

Is the Study of Alternative Foods for Fish Nutrition Important?

Fábio Meurer*

Associate Professor IV, Laboratory of Aquaculture Technology, Brazil

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***Corresponding author:** Fábio Meurer, Associate Professor IV, Universidade Federal do Paraná, LATAq - Laboratory of Aquaculture Technology - UFPR - Jandaia do Sul, Brazil

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Introduction

Pisciculture is currently an agricultural activity that is becoming increasingly important in a worldwide scenario, since it allows an alternative for fish production beyond fishing. And in this way it contributes offering quality food to the consumer market. However, when it comes to the consumer market, one can already imagine a productive chain behind that product, which is true for several species of fish with greater or lower added value. Nevertheless, fish farming is not only linked to agribusiness as a production chain, but it is also responsible for food security of populations in situation of social fragility. Thus, yes, answering the first question of this text, the study of alternative foods is important for fish nutrition. However, not only for commercial fish farming where the demand for alternative foods is important for the production of cheaper diets with the same or better quality than those formulated with conventional ingredients, but also for those who need regional ingredients to compose artisanal rations to feed fish raised for subsistence. An alternative food can come from a variety of sources such as industrial waste, locally produced agricultural products, or in less quantity, foliage, fruits etc.

The importance of alternative ingredients for commercial fish farming or subsistence is related to price, quantity and availability. In subsistence fish farming, the use of locally produced ingredients from manual harvesting can easily be used in the composition of artisanal rations, however, in commercial fish farming there is a need for it to be available in sufficient quantity to be used in manufacture. The evaluation of an alternative food starts with its knowledge in terms of chemical composition in relation to its nutritional value such as the presence of antinutritional and contaminating factors. The deeper the knowledge of the characteristics of the chemical composition of the food studied (such as the profile of amino acids and fatty acids, fibrous fraction, amount of starch, types of antinutritional factors, minerals etc), the better for the food evaluation. Another factor of great importance that must be taken into account in the evaluation is the variation in its chemical composition because depending on the origin, the variability can be wide.

Based on the availability of these data, the digestibility of nutrients and energy is evaluated for the species. Failure to carry out this step can significantly impact further studies of this ingredient, since there are large differences on the values of apparent digestibility coefficients between foods leading to the formulation of diets which despite having similar levels in the value of their nutrients and raw energy, can have a big difference in terms of these digestible fractions. Another step of great importance in the evaluation of the alternative food is the inclusion test in diets, directly or in substitution of some specific conventional food. This step directly evaluates what level an alternative food can be included in a diet, by evaluating the most varied parameters such as final weight, weight gain, apparent feed conversion, biomass, fillet yield, visceral fat, tissue histology, body chemical composition, among others. The approach in this phase can be accomplished in several ways, for example: the addition of some nutrient such as one or more essential amino acids, or pure and simple inclusion, with the inclusion level going to the maximum point possible, where experimental diets maintain, at least, the equality of digestible protein and energy values.

A point that should be highlighted at this stage is that hardly a single experiment will solve all the questions related to the level of inclusion of the food tested, seeing that in addition to the approach to the study of alternative food, the study in several phases of growth must be realized. In addition to the points related to the amount of nutrients and energy, or antinutritional factors, which can affect the performance parameters evaluated in these tests, these studies also provide knowledge about their acceptance by the fish, showing if the inclusion of the alternative food reduces the consumption of the diet as it affects its palatability. From the data collected in the first works of inclusion of alternative foods,

other forms of processing can be tested in order to reduce or cancel any negative factor verified, or the additives inclusion for the same purpose.

Conclusion

The study of alternative foods is important for fish farming aiming to provide the manufacture of nutritionally adequate rations, providing an increase in the sustainability of the activity, regardless of its level, as nutritionally adequate rations provide, fish growth with better carcass quality and also less environmental impact of pisciculture.

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