

## ABSTRACT

Ubaydillah Azam Nur Hafidz, Rayhan Adi Candra 2025. KOMET *Hi* (Stacked Bucket Composter *Hermetically illucens*) As a Sustainable Solution for Urban Farming. Supervisors Mrs. Risma Wiharyanti, M.Si and Mr. Eko Andi Hartono, S.Pd., M.Pd., Gr.

The aim of this research is to reduce the amount of household organic waste, produce organic fertilizer (solid and liquid) that is environmentally friendly and has agricultural standard quality, increase the productivity of vegetable cultivation in urban farming (*vertical garden*) to achieve food security at the household level, create a more economically sustainable source of animal protein.

In our research we use environmentally friendly KOMET technology *Hi* (Stacked Bucket Composter *Hermetically illucens*) to convert household organic waste into solid and liquid organic fertilizer using the agency of fly larvae *Hermetically illucens*. The SOF and LOF we produce are compared with the minimum technical requirements for organic fertilizer quality, including tests for organic C, nitrogen, phosphorus, potassium and pH content. Next, we test the quality of the SOF and LOF by applying them to *vertical garden* Pakcoy plants with planting media containing SOF and not containing SOF as well as various LOF watering variations (concentration 5%, 10% & 15%).

Laboratory test results show that only the pH and carbon (C) parameters of SOF meet the quality standards, while the levels of organic nutrients in the form of nitrogen (N), phosphorus (P) and potassium (K) from the SOF and LOF produced are still below the quality standards. A high C/N SOF ratio (34.1) indicates that the waste has not been completely decomposed into solid organic fertilizer. Application to Pakcoy plants showed that the soil use treatment and commercial LOF (P0T+) resulted in the largest increase in the number of leaves and the highest plant growth in the third week. The P2T2 treatment produced the highest number of leaves, while the P2T1 treatment produced the highest plants compared to treatments using other SOF ratios and LOF concentrations.

Keywords: KOMET *Hi*, LOF, SOF, *Hermetia Illucens*, *vertical garden*