

Effect of Dietary Probiotic and Phytobiotic Combination on Growth Performance and Meat Quality Traits of Commercial Broilers

A.A.D.I. Adikari¹, I.P.A.U.N.K. Illippangama¹, G.A. Gunawardana², M.W.C.D. Palliyeguru² and D.D. Jayasena¹

¹*Department of Animal Science, Uva Wellassa University, Badulla, Sri Lanka*

²*Veterinary Research Institute, Gannoruwa, Peradeniya, Sri Lanka*

Probiotics and phytobiotics are feed additives that enhance gut health, improve digestion, absorption and thereby promote performances of humans and animals. This research was conducted to determine the effect of dietary probiotic and phytobiotic combination on growth performance and meat quality traits of commercial broiler chicken. A total of 996 day-old, Cobb-500 broiler chicks were randomly assigned into the experiment pens. The treatment (0.25g of probiotic *Bacillus* spp. and 0.25g of phytobiotics in 1L of drinking water) and control (drinking water only) were each replicated six times in separate pens, each pen had 83 chicks. All the birds were fed *ad-libitum* with commercial broiler starter, grower and finisher feeds. Two birds from each replicate were randomly sampled and slaughtered on day 35. Leg meat samples were tested for sensory parameters, meat quality and proximate composition. Blood serum samples were collected and tested for antibody levels against alpha toxin of *Clostridium perfringens* bacteria. Birds fed growth promoters achieved better ($p<0.05$) weight gain (1,927g) and feed conversion ratio (1.53) compared to the control group: 1,908g and 1.55, respectively. In addition, they had significantly higher ($p<0.05$) sensory attributes: flavour, taste, juiciness and overall acceptability compared to the control group. Raw meat redness (10.3) was lower ($p<0.05$) and lightness (58.8) was higher ($p<0.05$) in the treatment compared to those in control: 12.9 and 54.8, respectively. However, other meat quality traits and proximate composition were comparable between the two groups, except ash content which was higher ($p<0.05$) in birds fed growth promoters compared to control. There was no significant difference in serum antibody levels between the two groups. In conclusion, probiotic and phytobiotic combination in drinking water improved growth performance of broiler chickens and the sensory attributes of the leg meat.

Keywords: *Bacillus probiotic spp.*, Broiler meat quality, *Clostridium perfringens*, Growth promoters, Phytobiotics