

NUTRITIONAL STUDIES ON NILE TILAPIA (*Oreochromis niloticus*)

By

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ABSTRACT

Three feeding experiments were performed in the present study. Two trial was conducted to investigate the effect of palm pollen powder in the diets at levels of 0.0, 2, 3, and 4% on growth performance, carcass chemical composition, and feed utilization of Nile tilapia, *Oreochromis niloticus* fry (trial 1), and fingerlings (trial 2) at fish research unit, animal production department, Faculty of Agriculture, Fayoum University. Adding palm pollen in diets had positive significant effect on the growth performance parameters such as final weight, total gain, average daily gain, and SGR. The highest growth rate was obtained at 2% PP followed by 3% PP and 4% PP, (trial one). Better growth rate was achieved at 4% followed 3% and 2% PP while the lowest growth was obtained in the fish fed the control diet 0.0 PP (trial two) The FCR showed a significant differences ($P \leq 0.05$) among the different treated groups, the best FCR was obtained at 2% PP followed by 3% PP and 4% PP. fish fed the control diet consumed less feed giving the highest FCR (trial one) The best FCR values was obtained with diets containing 4, 3, 2% PP, the highest FCR obtained with the control (trial two). The results of trials (1 and 2) refer to the

recommendation that the palm pollen at above 2% are the most effective for improving the body weight and feed utilization of *O. niloticus* and cost less economically expensive (fry and fingerlings stages).

Trial three was conducted to evaluate substitution total diet protein by fish waste silage (0.0, 25, 35, and 50% FWS) without or with brewer's yeast *Saccharomyces cerevisiae* (0, 1, 2%) of Nile tilapia diets (*Oreochromis niloticus*) on growth performance, survival rate, feed utilization and body chemical composition. The raw material of the fish chemical silage was made up of Nile tilapia, *Oreochromis niloticus* wastes (non edible parts; heads, bones, tails, fins, viscera). The average body weight (BW) was nearly similar and ranged between (58-59g and 20 fish). Substitution of total protein in the diet by FWS protein effect on growth performance parameters. The highest body weight was obtained at 35% FWS least was resided 50% FWS. Adding brewer's yeast *Saccharomyces cerevisiae* to the diet did not affect growth performance for Nile tilapia compared to the control diet, Brewer's yeast improve feed utilization a little especially at 2% in diet containing 25%, 35% FWS and groups were fed 35% FWS. Incorporation of silage in tilapia diets (25, 35 and 50% FWS) as a substitute of dietary protein decreased feed costs by 20.22, 33.46 and 36.03% respectively. On the other side adding brewer's yeast (1, 2%) to control diet increased feed costs by 1.65 and 3.31% respectively. The possibility of replacing 35% of dietary protein by fish waste silage in tilapia diets without adverse effect on

growth or feed utilization parameters and this replacement reduced feed costs/kg diet and feed costs/kg weight gain.

Key words: Nile tilapia, growth performance, palm pollen additive, fish silage, fish waste, feed utilization.