

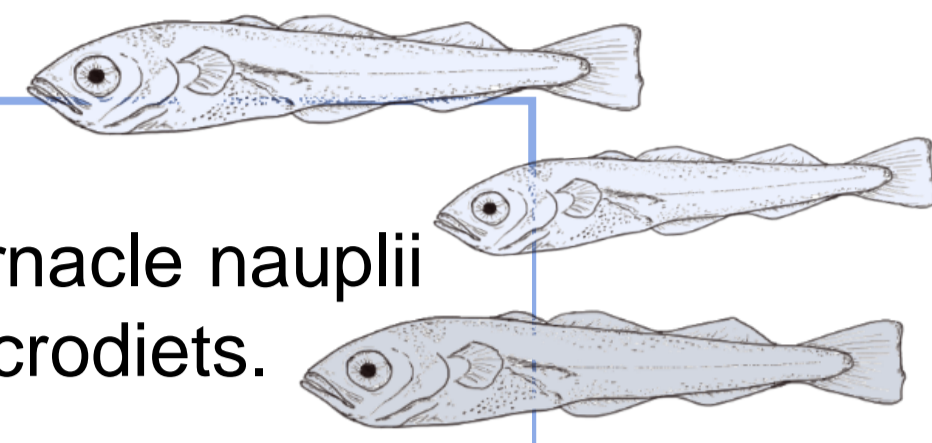
# EFFECTS OF FEEDING PROTOCOLS ON OXIDATIVE STRESS RESPONSES OF ATLANTIC COD (*Gadus morhua*) LARVAE

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## INTRODUCTION

Nutrition during Atlantic cod's early larvae stages is key to ensure juveniles' quality. Barnacle nauplii are a potential live feed for marine fish larvae in co-feeding protocols with adequate microdiets. This work aimed to evaluate the effects of two experimental microdiets and one live feed protocol on Atlantic cod larvae oxidative stress.

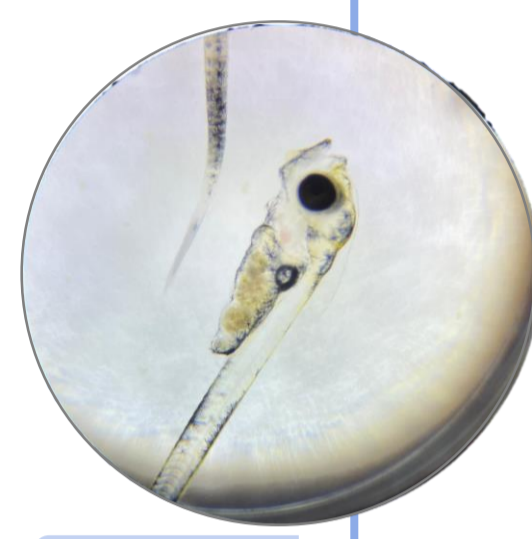
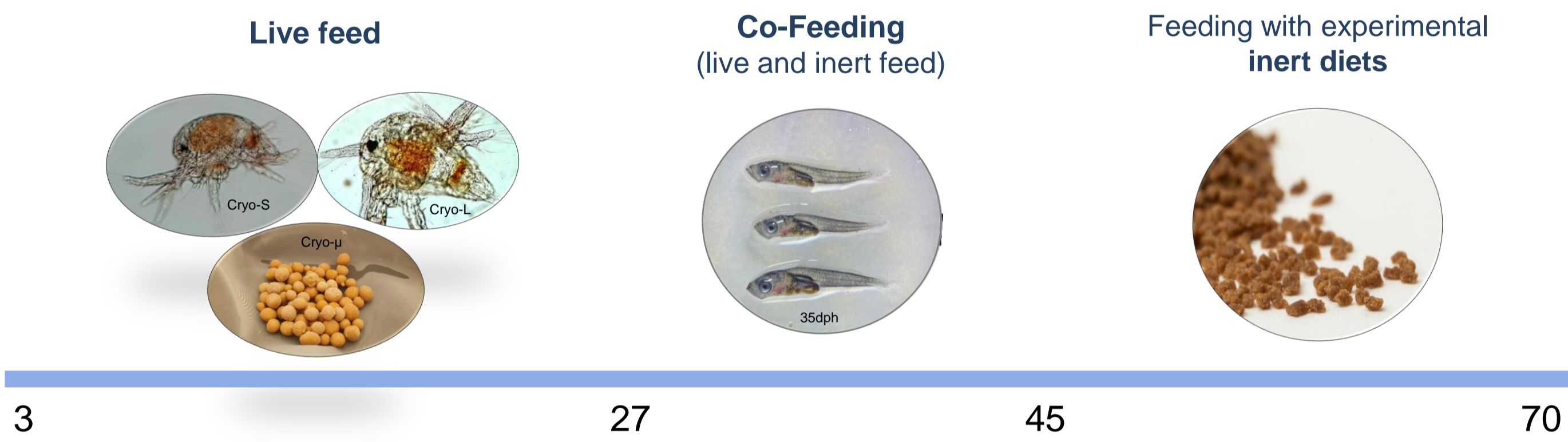


