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Detection of Probiotics in Broiler Chicken microbiota gut samples

The practice of rearing broiler chickens in limited spaces increases the occurrence of rapid spread of diseases among poultry flocks, creating a continuous challenge in the poultry industry as it affects productivity leading to economic losses for the producers. Administration of probiotics is used to enhance the natural immunological capacity and to increase the growth rate in poultry. Lactic acid bacteria (LAB) are being commercially sold as probiotics for the improvement of animal organisms that will perform well or better than existing probiotics in the poultry industry. *L. reuteri* has been found to be in the Gastrointestinal tract (GIT) of chickens, humans, and pigs. Many of the metabolites produced by *L. reuteri* prevent growth of pathogenic bacteria. *E. coli* Nissle 1917 is patented in Germany for human use as a probiotic to elevate gastrointestinal issues. The novelty of this study is the incorporation of a probiotic that was cultivated from the GIT humans into broiler chickens through their feed and the detection of the probiotic within the GIT of the chickens. In this study, we incorporated probiotic bacteria *L. reuteri* and *E. coli* Nissle 1917 (ECN) in the broiler chicken feed from 1-day of hatch to 5 weeks of age (WOA) to evaluate whether these probiotic bacteria (*L. reuteri* and ECN) could be detected in gut microbiota sample from broiler chickens after 5 weeks of feeding. The GIT contents from 24 birds using sterile forceps were squeezed into sterile tubes containing PBS and stored at -80° C. The Qiamp Fast Stool DNA Mini extraction kit was used to perform DNA extractions. The GIT contents were then prepared for PCR using the Taq PCR core kit to detect *L. reuteri* and *ECN* using specific primers for each probiotic bacterium. The results from this study showed that of the 24 GIT samples from broiler chickens feed *L. reuteri* and *ECN* for 5 weeks, both probiotics were able to be detected in the GIT of broiler chicken. In conclusion, the use of well-established probiotics that are used in humans may be useful if they are incorporated into broiler chicken feed to aid in the reduction of the spread of pathogenic GIT bacteria.