INTISARI

Akar permasalahan limbah berawal dari peningkatan penduduk yang semakin lama semakin meningkat. Sebagian besar limbah yang harus diolah berupa limbah organik. Pemilihan pengolahan limbah organik dengan menggunakan metode biokonversi *Hermetia Illucens L* dinilai cukup efektif.

Penelitian ini bertujuan untuk mengetahui variasi jenis limbah organik dan rasio jenis limbah organik yang sudah divariasikan terhadap massa larva BSF, *yield* larva BSF, *substrate comsumption* (SC), *waste reduction index* (WRI), suhu dan keasaman (pH) pada kasgot, *sex ratio*, laju kecepatan pertumbuhan berat larva BSF, kandungan nutrisi larva BSF, dan kandungan NPK pada kasgot. Penggunaan jenis limbah organik dan konsentrasi yang digunakan di variasikan menjadi limbah kotoran ayam : limbah *sludge* sosis (75:25, 50:50, 25:75), limbah kotoran ayam : limbah restoran (75:25, 50:50, 25:75), limbah restoran : limbah *sludge* sosis (75:25, 50:50, 25:75). Sedangkan waktu pengambilan data setiap 3 hari hingga hari ke 21.

Hasil yang didapat dari penelitian adalah berat larva BSF pada sampel PRS7525 menghasilkan bobot larva BSF tertinggi pada hari ke 18 yaitu sebesar 0.30 gram maggot/gram limbah. Nilai yield larva BSF mengalami fluktuatif. Nilai SC tertinggi pada sampel PRS7525 pada hari ke-21 sebesar 54,35%. Nilai WRI mengalami tren penurunan selama proses biokonversi. Nilai keasaman (pH) sebagian besar kasgot pada hari ke-3 mengalami penurunan kemudian mengalami peningkatan hingga keasaman pH mendekati netral. Hasil suhu pada kasgot mengalami kenaikan karena pada proses biokonversi aerob menghasilkan panas. Sedangkan untuk perbandingan jenis kelamin lalat BSF didapat 64 ekor lalat BSF betina dan 36 ekor lalat BSF jantan pada limbah kotoran ayam : limbah restoran. Sampel MRS2575 mendapat nilai laju pertumbuhan larva BSF (μ) sebesar 0,115 pada hari ke 18. Kandungan nutrisi larva BSF pada media pakan PRS7525 didapat kadar air sebesar 7,93, kadar abu 10,51%, kadar lemak 25,16%, kadar protein 37,17%, dan karbohidrat 19,23%. Sedangkan kandungan NPK kasgot pada media pakan PRS7525 didapat kandungan nitrogen 1,1176%, kadar fosfor 2,0188%, dan kadar kalium 1,0908%.

Kata kunci : *Hermetia Illucens L*, biokonversi, limbah organik, perbandingan jenis kelamin, laju kecepatan pertumbuhan.

ABSTRAK

The root of the waste problem begins with the increasing population. Most of the waste that must be processed is organic waste. The choice of organic waste processing using the Hermetia Illucens L bioconversion method is considered quite effective.

This research aims to determine variations in the type of organic waste and the ratio of the types of organic waste that have been varied to the mass of BSF larvae, yield of BSF larvae, substrate consumption (SC), waste reduction index (WRI), temperature and acidity (pH) in cassava, sex ratio , weight growth rate of BSF larvae, nutritional content of BSF larvae, and NPK content in cassava. The type of organic waste used and the concentration used were varied into chicken manure waste: sausage sludge waste (75:25, 50:50, 25:75), chicken manure waste: restaurant waste (75:25, 50:50, 25:75), restaurant waste: sausage sludge waste (75:25, 50:50, 25:75). Meanwhile, the data collection time is every 3 days until the 21st day.

The results obtained from the research were that the weight of BSF larvae in sample PRS7525 produced the highest BSF larvae weight on day 18, namely 0.30 grams larvae/gram of waste. The yield value of BSF larvae fluctuates. The highest SC value in the PRS7525 sample on day 21 was 54.35%. The WRI value experienced a decreasing trend during the bioconversion process. The acidity value (pH) of most cassava on the 3rd day decreased and then increased until the pH acidity was close to neutral. The resulting temperature in cassava has increased because the aerobic bioconversion process produces heat. Meanwhile, for the gender comparison of BSF flies, 64 female BSF flies were found and 36 male BSF flies were found in chicken manure waste: restaurant waste. Sample MRS2575 received a BSF larval growth rate (μ) of 0.115 on day 18. The nutritional content of BSF larvae in PRS7525 feed media was found to be 7.93 water content, 10.51% ash content, 25.16% fat content, 37.17% protein content and 19.23% carbohydrate content. Meanwhile, the NPK content of cassava in the PRS7525 feed media was found to have a nitrogen content of 1.1176%, a phosphorus content of 2.0188%, and a potassium content of 1.0908%.

Keywords : Hermetia Illucens L, bioconversion, organic waste, sex ratio, growth rate