Estimating the Growth Response and Feed efficiency of Broiler Chicks Fed withDifferent Levels of Methionine, Lysine and Threonine

Abstract

In a dose-response experiment, response surface methodology (RSM) was used to optimization of dietary levels of lysine (Lys), methionine (Met), and threonine (Thr) in starting broiler chicks. Basal diet consisting corn, wheat, corn gluten meal, and soy bean meal was formulated to be adequate in all essential amino acids except for Lys, Met, and Thr. Graded levels of supplemental Lys, Met, and Thr was added to the basal diet at expense of corn starch, providing the rotational levels of those amino acids to surface response analysis. Both linear and quadratic models were significant ($P<0.05$) for body weight gain (BWG) and feed conversion ratio (FCR). Neither linear nor quadratic models were fitted on the feed intake (FI) data. Stationary points as a optimum level of each amino acid, were maximum and minimum points for BWG and FCR, respectively. Optimum levels of dietary Lys, Met, and Thr for BWG were estimated at 1.11, 0.54, and 0.77% of diet, respectively. Those values for FCR were optimized at 1.13, 0.53, and 0.74% of diet, respectively. Considering the highest estimated values, ideal ratios of Met and Thr to Lys were obtained by 48 and 68%, respectively.

Key words: Broiler, ideal ratio, optimization, response surface

University of Zabol
Gradute School
Faculty of Agriculture
Animal Science Department

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Supervisor:
Dr. H. R. Mirzaie

Advisors:
Dr. M. Yosef elahi
Dr. R. Jahanian

By:
A. A. Davarpanah

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