STRUKTUR HISTOLOGIS OTOT PEKTORALIS DAN PERFORMA PERTUMBUHAN AYAM BROILER [*Gallus gallus gallus* (Linnaeus, 1758)] SETELAH PEMBERIAN HASIL FERMENTASI AMPAS KELAPA

Priscilla Megantari

21/479736/BI/10809

Dosen Pembimbing: Dr. med. vet. drh. Hendry T. S. S. G. Saragih, M.P.

INTISARI

Peningkatan populasi dan taraf hidup masyarakat meningkatkan permintaan pangan bergizi, menjadikan ayam broiler sebagai komoditas peternakan strategis sebagai sumber protein hewani. Upaya peningkatan produktivitas dan laju pertumbuhan bobot badan serta massa protein otot ayam broiler dipengaruhi oleh kualitas nutrisi pakan. Bagian tubuh ayam dengan kandungan protein tertinggi adalah dada (22,01%) diikuti paha (19,74%). Salah satu alternatif pakan adalah memanfaatkan limbah ampas kelapa. Penelitian ini mengkaji pengaruh pemberian pakan dengan penambahan ampas kelapa fermentasi *Mucor irregularis* terhadap struktur histologis otot pektoralis mayor dan performa pertumbuhan ayam broiler berdasarkan pengukuran morfometri. Sebanyak 180 ekor *day old chick* (DOC) ayam broiler dipelihara hingga 16 hari dengan 5 perlakuan dan 3 ulangan, yaitu kontrol (K) pemberian pakan basal (PB) tanpa ampas kelapa, P1 dan P2 dengan pemberian pakan basal dengan penambahan ampas kelapa tanpa fermentasi 1%/kg PB dan 2%/kg PB, serta P3 dan P4 dengan pemberian pakan basal dengan penambahan ampas kelapa fermentasi *M. irregularis* 1%/kg PB dan 2%/kg PB. Masing-masing perlakuan terdiri dari 12 ekor DOC. Lima ekor dari setiap perlakuan didekapitasi dan dibedah untuk pembuatan preparat histologi otot pektoralis mayor menggunakan metode parafin dan pewarnaan *Hematoxylin-Eosin*. Peningkatan struktur histologis ditinjau dari luas area fasikulus, luas *myofiber*, dan jumlah *myofiber*, sementara peningkatan performa pertumbuhan ditinjau dari pengukuran bobot ayam, *food conversion ratio* (FCR), *feed intake*, *weight gain* ,dan morfometri tubuh dianalisis menggunakan *One-way* ANOVA dengan uji Duncan pada tingkat kepercayaan 95% ($\alpha = 0,05$). Berdasarkan penelitian ini diperoleh peningkatan secara signifikan struktur histologis otot pektoralis mayor ayam broiler dan perfoma pertumbuhan pada kelompok P4 dibandingkan dengan kelompok kontrol. Dengan demikian, penambahan ampas kelapa yang difermentasi menggunakan *M. irregularis* memberikan kontribusi positif terhadap pertumbuhan otot pektoralis mayor serta performa pertumbuhan ayam broiler. Perlu penelitian lebih lanjut diperlukan terkait komposisi asam amino esensial dalam pakan ampas kelapa fermentasi, mekanisme molekuler yang terlibat dalam pertumbuhan otot pektoralis mayor, serta dampaknya terhadap kualitas daging ayam broiler.

Kata kunci: ampas kelapa, ayam broiler, fermentasi, otot pektoralis mayor, pakan alternatif

Histological Structure Of Pectoralis Muscle And Growth Performance Of Broiler Chicken [*Gallus Gallus Gallus* (Linnaeus, 1758)] *After Supplementation Of Fermented Coconut Pulp*

Priscilla Megantari

21/479736/BI/10809

Supervisor: Dr. med. vet. drh. Hendry T. S. S. G. Saragih, M.P.

Abstract

The increase in population and living standards has led to a higher demand for nutritious food, making broiler chickens a strategic livestock commodity as a source of animal protein. Efforts to enhance productivity and growth rates, as well as the protein mass of broiler chickens, are influenced by the nutritional quality of their feed. The part of the chicken with the highest protein content is the breast (22.01%), followed by the thighs (19.74%). One alternative feed source is the utilization of coconut pulp waste. This study examines the effect of feeding broiler chickens with fermented coconut pulp using Mucor irregularis on the histological structure of the pectoralis major muscle and growth performance based on morphometric measurements. A total of 180 day-old chicks (DOC) were raised for 16 days with 5 treatments and 3 replications: control (K) with basal feed (PB) without coconut pulp, P1 and P2 with basal feed supplemented with 1%/kg PB and 2%/kg PB of unfermented coconut pulp, and P3 and P4 with basal feed supplemented with 1%/kg PB and 2%/kg PB of fermented coconut pulp using M. irregularis. Each treatment consisted of 12 DOC. Five birds from each treatment were euthanized and dissected for histological preparation of the pectoralis major muscle using the paraffin method and Hematoxylin-Eosin staining. The improvement in histological structure was assessed by measuring the cross-sectional area of the fascicles, myofiber area, and the number of myofibers, while growth performance was evaluated through measurements of body weight, food conversion ratio (FCR), feed intake, weight gain, and body morphometry, analyzed using One-way ANOVA with Duncan's test at a 95% confidence level ($\alpha = 0.05$). The results indicated a significant improvement in the histological structure of the pectoralis major muscle and growth performance in the P4 group compared to the control group. Thus, the addition of coconut pulp fermented with M. irregularis positively contributes to the growth of the pectoralis major muscle and the growth performance of broiler chickens. Further research is needed regarding the composition of essential amino acids in fermented coconut pulp feed, the molecular mechanisms involved in the growth of the pectoralis major muscle, and its impact on the quality of broiler chicken meat.

Keywords: coconut pulp, broiler chickens, fermentation, pectoralis major muscle, alternative feed