

GLUTAMINE SUPPLEMENTATION IN NILE TILAPIA DIET

Moisés Quadros*; Eduardo Arruda Teixeira Lanna; Juarez Lopes Donzele; Sylvia Sanae Takishita; Guilherme Souza Moura; Fabricio Pereira Rezende; Alexmiliano Vogel de Olivei and Rafael Alves Vianna

*Embrapa Roraima, Boa Vista, Roraima, Brazil
moises@cpafrr.embrapa.br

Glutamine is one of the most abundant amino acids in fish plasma and muscle, in addition, is essential for the synthesis of purine and pyrimidine nucleotides in all cells. On the other hand, glutamine stimulates muscle protein synthesis in mammals (Wu et al., 2007), but this information is not yet available for fish. The use of glutamine and glutamate in the diet has been reported by several authors for pigs and broilers, but few studies have been made with fish, so we do not know yet the appropriate level of L-glutamine and the effects of this amino acid to different fish species. The current study was aimed at evaluate the effect of L-glutamine supplementation in the diet.

Three hundred reverted Nile tilapia (*Oreochromis niloticus*), thailand line ($201 \pm 1,51$ g), were allotted at a completely randomized design, with five treatments (0, 1, 2, 3 and 4.00% of glutamine supplementation in the diet), all of then were isoenergetic and digestible isolysinic, and minimum rations between the other amino acids with the lysine, five replicates by treatment and twelve fishe per experimental unit. Fishe were maintained in 25 aquariums of 320 liters supplied with single-pass flow-through water and aeration, controlled temperature and they were fed six daily meals during 32 days.

Performance, corporal composition and corporal protein and fat deposition of fishe were evaluated (Table 1). L-glutamine supplementation in the diet does not affect weight gain, specific growth rate, feed:gain rate, protein efficiency for growth, fat and protein deposition rates and fat:protein deposition rate.

Table 1 Performance of Nile tilapia fed diets containing glutamine supplementation

Parameters	Glutamine supplementation (%)					CV ¹ (%)
	0	1	2	3	4	
Initial weight (g)	202,9	199,3	200,2	201,6	202,4	3,86
Weight gain (g)	73,61	83,63	86,83	98,71	84,69	22,20
Specific growth rate (%/day)	0,96	1,05	1,11	1,24	1,27	20,21
Feed:gain rate (g/g)	1,97	1,61	1,59	1,42	1,61	-
Protein efficiency for growth (g/g)	1,81	2,06	2,14	2,43	2,08	22,20
Fat deposition rate (mg/day)	443,58	496,78	709,67	887,48	432,19	29,10
Protein deposition rate (mg/day)	288,38	431,64	599,44	833,64	592,73	22,57
Fat:protein deposition rate	1,54	1,15	1,18	1,06	0,73	-

¹CV- coefficient of variation

Acknowledgments: CNPq, Fapemig; Ajinomoto Biolatina Inc.