



RESEARCH REPORT

VERMICOMPOSTING OF DURIAN HUSK FRUIT WASTE USING INDIGENOUS SABAH EARTHWORM SPECIES: A PRELIMINARY STUDY

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ABSTRACT

Vermicomposting as a form of recycling and adding value to waste is now a widespread activity in agriculture. This preliminary study was conducted to evaluate different types of durian husk waste materials namely, fresh shredded (FS), dry shredded (DS), fresh chipped (FC) and fresh whole (FW) durian husks (un-processed) vermicomposted using local blue worms, *Perionyx excavatus*, with and without cow dung. The objectives of the study were to produce vermicomposts from the wastes, characterize the chemical properties of the composts and evaluate the composting efficiency (CE). The experiment was carried out in the vermished at the Field Laboratory of School of Sustainable Agriculture, Universiti Malaysia Sabah. Each treatment (i.e the various durian husk wastes, with and without cow dung) was replicated three times in a completely randomized design (CRD). The parameters of the study were nitrogen (N), carbon (C), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg) and pH of the vermicompost as well as composting efficiency. All data were analyzed using two-way ANOVA and Tukey's test was used for means separation. In comparison to the raw materials, after vermicomposting, pH, N, K, Mg and Ca content of the compost increased by 9 to 13 %, 76 to 93 %, 64 to 75 %, 120 to 167 %, 178 to 265 % respectively while OC decreased by 23 to 34 %. The results of pH, CE, N, OC, P, K, Ca and Mg for FS vermicompost was 6.7, 85.68 %, 0.64 %, 41.5 %, 79.5 mg kg⁻¹, 124.5 mg kg⁻¹, 215 mg kg⁻¹ and 81.5 mg kg⁻¹ respectively. In the case of DS vermicompost, the results were 7.01, 26.35 %, 0.09 %, 42.5 %, 77.3 mg kg⁻¹, 142 mg kg⁻¹, 203 mg kg⁻¹ and 69.5 mg kg⁻¹ respectively. For FC vermicompost, the results were 7.3, 53.98 %, 0.096 %, 38.23 %, 55.24 mg kg⁻¹, 89.3 mg kg⁻¹, 320.5 mg kg⁻¹ and 75.5 mg kg⁻¹ respectively. The study indicated that treatments amended with cow dung were more suitable for vermicomposting. The shredded durian husk amended with cow dung was the best compost compared to the other treatments.

