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Effect of Probiotics and Yacon Extract (*Smallanthus sonchifolius*) on the Performance of Broilers Cobb 500

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Abstract

This study was conducted with the aim of evaluating the effect of supplementation of probiotic strains and Yacon extract (*Smallanthus sonchifolius*) on performance of broilers (Cobb 500 line). Yacon storage roots are traditionally used by farmers at mid-elevations on the eastern slopes of the Peruvian andes. However, recently it has been reported that these tubers have high content of fructooligosaccharides, an indigestible polysaccharide that have a prebiotic effect. Two hundred and thirty four one-day old chickens were used under a completely randomised design in three treatments (T0: Antibiotic growth promoter (Zinc bacitracin), T1: *Lactobacillus* strains, T2: *Lactobacillus* strains and Yacon extract). Treatments were supplemented in drinking water every five days. Chicken weights were taken weekly until 47 days. Total feed intake, total weight gain, conversion rate, cost benefit, mortality rate, carcass and breast yield were evaluated. ANOVA and Duncan test ($\alpha=0.05$) were performed for quantitative traits and mortality was analysed using Fisher test. The final weights achieved were similar between treatments ($p > 0.05$), 2873.1 ± 79.06 ; 2894.6 ± 65.19 ; 2839.92 ± 44.72 ; for T0, T1 and T2, respectively. The higher food intake was obtained by T0 with 5758.0 ± 85.42 g, followed by T2 and T1 with 5662.5 ± 178.80 g and 5611.9 ± 135.50 g, respectively, with no significant differences ($p > 0.05$). Feed conversion was similar between treatments ($p > 0.05$), 2.03 ± 0.03 , 1.98 ± 0.05 and 1.99 ± 0.03 for T0, T1 and T2, respectively. Likewise, no significant difference was found for mortality ($p > 0.05$), but there was numerical difference, where T1 and T2 (4.5% and 2.5%) achieved lower mortality *vs.* T0 with 7%. Likewise for carcass performance and breast yield there were no significant differences ($p > 0.05$). We conclude that although the evaluated parameters were not significantly different among treatments, probiotic strains alone or its combination with yacon extract could replace antibiotic growth promoter, as a similar performance was obtained.

Keywords: Broilers, performance, probiotics, *Smallanthus sonchifolius*