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Effects of Organic Chromium and Propylene Glycol on Milk Yield and Some Serum Biochemical Parameters of Early Lactation Dairy Cows

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Abstract : This study was conducted to determine the effects of organic chromium and organic chromium+propylene glycol on milk yield and some blood parameters related with liver fatty acid metabolism in early lactation dairy cows. Thirty multiparous Holstein dairy cows were used as study material. Cows assigned to three groups as control (C), chromium (Cr) and chromium+propylene glycol (CP). Live weight, parity and body condition score were used as covariates for statistical analyses. The study began at calving and finished at 3 weeks after calving. All cows were consumed same diet. Organic chromium and organic chromium+propylene glycol were orally administrated to cows in treatment groups shortly after the morning milking. Blood samples were collected from all cows on 0 (calving), 3rd, 6th, 9th, 12th, 15th, 18th, 21th days after calving. Then, samples were analyzed for BHBA (Betahydroxybutiric acids), NEFA (Non Esterified Fatty Acids), urea, total protein (TP) and glucose concentrations. Weekly milk yields were calculated from daily milk data on farm. Organic chromium treatment had no significant differences on serum biochemical parameters and milk yields. However, administration of organic chromium and propylene glycol combination decreased serum urea and total protein concentration, helped to protection from subclinical metabolic diseases via decreasing serum NEFA and BHBA concentrations. Also, this combination decreased serum glucose levels of cows. Neither only chromium nor chromium and propylene glycol combination did not affect milk yield throughout the study. These findings were suggested that orally administrations of chromium and propylene glycol combination improved liver glucose and fatty acid metabolism, decreased serum parameters which are representing subclinical diseases in early lactation dairy cows.

Keywords : chromium, early lactation dairy cows, propylene glycol, milk yield
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