INSIGHTS - A LOOK INSIDE PEER-REVIEW

Zinpro® Chromium Methionine Complex Enables Cost-effective Protein Reduction in Nile Tilapia Diets

Study Objective

Evaluate the effects of supplementation of Zinpro® Chromium Methionine (CrMet) complex in diets containing reduced protein content on growth performance, carcass composition, nutrient retention, and hematobiochemical responses in juvenile Nile tilapia.

Animals

315 juvenile Nile tilapia;
34.31 ± 0.02 g initial BW

Treatments

A completely randomized design of 7 treatments, evaluated in triplicate, conducted in twenty-one 250-L tanks:

Positive Control (PC):
31% crude protein (CP)
26% digestible protein (DP)
no mineral supplementation

Negative Control (NC):
26% CP / 21 % DP;
no mineral supplementation

Five additional experimental diets:
26% CP / 21 % DP; supplemented with 0.2, 0.4, 0.6, 0.8 and 1.0 ppm Cr from Zinpro CrMet complex.

Study Duration

9 weeks

Location

Escola de Medicina Veterinária e Zootecnia Universidade Federal da Bahia
Bahia, Brazil

Results Summary

- Supplementing 0.8 or 1.0 ppm Cr from Zinpro CrMet complex in a low protein diet (21% DP) created an economic advantage of 0.11 and 2.88% over PC.
- Similar growth performance was observed between fish fed PC (26% DP) and those consuming a low protein diet with 0.8 or 1.0 ppm Cr from Zinpro CrMet complex.
- Dietary protein reduction increased overall nitrogen retention, $P < 0.05$.
- Supplementing low protein diets with 0.4 to 1.0 ppm Cr from Zinpro CrMet complex increased muscle glycogen, indicating enhanced glucose uptake and utilization by muscle cells.
- Reduced dietary protein increased overall leukocyte content in blood; Eosinophils and lymphocytes were highest in fish fed a low protein diet supplemented with 0.8 ppm Zinpro Cr methionine complex.

Zinpro® Chromium Methionine complex promoted cost-effective dietary protein reduction and enhanced performance, retention and health.

Figure 1. Final Biomass

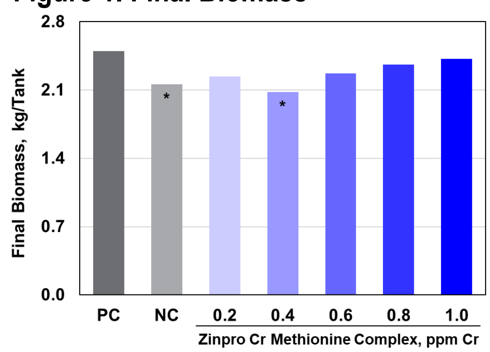


Figure 2. Nitrogen Retention

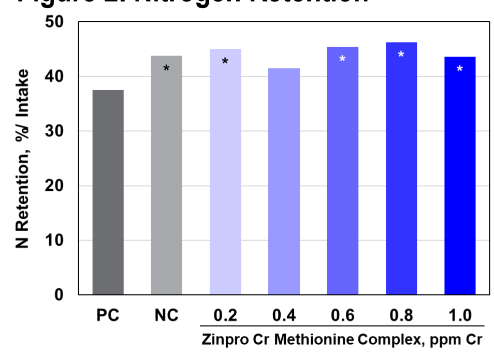


Figure 3. Eosinophils

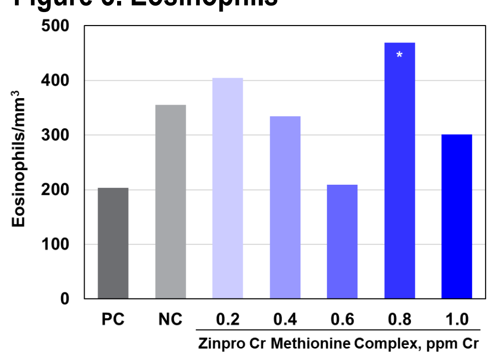
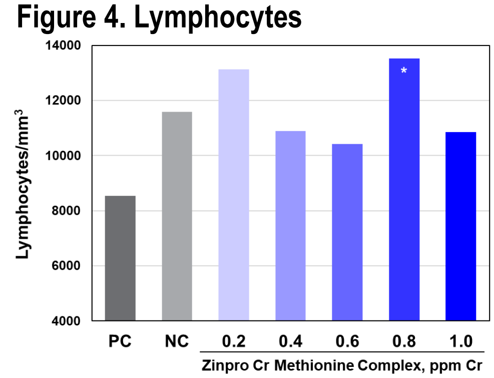


Figure 4. Lymphocytes



* Means are significantly different from PC, $P < 0.05$

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De Oliveira, C.P.B, C.E. Copatti, C.H. da Paixão Lemos, R.D. Couto, C. Figueiredo-Silva, J.F. da Silva, and L.V.O. Vidal. 2024. Chromium-methionine chelate can reduce protein content in Nile tilapia diets: an analysis of growth, carcass, biochemical and hematological parameters, and economic return. Aquacult Int. 32:9775-9777. https://doi.org/10.1007/s10499-024-01636-8