

SALMON BY-PRODUCT MEAL AS A REPLACEMENT OF FISH MEAL IN THE DIET OF JUVENILE RED SEA BREAM, *Pagrus major*

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Abstract:

Due to the lower supply and high price of fish meal (FM) in recent years, the search for potential alternatives to FM has been a global issue. There are both merits and demerits of alternative protein sources from plant-based and animal by-products, and the availability is species-specific. Therefore, reliable alternative protein sources should be continuously explored. Although the availability of salmon by-product meal (SBM) has been determined in different species, to our knowledge, there is no report on this aspect in red sea bream, *Pagrus major*. Therefore, the availability of SBM as an alternative to FM in the diet of juvenile red sea bream was determined from the results of growth performance, nutrients utilization, and plasma chemistry.

The control diet (C) contained FM as the main protein source, and the FM protein in diet C was replaced by SBM at 25%, 50%, 75% and 100% to formulate the diets SM25, SM50, SM75 and SM100, respectively. Twenty-five juvenile red sea bream of mean weight about 72.7g were stocked into each of fifteen 500 L circular tank and the experiment was set in triplicate for each treatment. The fish were fed twice daily until apparent satiation for 8 weeks.

After an 8-week rearing period, there were no significant differences in final mean weight, weight gain, and specific growth rate between fish fed diets C, SM25, SM50, and SM75. However, those growth parameters were significantly reduced in fish fed diet SM100. Although feed efficiency was increased with increasing levels of SBM in the diet, there was no significant difference between the treatments. There were no significant differences in protein and fat retention efficiency, but phosphorus (P) retention efficiency was increased significantly with increasing levels of SBM in the diets. The intake and loading of P to the environment showed a significant decreasing trend with increasing levels of SBM in diets. Although there was no specific trend, plasma levels of cholesterol and triglycerides showed significant differences between treatments. The results suggest that 75% of FM protein can be replaced by SBM in the diet of juvenile red sea bream and that a significant reduction in P load can be achieved from the SBM-based diet.

Biography:

Amal Biswas is working as Associate Professor and Deputy Director of the Aquaculture Research Institute, Uragami station, Kindai University, Japan. He has achieved a Ph.D. degree in fisheries from Tokyo University of Marine Science and Technology in April 2004. He was awarded post-doctoral fellowship from CoE (Center of Excellence) Program of Kindai University. Dr. Biswas has been working on fish nutrition, aquaculture, fish physiology for last couple of years. Apart from a member of professional societies, he has also been working as a member of academic committees of Kindai University, serving as editor or reviewer in several journals, and published more than 180 papers in journals, books, and conference proceedings, and received domestic and international awards. Moreover, Dr. Biswas has been interviewed by live TV program, domestic newspaper, and international radio program.



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