

Effects of two herbal extracts and virginiamycin supplementation on growth performance, intestinal microflora population and fatty acid composition in broiler chickens

ABSTRACT

The competency of garlic and pennywort to improve broiler chicken growth and influence intestinal microbial communities and fatty acid composition of breast meat were studied. Two hundred forty, “day-old” chicks were randomly allocated to 4 treatment groups consisting of 6 replications of 10 chicks in each pen. The groups were assigned to receive treatment diets as follows: i) basal diet (control), ii) basal diet plus 0.5% garlic powder (GP), iii) basal diet plus 0.5% pennywort powder (PW) and iv) 0.002% virginiamycin (VM). Birds were killed at day 42 and intestinal samples were collected to assess for *Lactobacillus* and *Escherichia coli*. The pectoralis profundus from chicken breast samples was obtained from 10 birds from each treatment group on day 42 and frozen at -20°C for further analyses. Fatty acid profile of breast muscles was determined using gas liquid chromatography. Feed intake and weight gain of broilers fed with GP, PW, and VM were significantly higher ($p<0.05$) compared to control. Feeding chicks GP, PW, and VM significantly reduced *Escherichia coli* count ($p<0.05$) while *Lactobacillus* spp count were significantly higher ($p<0.05$) in the gut when compared to control group on day 42. Supplemented diet containing pennywort increased the C18:3n-3 fatty acid composition of chickens’ breast muscle. Garlic and pennywort may be useful in modulating broiler guts as they control the enteropathogens that help to utilize feed efficiently. This subsequently enhances the growth performances of broiler chickens.

Keyword: Broiler chicken; Garlic; Pennywort; Growth performances; Microbial population; Fatty acid composition