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Aquafeeds

Incorporation of local soybean meal in diets for black tiger postlarvae

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Up to 45 percent of the diet formulation

Proper feed formulation for *Penaeus monodon* larvae is critical. The nutritional requirements of this species, like those of other shrimp species, can vary with environmental factors, characteristics of the rearing system, and other variables. In addition, the composition of feed ingredients from different sources can vary due to their different origins.

Soybean meal is increasingly being used in aquaculture feeds due to its nutritional quality and lower cost than animal protein sources. Soybean meal has been used in diets for several crustaceans like lobsters, freshwater prawns, and several penaeid shrimp species, including *P. setiferus*, *P. stylirostris* and *P. monodon* juveniles.

Feeding trial

A 30-day feeding trail was carried out to determine the effects of incorporating different levels of indigenous defatted soybean meal into the diet of *P. monodon* postlarvae (PL). Wild PL were collected and acclimated, then stocked at 20 PL per liter into eight plastic, 13-l tanks with filtered seawater.

Four test diets with approximately 40 percent protein and 10 percent fat were prepared using 25, 35, 45 and 55 percent defatted soybean meal, with a corresponding reduction in fishmeal. These diets were assigned into four treatment groups. Feeds were presented four times a day with rations calculated at 20 percent of the body weight of the animals. Water was exchanged at 40 percent daily, and adequate aeration was maintained.

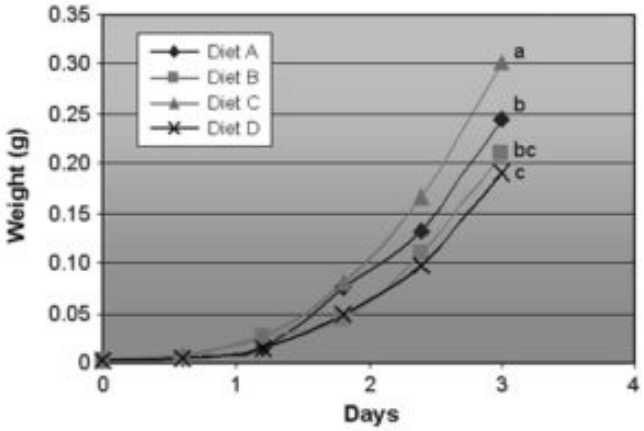

Fig. 1. Growth of *P. monodon* PL fed test diets.

Results

Significantly higher ($P < 0.05$) mean weights (0.301 ± 0.045 grams) were recorded for the group fed diet C, which contained 45 percent soybean meal (Fig. 1). The lowest mean weights (0.192 ± 0.023 grams) resulted for the group fed diet D, with 55 percent soybean meal. Survival rates were 78.8 percent for diet A (25 percent soybean meal), 74.2 percent for diet B (35 percent soybean meal), 80.8 percent for diet C, and 75 percent for diet D. Feed-conversion ratios were 1.10 for diet A, 1.06 for diet B, 1.13 for diet C and 1.04 for diet D.

Conclusion

Results of this study indicated that local defatted soybean meal can be incorporated into the diet of *P. monodon* postlarvae at up to 45 percent of the diet formulation without significant decreases in growth rates.

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