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"Development on the margin"

Growth Performance of Nile Tilapia (*Oreochromis niloticus*) Fed on Different Combinations of Protein Sources

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Abstract

The Nile tilapia (*Oreochromis niloticus*) is a species of fish in aquaculture quite versatile, being adaptable to both the extensive cultivation without any technology employed and the creation system in cages with full rations and high technology production. The effect of feeding different protein sources on growth performance of Nile tilapia was evaluated in the current study. Isonitrogenous and isocaloric rations (29.73 % CP and 3,000 kcal kg^{-1} digestible energy) using four different protein sources, *i.e.* soybean meal (SBM), coconut meal (CM), fish meal (FM) and viscera meal (VM) were used to the following treatments T1: 100 % SBM, T2: 60 % SBM and 40 % CM, T3: 60 % SBM and 40 % FM, T4: 60 % SBM and 40 % VM; T5: 19 % SBM, 10 % CM, 10 % FM and 11 % VM. Two hundred tilapia fish with an initial weight of 3.4 ± 0.20 g, were distributed in 20 vinyl cages, in a completely randomised design with five treatments and four replicates of ten animals each. Diets were fed *ad libitum* during 88 days. The results indicated that there were significant differences ($p < 0.05$) detected for the final weight, weight gain, feed conversion rate, fillet yield and condition factor for all the experimental diets. However, there was no difference detected between food consumption, weight and content of the fillet profile. It could be concluded that the diets of 60 % SBM and 40 % FM, 60 % SBM and 40 % VM and the combination of four protein sources improved the growth performance compared to the 100 % soybean diet. Also, the efficiency of using mixtures of plant origin may change considerably depending on the type and the quality of meals used in the diets as observed for the 40 % coconut meal and 60 % soybean meal diet.

Keywords: Animal, fish meal, food, plant protein, Tilapia

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