



البحث السادس

عنوان البحث باللغة الانجليزية :

Effects of iron glycine chelate on laying performance, antioxidant activities, serum biochemical indices, iron concentrations and transferrin mRNA expression in laying hens.

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ABSTRACT

This study was conducted to evaluate the effects of iron glycine chelate (Fe-Gly) on laying performance, antioxidant enzyme activities, serum biochemical indices and iron concentrations in laying hens. A total of 810 laying hens (Hy-Line Variety White, 26 weeks old) were randomly assigned to six groups with five replicates of 27 layers. Hens in the control group received diet supplemented with 60 mg Fe/kg as FeSO₄, while hens in other five groups received the diet supplemented with 0, 20, 40, 60 and 80 mg Fe/kg from Fe-Gly respectively. The results showed that dietary Fe-Gly treatments significantly influenced the laying rate and egg weight of layers, compared with the control group. Concerning to Cu, Zn-superoxide dismutase (Cu, Zn- SOD) and total superoxide dismutase (T-SOD) activity, Fe-Gly groups (60, 80 mg Fe/ kg) were promoted significantly compared with 0 mg Fe/kg group. The concentrations of Fe in serum, liver, kidney, spleen and ovary were increased significantly with the level dietary Fe-Gly raised where Fe-Gly groups (60, 80 mg Fe/kg) had observably higher Fe concentration than the control in serum, kidney and spleen. There was a trend that transferrin mRNA expression was decreased with the increase of Fe as Fe-Gly in diets, and compared with the control, the expression was lower in the group fed diet with 60 mg/kg Fe as Fe-Gly. In conclusion, Fe-Gly (60 mg Fe/kg) had improved laying rate, egg weight, SOD enzyme activity, Fe absorption and protein synthesis in body and promoted iron metabolism in laying hens. Moreover, Fe-Gly (40 mg/kg Fe) had the similar effect with control group. It revealed that FeSO₄ could be substituted by lower concentration of Fe-Gly and Fe-Gly may be superior to FeSO₄ for iron fortification to laying hens.