

## Growth performance, fatty acid profile and lipid oxidative stability of breast muscle in chickens fed probiotics and antibiotics or their mixture

### ABSTRACT

This study assessed the effects of dietary supplementation of probiotics, antibiotics and an antibiotic-probiotics mixture on growth performance of broilers, and the fatty acid profile and oxidative stability of broiler breast muscle. A total of 480 one-day-old broiler chicks (Cobb 500) were assigned to four treatment groups and fed for 42 days. The basal diet served as control treatment (Diet 1), while chicks assigned to Diets 2, 3 and 4 were fed the basal diet with the addition of 0.1 mg/kg of an antibiotic growth promoter (AGP), a commercial probiotic 5 g/kg or the AGP (0.1 mg/kg) + the commercial probiotic (5 g/kg), respectively. Feed intake, weight gain and feed conversion ratio were determined. Fatty acid (FA) profile and lipid oxidative status were monitored at 1 and 7 days post mortem. The results showed no significant difference in average bodyweights among the treatments. However, birds fed Diets 3 and 4 had significantly lower feed conversion ratios and feed intake than the other treatments. At day 7 post mortem, the lipid oxidation in breast meat was significantly lower in Diet 3 compared with the other diets. The meat of the birds fed Diet 3 had lower oleic acid, but higher palmitic acid concentrations at 1 day post mortem. At 1 day postmortem the polyunsaturated fatty acid to saturated fatty acid (PUFA : SFA) ratio was significantly lower in the breast muscle of birds fed Diet 3 compared with those fed Diets 1 and 4, but increased at 7 days postmortem. It could be concluded that probiotics supplementation showed high potential to improve oxidative stability, thereby increasing the shelf life of chicken meat.

**Keyword:** *Bacillus subtilis*; Broiler; Body weight; Feed intake; Lipid profile; Storage stability