

Quantitative real-time PCR analysis of the caecal bacteria population of broiler chickens fed with corn-soy diet containing 20% of palm kernel meal with or without enzyme supplementation

ABSTRACT

In the present study, quantitative real-time polymerase chain reaction analysis was performed to enumerate the caecal bacterial population of broiler chickens fed with corn-soy based diet containing 20% of palm kernel-meal with or without enzyme supplementation. A total of seventy five day old male Cobb broiler chicks was used in the feeding trial receiving a corn-soy diet with 20% of palm kernel meal with or without xylanase or cellulase supplementation at an amount of 200U/kg of feed respectively. On day 35, birds were slaughtered and the caecum content was aseptically collected for the bacterial quantification. Both xylanase and cellulase supplementation in the diet significantly reduced the population of total bacteria, enterococcus and Salmonella spp. bacteria in the caecal digesta of broiler chickens. Moreover, the population of lactic acid bacteria, enterobacteria and Escherichia coli in digesta of broiler chickens fed with enzyme supplementation was also significantly reduced compared to broiler chickens received no enzyme addition in the diet. However, even though the population of bifidobacteria analyzed in the caecal digesta of enzyme supplemented broiler chickens was reduced compared to non-supplemented broiler chickens, it is not significantly different. The result obtained suggested that xylanase and cellulase supplementation at an amount of 200 U/kg of feed reduced a number of pathogenic bacteria in the caecal particularly enterobacteria, Escherichia coli and Salmonella spp. bacteria.

Keyword: Real-time PCR; Corn-soy based diet with 20% PKM; Caecal bacteria; Enzyme; Broiler chicken