

RINGKASAN

Pada stadium larva, lalat tentara hitam/*Black Soldier Fly*/BSF (*Hermetia illucens*) dijadikan agen biokonversi karena mampu mengonversi limbah organik hingga 50%. Salah satu faktor yang dapat memengaruhi laju biokonversi adalah kandungan *juvenile hormone* (JH). JH berperan menghambat metamorfosis pada stadium larva dan memicu vitellogenesis pada stadium imago. Rumput gajah varietas raja (*Pennisetum purpureum* varietas King) dilaporkan mengandung senyawa yang analog dengan JH. Penelitian ini bertujuan untuk mengetahui performa reproduksi yang meliputi durasi stadium larva, *survival rate* larva, jumlah telur, dan daya tetas telur BSF dengan pemberian ekstrak rumput gajah varietas raja.

Penelitian bertempat di Laboratorium Entomologi dan Parasitologi dan *Green House* Fakultas Biologi Universitas Jenderal Soedirman dengan metode eksperimental menggunakan Rancangan Acak Lengkap (RAL). Perlakuan terdiri dari konsentrasi 0 ppm, 80 ppm, 200 ppm, dan 400 ppm dengan 7 ulangan. Perlakuan dengan ekstrak rumput gajah varietas raja diberikan dengan cara penyemprotan ke pakan BSF berupa fur ayam. Data durasi stadium larva dianalisis menggunakan uji ANOVA dan uji *Duncan Multiple Range Test* (DMRT) dengan tingkat kepercayaan 95%. Data *survival rate*, jumlah telur, dan persentase daya tetas dianalisis menggunakan uji Kruskal-Wallis dan uji *Mann-Whitney U* dengan tingkat kepercayaan yang sama.

Hasil analisis menunjukkan pemberian ekstrak rumput gajah memiliki pengaruh nyata terhadap parameter durasi stadium larva, *survival rate* larva, dan jumlah telur. Durasi stadium larva terlama tercatat pada konsentrasi 80 ppm selama 24 hari ($P < 0,05$), *survival rate* larva tertinggi pada konsentrasi 200 ppm sebesar 100% ($P < 0,05$), dan jumlah telur tertinggi pada konsentrasi 400 ppm sebanyak 4.254 butir ($P < 0,05$). Sementara itu, daya tetas telur tidak dipengaruhi oleh pemberian ekstrak ($P > 0,05$).

Kata kunci: *BSF*, *durasi stadium larva*, *jumlah telur*, *rumput gajah varietas raja*, *survival rate*.

SUMMARY

At the larval stage, Black Soldier Fly (BSF) (*Hermetia illucens*) is used as a bioconversion agent because it can convert organic waste up to 50%. The juvenile hormone (JH) content is one of the factors that can affect the bioconversion. In the larval stage, JH inhibits metamorphosis, however in the imago stage, it initiates vitellogenesis. King elephant grass (*Pennisetum purpureum* variety King) is reported to contain compounds analogous to JH. By giving extracts of king elephant grass, this study aims to determine the reproductive performance of BSF, including larval stage duration, larval survival rate, eggs production, and egg hatching rate.

The experiment was conducted at the Entomology and Parasitology Laboratory and the Green House of the Faculty of Biology, Universitas Jenderal Soedirman, using a completely randomized design (CRD). The treatment consisted of concentrations of 0 ppm, 80 ppm, 200 ppm, and 400 ppm with 7 repetitions. The treatment with king elephant grass extract was given by spraying to BSF feed in the form of chicken fur. Larval stage duration data were analyzed using ANOVA test with 95% confidence level, followed by Duncan Multiple Range Test (DMRT). Meanwhile, data on survival rate, number of eggs, and hatchability percentage were analyzed using Kruskal-Wallis test with 95% confidence level, followed by Mann-Whitney U test.

The analysis showed that the application of king elephant grass extract had a significant effect on the parameters of larval stage duration, larval survival rate, and egg production. The longest larval stage duration was recorded at a concentration of 80 ppm for 24 days ($P < 0,05$), the highest larval survival rate at a concentration of 200 ppm was 100% ($P < 0,05$), and the highest number of eggs at a concentration of 400 ppm was 4.254 eggs ($P < 0,05$). Meanwhile, egg hatchability was not affected by the application of the extract ($P > 0,05$).

Keywords: *BSF, egg production, larval stage duration, king elephant grass, survival rate.*