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GoldMehl® FM, an improved Hydrolysed Feather Meal, in tilapia diet

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Introduction

Hydrolysed feather meal is widely used in fish feeds. The material is rich in crude protein but its amino acids profile is not balanced, it's digestibility is poor and some of its amino acids are destroyed during the drying process of the meal.

GEPRO, Germany, has adapted a specific drying process (low temperature drying), that decreases the destruction rate of the amino acids in the feather meal.
The improved product is called GoldMehl® FM.
Trials done on shrimps and some fish species, demonstrated that GoldMehl® FM can successfully replace some of the fish meal in aqua feed without any detrimental effect on the performance.
The goal of the present trial was to test the effect of replacing fish meal by GoldMehl® FM in tilapia diet on the performance of tilapia.

Materials and Methods

The trials have been conducted at the Intensive Aquaculture Research Unit, Ginosar, Israel.

The trial started on July 5, 2009 and runs for 58 days. Fish were kept in 1m^3 tanks in a greenhouse.
Five tanks for each treatment were used.
Water exchange rate was 200% per day. The water temperature was monitored: in July (27.9°C to 31.2°C, August 29.1°C to 32.2°C, daily average 31.1°C).
Dissolved oxygen (DO) was always above 6.5 ppm. Ammonia and nitrite was always below detection level.
Fish used were Hybrid tilapia (*O.nilotius x O, aurea*), all-male population. The average weight at stocking was 89.5g ± 1.3g; stocking density was 15 fish per tank.

Feed

Control - a 35% protein tilapia feed. Floating. With 8% Peruvian fish meal.
Test diet - a 35% protein tilapia feed. Floating. With 8% GoldMehl® FM
Statistical analysis was performed by JMP 5.0 software using the ANOVA and Students t- test modules.

Table 1: The effect of the feed on growth rate, FCR, feed intake, mortality and CF at the end of the trial.		
Parameter	Control - fish meal	Experimental - GoldMehl®
Final weight (g)	224.9	219.0
Weight gain (g)	135.3	129.4
Daily weight gain (g)	2.33	2.23
SGR (%)	1.58	1.54
Feed Intake (g)	3608.8	3518.0
FCR	2.09	2.19
Mortality (%)	8.00	9.33
Condition Factor	2.05	2.13

Results

The water temperature along the trial period was above the optimum for the fish performance and this has affected the absolute growth rate and FCR.

Discussion

- Fish growth rate and the FCR were below the normal table values due to the high water temperatures prevailed during the experiment period.
- There were no significant differences in performance ($p>0.05$) between the two treatments.
- The mortality rate was somewhat higher than normal but there were no significant differences between the two treatments.
- The results of the present experiment demonstrated that GoldMehl® can successfully replace fish meal in 35% protein tilapia diet, without any detrimental effect on the performance.

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Table 2: The effect of the feeds on the body composition of the fish and the end of the trial		
Parameter	Control- fish meal	Experimental- GoldMehl
Dry mater	29.76	29.12
Protein	17.16	17.16
Fat	7.72	7.19
Ash	4.26	4.19