Live preys first feeding regimes for short-snouted seahorse juveniles, *Hippocampus hippocampus* (Linnaeus, 1758)

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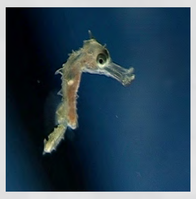
Introduction

Despite the importance of seahorse production both for Aquarium trade and repopulation little is known on the feeding habits and adequate feeding strategies for these species. Besides, it's important to understand morphological development and allometric growth patterns (Gisbert *et al*., 2002) for optimization of production in aquaculture and for determination of the quality of juveniles in restocking programmes (Choo *et al*., 2006).

The aim of this work was to study the impact of rotifers and *Artemia* as first food for newborn seahorses *H. hippocampus*, quantifying the effects in survival rate and growth during 34 days. Meanwhile, lipid composition of preys and fish were also studied along the trial to compare with survivals and growth.

Materials and methods



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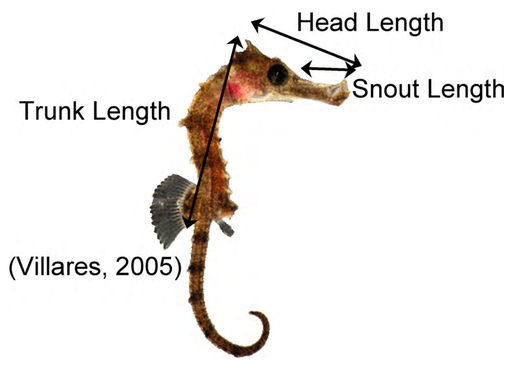
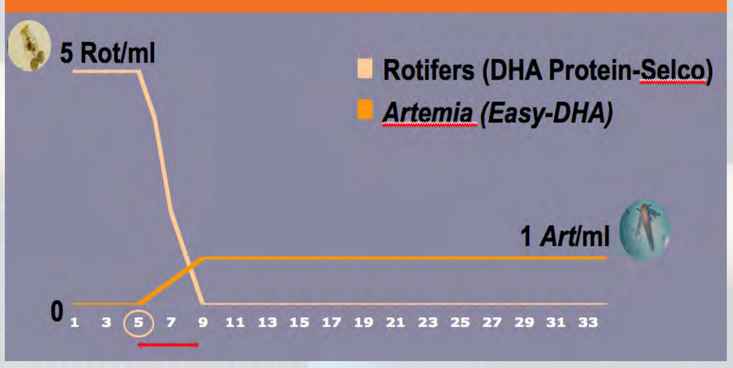
Breeding tanks

Caracteristics

- 6 Aquariums: triplicates/treatment
- Flowrate: 2l/min
- Fish fed 2 times/day
- Photoperiod: 10L:14D
- Sides were darkened: ↑ contrast prey



RA Treatment



A Treatment

Artemia metanauplii (Easy -DHA): DAB 0-34

→ Concentration: 1 *Artemia*/ml

Results

General observations

- Feeding behaviour since DAB 1
- "Benthic" phase:DAB 15 for A DAB 22 for RA treatment
- DAB 34, seahorses fixed on the Nets and No sexual dimorphism.

(DAB: Days After Birth)

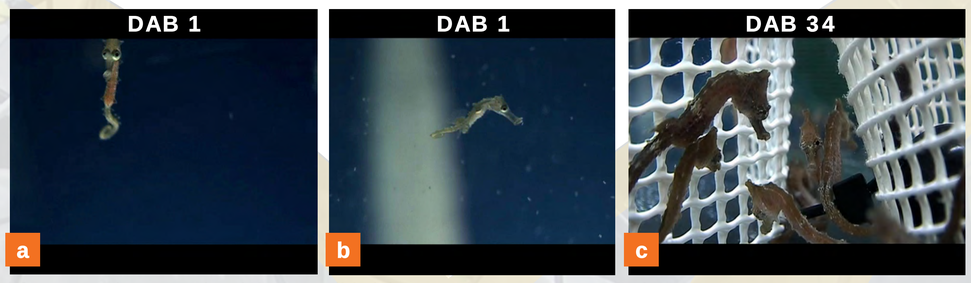


Fig. 1 Seahorses of A (a) & RA (b) (c) treatment at DAB 1 and 34.

