



Effect of Chromium supplementation in diet enhances growth and feed utilization of striped catfish (*Pangasianodon hypophthalmus*)

Md. Fazle Rohani

Department of Aquaculture, Bangladesh Agricultural University, Mymensingh 2202, Bangladesh

Abstract:

Statement of problem: Striped catfish (*Pangasianodon hypophthalmus*) is an important fish species for aquaculture in Bangladesh and its culture has been expanded throughout the country. Recently the profit from the culture of this species has been decreasing day by day due to increased feed cost and improper nutrition. Chromium (Cr) is a trace element, plays a significant role in fish nutrition and physiology. Therefore, an experiment was designed to know the effects of Cr addition in the diets to growth and feed utilization in striped catfish (*Pangasianodon hypophthalmus*). **Methodology & Theoretical Orientation:** Four diets with Cr (0, 2, 4 and 8 mg kg⁻¹) were fed to striped catfish in aquaria with triplicate groups for 60 days. Survival, growth parameters (weight gain, WG; % WG; specific growth rate, SGR) and feed utilization (feed intake, FI; feed efficiency, FE; protein efficiency ratio, PER; feed conversion ratio, FCR) were calculated at the end of the feeding trial. Several hemato-biochemical parameters, such as hemoglobin (Hb), red blood cell (RBC), white blood cell (WBC) and glucose level, and frequency of micronucleus (MN) formation in erythrocytes were analyzed. **Findings:** The growth parameters (WG, %WG and SGR) and feed utilization (FE and PER) increased significantly in the fish fed with 2 and 4 mg kg⁻¹ Cr supplemented diets. On the other hand, the growth parameters suppressed in the fish fed with 8 mg kg⁻¹ Cr-based diet. The polynomial regression analysis based on WG showed that 2.82 mg kg⁻¹ Cr supplementation in the diet is optimum for the tested fish species. The values of Hb (g/dL), RBC (x10⁶/mm³) and blood glucose (mg/dL) significantly decreased in the fish fed with the highest (8 mg kg⁻¹) Cr-based feed. Conversely, MN frequency was significantly increased in the fish fed with 8 mg kg⁻¹ Cr-based diet. **Conclusion & Significance:** Overall, 2.82 mg Cr kg⁻¹ can be recommended as a feed supplementation for striped catfish farming as well as the factories involved in the preparation of fish feed.



Keywords: Aquaculture, Feed, Hematological parameters, Micronucleus, Growth, Fish

Biography:

Md. Fazle Rohani is a faculty in the department of Aquaculture, Bangladesh Agricultural University (BAU), Bangladesh. He has completed B. Sc. Fisheries (Hons.) and MS in Aquaculture from Bangladesh Agricultural University in 2016 and 2018, respectively. Currently, he is working in the field of fish feed, nutrition and physiology. His research interests are fish nutrition, physiology and aquaculture including nutrient requirements of fish; evaluation of ingredients for digestibility and formulation of nutritionally balanced, environmentally sustainable and cost-effective diets; and impacts of nutrition on fish physiology and gene expression.

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