

TILAPIA NUTRITION UNDER FRESHWATER CONDITIONS

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Research on the nutrition of Tilapia in the Philippines, is still in the conception stage compared to poultry, swine and cattle nutrition. Most of the exploratory nutrition experiments were conducted at the Freshwater Aquaculture Center under aquarium, hapa and pond conditions and at the College of Inland Fisheries under cage condition. Both stations are located at Central Luzon State University in Muñoz, Nueva Ecija.

Experiments on the nutrition of Tilapia in freshwater involve the testing of rations using various ingredients in different proportions normally utilized in the manufacture of animal feed. Two approaches in feeding Tilapia have been carried out at CLSU. First is the feeding of materials that will supplement what is already available in the pond with the idea that certain elements or compounds essential to the proper nutrition of the fish are produced by the pond or environment where the fish is reared. This approach is often used for feeding tilapia at low to moderate density and in fertilized ponds.

The second approach which is complete feeding is applicable in the case of ponds stocked at high densities and in all types of intensive culture units, i.e., cage culture, race way culture, and pen culture. A complete ration adequate in its nutrient content is offered since the fish becomes entirely dependent on the quantity and quality of nutrients added in the diet and the natural feeds may not be present in quantities and proportions to balance a nutritionally incomplete ration.

Preliminary studies on the determination of the protein requirements of Tilapia sp. revealed the following results:

Species	Levels of protein (%)	Reference
<u>Tilapia mossambica</u> fingerlings	30-38	(5)
<u>Tilapia mossambica</u> fry	38-45	(2)
<u>Tilapia mossambica</u> (all-male)	25	(4)
<u>Tilapia nilotica</u>	20-30	(9)
<u>Tilapia</u> Hybrid (Male Nile x tilapia Female Java tilapia)	30	(3)

Screening of feedstuffs as feed supplement and as part of a complete ration had also been undertaken. The following ingredients have been tested as feed supplement for Tilapia nilotica.

Rice bran	(1)
Copra meal	(1)
Ipil-ipil leaf meal	(8)
Mulberry leaf meal	(8)
Kangkong leaf meal	(8)
Hydrilla meal	(8)

Similarly, the following with promising results were tested as part of a complete diet for Tilapia nilotica.

Ipil-ipil leaf meal	(6)
Rice bran	(6,10)
Copra meal	(6,10)
African snail meal	(7)
Horse meat meal	(7)
Tilapia meal	(7)
Soybean meal	(6)
Mulberry leaf meal	(6)
Cracked rice	(6)
Sorghum	(6)
Fish meal	(6,10)

The following research studies should be conducted to be able to scientifically formulate a nutritionally adequate ration for tilapia.

- a. Protein-energy ratio.
- b. Levels of fats and essential fatty acids required by tilapia.
- c. Essential vitamins needed.
- d. Essential minerals needed.
- e. Utilization of non-conventional feedstuffs.
- f. Formulation of effective feed at the least cost.

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