

## Abstract

Considering the importance of probiotics in poultry feed, economic production of their biomass and spores on commercial level has become crucial. Molasses, as a sugar industry by product, was evaluated and optimized in this study as an economic medium for enhanced biomass and spore production of probiotic *Bacillus licheniformis* (KT443923) in shake flask experiments. Furthermore, probiotic efficiency on growth performance of commercial broilers (Cobb 500) was also evaluated by conducting 35 days experimental trials. Best results for CFU/mL ( $1.95 \times 10^{16}$ ), spores/mL ( $3.0 \times 10^8$ ) and DCW (3.3 g/L) were achieved by using 2% inoculum in molasses with 5X sugar concentration maintained at pH 7 and incubating at 37°C for 24 hours. For experimental trials, 135 chicks were divided among 9 pens (15 chicks per pen) in three treatment groups (control, antibiotic and probiotic). Growth parameters viz. body weight, body weight gain, feed intake (FI), feed conversion ratio (FCR) and mortality were recorded and evaluated. Best results for growth performance were observed in chicks fed probiotic supplemented diet thus suggesting that *Bacillus licheniformis* (KT443923) is a suitable potential feed additive alternative to antibiotics in poultry feed.