INSIGHTS - A LOOK INSIDE PEER-REVIEW

Iron Source and Level Affect Growth, Innate Immunity and Antioxidant Defense of Nile Tilapia

Study Objective

Evaluate effect of source and level of supplemental iron (Fe) on the performance, innate immune response and antioxidant defense of Nile tilapia (*Oreochromis niloticus*) through a 2×2 factorial arrangement of treatments.

Animals

400 juvenile Nile tilapia;
16.57 ± 2.25 g initial BW

Treatments

Five evaluated treatments included a basal diet and four additional treatment created by a 2×2 factorial arrangement of Fe level (60 vs 85 ppm) and Fe source ($FeSO_4$ vs Zinpro® Availa® Fe).

Results are presented as:

Basal: Fe-free Control diet

60 Fe: 60 ppm Fe from either Fe source

85 Fe: 85 ppm from either Fe source

Inorganic Fe: $ZnSO_4$ at either level

Zinpro Fe: Zinpro Availa Fe at either level

Study Duration

7 weeks

Location

Fish Farming Laboratory,
Departamento de Zootecnia e Ciências Biológicas of the UFSM,
Campus Palmeira das Missões, Brazil

Results Summary

Supplementation with Zinpro Fe vs Inorganic Fe significantly:
- Improved FBW and hemoglobin level
- Reduced TBARS in liver

Supplementation with 85 ppm vs 60 ppm Fe significantly:
- Improved FBW with no effect on hemoglobin level
- Reduced TBARS in liver

Including 85 ppm Fe from Zinpro Availa Fe is recommended to improve tilapia growth performance and reduce tissue fat oxidation, which has a negative impact on product quality. Zinpro Availa Fe should be considered as a strategy to mitigate anemia in farmed tilapia.

Figure 1. Final Bodyweight

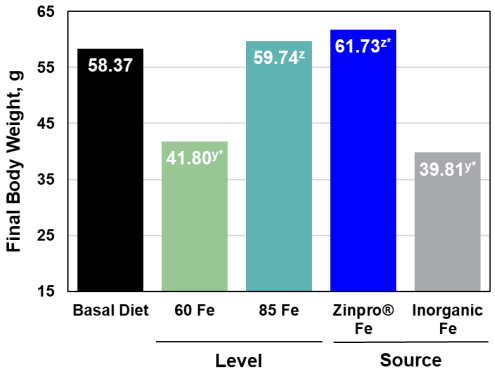


Figure 2. Hemoglobin

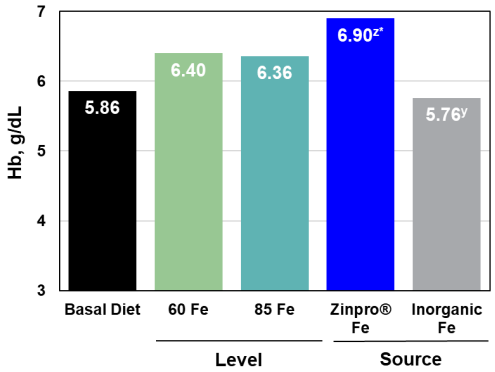
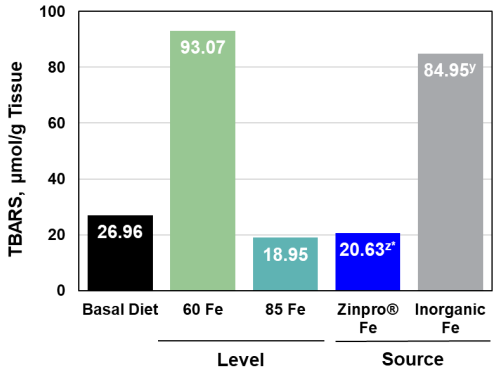


Figure 3. TBARS in Liver



[yz] Within category (source, level), means lacking a common superscript letter differ, $P < 0.05$
[*] Means lacking a common superscript letter differ from Fe-free Basal diet, $P < 0.05$

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Hermes, L.B, N.C. Peixoto, E.K. Battisti, T.L.S. Schneider, and R. Lazzari. 2023. Dietary iron affect innate immunity, hematological and oxidative responses in Nile tilapia (*Oreochromis niloticus*). Aquacult. Int. 32:93993-4007. https://doi.org/10.1007/s10499-023-01361-8

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