

Effect of vermic-activity of earthworm *Lampito mauritii* on the physico-chemical parameters of different combinations of feed materials after vermicomposting

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DOI: <https://www.doi.org/10.22271/phyto.2026.v15.i2a.15771>

Abstract

The management and disposal of solid organic waste is an important environmental issue due to the increasing amount of biodegradable waste from household and agricultural activities and rapid population growth. Therefore, eco-friendly and sustainable technologies are crucial for effective waste management. Earthworms turn organic waste into stable, nutrient-rich compost through vermicomposting. In this study, the earthworm *Lampito mauritii* was used to assess the physico-chemical changes occurring during vermicomposting of buffalo dung mixed with vegetable waste in different ratios. All treatment combinations showed significant reductions in pH level, electrical conductivity, total organic carbon content, and the carbon-to-nitrogen ratio during vermicomposting, suggesting efficient decomposition and compost maturation. Whereas, Total Kjeldahl nitrogen, total potassium, total available phosphorus, and total calcium levels have significantly increased in the final vermicompost. Results indicate that vermicomposting buffalo dung with vegetable waste manages organic wastes and creates a valuable biofertilizer that enhances soil fertility and promotes sustainable farming.

Keywords: Buffalo dung, *Lampito mauritii*, Physico-chemical parameters, Vegetable waste, Vermicomposting