

## ENZYME COMPLEX SSF IN DIETS FOR NILE TILAPIA *Oreochromis niloticus* FINGERLINGS

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In the early stages of development, the fish still has the process of digestion more limited, because the digestive system is immature, which provides low enzyme activity and intestinal absorption inefficient. The use of exogenous enzymes can be an alternative to improvement of the growth performance. Considering this, the objective of this study was to investigate the effects of the dietary inclusion of the enzyme complex SSF on the performance of Nile tilapia fingerlings.

The study included 720 Nile Tilapia with average weight ranging between  $0.73 \pm 0.15$  in a completely randomized design with six dietary treatments (0, 50, 100, 150, 200 and 250/tonne Allzyme®SSF) arranged in six replicates and 20 fish per replicate. The diets were the same in all treatments (CP, 40%; DE, 3000 Kcal/Kg; CF, 3.71%), except for SSF levels (Table 1). Every fish ate up the same amount of diet in the experimental time (3% of biomass from control treatment). The recirculating system contained biological and mechanical filters and automatic temperature control (around 28°C). Dissolved oxygen, pH, ammonia and temperature were monitored weekly.

At day 60 of the experiment, there was a linear effect ( $p < 0.05$ ) according to treatment for final weight, weight gain, feed conversion and feed efficiency (Table 2). Considering the level of feeding, the inclusion of Allzyme®SSF in diets for Nile tilapia fingerlings has positive effects in weight gain, feed/gain ratio and feed efficiency.

Table 1. Composition of the experimental diet

Ingredient (%)	Treatments (g/Ton)					
	0	50	100	150	200	250
Soybean meal, 45%	58.42	58.42	58.42	58.42	58.42	58.42
Corn grain	16.46	16.46	16.46	16.46	16.46	16.46
SSF <sup>(1)</sup>	0	0.005	0.010	0.015	0.020	0.025
Inert (Caulin)	0.025	0.020	0.015	0.010	0.005	0
Others <sup>(2)</sup>	25.095	25.095	25.095	25.095	25.095	25.095

<sup>(1)</sup> Guarantee minimum levels of enzyme activity:  $\alpha$ -amylase, 30 FAU/g;  $\beta$ -glucanase, 200 BGU/g; cellulose, 40 CMC/g; fungal protease, 700 HUT/g; pectinase, 4000 AJDU/g; phytase, 300 SPU/g; xylanase, 100 XU/g.

<sup>(2)</sup> Others: Gluten meal, 60%; Wheat meal; Commercial vitamin and mineral supplement for fish; Dicalcium phosphate; Calcitic lime; soybean oil; Vitamin C; Salt; BHT

Table 2- Performance of Nile tilapia fed diets containing enzyme complex SSF

Parameters	Inclusion levels of SSF (g/Tonne)						CV (%)
	0	50	100	150	200	250	
Feed intake (g)	83.76	83.76	83.76	83.76	83.76	83.76	-
Initial weight (g)	0.73	0.72	0.74	0.73	0.73	0.71	6.264
Final weight (g) <sup>1</sup>	5.31	5.75	6.22	6.45	6.50	6.53	6.783
Weight gain (g) <sup>2</sup>	4.58	5.03	5.49	5.71	5.77	5.82	7.402
Feed conversion rate (g/g)	1.04	0.95	0.87	0.83	0.83	0.82	7.866
Feed efficiency rate (g/g) <sup>(3)</sup>	0.97	1.06	1.16	1.20	1.22	1.23	7.402
Specific growth rate (%/day)	3.31	3.45	3.58	3.62	3.65	3.69	3.349
Survival (%)	98.3	96.7	100	98.3	96.7	100	4.432

<sup>1</sup>Linear effect ( $p < 0.05$ ):  $Y = 136.43 + 1.79213X$ ;  $R^2 = 0.87$  / <sup>2</sup>Linear effect ( $p < 0.05$ ):  $Y = 66.5409 + 1.58023X$ ;  $R^2 = 0.74$  /

<sup>3</sup>Linear effect ( $p < 0.05$ ):  $Y = 0.794168 + 0.0189879X$ ;  $R^2 = 0.73$

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