

ABSTRAK

PENGARUH PEMBERIAN EPIGALLOCATECHIN-3-GALLATE TERHADAP RASIO TINGGI VILI DAN KEDALAMAN KRIPTA USUS, BERAT BADAN SERTA FCR PADA AYAM BROILER

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Epigallocatechin-3-gallate (EGCG) merupakan senyawa penyusun teh hijau yang memiliki aktivitas antioksidan dan antiinflamasi. Penelitian ini bertujuan mengevaluasi pengaruh pemberian EGCG terhadap rasio tinggi vili dan kedalaman kriptas serta hubungannya dengan berat badan dan FCR pada ayam broiler. Penelitian ini menggunakan 200 ekor ayam broiler strain Cobb sejak *Day Old Chick* (DOC) yang dipelihara di kandang *close house* sistem *litter* dan dibagi menjadi dua kelompok, masing-masing 100 ekor, yaitu kontrol negatif (NC) tanpa EGCG dan perlakuan (T1) dengan penambahan EGCG pada fase *starter* 320 g/ton, *grower* 360 g/ton, dan *finisher* 400 g/ton. Pakan diberikan sesuai fase pemeliharaan dengan air minum *ad libitum*, serta dilakukan vaksinasi IBD pada hari ke-7 dan ND-IB pada hari ke-18. Penimbangan pakan dilakukan setiap pagi dan penimbangan berat badan dilakukan setiap akhir minggu, terhitung sejak hari ke-0 hingga ke-35. Nekropsis dilakukan pada hari ke-14 sebanyak 20 ekor dan hari ke-35 sebanyak 30 ekor, dengan pengambilan sampel histologi dari masing-masing kelompok sebanyak tiga ekor. Sampel diambil dari duodenum, jejunum, dan ileum sepanjang ± 3 cm. Sampel kemudian difiksasi dalam formalin 10%, diproses menjadi preparat histologi dengan pewarnaan hematoxylin-eosin (HE), diamati menggunakan mikroskop cahaya, serta diukur menggunakan perangkat lunak Image Raster untuk memperoleh rasio tinggi vili dan kedalaman kriptas, yang selanjutnya dianalisis menggunakan *independent T-test*. Hasil menunjukkan rasio tinggi vili dan kedalaman kriptas pada kelompok perlakuan lebih rendah dibandingkan kontrol, yaitu hari ke-14 sebesar $9,27 \pm 1,06$ dan hari ke-35 sebesar $8,73 \pm 0,13$, sedangkan pada kontrol masing-masing $9,38 \pm 0,76$ dan $9,43 \pm 1,19$, namun perbedaan tidak signifikan ($P > 0,05$). Hasil penelitian ini menunjukkan pemberian EGCG tidak berpengaruh terhadap rasio tinggi vili dan kedalaman kriptas, berat badan serta FCR pada ayam broiler.

Kata kunci: epigallocatechin-3-gallate (EGCG), ayam broiler, rasio vili-kriptas, berat badan, FCR.

ABSTRACT

THE EFFECT OF EPIGALLOCATECHIN-3-GALLATE SUPPLEMENTATION ON INTESTINAL VILLUS HEIGHT-TO-CRYPT DEPTH RATIO, BODY WEIGHT, AND FCR IN BROILER CHICKENS

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Epigallocatechin-3-gallate (EGCG) is a compound found in green tea that possesses antioxidant and anti-inflammatory properties. This study aimed to evaluate the effect of EGCG supplementation on villus height and crypt depth, as well as its relationship with body weight and FCR in broiler chickens. This study used 200 Cobb-strain broiler chickens starting from Day-Old Chicks (DOC) raised in a close-house litter system and divided into two groups, each consisting of 100 birds: a negative control (NC) group without EGCG and a treatment group (T1) with EGCG supplementation at 320 g/ton during the starter phase; 360 g/ton during the grower phase; and 400 g/ton during the finisher phase. Feed was provided according to the rearing phase with ad libitum drinking water, and IBD vaccination was administered on day 7 and ND-IB on day 18. Feed intake was recorded every morning and body weight was measured every weekend, starting from day 0 through day 35. Necropsies were performed on 20 birds on day 14 and 30 birds on day 35, with histological samples collected from three birds in each group. Samples were taken from the duodenum, jejunum, and ileum, each approximately 3 cm in length. The samples were then fixed in 10% formalin, processed into histological preparations with hematoxylin-eosin (HE) staining, observed using a light microscope, and measured using Image Raster software to obtain villus height and crypt depth ratios, which were subsequently analyzed using an independent T-test. The results showed that the villus height-to-crypt depth ratio in the treatment group was lower than that in the control group, specifically 9.27 ± 1.06 on day 14 and 8.73 ± 0.13 on day 35, while in the control group they were 9.38 ± 0.76 and 9.43 ± 1.19 , respectively; however, the differences were not significant ($P > 0.05$). The results of this study indicate that EGCG administration had no effect on the villus height-to-crypt depth ratio, body weight, or FCR in broiler chickens.

Keywords: epigallocatechin-3-gallate (EGCG), broiler chickens, villus-crypt ratio, body weight, FCR.