

Effects of Cardamonin Enriched Diets on Growth, Intestinal Histology, Hematology, and Biochemical Parameters of Hybrid Catfish (*Clarias macrocephalus* × *Clarias gariepinus*)

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ABSTRACT

*This research was aimed to evaluate the effects of cardamonin enriched diets on growth, intestinal histology, hematology, and biochemical parameters of hybrid catfish (*Clarias macrocephalus* × *Clarias gariepinus*). Fish (the initial weight of 7.00 ± 1.00 g) were fed with the diets containing cardamonin at 0 (control), 5, and 10 mg/kg diet for 8 weeks. After the feeding period, it was found that cardamonin enriched diets significantly enhanced growth parameters and feed utilization efficiency compared with the control ($P < 0.05$). Additionally, cardamonin enriched diets significantly increased villi height, villi width, absorptive area, muscle thickness, and goblet cell compared with the control diets ($P < 0.05$). Hematological indices including hemoglobin, hematocrit, white blood cell, red blood cell, mean corpuscular volume, mean corpuscular hemoglobin, and mean corpuscular hemoglobin concentration did not differ among the treatments ($P > 0.05$). Serum cholesterol, high-density lipoprotein, low-density lipoprotein, aspartate aminotransferase, alkaline phosphatase, and creatinine were unaffected by cardamonin enriched diets ($P > 0.05$), meanwhile, albumin levels of the tested fish were significantly increased compared with the control ($P < 0.05$). In conclusion, these findings indicate that cardamonin could be used as a phytogenic feed additive to enhance the growth of hybrid catfish and the effective level observed was 10 mg/kg diet.*

Keywords: Cardamonin, Hybrid catfish, Growth, Physiological responses, Phytogenics