Lanka. The raw materials used were gardening waste and cow dung in 2:1 ratio. Eppawala rock phosphate (ERP) was added at the recommended rate as an external source of phosphorus. The composting process was monitored carefully by following the standard procedures for compost preparation. Physicochemical and biological properties such as pH, EC, available N, available P, exchangeable K, CEC and microbial activity of compost were determined in 10 days intervals. The pile temperature was recorded daily. The C:N ratio of the compost was also determined. Obtained data were compared with the standard maturity indices for compost with graphical explanations. After 100 days of the composting process, the recorded values for available N, P, and exchangeable K of compost end product were 0.91%, 0.02%, and 0.42%, respectively. The EC of the compost end product was 0.052 dS m⁻¹ and the CEC was 36.65 c mol kg⁻¹. The pile temperature fluctuated between 30-37°C during the composing period. Evolved CO₂ expressed the existing microbial activity, which was 2804.2 mg kg⁻¹. The reported pH of the pile ranged from 7 to 8. The C:N ratio of the pile after 100 days of processing was 23.5. However, it did not achieve the standard maturity index (C:N ratio < 20) of composts. Therefore, further processing is recommended until achieving standard maturity level of this compost pile through continued studies with a close observation.

Keywords: Compost, C:N ratio, Gardening materials, Maturity