

GROWTH OF JUVENILES COBIA *Rachycentron canadum* REARED IN BRACKISH WATER AND FED DIETS SUPPLEMENTED WITH DIETARY SODIUM CHLORIDE

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Fishes in brackish water encounter the physiological challenge of passive loss of ions to the water. Some studies suggested that salt availability by the food can provide physiological necessities and may, consequently, improve growth. Cobia *Rachycentron canadum* is a fast growing fish and it has been considered as an important recreational fish worldwide as well as a promising candidate for aquaculture. Considering the exposed above, the aim of this study was to investigate the influence of salt food supplementation on diet, grow performance and osmoregulation of cobia.

Juveniles' cobia (12 g) were acclimated to salinity 5 and fed with four dietary NaCl levels: 2.5%, 5.0%, 7.5% and 10.0% dry weight of a basal diet (all with three replications). The control group was fed with basal diet without salt supplementation. Fishes were fed twice daily until satiation for 40 days. Every 10 days each fish was weighed to monitor the growth. Temperature (23.3 °C), salinity (5.0), pH (8.0), dissolved oxygen (6.1 ppm) and total ammonia nitrogen (0.27 ppm) were monitored. At the end of experiment, gill arches samples of 10 fishes of each treatment were collected for histological evaluation and to determination of Na⁺, K⁺-ATPase activity.

Survival after 40 days was 100% in all treatments. The results demonstrated that NaCl supplementation did not improve growth of cobia and had a negative effect on FCR (Table 1). The number of chloride cells significantly increased with increasing dietary salt level, reaching 2.5 fold higher in 10% NaCl supplementation (41 cells mm⁻²) than in fishes from control group (16 cells mm⁻²). Na⁺, K⁺-ATPase activity in fishes fed with a basal diet was higher than in fishes fed with salty diets and there was significant difference from control group to 2.5%, 5.0 and 7.0% NaCl supplemented.

Table 1. Effect of salt supplementation on final weight, specific growth rate (SGR), feed intake, and food conversion ratio (FCR) of cobia, *Rachycentron canadum* fed experimental feeds for 40 days (means ± SD, n = 3)

	Dietary NaCl supplementation				
	0.0%	2.5%	5.0%	7.5%	10.0%
Final weight (g)	57	58	58	57	58
SGR (% day ⁻¹)	3.9	4.0	3.9	3.9	3.9
Feed intake (g day ⁻¹ fish ⁻¹)	1.0	1.1	1.1	1.1	1.2
FCR	0.9 ^a	0.9 ^{ab}	1.0 ^{ab}	1.0 ^{bc}	1.0 ^c
PER	2.1	2.0	2.1	2.1	2.1

Different letters at each line indicate significant differences ($P < 0.05$) after one-way ANOVA followed by the Duncan's multiple-range test.