

Influence of Supplementation of *Lactobacillus* Cultures on Growth Performance, Fecal Microbiota, Blood Profile and Cholesterol Contents in Broilers †

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Abstract: The widespread use of antibiotics in poultry with the intent of encouraging growth rate, increasing feed conversion efficiency, and reducing intestinal diseases have resulted in an imbalance of the beneficial intestinal flora. The use of lactic acid bacteria as feed additives to substitute antibiotic-associated growth stimulator and their impact on meat quality is one of the key research areas. In this study, broilers were grouped into four different treatments: T1 (control): basal diet + antibiotic as growth promoter and immunomodulatory factor, T2: basal diet without having antibiotics as a growth promoter and immunomodulatory factor + *L. planlarum* KGL3A, T3: basal diet without having antibiotic and immunomodulatory factor + *L. lermmentwn* KGL4, T4: basal diet without having antibiotic and immunomodulatory factor + combination of T3 and T4 bacterial strains. During the entire study, higher body weight was observed among the *Lactobacillus* fed broilers groups (T4: 2433g, T3: 2371g, T2: 2355g) compared to the control group (T1: 2339g). Lipid profile analysis further confirmed the significant decrease in low-density lipoprotein (LDL) content of T4 (19%) and T3 (16%) groups than the control group (T1), while more than 10% increase in high-density lipoprotein HDL content was observed in T4 and T3 groups than the control group (T1). The histopathological examinations of the fine macroscopically examined intestinal and liver tissues suggested well-organized epithelial lining and villi structure in *Lactobacillus* fed broiler groups (T2, T3, T4) and control group (T1). Further, the decrease in fecal coliforms and enterococcus counts and an increase in *Lactobacillus* counts in treatment groups compared to the control group were found after 42 days of study. The supplementation of *Lactobacillus* isolates as feed supplements to the broilers had overall positive effects on broilers' growth performance in this study without providing growth promoters as an antibiotic. Further, more studies are required to validate the two specific *Lactobacillus* cultures (KGL4 & KGL3A).

Keywords: antibiotics; poultry; *Lactobacillus*; LDL; HDL.

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Conflicts of Interest

The authors declare no conflict of interest.