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Evaluation of Protected Sodium Butyrate, Zinc Bacitracin and Their Combination on Broiler's Intestinal Microflora and Villi Development

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The objective of the present study was to evaluate the effect in broiler gut health of sodium butyrate protected with PFAD sodium salt (GUSTOR N'RGY), Zn Bacitracine and their combination, in a control diet without any additive. A total of 160 Cobb one day old chickens were randomly allocated to 4 treatments: Control (T1), BMD supplemented (T2), Butyrate (T3) and BMD + Butyrate (T4). Every treatment was replicated 4 times and each replicate consisted of 10 chickens. Mash feeds and water were offered ad libitum. At the end of each period (21 days and 42 days) one chicken per replicate was euthanized and samples from the ileum and caecum were taken to analyze gut microflora. Besides, samples of duodenum, jejunum and ileum epitheliums were obtained in order to determine their development status. Data were analyzed as a completely randomized design by GLM of SPSS v. 19.0. The use of butyrate alone and in combination with BMD tended to reduce the count of E. coli in ileum at 21 days (T1=5.02x10^6 vs. T3=4.63x10^5; P=0.0932). BMD was also able to reduce the count of E. coli but when evaluating the epithelium variables a thinner mucosa was observed both in jejunum and ileum at 42 days. This effect was not observed in the combination of BMD+butyrate. Also the longest ileum villi at ileum corresponded to the butyrate supplemented group (T3). It can be concluded that the use of sodium butyrate protected with PFAD sodium salts is able to modify gut microflora without affecting mucosa thickness and villi length when combined with Zn Bacitracin. If used alone, it improves GIT villi development.