Research Now

Sea Bass Performance Improved With Availa®Zn Supplementation

Introduction:

This study was designed to assess the optimum level of supplemental zinc amino acid complex (Availa®Zn) in the diet of Asian sea bass (*Lates calcarifer*). Availa-Zn was evaluated based on parameters measured for zinc deposition and growth performance.

Experimental Design:

A completely randomized design, with 4 replications per treatment, was used to perform this study. Fish received 1 of 5 levels of Zn from Availa-Zn: 0, 25, 50, 100, or 200 ppm.

Twenty 500-L fiberglass tanks were stocked to a density of 40 fish/m^2 with Asian sea bass weighing an average 3.5 g. Treatment diets were fed at 2 to 3.5% body weight, three times daily, for two months.

Results:

Increasing Zn from Availa-Zn in the diet, from 0 to 50 ppm Zn, resulted in significant ($P < 0.05$) growth performance improvements for:

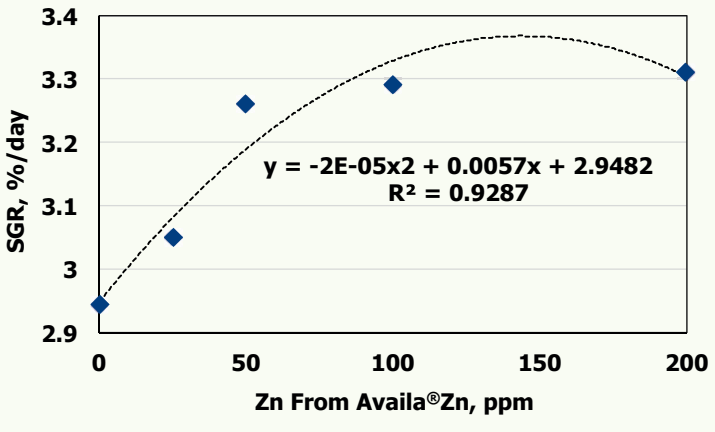
- Weight gain
- Specific growth rate
- Feed consumption
- Protein efficiency ratio
- Survival rate
- Feed conversion ratio

Availa-Zn supplementation altered Zn deposition in the fish by:

- Increasing whole body Zn at 50 ppm Zn, $P < 0.05$
- Increasing Zn accumulation in the bone, liver, and fillet, $P < 0.05$

These data suggest that 50 ppm Zn from Availa-Zn is the optimum supplemental level for Asian sea bass diets, to promote growth performance and deposition of zinc for body reserves.

Specific Growth Rate (SGR) At 8 Weeks



Abstract

The optimum dose and relative bioavailability of zinc amino complex in diet for Asian sea bass (*Lates calcarifer*, Bloch 1790) Orapint Jintasataporn[1], Terry Ward[2]*, and Srinoy Chumkam and Oratai Jintasataporn[1] [1]Department of Aquaculture, Faculty of Fisheries, Kasetsart University, Bangkok, Thailand, [2]Zinpro Corporation, Eden Prairie, MN, USA.

The optimum dose and bioavailability of zinc amino complex (ZnAA) in diet for Asian sea bass (*Lates calcarifer,* Bloch 1790) was conducted by focusing on growth performance and zinc deposition for evaluate the bioavailability of ZnAA. The trial was assigned in CRD 5 treatments with 4 replications per treatment. The isonitrogeneous and iso caloric of 47.2% CP, 8.04% Cfat and 4,898.98 Kcal/Kg diets were supplemented ZnAA at 0, 25, 50, 100, 200 ppm in diets of T1, T2, T3, T4 and T5. The total amount of Zn in diets were 43.44, 70.8, 90.2, 122.9, 213.5 respectively. Asian sea bass with an average weight of 3.5 g were stocked in 500L fiber tank at a density of 40 fish/m^2 and fed treatment diets at a rate of 2-3.5% of body weight, three times daily for two months. The results show that the growth performance in term of weight gain, specific growth rate, feed consumption, protein efficiency ratio and survival rate were significantly increase ($P < 0.05$) when increasing ZnAA in the diets form 0 to 50 ppm. Feed conversion ratio were significantly decrease ($P < 0.05$) when increasing ZnAA in the diets form 0 to 50 ppm. The relative growth rate of ZnAA in Asian sea bass were 100, 105, 118, 120 and 122% in T1, T2, T3, T4 and T5, respectively. Zinc deposition in whole body of fish was significantly different ($P < 0.05$). There were 12.64, 13.87, 12.38, 12.23 and 11.74 mg/Kg fish which were 0.24, 0.28, 0.28, 0.29 and 0.29 mg/ind., respectively. Zinc deposition in bone, liver and fillet were significantly different ($P < 0.05$). Zinc deposition in bone were 47.03, 47.97, 51.85, 53.45 and 52.68 mg/kg fish, respectively. Zinc deposition in fillet were 5.22, 5.95, 6.38, 6.76 and 7.36 mg/kg fish, respectively. Zinc deposition in liver were 12.20, 16.55, 19.27, 18.62 and 18.55 mg/kg fish, respectively. Therefore, the optimum level of zinc amino acid complex supplemented in Asian sea bass diet was 50 ppm for promote the growth performance, enhance bioavailability and zinc deposition as body reserve in liver fillet and bone.

Key Words: Asian sea bass, bioavailability, growth performance, zinc amino acid complex (ZnAA), zinc deposition

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