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Effect of curcumin with and without protexin on performance parameters, serum lipoproteins, cecum micro flora and gut morphology of broiler chickens

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Two hundred and forty one-day-old male broiler chickens (Ross-308) were randomly distributed into four groups, each of which had four replicates and 15 birds in each. The birds used to evaluate the effects of turmeric rhizome (*Curcuma longa* L.) and protexin (as multi-strain probiotics) alone or their combination, on performance traits, serum lipoproteins, cecum micro flora and gut morphology of broiler chickens. The chicks received the same basal diet based on corn-soybean meal (T_1 control), plus 2 g/kg turmeric rhizome (T_2), and 0.12 g/kg (T_3), and combination turmeric and protexin with the same level (T_4). The performance traits recorded as weekly and calculated on days 21 and 42. Furthermore, on day 42, four birds (one bird/cage) as randomly selected and samples of gut and chyme had removed to further analysis. Addition of turmeric or protexin to the basal diet significantly increased ($p<0.05$) average daily gain of broilers on day 42. The feed-to-gain ratio was significantly decreased ($p<0.05$) for the birds fed diets with combination additives in contrast to the control (on day 42). Dietary inclusion of 0.12 g/kg protexin numerically ($p>0.05$) enhanced the mass of *Bifidobacterium and Lactobacillus*, and the number of *E. coli* decreased in the small intestinal and cecum of chyme ($p<0.05$) on day 42. Morphological parameters for the duodenum, and jejunum revealed that no significant difference for Villi Height (VH), Crypt Depth (CD), and VH/CD ratio in the birds that fed additives alone. However, VH, CD, and VH/CD ratio in the birds fed diets with inclusion of the blend of protexin and turmeric were higher ($p<0.05$) at the jejunum than control and other treatments. According to the present results, it could be concluded that the dietary blend of protexin and turmeric rhizome increased performance parameters, improved gut micro flora and morphological traits of broilers. Hence, a dietary combination of protexin and turmeric rhizome has a positive effect on the productivity and health of broiler chickens.

Biography

F Ahmadi had earned BSc, MSc and PhD from Tehran University, Isfahan University (IUT), and IAU, respectively. At present, he is the Dean of Department of Animal Science, and served as Faculty Member at Islamic Azad University, Sanandaj Branch, Kurdistan Province, Iran. His interested research area is the different additives in poultry nutrition, especially pro/prebiotics, nutrients of nanoparticles, and medicine plants. He has published in 19 scientific papers (ISI). He has also participated in 13 international scientific meetings. He has done the compilation of a book entitled *'Recording Economic Traits in Dairy and Beef Cattle Production'*.

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