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Effects of dietary supplementation of organic chromium (picolinate) on production performance, immune response and blood biochemical parameters in female turkey

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This experiment investigated the effects of dietary chromium picolinate (CrP) on production performance, immune response and serum biochemical characteristics of female turkey. Seventy-two (72) female turkeys (16 weeks old) were randomly distributed into four dietary treatment groups (4×3×6) for a period of 24 weeks. Three experimental diets were supplemented with 250, 500 and 750 µg Cr/kg (T2, T3 and T4 respectively) in basal diet (T1 considered as control). All hens were provided feed and water ad libitum. Production performance in terms of age at sexual maturity did not differ significantly (P>0.05), whereas egg production and egg mass differ significantly (P<0.05) in T4 group compared to control and the two CrP treated groups (T2 and T3). Egg quality traits in terms of shape index, albumin index and yolk index did not differ significantly (P>0.05), whereas the Haugh unit score and shell thickness were significantly higher (P<0.05) in T4 treated groups than the control (T1) and other two treatment groups (T2 and T3). Immune response in terms of cell mediated and humoral were differ significantly (P<0.05) in T4 group compare to other groups. In case of blood biochemical parameters, no significant differences were observed in albumin, urea, uric acid, creatinine, AST and ALT concentration in any of the treated as well as control group whereas, significant (P<0.05) differences (increase/decrease) were recorded in total protein, glucose, triglyceride and cholesterol concentration in T3 (500 µg/kg diet) or T4 (750 µg/kg diet) group comparison to other two groups (control and 250 µg/kg diet). From this study, it could be concluded that supplementation of chromium as chromium picolinate at 750 µg/kg level in diet was beneficial for immune response, production performance (egg production and egg mass), some egg quality traits (Haugh unit score and shell thickness) in laying turkeys. However, Cr levels of 500 or 750 µg per kg in diet was beneficial for some biochemical parameters (total protein, glucose and triglyceride and cholesterol) of laying turkeys.

Biography

Avishek Biswas has completed his PhD from ICAR-Indian Veterinary Research Institute (Deemed University), Izatnagar and served as Scientist in Defense Institute of High Altitude from 2008-2012. Presently, he is a Senior Scientist (Animal Nutrition) of ICAR-Central Avian Research Institute, a premier research organization in India. He has published more than 40 research papers in reputed international/national journals. He has presented 20 research presentations in different national and international conference/seminars. He has been serving as an Editorial Board Member of 6 reputed international journals.

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