

RINGKASAN

Larva *Black Soldier Fly* (*Hermetia illucens*) merupakan serangga yang memiliki potensi besar sebagai sumber protein alternatif untuk pakan ternak maupun ikan karena mengandung protein dan lemak cukup tinggi. Oleh karena itu, pengembangan budidaya BSF menjadi salah satu solusi dalam ketersediaan pakan ternak maupun ikan. Penelitian ini bertujuan untuk mengetahui perbedaan performa pertumbuhan larva BSF (*H. illucens*) dengan kombinasi makronutrien pakan yang berbeda dengan mengukur efisiensi konversi pakan yang dicerna (*Efficiency of Conversion Digested-feed/ ECD*), perkiraan pakan yang tercerna (*Approximate Digestibility/AD*), kemampuan biokonversi (*Waste Reduction Index/(WRI)*), dan biomassa larva BSF.

Perlakuan dilakukan dengan metode eksperimental menggunakan rancangan acak lengkap dengan empat perlakuan masing-masing perlakuan diulang sebanyak lima kali. Perlakuan menggunakan kulit nanas sebagai sumber karbohidrat, limbah ikan sebagai sumber protein, dan minyak jelantah sebagai sumber lemak. Pakan yang diberikan sebanyak 100 mg/larva/hari. Empat perlakuan diantaranya yaitu P1 = kombinasi pakan 1 (35% limbah kulit nanas : 35% limbah ikan : 30% minyak jelantah), P2 = kombinasi pakan 2 (50% limbah kulit nanas : 25% limbah ikan : 25% minyak jelantah), P3 = kombinasi pakan 3 (25% limbah kulit nanas : 50% limbah ikan : 25% minyak jelantah), P4 = kombinasi pakan 4 (25% limbah kulit nanas : 25% limbah ikan : 50% minyak jelantah). Hasil yang diperoleh dianalisis menggunakan *oneway ANOVA* pada tingkat kepercayaan 95% dan dilanjutkan dengan uji *Duncan Multiple Range Test* (DMRT).

Hasil yang diperoleh pada penelitian ini adalah proporsi makronutrien pakan secara signifikan mempengaruhi performa pertumbuhan larva BSF ($P < 0.05$). Nilai ECD tertinggi diperoleh pada larva BSF dengan pakan 50% minyak jelantah (P4) yaitu 32,43%. Sedangkan, nilai AD dan WRI tertinggi diperoleh pada larva BSF dengan pakan 50% limbah ikan (P3) yaitu 49,72% dan 0,94%. Pakan yang memiliki proporsi limbah ikan 50% memberikan dampak terbaik bagi pertumbuhan dengan biomassa akhir larva paling tinggi yaitu 4,07 gram.

Kata kunci: *biomassa, larva BSF, makronutrien, pakan, pertumbuhan*

SUMMARY

Black Soldier Fly (*Hermetia illucens*) larvae are insects that have potential as an alternative source of protein for livestock and fish feed because it contains quite high protein and fat. Therefore, the development of BSF cultivation is one of the solutions in the availability of animal and fish feed. This study aims to determine differences in the growth performance of BSF (*H. illucens*) larvae with different combinations of feed macronutrients by measuring the efficiency of conversion digested feed (ECD), approximate digestibility of feed (Approximate Digestibility/AD), bioconversion ability (Waste Reduction Index/WRI), and BSF larval biomass.

The treatment was carried out by experimental method using a completely randomized design with four treatments each treatment was repeated five times. Treat using pineapple skin as a source of carbohydrates, fish waste as a source of protein, and used cooking oil as a source of fat. The feed given was 100 mg/larvae/day. The four treatments included P1 = feed combination 1 (35% pineapple skin waste : 35% fish waste : 30% waste cooking oil), P2 = feed combination 2 (50% pineapple skin waste : 25% fish waste : 25% waste cooking oil), P3 = feed combination 3 (25% waste pineapple skin : 50% fish waste : 25% waste cooking oil), P4 = feed combination 4 (25% pineapple skin waste : 25% fish waste : 50% used cooking oil). The results obtained were analyzed using one-way ANOVA at a 95% confidence level and continued with the Duncan Multiple Range Test (DMRT).

The results obtained in this study were the proportion of feed macronutrients significantly affecting the growth performance of BSF larvae ($P < 0.05$). The highest ECD value was obtained for BSF larvae fed 50% used cooking oil (P4) 32.43%. Meanwhile, the highest AD and WRI values were obtained for BSF larvae with 50% fish waste (P3) feed, 49.72% and 0.94%. Feed that has a proportion of 50% fish waste has the best impact on growth with the highest final larval biomass of 4.07 gram.

Keywords: *biomass, BSF larvae, feed, growth, macronutrient*