Suitable Sources and Types of Carbohydrate in Feed for Tiger Shrimp

(*Penaeus monodon* Fabricius, 1798)

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Abstract

Study on the effect of starch utilization as dietary carbohydrate sources on growth, survival rate and biochemical composition was studied in *Penaeus monodon* with initial average weight of 0.19 grams. The postlarvae were randomly distributed into 21 1 x 2 x 1.5 cu.m. cages floated in an 800 m² earthen pond. Completely randomized design was composing of 7 treatments each with 3 replications. Different starch sources and types as native wheat flour (control), native tapioca flour:wet milling, gelatinized tapioca flour:wet milling, native tapioca chip, gelatinized tapioca chip, native rice flour:wet milling and gelatinized rice flour:wet milling were used as dietary carbohydrate sources of formulated diet 1, 2, 3, 4, 5, 6 and 7, respectively. All experimental diets had similar dietary protein and lipid levels which were between 35-37.6% and 7.1-7.6%, respectively. At termination after 14 weeks of the experiment, results statistically showed that there were significant difference of mean weight and weight gain percentages of shrimps among 7 diets (p<0.05). Average body weight of shrimps fed feed containing native tapioca flour:wet milling) and feed containing gelatinized rice flour:wet milling were 14.1 and 13.7 grams, respectively. Shrimps from both groups had significantly higher weight gain than those of shrimps fed feed containing (gelatinized tapioca flour:wet milling), (gelatinized tapioca chip) and (native rice flour:wet milling) (p<0.05) which exhibited the lowest weight gain percentage. However, growth of shrimps fed with the former 5 diets and that fed feed containing (native tapioca chip) were not significant difference statistically (p>0.05) from that fed feed containing wheat flour. There were not significant difference in statistically of survival rate and feed conversion ratio which were in the range of 1.2-2.0 and proximate composition of shrimps tissue among all diets (p>0.05). Therefore, it may be concluded that *Penaeus monodon* has versatile ability to use various types of starch as dietary carbohydrate sources.

Key words: carbohydrate, starch, *Penaeus monodon*