Fishmeal Replacement with Zooplankton in Seabass (*Lates calcarifer* Bloch, 1790) Feed

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Abstract

Experiment on the utilization of zooplankton as protein source to replace fishmeal in seabass feed was conducted using the zooplankton at 0, 25, 50, 75 and 100 % in feed and designed as the treatment no. 1 (control), 2, 3, 4 and 5, respectively. Seabass fingerlings with initial body weight of 2.739 ± 0.009 g were reared at 20 pieces/tank for 6 weeks in 60 L digestibility fiber glass tanks equipped with closed water recycle system. Results showed that seabass in the treatment no. 5 did not accept the diet and totally died within 2 weeks. At termination, the efficiency of zooplankton protein digestibility in seabass in the treatment no. 1 (control diet) and no. 2, which were 89.41 ± 0.33 and 89.24 ± 0.95%, respectively, were not significantly different (P>0.05). But the zooplankton protein digestibility in the seabass in the treatments no. 1 (control diet) and 2 were significantly higher than those (85.53 ± 0.96 and 83.63 ± 1.72%, respectively) of the seabass in the treatment no. 3 and 4, respectively (P<0.05). While the feed conversion ratio of the fish in the treatment no. 1, 2, 3 and 4, those were 1.31 ± 0.11, 1.79 ± 0.24, 2.23 ± 0.06 and 15.15 ± 49.76, respectively, were significantly different between treatments (P<0.05). It was also showed that the highest weight gain of 563.89 ± 62.47% was found in the fish in the treatment no. 1 (control diet) which was significantly (P<0.05) higher than those of the fish in the treatment no. 2, 3 and 4 those were 305.69 ± 64.64, 252.61 ± 33.75 and 18.54 ± 9.29%, respectively. While the weight gains of the fish in the treatment no. 2 and 3 were not significantly difference (P>0.05), but they were significantly higher (P<0.05) than that of the fish in the treatment no. 4. From this result, it is indicated that zooplankton may be used to replace fishmeal at less than 25 % in the diet for seabass. However, further study should be conducted to determine the optimum level of fishmeal replacement with zooplankton at less than 25 %.

Key words: Protein Digestibility, Zooplankton, Fishmeal, Seabass

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