

REPLACING FISH MEAL PROTEIN WITH PLANT PROTEINS IN DIETS FOR NILE TILAPIA (*Oreochromis niloticus*)

By
Mohamed Fathy Ahmed Sadek

B.Sc. in Agriculture Science(Animal production)
Faculty of Agriculture, Fayoum.Cairo University- 2004.

Supervised by:

1- Prof. Dr. Sobhy Mahmoud Allam.

Professor of Animal Nutrition, Faculty of Agriculture, El-
Fayoum University.

Signature.....

2- Late Prof. Dr. Abd Alla Mohamed Saber.

Professor of Fish Nutrition, Faculty of Agriculture, El-
Fayoum University

3- Dr. Ramadan Mohamed Abou Zied.

Associate Professor of Fish Production, Faculty of Agriculture,
El-Fayoum University

Signature.....

4- Dr. Abd El-Wahab Mohamed Abd El-Wahab.

Lecturer of Fish Nutrition, Faculty of Agriculture, El-
Fayoum University

Signature.....

ABSTRACT

Four experiments were performed to determine the effect of using two levels of crude protein 25% and 30% contained plant protein (mixture) as a partially or totally replacing fish meal without free amino acids. The trials three and four determine the effect of replacing fish meal with the same ingredients in trial 1, 2 and the same levels of crude protein (25%, 30%) with *Oreochromis niloticus* monosex fingerlings and free amino acids (L. Lysine & D. Methionine) on growth performance, survival rate, body chemical composition and feed utilization of Nile tilapia fingerlings at fish farm, a simple economic evolution was conducted in each trial.

Total or partial replacement of fish meal protein with plant protein had significant effects on the growth performance parameters. While the highest value were obtained with the diet contained 30% of protein from fish meal followed by the diet contained 50% of protein from fish meal then 40, 20, 10 and 0.0 (without fish meal). Fish fed diet without fish meal protein had significant higher FCR. Significant differences ($P \leq 0.05$) were obtained in CP, EE, ash and GE of body composition at the end of the experimental period, however DM had insignificant differences. In trial two significant effects on the growth performance parameters in general. Significant differences in EE, ash and GE but DM and CP had insignificant differences. Fish meal protein in tilapia diets has significant effects on growth performance parameters in general. Trial four takes the

same trends of trial three and the highest values of each parameter was obtained with 50% fish meal protein. Fish meal protein in the diets improved growth parameters. Fish meal protein improved significantly ($P \leq 0.05$) FCR, PER, PPV and EPV% compared with diet without fish meal. Production and economical efficiency for trials three and four respectively showed that 30 and 50 % fish meal protein replacement increased fish production/Feddan and the production of the 1st grade fish compared with 0.0%. While the production of the 2nd and 3rd grades fish were increased with 0.0 %. Accordingly, the diet contained 30 and 50% fish meal protein tended to be more economical compared with 0.0 % replacement.

Key words: Nile tilapia, growth performance, plant protein mixture, fish meal, feed utilization.