

# Review of: "The Growth Performance of Nile Tilapia (*Oreochromis Niloticus*) Fed Low-Cost Fish Feeds Formulated From Fish By-Products, Fishery By-Catch and Pig Blood-Meal"

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Potential competing interests: No potential competing interests to declare.

The study is relevant to enable the use of alternative ingredients, protein sources, helping to reduce the cost of feed for fingerlings used by small fish farmers, through the use of by-catch, by-product meals (guts and skins), and pig blood. Keeping these fish farmers in business contributes to making the production, consumption, and sale of fish viable for the local community. On the other hand, additions and adjustments need to be made to improve the article. Comments follow.

1-With the affirmation of a decrease in catches in the region where the study was developed, is there a real availability of lower value fishery products or waste from local processing industries to enable the formulation of feed by small aquaculture farmers? This information should be introduced in the article.

## 2- Diet Formulation, Preparation, and Composition

If diet 1 (100% fishmeal) was the total replacement of soybean meal with fish meal and micro-ingredients were added, as well as corn flour and wheat bran, in this diet, and in all other experimental diets, it was not clear what the percentages of components in different rations were. To be clear, there is a need to present a table with the quantity (percentage or gram) of all the ingredients used in each feed. Without the presentation of this table, it is difficult to understand and compare the results of the proximate composition regarding the ingredients (Table 1) and the experimental rations (Table 2).

How was the drying environment controlled to avoid feed contamination? What are the ambient humidity and temperature values? These parameters can directly influence the microbiological quality of the feed. As one of the objectives of the study is to enable lower-cost food for fingerlings, these issues should be better presented and discussed, as well as the way in which fishery products are stored until the moment the feed is formulated.

## 3- Discussion and Conclusions

Add to the conclusions that the study showed the feasibility of using the alternative ingredients studied in the feeding of Nilotic tilapia fingerlings, but that new studies must be carried out to adjust the formulation, and also to evaluate the storage period for use in fish farms.

