Nutritive Advantage of Mealworm (Tenebrio molitor) in the Diet of White Shrimp (Litopenaeus vannamei)

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Abstract : Mealworm (Tenebrio molitor) was evaluated to investigate the effect of partial or total replacement of fish meal in diets for white shrimp, Litopenaeus vannamei. Experimental groups of shrimp with average initial body weight $(2.43 \pm 0.54 \text{ g})$ were fed each with 4 isonitrogeneous (38% crude protein) diets formulated to include 0, 25, 50 and 100% (diets 1 to 4, respectively) of fish meal substituted with mealworm. After eight weeks of feeding trials, shrimp fed with diet 3 and 4 revealed the highest values for live weight gain(8.01 ± 2.51 and 7.93 ± 1.12), specific growth rates (2.70 ± 1.12 and 2.59 ± 0.51) as well as better feed conversion ratio (2.69 ± 0.09 and 2.72 ± 0.19) compared to the control group with statistically significant manner (p<0.05). Survival range was 98% in all the treatments. An increase in weight gain and other growth associated parameters was observed with higher replacement. These results clearly indicate that 50% and 100% of fish meal protein in shrimp diet can be replaced by mealworm not only without any adverse effect but also the effect of promoting growth performance.

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Keywords : mealworm, Litopenaeus vannamei, Tenebrio molitor, white shrimp

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