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Tailoring your feeds

Improving livefeed and microdiet formulation for Atlantic cod (*Gadus morhua*)

Joana Pedro[1*]
João Henriques[2]
Maria Bergvik[3]
Konstantinos Tzakris[5]
Jorge Fernandes[4]
Benjamín Costas[1]
Luis Conceição[2]
Nils Tokle[5]

[1]CIIMAR
Interdisciplinary Centre of Marine and Environmental Research
Matosinhos,Portugal

[2]Sparos, Lda
Olhão, Portugal

[3]Ode AS
Stadsbygd, Norway

[4]Nord University
Faculty of Biosciences and Aquaculture
Bodø, Norway

[5]Planktonic AS
Trondheim, Norway

*joana.pedro12@gmail.com

INTRODUCTION

Nutrition during the Atlantic cod's early life stages in aquaculture is paramount to ensure the quality of juveniles. Barnacle nauplii have been proven to be a suitable live prey for first-feeding of cod larvae with high levels of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Moreover, it is essential to combine these with microdiets in order to optimise feeding protocols.
Bearing this in mind, this work presents a trial conducted to evaluate the effect of two microdiets and one live feed protocol on survival and growth performance in Atlantic cod.

MATERIALS AND METHODS

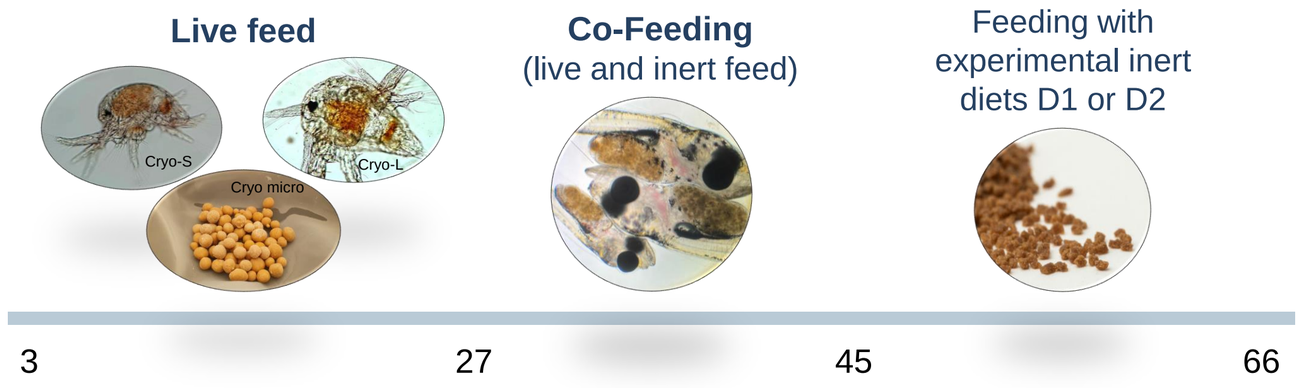
The D2 group protocol included an experimental formulated feed richer in marine phospholipids, DHA and EPA, which have been proven relevant for cod larval development and growth, while the D1 inert feed was richer in non-marine phospholipids.
The study involved two experimental groups, in triplicate, with different protocols:

