Fish waste by-product in formulated diet for climbing perch, Anabas testudineus

ABSTRACT

An eight weeks experiment was conducted to investigate the effect of fish waste by-product (FWP) in formulated diet on growth, survival and feed utilization of climbing perch, Anabas testudineus. FWP composed mainly of visceral organ of fish, was hydrolyzed before testing in formulated diet. Three isoproteic (40%) and isolipidic (10%) diets, F0, F25 and F50, were tested: a control diet with 100% of fish meal (FM) and 0% FWP and two treatments formulated with 25% and 50% FWP inclusion, as a FM substitute. The experiment was conducted in a cemented tank where net cages were installed, each one stocked at 30 fish (initial body weight 0.86±0.10, mean±SD, n=270). Experimental diets were fed to fish in triplicate, twice daily, to apparent satiation. Fish fed with control F0 demonstrated significantly higher weight gain compared to other treatments ($P<0.05$). However, there were no significant differences on the total feed intake among the treatments. As for the feed conversion ratio, fish fed F0 performed better compared to other diets ($P<0.05$). In this trial, 100% of survival was observed in all treatments. The body proximate composition showed that fish fed with FWP diets contained higher level of protein, compared to F0. However, the lipid composition in F0 was the highest, although no significant difference was found with the treatment F25 ($P>0.05$). Fatty acids content in fish fed with FWP showed no significant difference in saturated fatty acid (SFA), monounsaturated (MUFA) and polyunsaturated (PUFA) contents, compared with F0 ($P>0.05$). In conclusion, fish fed F0 demonstrated a higher growth performance. However, a FM replacement level up to 25% of FWP did not deteriorate the growth of A. testudineus and showed a specific growth rate similar to F0, demonstrating its potential as feed ingredient..