STRUKTUR HISTOLOGIS USUS HALUS DAN PERFORMA PERTUMBUHAN BROILER [*Gallus gallus gallus* (Linnaeus, 1758)] SETELAH PEMBERIAN SUPLEMEN MAKROALGA LAUT *Chaetomorpha linum* (O.F. Muller) Kutzing

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ABSTRAK

Peningkatan kebutuhan daging ayam oleh masyarakat Indonesia mengalami peningkatan. Broiler memiliki beberapa keuntungan meliputi pakan yang efisien dengan laju pertumbuhan yang cepat dan kualitas daging yang besar. Ayam yang berkualitas tidak terlepas dari pengaruh komposisi pakan yang diberikan. Namun, salah satu masalah yang dihadapi oleh peternak adalah tingginya harga pakan ayam oleh industri pakan yang disebabkan oleh kenaikan bahan baku utama. Makroalga *Chaetomorpha linum* (*C. linum*) merupakan sumber nutrisi alternatif yang dapat dijadikan sebagai suplemen pakan ayam. Tujuan penelitian ini mengetahui pengaruh suplemen makroalga laut *C. linum* terhadap struktur histologis usus halus dan performa pertumbuhan broiler. Penelitian ini menggunakan 300 DOC ayam broiler strain Cobb 500 yang dipelihara sampai umur 21 hari. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) yang membagi DOC menjadi 4 perlakuan dan diulang sebanyak 5 kali yaitu CON (pakan basal), CL1 (0,75% *C. linum*/pakan basal), CL2 (1,5% *C. linum*/pakan basal) dan CL3 (3% *C. linum*/pakan basal), perlakuan suplemen *C. linum* ditambahkan melalui pakan basal. Parameter yang diamati adalah struktur histologis usus halus, performa pertumbuhan, dan morfometri broiler. Analisis data penelitian diuji secara statistik menggunakan *One-way* ANOVA ($P \leq 0,05$) dan dilanjutkan uji Duncan. Hasil penelitian ini menunjukan pemberian suplemen *C. linum* berpengaruh signifikan positif dibandingkan kontrol terhadap struktur histologis usus halus meliputi, panjang vili, kedalaman kripta, rasio vili/kripta, luas area serta jumlah sel goblet dan performa pertumbuhan broiler yang meliputi berat badan, *weight gain*, *feed intake* dan *Feed Convertion Ratio* (FCR) serta morfometri broiler. Pemberian suplemen *C. linum* meningkatkan struktur histologis usus halus dan performa pertumbuhan broiler umur 21 hari.

Kata Kunci: Broiler, Duodenum, Feed supplement, Ileum, Jejunum, Makroalga laut Chartomorpha linum.

HISTOLOGICAL STRUCTURE OF THE SMALL INTESTINE AND GROWTH PERFORMANCE OF BROILER [*Gallus gallus gallus* (Linnaeus, 1758)] AFTER SUPPLEMENTATION OF MARINE MACROALGAE *Chaetomorpha linum* (O.F. Muller) Kutzing

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ABSTRACT

The demand for chicken meat by the Indonesian people has increased. Broilers have several advantages including efficient feed and fast growth rates with great meat quality. Quality chickens cannot be separated from the influence of the composition of the feed given. However, one of the problems faced by breeders is the high price of chicken feed by the feed industry which is caused by an increase in the main raw material. The macroalgae *Chaetomorpha linum* (*C. linum*) is an alternative nutritional source that can be used as a chicken feed supplement. The aim of this research was to determine the effect of *C. linum* macroalgae supplementation on the histological structure of the small intestine and growth performance of broilers. This research used 300 DOC Cobb 500 strain broiler chickens which were reared until they were 21 days old. This study used a Completely Randomized Design (CRD) which divided DOC into 4 treatments and repeated 5 times, namely CON (basal feed), CL1 (0.75% *C. linum*/basal feed), CL2 (1.5% *C. linum*/basal feed) and CL3 (3% *C. linum*/basal feed), the *C. linum* supplement treatment was added through the basal feed. The parameters observed were the histological structure of the small intestine, growth performance, and broiler morphometry. Research data analysis was tested statistically using One-way ANOVA ($P \leq 0.05$) and continued with the Duncan test. The results of this study show that supplementation with *C. linum* has a significantly positive effect compared to control on the histological structure of the small intestine including villi length, crypt depth, villi/crypt ratio, area and number of goblet cells and broiler growth performance including body weight, weight gain, feed intake and Feed Conversion Ratio (FCR) as well as broiler morphometry. Supplementation with *C. linum* improved the histological structure of the small intestine and growth performance of broilers aged 21 days.

Keywords: Broiler, Chaetomorpha linum Marine Macroalgae, Duodenum, Feed supplement, Ileum, Jejunum.