

ABSTRACT

The supplementation of fish diets with animal-based protein is aimed at improving growth and digestive enzymes is an attractive subject in fish nutrition research. A 60-days feeding trial was conducted to study the effect of replacement of soybean meal with silkworm pupae meal (SWM) and its effects on digestive system of grass carp (*Ctenopharyngodon idella*) juveniles initial weight (5.5g). Four isonitrogenous diets were formulated by replacing 0%, 25%, 50% and 75% soybean meal with silkworm pupae meal (SWM). Each diet was randomly assigned to triplicate groups of 30 fish tank. Fish were fed two times daily to apparent satiation. The results showed that the fish in the experimental group with 25% SWM gave the best average final weight, weight gain percent (WG%) and specific growth rate (SGR) than those in various other treatment groups and control group. No significant difference was observed in the activity of intestinal protease, amylase and lipase activity among all the treatment groups ($P > 0.05$). Protease, amylase and lipase activity were significantly higher at 25% soybean meal replacement with SWM than all other dietary groups. The histological examination of intestine showed that the 25% inclusion of SWM increased the number of villi, villi length and muscular thickness as compared to various other dietary groups. Higher dietary inclusions of 75% or more of SWM lead to apparent pathological changes for example tissue disruption were observed in intestine. Consequently, the current study showed that using silkworm meal in diet at 25% inclusion can be advised for grass carp to get best digestive enzyme and histological responses, as well as high growth indices.