

Effects of dietary supplementation of *Bacillus subtilis* TLRI 211-1 on growth performance, carcass, and blood characteristics of broilers ⁽¹⁾

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Abstract

Bacillus subtilis is a feed additive that can be supplied to livestock and poultry according to the Taiwan Feed Control Act law. *B. subtilis* features characteristics of rapid growth, acid resistance, alkali resistance, heat resistance, and endospore formation. In this study, *B. subtilis* TLRI 211-1, isolated from activated sludge, was added to the diet to explore the effects on the growth performance, carcass, and blood characteristics of broilers. After culture, the number of *B. subtilis* TLRI 211-1 was adjusted to 1×10^8 CFU/mL. A total of 192 day-old broilers were allocated to four groups, including: control group (0%), *B. subtilis* TLRI 211-1 solution 0.1%, 0.3% supplementation groups, and commercial *B. subtilis* 0.1% supplementation group. Each group had 4 replicates (pens) and each replicate had 12 birds. The experiment was conducted for 5 weeks. During the experimental period, growth performance, carcass and blood characteristics were measured. The results showed that the weight gain, production efficiency and slaughter weight of the feed supplemented with TLRI 211-1 bacterial solution 0.1% were significantly higher than those of the control group and the commercial bacteria group ($P < 0.05$). The abdominal fat of birds fed with *B. subtilis* was significantly lower, but the intestinal weight was significantly higher than those of the control group ($P < 0.05$). There was no significant difference in the blood biochemical inflammation index enzymes - GOT, GPT, CK, and γ -GT among all groups. In summary, dietary supplementation of 1×10^8 CFU/kg *B. subtilis* TLRI 211-1 can increase the weight gain and production efficiency of white broilers. Thus, *B. subtilis* TLRI 211-1 strain can be used as a probiotic feed additive to promote chicken growth performance.

Key words: Broiler, *Bacillus subtilis*, Growth traits.

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