

KAJIAN PEMANFAATAN BIJI BUAH ATUNG (*Parinarium glaberrimum* Hassk.) SEBAGAI SUMBER FITOBIOTIK DALAM RANSUM UNTUK MENINGKATKAN PRODUKTIVITAS AYAM BROILER

INTISARI

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Penelitian ini terdiri dari tiga tahap yang bertujuan untuk mengetahui komposisi nutrisi dan komponen senyawa fitokimia yang terkandung dalam biji buah atung, dan mengkaji aktivitas antibakteri tepung biji buah atung; mengkaji pencernaan *in vitro* protein kasar, bahan organik, dan bahan kering ransum yang mengandung tepung biji atung; mengkaji pengaruh pemberian tepung biji buah atung dalam ransum ayam broiler terhadap profil saluran pencernaan, kinerja produksi, produksi karkas, serta profil hematologi. Pada penelitian Tahap III digunakan 168 DOC jantan strain New Lohman yang ditempatkan dalam 6 kelompok perlakuan pakan dengan 4 ulangan dan tiap ulangan terdiri dari 7 ekor ayam. Data kandungan nutrisi dan fitokimia dianalisis secara deskriptif. Data aktivitas antibakteri, pencernaan *in vitro* dan data penelitian tahap III dianalisis menggunakan analisis sidik ragam Rancangan Acak Lengkap pola searah. Hasil analisis statistik yang berbeda antara perlakuan diuji lanjut menggunakan Duncan's new Multiple Range Test. Hasil penelitian menunjukkan bahwa tepung biji atung mengandung senyawa fitokimia fenol, flavonoid, tanin, saponin dan alkaloid dengan flavonoid sebagai senyawa yang terbesar (7,17% b/b); senyawa dominan dalam ekstrak etanol tepung biji atung berdasarkan analisis GC-MS adalah asam lemak vaksenat (12,60%) dan palmitat (11,76%). Tepung biji atung dapat menghambat pertumbuhan bakteri patogen ($P < 0,01$). Penambahan tepung biji atung 0,5% meningkatkan ($P < 0,05$) pencernaan protein kasar, namun penambahan 1, 2, dan 4% menurunkan ($P < 0,05$) pencernaan bahan kering dan bahan organik. Hasil penelitian Tahap III menunjukkan bahwa penambahan tepung biji atung meningkatkan ($P < 0,05$) populasi bakteri asam laktat, menurunkan ($P < 0,05$) populasi bakteri coliform, meningkatkan ($P < 0,05$) tinggi vili duodenum dan ileum, meningkatkan ($P < 0,05$) lebar vili dan rasio tinggi vili terhadap kedalaman kript, tetapi tidak mempengaruhi kedalaman kript. Pemberian tepung biji atung 0,5 dan 1% meningkatkan ($P < 0,05$) konsumsi pakan, namun pemberian 0,5 - 4% tidak berpengaruh terhadap pertambahan berat badan, FCR, dan produksi karkas. Pemberian tepung biji atung 0,5-4% tidak mempengaruhi jumlah sel darah merah, hemoglobin, hematokrit, dan total protein plasma, tetapi pemberian 1 dan 2 % meningkatkan ($P < 0,05$) kadar sel darah putih. Berdasarkan hasil penelitian dapat disimpulkan bahwa biji atung mengandung senyawa bioaktif yang bermanfaat untuk memperbaiki populasi mikroba di dalam saluran pencernaan, meningkatkan pencernaan protein *in vitro*, serta memperbaiki profil darah dan histomorfologi sel-sel absorptif pada dinding usus halus ayam broiler.

Kata kunci: Ayam broiler, Fitobiotik, Histomorfologi usus, Mikroflora usus, Morfologi usus, *Parinarium glaberrimum* Hassk.

**STUDY OF ATUNG (*Parinarium glaberrimum* Hassk.) SEED UTILIZATION
AS A PHYTOBIOTICS SOURCE IN RATION TO INCREASE
THE PRODUCTIVITY OF BROILER CHICKENS**

ABSTRACT

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This study consisted of three stages that aimed to determine the nutrients composition and phytochemicals compound that were contained in atung seed and examined the antibacterial activity of atung seed powder; to investigate the *in vitro* digestibility of dry matter, organic matter, and crude protein rations containing atung seed powder; examined the possible effects of feeding atung seed powder on the health of digestive tract, growth performance, carcass production, and hematological profile in broiler chickens. In stage third of the study, a total of 168 day-old male New Lohman strains of chickens were randomly placed in 6 treatment groups with 4 replicates of 7 birds in each replicate pen. Data of nutrient and phytochemical contents of atung seed were analyzed descriptively. Data of antibacterial activity, *in vitro* digestibility, and parameters of stage 3 were statistically analyzed using ANOVA in a completely randomized design and continued subsequently with Duncan's new Multiple Range Test for data with significant difference. Results showed that atung seed contained phenolic, flavonoid, tannin, saponin, and alkaloid, which that the largest compound was flavonoid (7.17% w/w). The dominant compounds in the ethanol extract of atung seed powder based on GC-MS analysis were vaccenic fatty acid (12.60%) and palmitic fatty acid (11.76%). Atung seed powder inhibited the growth of pathogenic bacteria. Inclusion of 0.5% atung seed powder increased ($P<0.05$) crude protein digestibility, but 1, 2, and 4% of the inclusion decreased ($P<0.05$) dry matter and organic matter digestibility. Results of stages 3 showed that supplementation of atung seed powder increased lactic acid bacteria population ($P<0.05$), decreased coliform population ($P<0.05$), increased ($P<0.05$) villus height on the wall of duodenum and ileum, increased ($P<0.05$) villus width and villus height to crypt depth ratio, but has no significant effect on crypt depth. Supplementation of 0.5 and 1% of atung seed powder increased ($P<0.05$) feed consumption, but 0.5 - 4% administration did not affect weight gain, FCR, and carcass production. Supplementation of 0.5 - 4% of atung seed powder has no significant effect on the number of red blood cells, hemoglobin, hematocrit, and total plasma protein, but 1 and 2% of the inclusion increased ($P<0.05$) the number of white blood cells. Results indicated that atung seed contains bioactive compounds that are useful to improving the microbial population of the digestive tract, increasing *in vitro* protein digestibility, and improving the hematology profile and histomorphology of absorptive cells of the small intestine walls in broiler chickens.

Keywords: Broiler chickens, Hematology, Intestinal microflora and histomorphology, *Parinarium glaberrimum* Hassk., Phytobiotic