

STRUKTUR HISTOLOGIS BURSA FABRICIUS, LIEN DAN PERFORMA PERTUMBUHAN AYAM BROILER [*Gallus gallus gallus* (Linnaeus, 1758)] DENGAN SUPLEMENTASI HASIL FERMENTASI AMPAS KELAPA

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INTISARI

Ayam broiler berpotensi besar dalam sektor peternakan dan industri, sehingga pemeliharaan ayam berperan penting untuk memastikan ayam tumbuh dengan sehat. Indikator kualitas imun ayam dapat diketahui melalui pengukuran indeks organ limfoid. Asupan nutrisi dapat menjadi salah satu faktor yang mempengaruhi kualitas imun ayam broiler. Penelitian ini dilakukan untuk mempelajari performa pertumbuhan, indeks organ, dan struktur histologis bursa fabricius dan lien pada ayam broiler [*Gallus gallus gallus* (Linnaeus, 1758)] setelah pemberian pakan ampas kelapa fermentasi. Jumlah ayam yang digunakan adalah 180 ekor DOC (*Day Old Chicken*) yang terbagi dalam 5 kelompok dan 3 ulangan dengan setiap pengulangan berjumlah 12 ekor. Pemeliharaan dilakukan hingga umur 16 hari (3 hari pertama sebagai tahap aklimasi). Tiap kelompok diberikan perlakuan berbeda, meliputi kelompok kontrol, perlakuan 1 (P1) (ampas kelapa non fermentasi 1%), P2 (ampas kelapa non fermentasi 2%), P3 (ampas kelapa fermentasi 1%), dan P4 (ampas kelapa fermentasi 2%). Pembedahan dilakukan pada 3 ekor ayam dari setiap kelompok perlakuan, organ bursa fabricius dan lien diproses menjadi preparat histologis dengan metode parafin dan pewarnaan Hematoksilin-Eosin. Variabel yang diukur mencakup performa pertumbuhan dan morfometri ayam, indeks organ, struktur histologis bursa fabricius (luas folikel, korteks, dan medula), serta lien (luas pulpa putih). Analisis data dilakukan dengan *One-way ANOVA* menggunakan uji Duncan dengan kepercayaan 95% ($\alpha = 0,05$). Hasil penelitian ini memperlihatkan kelompok P4 mengalami peningkatan performa pertumbuhan dan morfometri. Selain itu, area folikel, medula, dan korteks bursa fabricius, serta pulpa putih lien kelompok P4 memiliki area yang terluas dan berbeda signifikan dibandingkan dengan kontrol dan kelompok perlakuan lainnya. Oleh karena itu, perlakuan pemberian ampas kelapa fermentasi memberikan hasil terbaik bagi performa pertumbuhan, indeks organ, serta struktur histologis organ bursa fabricius dan lien ayam broiler. Penelitian lanjutan diperlukan menggunakan metode pewarnaan imunohistokimia dan analisis histopatologi pada organ bursa fabricius dan lien terhadap suplementasi pakan dengan ampas kelapa fermentasi. Kata kunci: ampas kelapa, ayam broiler, bursa fabricius, fermentasi, lien, pertumbuhan

**HISTOLOGICAL STRUCTURE OF BURSA FABRICIUS, LIEN AND
GROWTH PERFORMANCE OF BROILER CHICKENS
[*Gallus gallus gallus* (Linnaeus, 1758)] SUPPLEMENTED WITH
FERMENTED COCONUT PULP**

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ABSTRACT

Broiler chickens have a huge potential in the livestock and industrial sectors is considerable, so chicken maintenance plays an important role in ensuring chickens grow healthily. The measurement of lymphoid organ index can be used to identify the immune quality of chickens. Nutritional intake can be one of the factors that affect the immune quality of broilers. The objective of this research was to examine the growth performance, organ index, and histological structure of the bursa fabricius and lien in broiler chickens (*Gallus gallus gallus* (Linnaeus, 1758)) after being fed by fermented coconut pulp. A total of 180 day-old chickens (DOC) were utilized, and randomly assigned to 5 groups with 3 replicates. Each replicate consisted of 12 chickens. The maintenance lasted until the chickens reached 16 days of age (the first three days were an acclimation stage). Each group was subjected to the control group, treatment 1 (P1) (1% non-fermented coconut pulp), P2 (2% non-fermented coconut pulp), P3 (1% fermented coconut pulp), and P4 (2% fermented coconut pulp). Three chickens from each treatment group underwent surgical procedures, then the bursa fabricius and lien were processed into histological preparations using paraffin method and Hematoxylin-Eosin staining. Variables were measured, including growth performance, organ index, and histological structure of bursa fabricius (area of follicles, cortex, and medulla) and lien (area of white pulp). Data analysis was performed with One-way ANOVA using Duncan's test with 95% confidence ($\alpha = 0.05$). The results of this study showed that the P4 group had improved growth performance and morphometry. In addition, the follicle area, medulla, and cortex of bursa fabricius, as well as the white pulp of the lien of group P4 had the largest area and were significantly different compared to the control and other treatment groups. Therefore, the treatment of fermented coconut pulp gave the best results for the growth performance, organ index, and histological structure of the bursa fabricius and lien organs of broiler chickens. Further research is required utilizing immunohistochemical staining methods and histopathological analysis of bursa fabricius and lien organs on feed supplementation with fermented coconut pulp.

Keywords: broiler chicken, bursa fabricius, coconut pulp, fermentation, growth, lien