ORGANIC WASTE DECOMPOSITION AND VERMICOMPOST QUALITY BASED COMPARATIVE ANALYSIS OF *EISENIA FETIDA* AND *PERIONYX CEYLANENSIS*

Abstract

The increased accumulation of organic waste by way of high urbanization and cultivation rates has generated serious environmental concerns, which have prompted the need for sound and sustainable solid waste management practices. Vermicomposting, a microbe-earthworm bioprocess, has been a focus of keen interest as a 'green' process for organic waste recycling into a useful compost. This study evaluates the decomposition performance and quality of two earthworm species, *Eisenia fetida* and *Perionyx ceylanensis*, based on the most critical parameters such as nutrient level, organic matter reduction, and microbial activity. The objective is to determine which species performs better in decomposing organic waste and producing high-quality compost for enriching soil and plant growth.

A controlled vermicomposting experiment was conducted using a suitable mixture of biodegradable wastes, including kitchen residues, crop residues, and garden refuse. The waste was preconditioned and subjected to vermicomposting for a standardized period of time, under optimal temperature, moisture, and aeration levels. Regular sampling was performed in order to research the physicochemical properties

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