

Sustainability Engineering on Chicken Slaughterhouse Waste As a Source of Liquid Biofertilizers Supporting the Eco-Farming

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Abstract

The chicken slaughter industry in Indonesia is on average Micro, Small, and Medium Enterprises (MSMEs) which mostly utilize components of domestic products. The government pays attention to increasing national competitiveness, especially for MSMEs so that development is equitable and equitable. All of these must be achieved without compromising environmental interests, so that development can be achieved in a sustainable manner. Production activities in the Chicken Slaughterhouse (RPA) MSME industry certainly produce waste that pollutes the surrounding environment. The high content of nutrients (nutrients) of RPA liquid waste needs to be used as a natural material that supports the development of environmentally friendly / organic agriculture. One alternative that can be done is by processing the waste into liquid organic fertilizer with a fermentation process. This study was conducted to determine the macro nutrient content and quality of liquid biofertilizers, and determine the optimum fermentation time of the process of making liquid biofertilizers. This research was conducted by adding organic waste in the form of banana gedebog and rotten bananas, EM4, molasses (molasses), and chicken manure to the reactor containing RPA wastewater. The fermentation process was carried out for 35 days and sampling was carried out on the 7th, 14th, 21st, 28th, and 35th days to be analyzed for macronutrient content consisting of C N, P, and K by the UV/VIS, SSA and N spectrophotometry methods using the Kjeldahl method. In this study, the best liquid biofertilizers were produced, namely a mixture of RPA waste with banana gedebog, rotten bananas, EM4, molasses (molasses), and skin chicken manure, with a fermentation time of 14 days and the content of C-Organic, N-total, K₂O, and P₂O₅ elements of 17.4 each; 6,05; 2.50 and 0.15%. The liquid organic fertilizer produced has met the quality standards from Permentan Number 261 of 2019 except for the P₂O₅ content, however, the liquid organic fertilizer obtained has a better quality than some fertilizers that have been sold commercially.

Keywords: fertilizer, organic, liquid, biological, waste, environmentally friendly, controlled