Survival

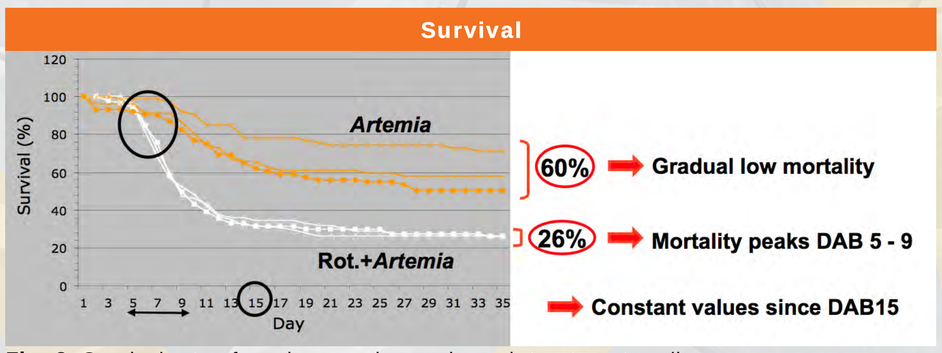


Fig. 2 Survival rate of newborn seahorses in each treatment replica.

Biometry

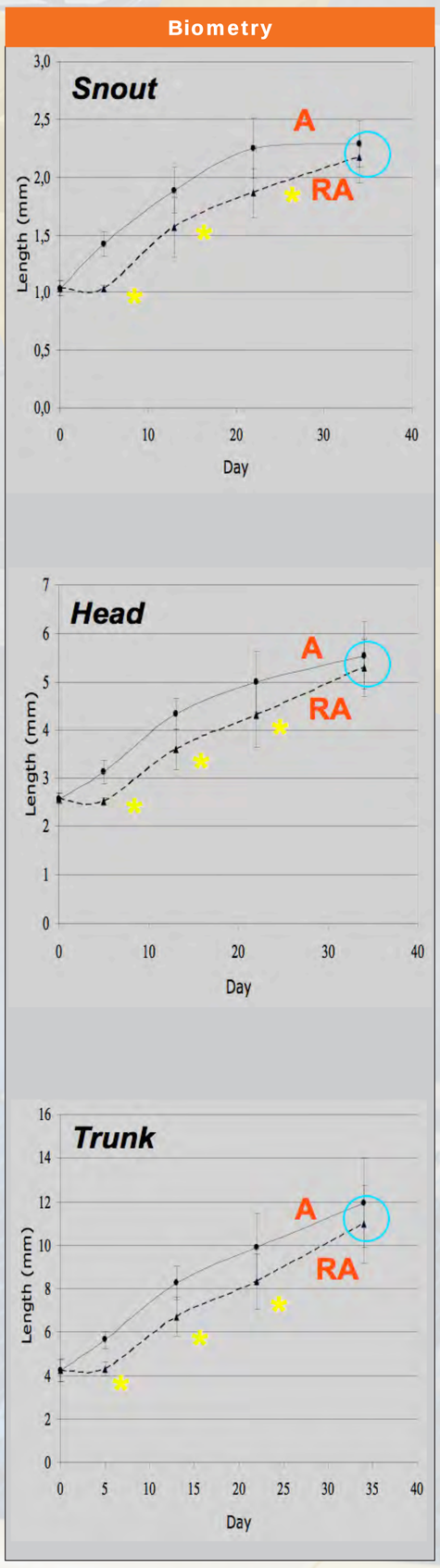


Fig. 3 Seahorse juveniles measurements (SnL= Snout length, HL= Head length , TrL= Trunk lenght)
(*) Show significant differences.

Weight

Table 1 Dry and wet **Weight** (mg) of two treatments RA and R.
(*) No mesures were taken.

Age	RA dry	RA wet	A dry	A wet
0	0,5±0,06	2,92±0,20	0,5±0,06	2,92±0,2
5	*	2,28±0,24	*	5,37±1,13
34	6,3±2,72	48,55±25,39	12,1±5,1	62,64±31,7

- **Wet & dry weight obtained at d34 in RA<A treatment.**

Table 2 Average crude lipids wet Weight (%) of live preys and seahorses of two treatments.

