

**PENGARUH PEMBERIAN PAKAN ALTERNATIF BERBASIS TEPUNG
MAGGOT BSF (*Hermetia illucens*) TERHADAP HISTOLOGI DAN FUNGSI
GINJAL SERTA KADAR GULA DARAH PUASA MENCIT PUTIH**

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ABSTRAK

Ketersediaan pakan terstandar dan terjangkau merupakan tantangan utama dalam budidaya mencit putih (*Mus musculus* L.) sebagai hewan model laboratorium. Pakan berbasis tepung maggot *Black Soldier Fly* (*Hermetia illucens*) berpotensi menjadi alternatif sumber protein yang ekonomis dan berkelanjutan. Penelitian ini bertujuan untuk mengevaluasi pengaruh pakan berbasis tepung maggot BSF terhadap histologi ginjal, fungsi ginjal, serta kadar gula darah puasa mencit putih. Kajian pustaka mencakup teori nutrisi hewan laboratorium, fisiologi ginjal, serta metabolisme protein dan glukosa. Penelitian dilakukan menggunakan metode eksperimental dengan Rancangan Acak Lengkap (RAL), terdiri dari empat kelompok perlakuan pakan komersial (P0), tepung maggot protein 20% (P1), 25% (P2), dan 30% (P3), masing-masing dengan lima ulangan selama 28 hari. Parameter yang diukur meliputi diameter glomerulus ginjal, kadar kreatinin plasma, asam urat, dan gula darah puasa menggunakan metode Jaffe, Easy Touch®, dan glukometer. Hasil penelitian menunjukkan bahwa pemberian pakan tepung maggot BSF dengan protein 20% dan 25% tidak memberikan pengaruh nyata terhadap diameter glomerulus, kadar kreatinin, maupun kadar asam urat. Namun, pakan dengan protein 25% menghasilkan kadar gula darah puasa paling rendah secara signifikan. Disimpulkan bahwa pakan berbasis tepung maggot BSF aman terhadap struktur dan fungsi ginjal serta berpotensi mendukung homeostasis glukosa pada mencit putih.

Kata kunci: *Hermetia illucens*, tepung maggot BSF, histologi ginjal, fungsi ginjal, gula darah puasa



ABSTRACT

The availability of standardized and affordable feed is a major challenge in the breeding of white mice (*Mus musculus* L.) as laboratory model animals. Feed made from *Black Soldier Fly* (*Hermetia illucens*) maggot meal has the potential to serve as an economical and sustainable alternative protein source. This study aimed to evaluate the effects of *Black Soldier Fly* (BSF) maggot meal-based feed on kidney histology, kidney function, and fasting blood glucose levels in white mice. The literature review covered the theory of laboratory animal nutrition, kidney physiology, and protein and glucose metabolism. The study was conducted using an experimental design with a Completely Randomized Design (CRD), consisting of four treatment groups: commercial feed (P0), maggot meal at 20% protein (P1), 25% (P2), and 30% (P3), each with five replicates over 28 days. The measured parameters included renal glomerular diameter, plasma creatinine levels, uric acid levels, and fasting blood glucose levels, using the Jaffe method, the Easy Touch® device, and a glucometer. The results showed that feeding BSF maggot meal diets containing 20% and 25% protein had no significant effect on glomerular diameter, creatinine levels, or uric acid levels. However, the diet with 25% protein produced the significantly lowest fasting blood glucose levels. It was concluded that BSF maggot meal-based diets are safe for kidney structure and function and have the potential to support glucose homeostasis in white mice.

Keywords: *Hermetia illucens*, BSF maggot meal, renal histology, renal function, fasting blood glucose

