

THE EFFECTIVENESS OF MICROORGANISM BASED ON FAILURE OF COW, GOAT AND CHICKEN IN THE FERTILIZER PROCESS FOR ORGANIC FERTILIZER PRODUCTION

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ABSTRACT

Organic waste from year to year always increases rapidly, so it needs good handling. One method of handling organic waste is to take advantage of the activity of microorganisms in the process of biodegradation of organic material in organic waste. This study aims to find and test the fermentation of cow, goat and chicken manure in the composting process of organic matter. Effectiveness is measured by the speed, chemical and physical changes that occur during the composting process. This research is conducted in two steps. The first stage is identification of bacteria in the fermentation of cow, goat and chicken manure. The second stage is in the form of applicative testing of the fermentation fluid produced in the first stage in the composting process of organic matter. The study was conducted for 2 months in the Compost Management Laboratory, Department of Biology Education. The indicators measured were the composition of bacteria in the fermentation liquid, the composition of organic waste, the composition of the compost produced, and temperature and pH during the composting process. The analysis was conducted in a descriptive qualitative manner to make sense of the data obtained. The result of this research is that the composition of organic waste is dominated by leaves of Kedoya (25%), Kantil (15%), Kenanga (10%) and other plants with a total of 22 types of plants (50%). In the fermentation results of chicken, cow and sheep manure, 17 isolates were obtained in chickens, 12 isolates in sheep and 12 isolates in cows. In characterization, 10 genera of bacteria were identified in chicken isolates, 9 genus of sheep isolates and 8 genus of cow isolates. Included in these genera are *Bacillus* sp, *Pseudomonas*, *Staphylococcus* which are potential for composting organic matter. Based on phenotypic analysis, the cell forms of bacilli and coccus bacteria were obtained. In the composting process, the highest temperature point is found at week 4 to 6 with a temperature of between 55 0C to 67 0C, with an average pH of 6.8. The compost produced has physical characteristics, dark brown in color, does not emit a strong aroma (earthy odor or humus smell), easily clots when clenched but the lumps crumble back easily with an average c / n ratio of 10 - 12%.

Kata Kunci: *microorganisms, composting, organic fertilizers*