This study was conducted to determine the effect of different levels of Cu and Cr addition to the diet of laying hens on performance, some egg characteristics, serum parameters and cholesterol content of egg in laying hens.

A total of 180 laying hens (at 20 weeks of age) were randomly allocated to the nine treatments groups consist of three levels of copper (0, 100 and 150 ppm diet) and three levels chromium (0, 1000 and 2000 ppb diet) in 3 x 3 factorial arrangement. In each treatment groups there was five replicates of which containing four birds in each cage compartment. The experiment was lasted for a period of twelve weeks (from the age of 20 to 32 weeks).

Supplemented Cu and Cr did not have a significant effect (P< 0.05) on body weight (BW), feed consumption (FC), egg production (EP), egg weight (EW), egg shell weight
(ESW), egg shell strength (ESS) and egg specific gravity (ESG). However, supplemented Cu and Cr had a significant effect on feed conversion ratio (FCR) only at 8th, and egg shell thickness (EST), shape index (SI) at 4th weeks (1. period) of experiment (P< 0.01). Treatments had a significant effect on Albumin index (AI) and Haugh unite (HU) at 8th and 12th weeks of the experiment.

Effects of treatments on yolk triglyceride content (YTC) at 12th and yolk cholesterol content (YCC) at 6th and 12th weeks were significant (P< 0.01). Chromium and copper contents of egg were significantly affected by the treatments at the 6th (P< 0.01) and 12th (P< 0.05) weeks of the experiment, respectively.

Effects of supplemental Cu and Cr on serum triglyceride content (STC) were not significant (P> 0.05), but the contents of serum glucose (SG) and total cholesterol (TC) were significantly affected by the treatments at 12th week of experiment (P< 0.01).

Treatments had a significant effect on serum very low density (VLDL) lipoprotein fraction at 6th (P< 0.05) and 12th weeks of the experiment (P< 0.01). Serum low density lipoprotein (LDL) and high density lipoprotein (HDL) fractions were not significantly affected by the treatments during the whole experiment (P> 0.05).

The treatments had significant effects on serum Cu and Cr concentrations at the 6th (P< 0.01) and 12th (P< 0.01) weeks, respectively.

**Key words:** Cholesterol, performance, serum concentrations of Cu and Cr, egg characteristics, laying hen.