Protein Hydrolysate from Shrimp Waste as Protein Source for Fishmeal Replacement in Formulated Feed for Asian Seabass

(Lates calcarifer Bloch, 1790)

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Abstract

Protein hydrolysate produced from shrimp waste fermentation with Lactobacillus plantarum strain 541 was used as protein source for fishmeal replacement in asian seabass (Lates calcarifer Bloch, 1790) diet at level 0, 10, 20 and 30% for the treatment no. 1 (control), 2, 3 and 4, respectively. Initial average weight of fish fingerlings 1.013± 0.002 g were fed in 100 L of 16 fiber tanks (20 animals per tank) and done in four replicates of semi-closed water recycle system. After an 10 week experimental period, fish fed the diet in treatment no. 2 (10%) showed final average weight (34.23±1.90 g), weight gain (3,275.40±185.22%), average daily growth (0.52±0.03 g/day) and specific growth rate (5.15±0.09 %/day) which were statistically significant difference (P<0.05) when compared with treatment no. 1 (0%) and 3 (20%), but was not statistically significant difference (P>0.05) with treatment no. 4 (30%). Survival rate and feed conversion ratio (FCR) were not statistically significant difference (P>0.05) among the treatment. The property assessment of protein hydrolysate found that the values of protein digestibility (%), protein efficiency ratio (PER) and apparent net protein utilization (%ANPU) were not statistically significant difference (P>0.05) among the treatment. Thus, the acceptable fishmeal replacement with protein hydrolysate from shrimp waste showed at 30%, since it could be promote important of growth, the survival rate and protein utilization. However, from this experiment should be study more for possibility of fishmeal replacement than 30% for decrease using fishmeal.

Key words : Protein hydrolysate, shrimp waste, asian seabass, formulated feed

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