

Different capabilities in utilizing dietary carbohydrate by fingerling and subadult giant gouramy *Osphronemus gouramy*

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Abstract

ABSTRACT: Two experiments were conducted to determine the capability of the giant gouramy *Osphronemus gouramy* to assimilate dietary carbohydrate. In experiment 1, fingerlings with an initial body weight of 29–32 g were fed diets containing 20.8, 35.6, 49.8 and 57.0% carbohydrate three times daily, to satiation, for 40 days. In experiment 2, subadults with an initial body weight of 78.7–79.5 g were fed diets containing 21.2, 30.1, 38.6 and 47.5% carbohydrate three times daily, to satiation, for 60 days. The diets had the same amount of protein and the same energy content. The results of experiment 1 showed that the blood glucose levels of fish fed high carbohydrate diets (49.8 and 57.0%) in the 18 h postprandial were lower than those of fish fed low carbohydrate diets (20.8 and 35.6%). The peak of the blood glucose levels in all treatments was found 5 h postprandial. Experiment 2 showed that the blood glucose level of fish was the same among treatments; and the peak of the blood glucose levels was found 9 h postprandially. It was also found that the protein retention, daily growth rate and feed efficiency of the dietary 20.8% carbohydrate levels in experiment 1 were all significantly higher than in other treatments; whereas those in experiment 2 showed no significant difference among the treatments ($P > 0.05$). In both experiments 1 and 2, lipid retention increased significantly as the dietary carbohydrate level was elevated ($P < 0.05$). It was concluded that fingerlings of giant gouramy have a lower capability for utilizing dietary carbohydrate, and of the treatments, the 20.8% diet was optimal, whereas subadults could utilize diets with higher carbohydrate levels, as high as 47.5%.

Keywords

blood glucose level • dietary carbohydrate • giant gouramy • growth • *Osphronemus gouramy*

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