OPTIMALISASI PERTUMBUHAN LARVA *BLACK SOLDIER FLY* (*Hermetia illucens*) MELALUI PEMANFAATAN SAMPAH ORGANIK DAN TANAMAN PAKU AIR (*Azolla microphylla*) SEBAGAI MEDIA PERTUMBUHANNYA

SKRIPSI

diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Sarjana Sains
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ABSTRAK

OPTIMALISASI PERTUMBUHAN LARVA *BLACK SOLDIER FLY* (*Hermetia illucens*) MELALUI PEMANFAATAN SAMPAH ORGANIK DAN TANAMAN PAKU AIR (*Azolla microphylla*) SEBAGAI MEDIA PERTUMBUHANNYA

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Produksi ternak dihadapkan pada masalah keterbatasan pakan berkualitas dan penggunaan sumber pakan yang merusak lingkungan. Masalah tersebut semakin diperparah oleh peningkatan populasi manusia yang meningkatkan permintaan pangan dan menghasilkan sampah organik berlebihan. Budidaya larva *Black Soldier Fly* (BSF) dengan memanfaatkan sampah organik dan *Azolla microphylla* sebagai media pertumbuhannya menjadi upaya untuk mengatasi keterbatasan pakan ternak sekaligus mengurangi sampah organik. Penelitian ini bertujuan untuk memperoleh informasi mengenai pengaruh pemberian sampah organik dan *Azolla microphylla* terhadap pertumbuhan larva *Black Soldier Fly* (BSF). Metode yang digunakan dalam penelitian ini adalah eksperimen dengan Rancangan Acak Lengkap (RAL) yang terdiri dari 5 perlakuan, yaitu pemberian sampah organik dan *Azolla microphylla* dalam persentase yang berbeda. Masing-masing perlakuan dilakukan dengan menggunakan 100 ekor larva *Black Soldier Fly* (BSF) dan setiap perlakuan diulang sebanyak 5 kali. Larva *Black Soldier Fly* (BSF) yang digunakan dalam penelitian ini berumur 11 hari dan mulai diberikan pakan sesuai perlakuan setiap tiga hari sekali dengan tingkat pemberian pakan sebanyak 100 mg/larva/hari. Parameter yang diukur meliputi indeks reduksi limbah (*Waste Reduction Index*/WRI), efisiensi konversi pakan yang dicerna (ECD atau *efficiency conversion of digested feed*), laju pertumbuhan spesifik (*Specific Growth* Rate/SGR), waktu perkembangan larva sampai menjadi prepupa, dan tingkat keberhasilan hidup larva *Black Soldier Fly* (BSF). Hasil penelitian menunjukkan bahwa media pertumbuhan larva *Black Soldier Fly* (BSF) dengan kombinasi 50% sampah organik dan 50% *Azolla microphylla* memberikan hasil terbaik dalam meningkatkan nilai WRI, ECD, SGR, dan tingkat keberhasilan hidup larva serta mempercepat waktu perkembangan larva *Black Soldier Fly* (BSF).

Kata-kata kunci: *Larva Black Soldier Fly (BSF), sampah organik, Azolla microphylla, media pertumbuhan.*

ABSTRACT

OPTIMIZATION THE GROWTH OF BLACK SOLDIER FLY LARVAE (Hermetia illucens) THROUGH THE UTILIZATION OF ORGANIC WASTE AND WATER FERN (Azolla microphylla) AS GROWTH MEDIA

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Livestock production faces the problem of limited quality feed and environmentally damaging feed sources. These problems are further exacerbated by an increasing human population that increases food demand and produces excessive organic waste. The cultivation of Black Soldier Fly Larvae (BSFL) by utilizing organic waste and Azolla microphylla as growth media is an effort to overcome the limitations of animal feed while reducing organic waste. This study aims to obtain information on the effect of organic waste and Azolla microphylla on Black Soldier Fly Larvae (BSFL) growth. The method used in this study was an experiment with a Completely Randomized Design (CRD) consisting of 5 treatments, namely the provision of organic waste and Azolla microphylla in different percentages. Each treatment was conducted using 100 Black Soldier Fly Larvae (BSFL) and each treatment was repeated 5 times. The Black Soldier Fly Larvae (BSFL) used in this study were 11 days old and began to be fed according to the treatment every three days with a 100 mg/larvae/day feeding rate. The parameters measured included waste reduction index (WRI), efficiency conversion of digested feed (ECD), specific growth rate (SGR), development time of larva to prepupa, and survival rate of Black Soldier Fly Larvae (BSFL). The results showed that the growth media for Black Soldier Fly Larvae (BSFL) with a combination of 50% organic waste and 50% Azolla microphylla gave the best results in increasing the values of WRI, ECD, SGR, larval survival rate and accelerating development time of Black Soldier Fly Larvae (BSFL).

Keywords: *Black Soldier Fly Larvae (BSFL), organic waste, Azolla microphylla, growth media.*

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DAFTAR TABEL

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