

Feeding of different levels of metabolite combinations produced by *Lactobacillus plantarum* on growth performance, fecal microflora, volatile fatty acids and villi height in broilers

ABSTRACT

The effects of feeding different dosages of metabolite combination of *L. plantarum* RS5, RI11, RG14 and RG11 strains (Com3456) on the performance of broiler chickens was studied. A total of 504 male Ross broilers were grouped into 7 treatments and offered different diets: (i) standard corn-soybean based diet (negative control); (ii) standard corn-soybean based diet +100 ppm neomycin and oxytetracycline (positive control); (iii) standard corn-soybean based diet + 0.1% metabolite combination of *L. plantarum* RS5, RI11, RG14 and RG11 strains (Com3456); (iv) standard corn-soybean based diet + 0.2% of Com3456; (v) standard corn-soybean based diet + 0.3% of Com3456 (vi) standard corn-soybean based diet + 0.4% of Com3456 and (vii) standard corn-soybean based diet + 0.5% of Com3456. Supplementation of Com3456 with different dosages improved growth performance, reduced Enterobacteriaceae and increased lactic acid bacteria count, and increased villi height of small intestine and fecal volatile fatty acid concentration. Treatment with 0.4% and 0.2% Com3456 had the best results, especially in terms of growth performance, feed conversion ratio and villi height among other dosages. However, the dosage of 0.2% was recommended due to its lower concentration yielding a similar effect as 0.4% supplementation. These results indicate that 0.2% is an optimum level to be included in the diets of broiler in order to replace antibiotic growth promoters.

Keyword: broilers, plantarum, metabolite combination, performance