

**STRUKTUR HISTOLOGIS DUODENUM DAN JEJUNUM SERTA
PERFORMA PERTUMBUHAN AYAM BROILER [*Gallus gallus gallus*
(Linnaeus, 1758)] SETELAH PEMBERIAN INSANG IKAN NILA
[*Oreochromis niloticus* (Linnaeus 1758)]**

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INTISARI

Industri ayam broiler merupakan penyedia utama kebutuhan protein masyarakat Indonesia. Agar pertumbuhannya optimal, ayam broiler membutuhkan pakan yang mengandung protein tinggi. Namun, pakan ayam broiler yang dijual di pasaran memiliki harga yang mahal karena bahan bakunya masih diimpor dari negara lain. Limbah hasil pengolahan ikan seperti insang ikan nila mengandung protein tinggi sehingga dapat digunakan sebagai pakan alternatif ayam broiler. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian tepung insang ikan nila (TIIN) terhadap struktur morfologi duodenum dan jejunum serta performa pertumbuhan ayam broiler. Sebanyak 200 *Day Old Chicks* (DOC) ayam broiler jantan strain Cobb 500 dipelihara hingga umur 14 hari. Penelitian menggunakan Rancangan Acak Lengkap (RAL) dengan 5 perlakuan dan 5 ulangan, setiap ulangan terdiri dari 8 ekor ayam. Perlakuan TIIN diberikan per kg pakan basal (PB), meliputi K0 (0% TIIN/kg PB), TIIN1 (0,25% TIIN/kg PB), TIIN2 (0,5% TIIN/kg PB), TIIN3 (1,0% TIIN/kg PB), dan TIIN4 (2% TIIN/kg PB). Sebanyak 5 ekor ayam dari setiap perlakuan dibedah untuk diambil duodenum dan jejunumnya, lalu dibuat preparat histologi dengan metode pewarnaan PAS-AB (*Periodic Acid Schiff - Alcian Blue*). Parameter yang diamati meliputi morfologi usus halus dan performa pertumbuhan. Hasil penelitian menunjukkan bahwa kelompok perlakuan TIIN4 yang menerima TIIN sebesar 2,0% mengalami peningkatan signifikan pada morfologi duodenum dan jejunum yang meliputi panjang vili, kedalaman kript, rasio vili-kript, jumlah sel goblet, dan luas sel goblet dibandingkan kelompok K0 (0% TIIN). Kelompok TIIN4 juga menunjukkan performa pertumbuhan yang lebih baik dibandingkan dengan kelompok K0. Sehingga, dapat disimpulkan bahwa pemberian TIIN dengan konsentrasi optimal 2,0% mampu meningkatkan struktur morfologi duodenum dan jejunum, serta performa pertumbuhan ayam broiler.

Kata Kunci: ayam broiler, tepung insang ikan nila, duodenum, jejunum, performa pertumbuhan

**THE HISTOLOGICAL STRUCTURE OF DUODENUM AND JEJUNUM
AND GROWTH PERFORMANCE OF BROILER CHICKENS [*Gallus
gallus* (Linnaeus, 1758)] AFTER SUPPLEMENTATION OF NILE
TILAPIA [*Oreochromis niloticus* (Linnaeus 1758)] GILLS**

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ABSTRACT

The broiler chicken industry in Indonesia serves as the primary source of protein for the population. To ensure optimal growth, broiler chickens require feed with high protein content. However, the commercial broiler feed is expensive due to its reliance on imported ingredients. Fish processing waste, such as Nile tilapia gills, contains high levels of protein and can be used as an alternative feed for broiler chickens. The study investigated the effects of Nile tilapia gill powder (NTGP) on the morphological structure of the duodenum and jejunum, as well as the growth performance of broiler chickens. This study involved 200 male Cobb 500 strain day-old chicks, raised until 14 days of age, using a Completely Randomized Design (CRD) with 5 treatments and 5 replications, each replication consisting of 8 chickens. The NTGP treatments were administered through per kg basal feed (BF), included C0 (0%), NTGP1 (0.25% NTGP/kg BF), NTGP2 (0.5% NTGP/kg BF), NTGP3 (1.0% NTGP/kg BF), and NTGP4 (2.0% NTGP/kg BF). Five chickens from each treatment group were dissected to obtain the duodenum and jejunum for histological analysis using the Periodic Acid Schiff - Alcian Blue (PAS-AB) staining method. The observed parameters included the morphological structures of the small intestine and growth performance of broiler chicken. The results indicated that the treatment group receiving 2.0% NTGP (TGP4) exhibited a significant increase in duodenum and jejunum morphology, including villus length, crypt depth, villus-to-crypt ratio, goblet cell count, and goblet cell area, along with enhanced growth performance compared to the C0 group (0% NTGP). In conclusion, optimal supplementation of 2.0% NTGP improves the morphological structure of the duodenum and jejunum, as well as the growth performance of broiler chickens.

Keywords: broiler chickens, Nile tilapia gill powder, duodenum, jejunum, growth performance