KINERJA PERTUMBUHAN, EFISIENSI PAKAN, DAN PROFIL SALURAN PENCERNAAN AYAM BROILER DENGAN PENAMBAHAN PROTEASE DALAM PAKAN YANG MENGANDUNG *Hydrolized ChickenFeather Meal*

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INTISARI

Penelitian ini bertujuan untuk mengetahui manfaat penambahan enzim protease dalam pakan yang menggunakan bahan pakan limbah pertanian-peternakan yang berkualitas terhadap kinerja pertumbuhan, efisiensi pakan dan profil saluran pencernaan dan organ aksesoris ayam broiler fase *prestarter* (0 s.d 10 hari) dan *starter* (11 s.d 21 hari). Limbah pertanian-peternakan yang dipakai adalah: *distillers dried grain with soluble* (DDGS), *poultry by-product meal* (PBPM) dan *hydrolized chicken feather meal* (HCFM). Seluruh pakan perlakuan (P2-P7) menggunakan DDGS dan PBPM dalam proporsi yang sama, namun menggunakan HCFM dalam proporsi yang berbeda. Penelitian dilaksanakan selama 21 hari menggunakan 2268 ekor ayam broiler (1134 ekor jantan dan 1134 ekor betina), dengan 7 macam perlakuan pakan, yaitu: P1=pakan basal, P2= pakan basal+HCFM 1,5%, P3= pakan basal +HCFM 1,5%+protease, P4= pakan basal+HCFM 3%, P5= pakan basal +HCFM 3% + protease, P6= pakan basal+HCFM 4,5%, P7=pakan basal+HCFM 4,5%+protease, menurut Rancangan Acak Lengkap pola searah. Apabila terdapat perbedaan antar perlakuan, data diuji lanjut menggunakan Contrast Orthogonal Test. Hasil penelitian menunjukkan bahwa penggunaan bahan pakan limbah pertanian-peternakan (HCFM) yang berkualitas tidak menurunkan kinerja pertumbuhan ayam, baik pada periode *pre-starter* (0 s.d 10 hari) maupun periode *starter* (11 s.d 21 hari). Penambahan HCFM sebanyak 1,5%, 3,0%, dan 4,5% meningkatkan nilai konversi pakan (FCR) (2,12%;3,74% dan 3,06%, secara berurutan) pada periode *pre-starter* ($P<0,05$). Pada parameter efisiensi pakan ditunjukkan bahwa semakin tinggi level penambahan HCFM, nutrien pakan yang dimanfaatkan menjadi menurun efisiensinya ($P<0,05$). Pada parameter profil organ dan kelenjar aksesori pencernaan ditunjukkan bahwa penambahan HCFM menurunkan ($P<0,05$) bobot saluran pencernaan (duodenum, jejunum, ileum) dan kelenjar aksesoris (hati dan proventrikulus). Dapat disimpulkan bahwa limbah pertanian-peternakan (DDGS, PBPM, HCFM) yang berkualitas berpotensi sebagai alternatif pengganti bahan pakan sumber protein karena tidak menurunkan kinerja produksi, tingkat efisiensi energi-protein, bahkan dapat memperbaiki profil organ dalam.

Kata kunci: Limbah pertanian-peternakan, Enzim protease, Kinerja pertumbuhan, Profil organ pencernaan, Rasio efisiensi protein dan energi

GROWTH PERFORMANCE, FEED EFFICIENCY, AND PROFILE OF DIGESTIVE ORGANS OF BROILER CHICKENS WITH ADDITION OF PROTEASE IN DIETS WITH HYDROLIZED CHICKEN FEATHER MEAL

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ABSTRACT

This study was aimed to determine the benefits of dietary addition of protease with quality livestock-agricultural by products-based feed materials on growth performance, feed efficiency, and digestive organs of broiler chickens, with emphasize at prestarter (0 to 10 days) and starter (11 to 21 day) phases. Livestock-agricultural by-products used in current study were distillers dried grain with soluble (DDGS), poultry by-product meal (PBPM), and hydrolyzed chicken feather meal (HCFM). All the treatment diets (P2-P7) used DDGS and PBPM in the same proportion but used HCFM in different levels. The study was conducted for 21 days using 2268 (1134 male and 1134 female) broiler chickens, with 7 treatment diets, i.e.: P1=basal diets (control), P2=basal diet with 1.5% HCFM supplementation, P3=basal diets with 1.5% HCFM and 300 g protease supplementations, P4=basal diets with 3.0% HCFM supplementation, P5=basal diets with 3.0% HCFM and 300 g protease supplementations, P6=basal diets with 4.5% HCFM supplementation, P7=basal diets with 4.5% HCFM and 300 g protease supplementations. Data obtained in this study were statistically analyzed using completely randomized design in Oneway arrangement, and continued with Contrast Orthogonal Test for the data with significant difference. The parameters measured were growth performance, protein and energy efficiency, and profil of digestive organs. Results of the study indicated that dietary addition of high quality livestock-agricultural by-products did not decrease growth performance, in both pre-starter period (0 to 10 days) and starter period (11 to 21 days). However, addition of 1.5%, 3.0%, 4.5% HCFM increased feed conversion rate ($P<0.05$) by 2.12%, 3.74%, and 3.06%, respectively, at prestarter period. In terms of feed efficiency, the higher addition of HCFM, the lower feed efficiency ($P<0.05$). In term of digestive organs profile, the addition of HCFM decreased the weight of digestive tract (duodenum, jejunum, ileum) and accessory gland (liver and proventriculus) ($P< 0.05$). Therefore, it can be concluded that high quality livestock-agricultural by-products (DDGS, PBPM, HCFM) had potency as alternative sources of feedstuffs as they did not reduce productive performance and energy - protein efficiency, but improved the profile of visceral organs.

Keywords: Quality livestock-agricultural by-products, Protease, Growth performance, Profil of digestive organs, Protein and energy efficiency