

ABSTRAK

GAMBARAN HISTOPATOLOGI ORGAN AYAM BROILER SETELAH PEMBERIAN HERBAL KOMBINASI DAN ENZIM LISOZIM SEBAGAI ALTERNATIF ANTIBIOTIC GROWTH PROMOTER

Alfina Nur Aeni
NIM 22/497538/KH/11271

Pelarangan penggunaan *Antibiotic Growth Promoter* (AGP) menuntut adanya alternatif alami yang mampu menjaga performa tanpa menimbulkan residu. Kombinasi bawang putih (*Allium sativum*), lempuyang (*Zingiber aromaticum*), jahe (*Zingiber officinale*), kunyit (*Curcuma domestica*), dan lisozim dengan senyawa aktif seperti alisin, gingerol, dan kurkumin, berpotensi memperbaiki kesehatan saluran pencernaan serta metabolisme. Penelitian ini bertujuan untuk mengevaluasi gambaran histopatologi organ pencernaan (duodenum, jejunum, ileum) serta organ metabolisme dan ekskresi (hati dan ginjal). Sampel organ diambil dari 100 DOC yang dibagi dalam empat kelompok diberi perlakuan antibiotik (P1), tanpa perlakuan (P2), serta kombinasi herbal 20 mg/kg dan lisozim 10 mL/L selama satu minggu (P3) dan tiga minggu (P4) melalui pakan/air minum. Sediaan histopatologi menggunakan pewarnaan *Hematoxylin-Eosin* (HE). Hasil pemeriksaan duodenum, jejunum, dan ileum menunjukkan bahwa perlakuan kombinasi herbal 20 mg/kg dan lisozim 10 mL/L tidak memberikan pengaruh signifikan ($P > 0,05$) dalam meningkatkan dimensi vili dibandingkan dengan fase awal perlakuan. Urutan vili duodenum tertinggi ke terendah adalah P1 (2527,6 μm), P3 (2243,7 μm), P4 (2198,1 μm) dan P2 (2188,2 μm). Urutan vili jejunum tertinggi ke terendah adalah P1 (2201,3 μm), P4 (1928 μm), P2 (1578,9 μm) dan P3 (1440,7 μm). Urutan vili ileum tertinggi ke terendah adalah P1 (1372,6 μm), P4 (1271,1 μm), P3 (1257,8 μm) dan P2 (1083,5 μm). Kerusakan struktural yang bersifat patologis ditemukan pada organ hati dan ginjal. Dapat disimpulkan bahwa pemberian kombinasi herbal (bawang putih, jahe, lempuyang, dan kunyit) belum mencapai tingkat efisiensi yang sebanding dengan pemberian antibiotik sintetik.

Kata Kunci: *AGP, Ayam Broiler, Herbal, Histopatologi, Lisozim.*

ABSTRACT

HISTOPATHOLOGICAL DESCRIPTION OF BROILER CHICKEN ORGANS AFTER ADMINISTRATION OF THE HERBAL COMBINATIONS AND LYSOZYME ENZYME AS ANTIBIOTICS GROWTH PROMOTER ALTERNATIVE

Alfina Nur Aeni
NIM 22/497538/KH/11271

The prohibition of Antibiotics Growth Promoter (AGP) use considerably necessitates a natural-based alternative in order to maintain animal performance without residues. Garlic (*Allium sativum*), aromatic ginger (*Zingiber aromaticum*), ginger (*Zingiber officinale*), tumeric (*Curcuma domestica*), dan lysozyme compound (allicin, gingerroll, and curcumin) are potentially able to improve the gastrointestinal tract and metabolism. This research aimed to evaluate the histopathological representation of digestive organs (duodenum, jejunum, ileum), metabolic organs, and excretory organs (liver and kidney) of broiler chickens fed with herbal and lysozyme enzymes as AGP substitute. The research sampling was taken from 100 DOC divided into four groups fed with antibiotic, without treatment, and 20 mg/kg herbal mix and 10 mL/L lysozyme as a preferential treatment during the rearing period. Hematoxylin-Eosin coloring were used to collect histopathological data. The results of microscopic examination in the duodenum, jejunum, and ileum for a 20 mg/kg herbal mix and 10 mL/L lysozyme did not significantly influence ($P>0,05$) the dimension of villi structure. The duodenal villus height from highest to lowest was observed in the following order: P1 (2527,6 μm), P3 (2243,7 μm), P4 (2198,1 μm) and P2 (2188,2 μm). Regarding the jejunal segment, the villus height decreased in the order of P1 (2201,3 μm), P4 (1928 μm), P2 (1578,9 μm) and P3 (1440,7 μm). Meanwhile, the ileal villus height ranked from highest to lowest was P1 (1372,6 μm), P4 (1271,1 μm), P3 (1257,8 μm) and P2 (1083,5 μm). Pathological damage was found in the liver and kidney. However, herbal combination (garlic, ginger, aromatic ginger, and turmeric) has not yet reached an efficiency level comparable to that of synthetic antibiotics.

Keywords: *AGP, Broiler Chicken, Herbal, Histopathology, Lysozyme.*