

Aquaculture Conference, Stellenbosch, 9-13 September 2013

Protein digestibility of soybean, canola and sunflower meal, and its effect on growth performance and body

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Abstract

The apparent protein digestibility of three feed ingredients, namely soybean, canola and sunflower meal, was studied for *Tilapia rendalli*, using chromic oxide as a dietary marker. The effect of these ingredients on the growth performance and body composition of *T. rendalli* was also investigated. The experimental diets consisted of 69.7 percent reference diet and 29.3 percent test ingredient. Proximate composition of the experimental diets was determined and the diets were fed to triplicate groups of 14 (4.77 ± 0.04 g) fish per tank held in 80L glass tanks for 30 days. Apparent crude protein digestibility was highest (96.32 ± 0.65 %) for fish fed on soybean meal (SBM), followed by sunflower meal (SFM) (94.99 ± 0.84 %) and canola meal (CM) (93.62 ± 0.42 %). The highest specific growth rate (3.07 ± 0.09) was recorded for fish fed on SBM followed by fish fed on CM (3.06 ± 0.09) and then SFM (2.83 ± 0.08). Omega 3 and 6 content of the carcass increased after the fish were fed on experimental diets. However, there was no significant difference ($p > 0.05$, ANOVA) in the omega 3 and 6 contents of fish fed on the different diets. The results of this study indicated that the selected feed ingredients are suitable for use in the diets of redbreast tilapia in terms of nutrient composition, digestibility, growth performance and body composition. SBM and CM have greater potential than SFM as a dietary replacement for fish meal in *Tilapia rendalli* diets.