## MATERIALS & METHODS

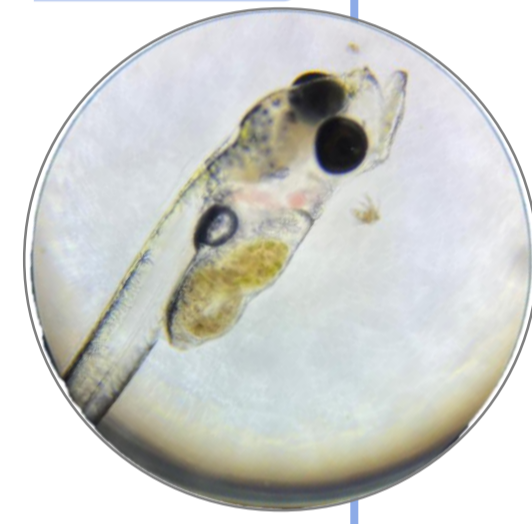
This study involved one control (CTRL) and two experimental groups (D1,D2), in triplicate, with the different feeding protocols:

**CTRL** - Large barnacle nauplii (Cryo-L) and rotifers → Commercially available diet

**D1/D2** - Plankton eggs (Cryo-μ), Small barnacle nauplii (Cryo-S), Large barnacle nauplii (Cryo-L) and rotifers → Experimental diets D1 or D2



