

# Assessing the Ability of *Perionyx excavatus* to Recycle Different Combinations of Organic Waste

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**DOI:** 10.52377/SIFL4385

Globally, 1.3 billion tonnes of food produced for human consumption are wasted each year and are usually discarded in landfills where the greenhouse gas, methane, is produced during decomposition. Vermicomposting is a possible organic waste management strategy, which may reduce the amount of food waste disposed in landfills and produce compost, which is a usable end product. This study aimed to evaluate how efficiently the *Perionyx excavatus* can convert organic waste into quality vermicompost. Three organic waste treatments were used for the process: treatment 1 [fruit waste], treatment 2 [vegetable waste], and treatment 3 [fruit waste + vegetable waste]. A control group without *Perionyx excavatus* was also established for each treatment. After 38 days, the compost was harvested and weighed, and the daily rate of compost production was calculated. The harvested compost was then subjected to physicochemical analysis to establish the nutrient status. Results indicated that the experimental group had a faster rate of production and generated more compost than the control group, where production was minimal. Treatment 2 produced 515.45g of compost, which was the highest among the treatments. The lowest amount of compost was produced by treatment 3 from the control group (184.16g). In terms of nutrient status, higher amounts of nitrogen, phosphorus and potassium were found in the control group; pH and electrical conductivity were also lower in the experimental group. The results suggest that the *Perionyx excavatus* has the ability to effectively reduce the volume of organic waste fed into the system and transform it into compost, but its ability to facilitate mineralisation of nutrients may be limited.

**Keywords:** *Perionyx excavatus*; compost; organic waste