

Abstract

This experiment was conducted to investigate the effects of substitution of soybean meal (SBM) with sunflower meal (SFM) on performance, carcass attributes, humoral immunity, and intestinal microbiota of growing Japanese quails from 11 to 32 days of age. Five levels of substitution of SBM with SFM (0, 25, 50, 75 and 100%) in a completely randomized design with 4 replicates of 12 birds each were fed through the experimentation. Feed intake (FI), body weight gain (BWG), and feed conversion ratio (FCR) were measured weekly. The antigen of sheep red blood cell (SRBC) was injected in breast muscle at 18 and 25 d of age for assessment of primary and secondary responses. Microbial populations for coliforms were counted in cecal contents on MacConkey agar. The results showed that no significant effect was observed on BWG and FCR ($P > 0.05$). Feed intake was significantly decreased in birds fed diet containing 100% of substitution level of SFM during 11-18 and 11-25 d of age ($P < 0.05$). However, the effect of dietary SFM was not significant on the FI from 11-32 d of age. Dietary treatments have no significant effects on carcass attributes and relative weights of internal organs; however, the relative weight of gizzard was significantly higher in birds fed diet containing 100% of substitution level of SFM than other treatments. Antibody titer against SRBC injection was not significant between dietary treatments, however, humoral immunity tended to be lower in SFM-diets than that in control diet ($P=0.06$). The use of 50% of SFM at the expense of SBM in the diet resulted in the highest CFU of coliforms ($P < 0.05$). Financial analysis revealed that high levels of SFM in the diet significantly decreased the cost of meat yield, in which, 75 and 100% of substitution of SBM with SFM could maximized the profit ($P < 0.05$).

Keywords: Japanese quail, sunflower meal, performance, immune response



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Faculty of Agriculture
Department of Animal Science

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Supervisors:

Dr. M. Mehri
Dr. H. Mohammadi Emarat

Advisors:

Dr. F. Bagherzadeh Kasmani
Mr. G. R. Zaboli

By:

M. Ahmadi

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