“EFFECT OF ORGANIC CHROMIUM SUPPLEMENTATION ON PERFORMANCE OF BROILER CHICKENS”

ABSTRACT

Key words: Chicken, Chromium, Performance, Supplementation

The present study was carried out with the objective of investigating the effect of dietary supplementation of organic chromium as chromium propionate on performance of broiler chickens. Total 200 numbers of day old Cobb-400 strain broiler chicks were divided randomly in four groups as control (T1), T2, T3 and T4. Birds in T1 group were fed on basal diet without any supplement and three treatment groups were fed on basal diet supplemented with organic chromium @ 400 µg, 800 µg and 1200 µg/kg diet in T2, T3 and T4 group, respectively for the period of 42 days. Statistical analysis revealed that overall feed intake (g) did not vary significantly (P>0.05) among the treatment groups as compared to control (T1) group with highest value found in T1 group followed by T4, T3 and T2 groups. Final body weights (g) were found to be increased non-significantly (P>0.05) in all treatment groups (T2, T3 and T4) as compared to control group (T1) and highest total body weight of experimental birds was observed in 1200 µg organic chromium supplemented group (T4) followed by 800 µg organic chromium (T3), 400 µg organic chromium (T2) and control group (T1).

Mean weekly body weight gain (g) was increased numerically in all treatment groups (T2, T3 and T4) as compared to control group (T1) and highest average weekly body weight gain of experimental birds was found in 1200 µg organic chromium supplemented group (T4) followed by 800 µg organic chromium (T3), 400 µg organic chromium (T2) and control group (T1). Total body weight gain (g) during entire experimental period was increased significantly (P<0.05) in treatment group (T4) as compared to control group (T1) and highest total body weight gain of experimental birds was found in 1200 µg organic chromium supplemented group (T4) followed by 800 µg organic chromium (T3), 400 µg organic chromium (T2) and control group (T1).

Feed conversion ratio was numerically lower in different treatment groups like T2, T3 and T4 as compared to control (T1) group and lowest FCR was found in T4 group followed by T2, T3 and T1 groups. Values for different haematological parameters like hemoglobin (Hb), packed cell volume (PCV), total erythrocyte count (TEC), total leucocyte count (TLC), alanine amino transferase (ALT) and aspartate amino transferase (AST) were also found non-significant among different experimental groups. Whereas, values for some biochemical parameters like glucose (mg/dL), triglycerides (mg/dL) and total cholesterol (mg/dL) decreased significantly (P<0.05) in 1200 µg organic chromium supplemented group (T4) as compared to
control, whereas, for triglycerides it also decreased significantly (P<0.05) in 800 µg organic chromium supplemented group (T₃). Values obtained for carcass characteristics revealed non-significant effect of organic chromium on dressing percent (%) and organ weights (g) of liver, heart, gizzard, kidney and spleen. While comparing the cost of feeding, it was observed that total return over feed cost and profit per bird was highest in 1200 µg organic chromium supplemented group (T₄) followed by 800 µg organic chromium (T₃), 400 µg organic chromium (T₂) and lowest in control group (T₁). Looking to the results of present investigation, it is concluded that use of organic chromium at the dose of 1200 µg/kg diet and 800 µg/kg diet improves the overall performance, return over feed cost and profit per bird. So it can be included in the diet of broilers up to 42 days to maximize the profit.