10 dph



20 dph

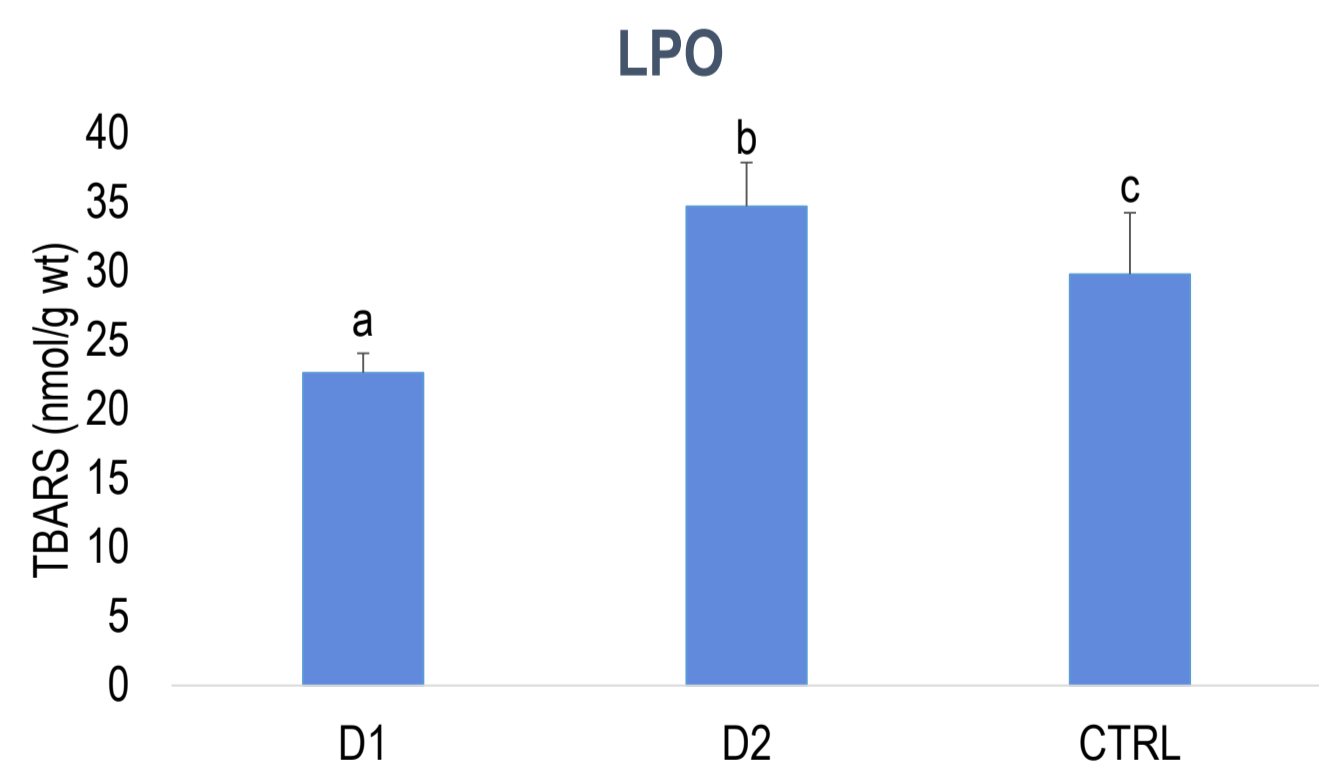
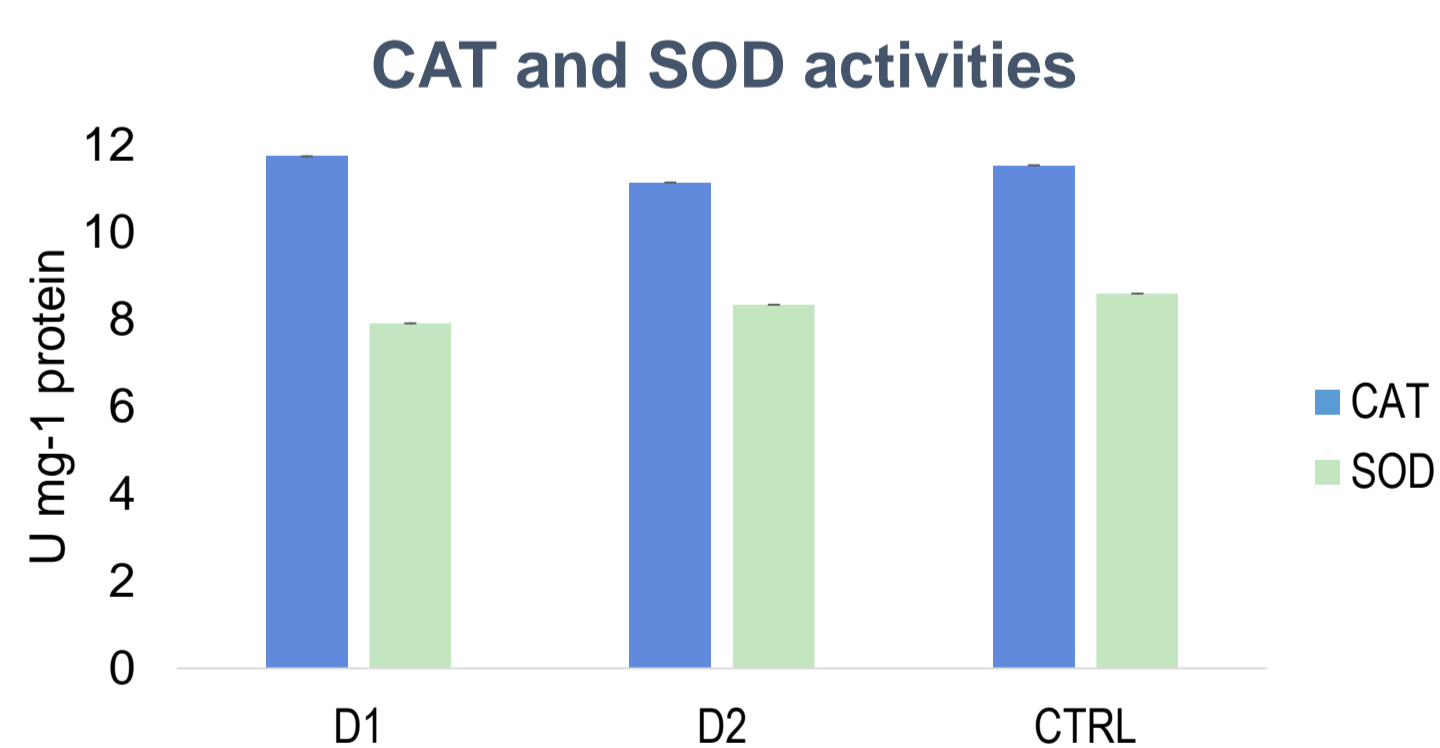


70 dph

Larvae were collected at 70 dph and homogenized for quantification of oxidative stress enzymes **catalase** (CAT) and **superoxide dismutase** (SOD) as well as **lipid peroxidation** analysis (LPO).

CAT and SOD are enzymatic antioxidants and their activity is expressed as enzyme units per milligram of total protein (U mg<sup>-1</sup> protein). LPO allows to assess levels of lipid damage, measured using thiobarbituric acid-reactive substances (TBARS).

## RESULTS & DISCUSSION



CAT and SOD activities did not present significant differences between the groups at 70 dph. LPO was significantly lower in the D1 group when compared to D2 and CTRL groups. These results combined with a significantly lower incidence of skeletal anomalies in group D1 (Henriques J. 2024, submitted to AQUA2024) highlight the potential for optimizing feeding protocols for Atlantic cod larvae.

## CONCLUSION

Different feeding protocols influenced the oxidative stress responses in Atlantic cod larvae at 70 dph. These results highlight the potential for optimizing feeding protocols for Atlantic cod larvae, combining live feeds with novel microdiet formulations.

