

Soy protein concentrate as an alternative in replacement of fish meal in the feeds of hybrid grouper, brown-marbled grouper

Abstract

Hybrid grouper juveniles (body weight, 6.1 ± 0.7 g) (brown-marbled grouper, *Epinephelus fuscoguttatus* × giant grouper, *E. lanceolatus*) were fed with six isoproteic (50% crude protein) and isolipidic (12% crude lipid) feeds containing different levels of soy protein concentrate (SPC) in replacement of fish meal (SPC at 20%, 30%, 40%, 50% and 60% protein) and control feed (SPC0) for 6 weeks. Hybrid grouper juveniles were cultured in 100-L fibreglass tank equipped with flow-through water system and fed twice a day to apparent satiation level. The highest and lowest growth was recorded in fish fed SPC20 and SPC60 respectively. However, growth of SPC20 was not significantly higher than those fed SPC0, SPC30, SPC40 and SPC50 ($p > .05$). A decreasing growth trend was observed with the increasing level of SPC from feed SPC40 to SPC60. A noticeable better feed utilization was also observed in fish fed SPC0, SPC20, SPC30, SPC40 and SPC50 compared to fish fed SPC60 ($p < .05$). The fish condition factor, hepatosomatic index, viscerosomatic index and whole body proximate content of the fish were not affected by the graded levels of SPC. However, the body lipid content was significantly lower in fish fed SPC40 to SPC60 ($p < .05$). The apparent digestibility coefficient (ADC) of protein and lipid was significantly higher in fish fed SPC0 and SPC20 compared to other dietary treatments ($p < .05$). Based on the regression analysis on specific growth rate, the study suggests that the hybrid grouper grow best at 21.4% and can utilize up to 50% inclusion level of SPC in protein without significantly affect their growth and its body condition.