

Effects of zinc sources on cellular immune response, biochemical and hematological blood parameters in early lactation of Holstein dairy cows

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Abstract

The purpose of this study was to compare the effects of zinc from different sources on hematological parameters of blood and immune response in early lactation of dairy cows. Thirty multiparous dairy cows randomly allocated to one of five dietary treatments in a complete randomized design. All cattle were fed a low Zn diet for 42 days prior to assignment to dietary treatments as a depletion phase. Treatments consisted of: 1) control (no supplement Zn), 2) Zn glycine complex (ZnGly), 3) Zn hydroxychloride complex (ZnHcl), 4) Zn oxide (ZnO), 5) Zn sulfate (ZnSO₄). The Zn sources were added to provide 1500 mg/head/day of supplemental Zn. The result indicated that glucose, AST and ALT were not different between treatments. Zinc supplementation increased plasma alkaline phosphatase activity in compare of control. The results indicated that Ca, P, Fe, and Cu were not affected by treatments. The used of different sources of zinc significantly increased serum zinc in compare control group. The used of zinc had not significantly effect on hematology of blood. Also, Swelling response following intradermal injection of phytohemagglutinin was not affected by zinc sources. Therefore, the results of present study indicated that although used of 1500 mg/day/head zinc from different sources increased serum zinc, had not significantly onimmune response in dairy cattle.

Keywords: Zinc, Hematology of blood, Cellular immune response, Biochemical parameters of blood

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