Age	RA	A	Rotifers	Artemia
5	2,78± 0,14	3,27± 0,23	2,87± 0,16 *	0,99± 0,01 *
34	2,88± 0,14	2,88± 0,08		

(*) Show significant differences.

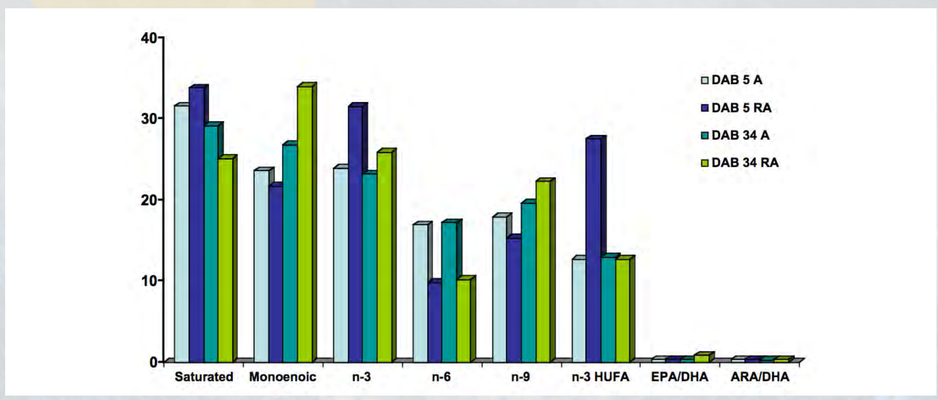


Fig. 4 Fatty acid composition of total lipids (% total fatty acids) of seahorses.

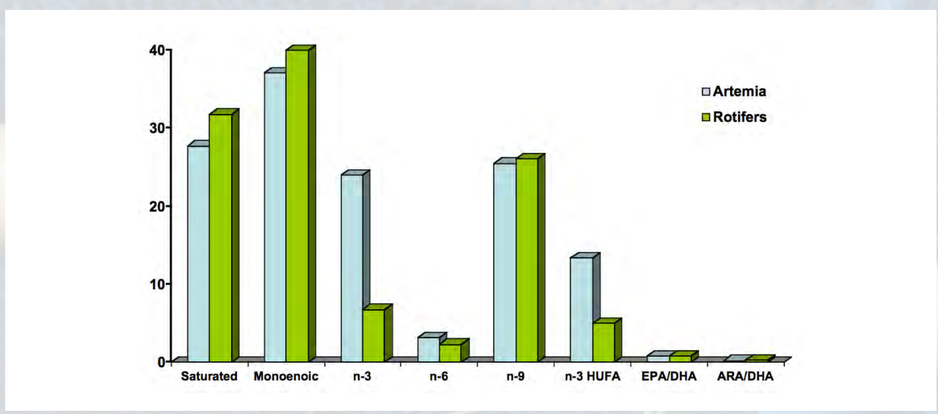


Fig 5 Fatty acid composition of total lipids (% total fatty acids) of live preys used during the trial.

Discussion

Survival of seahorses fed *Artemia* was high in comparison to other authors for the same species (Damerval *et al*., 2003). However, high mortalities and low morphometric values obtained during first days in RA could mean rotifers is inadequate food. Seahorses ingested rotifers as it was observed during the experiment in agreement to the higher survival in comparison with the total mortality found in and starvation experiments (Molina *et al*., 2007). Hence; energy ingestion in seahorses fed rotifers could be suboptimal, and unbalanced with the prey catch effort. Lower seahorses biomass in RA tanks after big mortality peaks could explain the recovery of growth at the end of trial. This fact even shows the important role played by food density in the first days in seahorses breeding.

Conclusions

Protocol with *Artemia* showed adequate nutritive value, simplifying seahorse production methods to ornamental or repopulation purposes. Nevertheless, other experiments must be done to test different *Artemia* concentrations during the first days and also clarify the bad results found with rotifers. These trials even could improve the survival rates achieved until know with this species.

Acknowledgements

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