Effects of feeding metabolite combinations produced by Lactobacillus plantarum on growth performance, faecal microbial population, small intestine villus height and faecal volatile fatty acids in broilers.

Abstract

1. Four combinations of metabolites produced from strains of Lactobacillus plantarum were used to study the performance of broiler chickens. 2. A total of 432 male Ross broilers were raised from one-day-old to 42 d of age in deep litter pens (12 birds/pen). These birds were divided into 6 groups and fed on different diets: (i) standard maize-soybean-based diet (negative control); (ii) standard maize-soybean-based diet + Neomycin and Oxytetracycline (positive control); (iii) standard maize-soybean-based diet + 0·3% metabolite combination of Lactobacillus plantarum RS5, RI11, RG14 and RG11 strains (com3456); (iv) standard maize-soybean-based diet + 0·3% metabolite combination of L. plantarum TL1, RI11 and RG11 (Com246); (v) standard maize-soybean-based diet + 0·3% metabolite combination of L. plantarum TL1, RG14 and RG11 (Com256) and (vi) standard maize-soybean-based diet + 0·3% metabolite combination of L. plantarum TL1, RS5, RG14 and RG11 (Com2356). 3. Higher final body weight, weight gain, average daily gain and lower feed conversion ratio were found in all 4 treated groups. 4. The addition of a metabolite combination supplementation also increased faecal lactic acid bacteria population, small intestine villus height and faecal volatile fatty acids and faecal Enterobacteriaceae population.

Keyword: Broilers; Performance; Metabolite Combination; L. plantarum.