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Sustainable Aquaculture for a Secure Future

Title: Dietary methionine and lysine requirement of snakehead (*Channa striata*) fingerlings

Author(s): Tran Thi Thanh Hien, Nguyen Thi Cam Duyen, Tran Le Cam Tu, Nguyen Van Khanh and Tran Minh Phu

College of Aquaculture and Fisheries, Can Tho University, Vietnam

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Abstract: This study was aimed determine the dietary methionine (Met) and lysine (Lys) requirement for snakehead fingerlings (2-4 g fish⁻¹). Basal diets in two experiments contained approximately isonitrogenous 42% and isoenergetic 20.3 KJ g⁻¹. In the first experiment on Met requirement, L-Met was added to the basal diets including six treatments containing from 7.3 to 14.8 g Met kg⁻¹ diet (17.5 to 35.3 g Met kg⁻¹ protein) interval increasing of 1.5 g kg⁻¹ diet. In the second experiment determining Lys requirement, L-Lys HCL was added to basal diets including seven treatments containing from 12.6 to 36.6 g Lys kg⁻¹ diet (30.1 to 87.2 g Lys kg⁻¹ protein), interval increasing of about 4 g kg⁻¹ diet. The experiments were randomly designed with four replications for each treatment. The first experiment indicated that optimal weight gain, special growth rate, protein efficiency ratio was found in the diet containing 28.2 g Met kg⁻¹ protein and there were significant differences in those parameters between diet treatment containing 24.8 g Met kg⁻¹ protein and other diets containing lower Met levels. The hepatosomatic index and protein content in whole-body fish were significantly affected by dietary Met levels. Feed conversion ratio (FCR) was significantly improved with the increase of dietary Met level in diet to 28.2 g kg⁻¹ protein (P<0.05). Results of the second experiment showed that optimal growth rate and protein efficiency ratio were found in diet containing 73.1 g Lys kg⁻¹ protein and there were significant differences in those parameters between diet treatment containing 73.1 g Lys kg⁻¹ protein and other diets containing lower Lys levels. The hepatosomatic index, protein and fat content in whole-body fish were significantly affected by dietary Lys levels. The FCR was

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significantly improved by increasing dietary Lys concentration to approximately 77.9 g Lys kg⁻¹ protein. Fish survival rate were not significant differences among treatments in both experiments. Broken-line analysis on the basis of optimal growth rate showed that the dietary Met requirement was 11.9 g Met kg⁻¹ diet (28.4 g kg⁻¹ protein) and the dietary Lys requirement of snakehead was 30.7 g Lys kg⁻¹ diet (73.1 g kg⁻¹ protein).

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