Effects of increasing dietary carbohydrate level on feed utilisation, body composition, liver glycogen, and intestinal short chain fatty acids of hybrid lemon fin barb (Barbonymus gonionotus ♀ X Hypsibarbus wetmorei male ♂)

ABSTRACT

A 60-day feeding trial was conducted to determine the optimum dietary carbohydrate utilization level for a tropical carp, hybrid lemon fin barb. Five test diets containing increasing amounts of tapioca starch (20, 25, 30, 35 and 40 % diet) were used. Triplicate groups of juvenile hybrid barb (1.15 ± 0.05 g) were fed twice daily to satiation. Although the survival was unaffected by the carbohydrate level, the specific growth rate, weight gain and protein efficiency ratio significantly increased ($P < 0.05$) as dietary carbohydrate increased from 20% to 35%. Whole body crude lipid significantly increased ($P < 0.05$) with the increasing dietary carbohydrate level while the body carbohydrate showed an opposite trend. No significant difference in the intestinal butyric acid was found among the treatments although acetic acid and propionic acid were significantly higher in fish fed 35–40% starch. A similar pattern was found for the liver glycogen content which was significantly lower in the 20% dietary carbohydrate treatment while no differences was detected once the dietary carbohydrate level increased from 35% and above. The results indicated that hybrid lemon fin barb optimally utilized carbohydrate at 33.5% dietary level for best growth and feed efficiency.

Keyword: Carbohydrate level; Growth performance; Body composition; Glycogen; Short chain fatty acids; Hybrid lemon fin barb