



SULFURIC AMINO ACIDS REQUIREMENTS FOR MALE AND FEMALE BROILER CHICKENS IN STARTER PHASE

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ABSTRACT

This research was aimed to observed the requirements of Sulfuric Amino Acids (SAA) of male and female broiler chickens in starter phase, with emphasize on methionine and cysteine. A number of 2160 broiler chickens (1080 males and 1080 females chicks) were divided into 6 treatment diet groups, which contained 0.845% (P1), 0.896% (P2), 0.947% (P3), 0.998% (P4), 1.050% (P5), and 1.101% (P6) SAA, for 21 days rearing period. A one-way ANOVA using Complete Randomized Design was used to separate the responses, continued with Duncan's new multiple range test for all significant differences. Responses of SAA supplementation on nett gain, FCR, and breast meat production were measured, and followed subsequently by generating equation for quadratic curve $y = ax^2+bx+c$ to determinate SAA requirement. Determination of the maximum response was done through $y_{maks} = -b/2a$. The parameters observed in this study were growth performance, profile of digestive organs and accessory glands, profile of immune organ, and production of breast meat. Adjustment of the feed requirements of SAA in the treatment was carried out with the addition of DL-Methionine. Result showed that addition of SAA in the diets did not influence growth performance of male broiler chicken. However, in female birds, supplementation of SAA optimized feed conversion ratio ($P<0.05$). The SAA requirements were estimated 1.008% (FCR_{11-21}) or 1.026% (FCR_{0-21}) for female birds and 1.056% (FCR_{0-10}); 0.994% (FCR_{11-21}); or 1.001% (FCR_{0-21}) for mixed-sex birds. The increasing addition of SAA did not influence *bursae of fabricius*, but decreased liver weight ($P<0.05$). The addition of SAA in the diets increased production of breast meat in female and mixed-sex birds ($P<0.05$). The estimated value of the SAA requirements of the female broiler chickens were 0.989% and 0.972% to absolute weight and relative weights of breast meat. The estimated value of the SAA requirements for mixed sex broiler chickens were 0.989% and 0.978% to absolute weight and relative weights of breast meat.

Keynote : *Sulfuric amino acids*, Broilers, Growth performance, Profile of visceral organs, Breast meat production



KEBUTUHAN SULFURIC AMINO ACIDS FASE STARTER AYAM BROILER JANTAN DAN BETINA

Andre Wijaya

INTISARI

Penelitian ini bertujuan untuk mengetahui kebutuhan *sulfuric amino acids* (SAA), khususnya *methionine* dan *cysteine*, pada ayam broiler jantan dan betina fase *starter*. Penelitian dilaksanakan selama 21 hari menggunakan 2160 ekor ayam broiler (1080 ekor jantan dan 1080 ekor betina), dengan 6 macam perlakuan pakan yang memiliki kandungan SAA 0,845% (P1), 0,896% (P2), 0,947% (P3), 0,998% (P4), 1,050% (P5), dan 1,101% (P6), menurut rancangan acak lengkap pola searah. Apabila terdapat perbedaan antar perlakuan, data diuji lanjut menggunakan Duncan's *new multiple range test*. Pengukuran respon penambahan SAA terhadap *Nett Gain*, FCR, dan produksi daging dada dilanjutkan dengan pembentukan grafik persamaan kuadrat: $y = ax^2 + bx + c$. Penentuan kebutuhan SAA untuk *Nett Gain*, FCR, dan produksi daging dada, melalui 95% dari respon maksimum. Penentuan respon maksimum ditentukan melalui grafik $y_{maks} = -b/2a$. Parameter yang diamati adalah kinerja pertumbuhan, profil organ dan kelenjar aksesoris pencernaan, profil organ imun, dan produksi daging dada. Penyesuaian kandungan SAA dalam pakan perlakuan dilakukan dengan penambahan DL-*methionine*. Hasil penelitian menunjukkan bahwa penambahan SAA dalam pakan tidak mempengaruhi kinerja pertumbuhan ayam broiler jantan, namun penambahan SAA dalam pakan meningkatkan nilai konversi pakan ayam broiler betina ($P < 0,05$). Hasil perhitungan estimasi menunjukkan bahwa jumlah terbaik kebutuhan SAA dalam pakan ayam broiler betina adalah 1,008% (FCR₁₁₋₂₁) dan 1,026% (FCR₀₋₂₁). Kebutuhan SAA untuk ayam broiler *mixed sex* sebesar 1,056% (FCR₀₋₁₀), 0,994% (FCR₁₁₋₂₁), dan 1,001% (FCR₀₋₂₁). Peningkatan kandungan SAA dalam pakan tidak mempengaruhi bobot *bursae of fabricius*, namun menurunkan bobot liver ($P < 0,05$). Penambahan SAA dapat meningkatkan produksi daging dada ayam betina dan *mixed sex* ($P < 0,05$). Nilai estimasi kebutuhan SAA terhadap ayam broiler betina adalah 0,989% dan 0,972% untuk bobot absolut dan bobot relatif daging dada. Nilai estimasi kebutuhan SAA terhadap ayam broiler *mixed sex* adalah 0,989% dan 0,978% untuk bobot absolut dan bobot relatif daging dada.

Kata kunci: *Sulfuric amino acids*, Broiler, Kinerja pertumbuhan, Profil organ dalam, Produksi daging dada