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Effect of dietary phytase supplementation on growth performance and digestive enzyme activities of juvenile crayfish (*Pontastacus leptodactylus*)

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ABSTRACT

Today, reducing the cost of diets through the use of plant protein resources in the nutrition of aquatic species in the aquafeed production industry is very important (Bureau et al., 2002; Gatlin III, 2003). The use of phytase in the diet of aquatic species by increasing in the bioavailability of phosphorus leads to promoted growth performance and also reduces the excretion of phosphorus into the rearing environment (Ahmadniaye Motlagh et al., 2019; Citarasu, 2010; Kaushik et al., 1995). Phytase was used at 5 concentrations of 1000, 2000, 3000, 4000 and 5000 units per kg in the diets containing 60% of plant protein sources along with a control diet. Six diets were prepared in three replications and stored in the refrigerator after packaging. In the present study, 360 pieces of 13 g crayfish (20 pieces per replication) were fed at 2% body weight per day for 3 months. The results showed that the use of 3000 units per kilogram of phosphorus led to a significant increase ($p < 0.05$) in specific growth rate, survival rate and the improvement of phosphorus digestibility coefficient and activity of digestive enzymes of protease and amylase. The results of broken line regression analysis showed that the use of 3240 units of phytase per kg led to the highest specific growth rate ($p < 0.05$). Finally, the results of the present study recommended the use of phytase enzyme in the diet of crayfish.

Keywords: Crayfish, Phytase, Weight gain, Feed additive, Digestibility, Growth

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