Effect of Black Cumin Seed Meal (*Nigella Sativa*) on Performance, Meat Quality and Intestinal Microflora of Broilers

S. M. C. Himali[1], W. V. A. H. Chathurika[1], K. Samarasinghe[1] and W.T.N. Boteju[2]

[1]*Department of Animal Science, University of Peradeniya, Peradeniya, Sri Lanka*
[2]*Bio Extracts (Pvt,) Ltd, Mount Lavinia, Sri Lanka*

The aim of this study was to evaluate the effects of black cumin seed meal (*Nigella sativa*) included diet on the performance, carcass characteristics and intestinal microbial population of broiler chicken. A total of 180 one-day-old broiler chicks (Cobb 500) were allocated to four dietary treatment groups with five replicates each of 9 chicks and reared for 42 days. Experimental diets were prepared by replacing maize with black cumin seed meal (BCSM) at the rate of 0% (control, C), 10% (T1), 15% (T2), and 20% (T3). The statistically analyzed data revealed that T1 diet increased (P<0.05) the body weight gain of broilers compared to T2, and T3 at day 42. Dietary BCSM did not have a significant effect on the dressing percentage of birds. Birds fed with 10% maize replacement with BCSM recorded the lowest (P <0.05) malondialdehyde (MDA) content (3.38 µmol/kg) for Thiobarbituriacid Reactive Substances assay in chicken meat at 7th day of storage and the highest (P <0.05) ceacal lactic acid bacteria population (1.56 log CFU/mL) than other treatments. Further, the present study indicated that 10% replacement of maize with BCSM in the broiler diet has beneficial effects on body weight gain, MDA value and caecal lactic acid bacteria population. Also, it showed a decreased tendency in coliform bacteria population in the caecal content. Moreover, it has significantly affected meat quality attributes where the highest (P <0.05) score (5.93) for taste resulted. In conclusion, replacing maize with up to 10% BSCM in the diets of broilers has positive effects on body weight gain, carcass characteristics and caecal microbial population.

Keywords: Black cumin seed meal, Broiler chicken, Performance, Meat quality, Microflora