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Effects of dietary copper supplementation on nutrient digestibility, serum biochemical indices, and growth rate of young female mink (*Neovison vison*)

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The objective of this study was to determine whether nutrient digestibility and growth performance of mink were affected by different dietary copper levels. Ninety-six 60-day-old healthy female minks were randomly assigned to 8 treatment groups with 12 animals in each group and fed a diet supplemented with either 0, 4, 8, 16, 32, 64, 128 or 256 mg/kg copper as $\text{CuSO}_4 \times 5\text{H}_2\text{O}$, respectively. Our data showed that body weight and average daily gain increased (linear and quadratic, $P < 0.05$) as Cu increased in the diet, the highest body weight and average daily gain were seen in the Cu32 group. Feed : gain ratio responded in a linear ($P = 0.0025$) fashion with increasing level of Cu, the lowest feed : gain ratio was seen in the Cu64 group. Digestibility of ether extract responded in a linear ($P = 0.0190$) fashion with increasing level of Cu. There were no differences in apparent digestibility of dry matter, CP, and gross energy among groups ($P > 0.05$). N retention linearly ($P = 0.0363$) responded to increasing levels of Cu. Glutamic-oxalacetic transaminase and glutamic-pyruvic transaminase increased (linear and quadratic, $P < 0.05$) as Cu increased in the diet; the highest glutamic-oxalacetic transaminase and glutamic-pyruvic transaminase were seen in the Cu256 group. Total protein of the minks was similar among the treatments, however, albumin in serum responded in a linear ($P = 0.0370$) and quadratic ($P = 0.0049$) fashion with increasing level of Cu. The activity of ceruloplasmin responded in a linear ($P = 0.0001$) and quadratic ($P = 0.0203$) fashion with increasing level of Cu. The activity of Cu-Zn superoxide dismutase responded in a linear ($P = 0.0010$) fashion with increasing level of Cu. Our results indicate that supplemental Cu plays an important role in the growth performance of mink, helping young female mink digest and efficiently utilize added dietary fat.

Keywords:

minks; copper sulfate; fat digestibility; growth performance; serum traits

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