D1 group

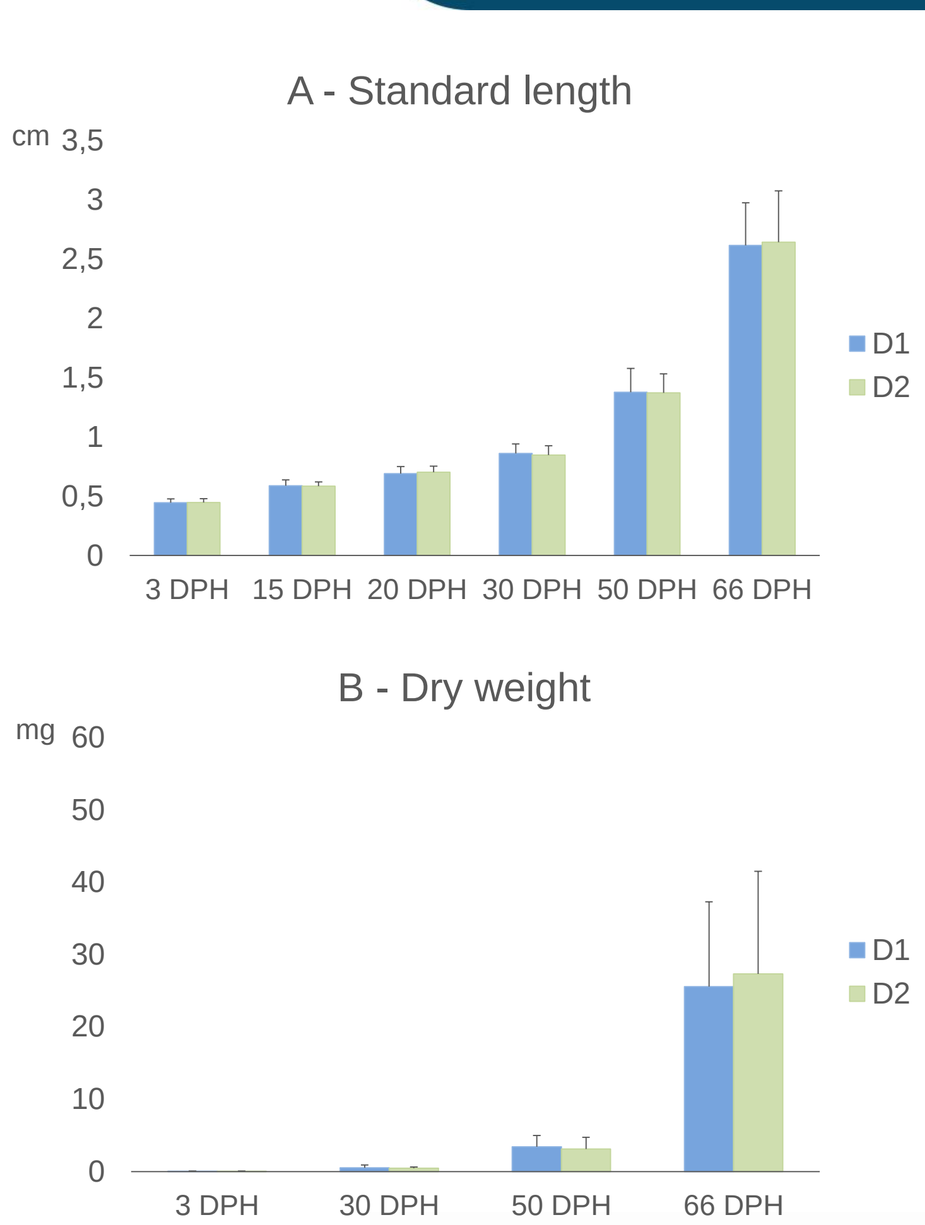
Plankton eggs (Cryo micro),
Small barnacle nauplii (Cryo-S),
Large barnacle nauplii (Cryo-L)
and rotifers
D1 experimental inert diet

D2 group

Plankton eggs (Cryo micro),
Small barnacle nauplii (Cryo-S),
Large barnacle nauplii (Cryo-L)
and rotifers
D2 experimental inert diet



RESULTS



Graphs A and B show the standard length (cm) and dry weight (mg) of cod larvae fed with protocols D1 and D2. Results are expressed as means ± standard deviation.
At day 66 post-hatching (DPH) no significant differences were found in dry weight or standard length between the treatments D1 and D2, despite the trend for increased performance with D2 treatment.
Moreover, larvae survival, feed conversion ratio (FCR) and relative growth rate (RGR) were not significantly affected by the different experimental diets.

CONCLUSION

Overall, both protocols resulted in good growth performance and better survival rates, when compared to other studies. Despite the lack of significant differences between the two groups and although requiring further testing, at the end of the trial larvae from the D2 protocol showed a propensity for enhanced performance in terms of dry weight, standard length, RGR and FCR. In future studies, there will be scope to test feeding protocols combining live feeds with novel microdiet formulations to further optimise the growth performance and survival of cod larvae.

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