

ABSTRAK

Pengaruh Suplementasi Pakan Minyak *Black Soldier Fly Larvae* (*Hermetia Illucens L.*) Tersaponifikasi Terhadap Gambaran Histologi Hepar Burung Puyuh (*Coturnix Japonica*)

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Burung puyuh merupakan salah satu komoditas peternakan yang banyak digemari oleh masyarakat Indonesia karena menghasilkan telur yang relatif murah dan memiliki nilai gizi yang baik. Namun, telur yang dihasilkan sering kali mendapatkan stigma negatif akibat kandungan kolesterol yang tinggi. Pemberian *feed additive* berupa minyak *black soldier fly larvae* (BSL-F) tersaponifikasi terbukti mampu menurunkan kadar kolesterol dalam darah dan telur puyuh. Penurunan kolesterol tersebut erat kaitannya dengan metabolisme lipid yang terjadi di organ hepar. Pengaruh pemberian minyak BSF-L terhadap gambaran histopatologi hepar puyuh sampai saat ini belum diketahui. Tujuan dari penelitian ini untuk mengetahui pengaruh suplementasi pakan minyak BSF-L tersaponifikasi terhadap gambaran histologi hepar burung puyuh. Penelitian ini menggunakan tiga sampel hepar burung puyuh yang diambil secara acak dari 3 kelompok perlakuan. Kelompok perlakuan tersebut yaitu (1) P0 (pakan basal tanpa suplementasi minyak BSF-L tersaponifikasi); (2) P1 (pakan basal + 1% minyak BSF-L tersaponifikasi) dan (3) P2 (pakan basal + 2% minyak BSF-L tersaponifikasi). Perlakuan pemberian suplementasi pakan dilakukan selama 60 hari. Sampel organ hepar diproses menjadi preparat histologi dengan pewarnaan hematoksilin-eosin. Perubahan histologi hepar dianalisis secara deskriptif sedangkan analisis kuantitatif perubahan histopatologi khususnya vakuola hepatoseluler atau degenerasi melemak dilakukan menggunakan *software* imageJ. Data yang diperoleh dianalisis dengan uji statistik parametrik *analysis of variance* (ANOVA) dengan signifikansi $p < 0,05$. Hasil dari penelitian ini ditemukan perubahan berupa kongesti, pelebaran sinusoid, dan vakuolisasi pada perlakuan P1 dan P2. Hasil kuantifikasi histopatologi hepar menunjukkan adanya signifikansi ($P < 0,05$) kondisi degenerasi melemak pada kelompok P2. Kesimpulan dari penelitian ini yaitu suplementasi minyak BSF-L tersaponifikasi tidak berpengaruh nyata terhadap gambaran histologi kelompok P1 namun degenerasi melemak signifikan teramati pada kelompok P2.

Kata-kata kunci: Burung puyuh, degenerasi melemak, hepar, kolesterol, minyak BSF-L

ABSTRACT

Effects of Dietary Saponified Black Soldier Fly Larvae (*Hermetia illucens L.*) Oil Supplementation on the Histological Features of Quail (*Coturnix japonica*) Liver

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Japanese quail (*Coturnix japonica*) is one of the popular poultry commodities in Indonesia due to its ability to produce affordable eggs with high nutritional value. However, quail eggs are often stigmatized for their relatively high cholesterol content. Supplementation of feed with saponified black soldier fly larvae (BSF-L) oil has been shown to reduce cholesterol levels in both the blood and eggs of quail. This reduction is closely related to cholesterol metabolism, which primarily occurs in the liver. Nevertheless, the effect of saponified BSF-L oil supplementation on the histopathological structure of the quail liver remains unclear. This study aims to investigate the effect of dietary supplementation with saponified BSF-L oil on the histological features of the liver in Japanese quail. This study used three liver samples of quail taken randomly from three treatment groups. The treatment groups were: (1) P0 (basal feed without supplementation of saponified BSF-L oil); (2) P1 (basal feed + 1% saponified BSF-L oil); and (3) P2 (basal feed + 2% saponified BSF-L oil). The treatment was conducted for 60 days. The liver samples were processed into histological preparations with hematoxylin-eosin staining. Quantitative analysis of pathological changes, such as hepatocellular vacuolation or hepatic steatosis, was performed using ImageJ software. Data were analyzed using a parametric statistical test (Analysis of Variance, ANOVA) with a significance level of $p < 0.05$. The results showed histological alterations such as congestion, sinusoidal dilatation, and vacuolization in the P1 and P2 groups. Furthermore, quantitative analysis indicated a significant difference ($p < 0.05$) in hepatic steatosis in the P2 group. It can be concluded that dietary supplementation with saponified BSF-L oil affects the degree of hepatic steatosis in Japanese quail, particularly at the 2% supplementation level.

Keywords: Quail, Fatty degeneration, Liver, Cholesterol, BSF-L Oil