

DO FIRST FEEDING LARVAE OF *Solea senegalensis* PREFER COPEPODS TO ARTEMIA?



M.E. Cunha¹, B. Silva¹, E.S. Dores¹, P. Pousão-Ferreira¹ and M.T. Dinis²



¹ Estação Piloto de Piscicultura de Olhão IPIMAR/CRIPSul, Av. 5 de Outubro, s/n, 8700-305 OLHÃO, PORTUGAL, micunha@ipimar.pt
² CCMar, Universidade do Algarve, Campus de Gambelas, 8005-139 FARO, PORTUGAL

INTRODUCTION: Diversification of finfish aquaculture implies production of larvae with different first feeding sizes, behaviour and nutritional needs. This will require production of different types of live prey than are currently used. Copepods seems to be a good choice because not only do they constitute the natural prey in the wild but also they have good nutritious value and go through a series of different size class life stages that can be exploited to feed fish larvae with a variety of mouth gapes.

Acartia grani Sars is a marine coastal species that as been cultivated continuously in large volumes under controlled conditions and seems to be a good candidate for intensive rearing. Acceptability of the prey by fish larvae is an important trait to be evaluated. The objective of this study was to determine the acceptability by larvae of *Solea senegalensis* (Fig. 1) of *A. grani* nauplii (Fig. 2) in comparison to *Artemia* (Fig 3).



Fig. 1- *Solea senegalensis* larvae at 8 DAH.



Fig. 2- *Acartia grani* naupliar stages II (left) and III (right).



Fig. 3- *Artemia* instar I.



Fig. 4- Setting up the experiment.

MATERIAL AND METHODS: Three diets composed of: exclusively *Acartia grani* nauplii; newly hatched *Artemia*; and a 1:1 mixture of copepod nauplii and *Artemia* instar I were given to 8 day post-hatch larvae of *Solea senegalensis* (Fig. 1) that were fed previously on S-rotifers. A control trial comprising diets composed solely of S-rotifers; of *A. grani* nauplii; and of a 1:1 mixture of copepods and S-rotifers was also carried out. The trial involving *Artemia* was carried out in 2-L containers, the concentration of prey was 1 per mL of sea water and there was 1 larva for every 14 prey. Control trials were carried out in 1-L containers containing 70 larvae where the concentration of prey was 5 per mL of sea water so there was 1 larva for every 71 prey. There were triple replicates of each diet (3X3) giving a total of 9 containers in each trial (Fig. 4) . Larvae were left to feed for 6 hours after which the unconsumed prey was collected and counted under a stereomicroscope. Mean values of *Acartia grani* nauplii, *Artemia* and S-rotifers consumed by the larvae were compared using one-way ANOVA.

Table I – Summary of the results of single factor ANOVA's.

Groups	N	Average	Stdev	F	P-value
<i>Artemia</i> (100%)	3	12,7	0,58	6,480	0,064
<i>A. grani</i> (100%)	3	6,7	4,04		
<i>Artemia</i> (50%)	3	13,3	1,15	2,783	0,171
<i>A. grani</i> (50%)	3	10,7	2,52		
Rotifers (100%)	3	37,3	6,11	4,174	0,111
<i>A. grani</i> (100%)	3	25,0	5,00		
Rotifers (50%)	3	21,0	1,73	55,23	0,002
<i>A. grani</i> (50%)	3	5,3	3,21		

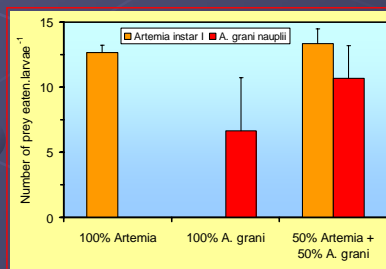


Fig. 5- Acceptability of newly hatched *Artemia* in comparison to *Acartia grani* nauplii.

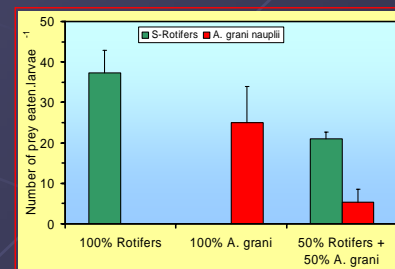


Fig. 6- Acceptability of S-Rotifers in comparison to *Acartia grani* nauplii.

RESULTS AND DISCUSSION: Table I summarizes the results. The consumption of *Artemia* instar I by *Solea senegalensis* 8 DAH larvae was always higher than the consumption of *Acartia grani* nauplii (Fig. 5) although the differences were not significant at $P < 0.05$ (Table I). This was also true in the control trial (Fig. 6) where no choice between rotifers and nauplii was given to the larvae. When fed equal parts of S-rotifers and *Acartia* nauplii the larvae ate significantly ($P < 0.002$) more rotifers than copepods (Table I). The latter result was expected since larvae were fed previously on S-rotifers and recognized them as food.

