

LARVI '91 - FISH & CRUSTACEAN LARVICULTURE SYMPOSIUM

P. Lavens, P. Sorgeloos, E. Jaspers, and F. Ollevier (Eds)

European Aquaculture Society, Special Publication No.15, Gent, Belgium. 1991.

SUCCESSFUL APPLICATION OF A NEW COMBINED CULTURE AND ENRICHMENT DIET FOR THE MASS CULTIVATION OF THE ROTIFER *BRACHIONUS PLICATILIS* AT COMMERCIAL HATCHERY SCALE IN MONACO, YUGOSLAVIA, FRANCE, AND THAILAND

A. Komis¹, P. Candreva², V. Franicevic³, V. Moreau⁴, E. Van Ballaer², Ph. Léger², and P. Sorgeloos¹

¹ Laboratory of Aquaculture and Artemia Reference Center, University of Ghent, Rozier 44, Belgium

² Artemia Systems SA, Wiedauwkaai 79, B-9000 Gent, Belgium

³ CENMAR, Marine Hatchery, Nin, Yugoslavia

⁴ Ferme Marine de Douhet, Ile d'Oléron, France

Abstract

Culture Selco¹, a combined culture and enrichment diet for rotifers, was used in commercial-scale culture trials to compare with the conventional applied culture diets such as baker's yeast and algae (*Chlorella* sp., *Isochrysis* sp., *Tetraselmis* sp.). Culture yields, economics and the nutritional value of *B. plicatilis* were studied.

Culture Selco is a dry and complete rotifer diet that does not require the use of algae and allows to produce high quality rotifers rich in (n-3) HUFAs.

Culture trials were carried out on a commercial scale in four different hatcheries using tanks of 600 l (Siam Aquaculture Company, Thailand), 1 000 l (CENMAR, Yugoslavia), 1 500 l (Ferme Marine de Douhet, France), 800 l and 1 500 l (P2M hatchery, Monaco). A batch culture system was compared with continuous culture procedures.

The average daily production using Culture Selco as the sole culture diet ranged consistently from 45 to 60% of the initial rotifer density, while baker's yeast and algae yielded from 19 to 33%.

The consistency of the rotifer reproduction was demonstrated in the P2M hatchery using four tanks of 800 l for a period of approximately 2 months. The culture procedure used was a batch-culture of 3 days, *i.e.* in total 21 cultures were run with four tanks. The total

¹ Culture Selco, Selco, Protein Selco, and Super Selco are live-food enrichment diets manufactured by Systems SA, Gent, Belgium.

production approximated 23 000 million rotifers, with an average daily production of 51% per tank.

These Culture Selco-grown rotifers were fed to seabass (*D. labrax*) larvae without an additional enrichment achieving equal results as when Selco¹ enriched rotifers were used. The fatty acid profiles of the cultured rotifers show that using the conventional diets only 0.4mg (n-3) HUFA/g DW of which 0.2mg 22:6n-3/g DW is obtained, while using Culture Selco 11mg.g⁻¹ DW of which 3.5mg 22:6n-3/g DW can be reached. A subsequent enrichment with Protein Selco¹ increases the HUFA content up to 26mg.g⁻¹ DW of which 10mg 22:6n-3/g DW. For species that require still higher (n-3) HUFA levels enrichment with Super Selco¹ should be considered (Léger *et al.*, 1989).

These results clearly demonstrate that Culture Selco can be used as a combined culture and enrichment diet for *B. plicatilis* not requiring the use of algae. Based on manpower savings and reduced infrastructure Culture Selco-grown rotifers furthermore proved more cost effective than the conventional procedures.

Acknowledgements

We acknowledge the assistance of the company P2M (Pisciculture Marine de Monaco SAM, Monaco) for providing testing facilities as well as the qualified technical help of the complete team of P2M.

Reference

Léger Ph., D. Grymonpré, E. Van Ballaer, and P. Sorgeloos. 1989. Advances in the enrichment of rotifers and *Artemia* as food sources in marine larviculture. p.141-142. In: EAS Spec. Publ. No.10, Europe. Aquacult. Soc., Bredene, Belgium. 344p.