



RELEVANCE OF THE DIET DURING REPRODUCTIVE CONDITIONING ON THE QUALITY OF THE PROGENY OF CHILEAN SCALLOP *Argopecten purpuratus*.



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INTRODUCTION

Our works propose that the variation of high-unsaturated fatty acids (HUFA) affects the progenies success in terms of eggs quality and the contribution of endogen food during the period before incorporation of exogenous food.

MATERIAL AND METHODS

Adult scallops of *A. Purpuratus* were obtained at the beginning of the experiment, gonads were evaluated as state 1 of development. Groups of 10 scallops were placed individually in a 150L tanks in a closed system with 1/3 recharge of water every day.

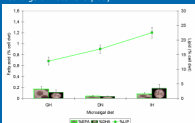


Fig. 1. Microalgal composition.

Conditioning of broodstocks was done at 16°C and fed with 3 monoalgal diets: 1) *Chaetoceros neogracilis* high protein (GH) characterized by high eicosapentaenoic acid content (EPA), 2) *Isochrysis aff galbana* (T-150) high protein (IH) with high docosahexaenoic acid (DHA), and 3) *Dunaliella tertiolecta* normal protein level (DN) without HUFAs.



When gonads reach state 4 and/or 5, scallops were induced to spawn. Eggs were fecundated and then cultured at 18°C until D-shaped larvae. Larvae of all groups and replicates were sampled according to its conditioning origin and divided into two groups (A and B). The former group (A), larvae were not feed to evaluate non-return point, while larvae of the other group (B) were feed with IH. Fatty acids and proximal composition were evaluated on gonad, egg and larvae

RESULTS

Scallops conditioned in winter with 3 diets: IH, GH and DN reached reproductive maturity when their gonad develops until stage 3, but even a single individual was able to spawn. Broodstocks maintained during spring, all showed mature gonads and those feed with GH and DN responded to spawning induction. During this period, scallops recorded 518.4 (SE=0.1) accumulative thermal degree (ATD) before spawn without difference between diets. In summer ATD for broodstocks was 511.1 (± 0.2) and scallops of all diets responded positively to spawning induction without significant difference among them.

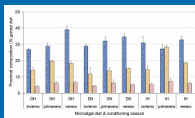


Fig. 2. Gonad composition at the end of winter, spring and summer conditioning experiments of *A. purpuratus*.

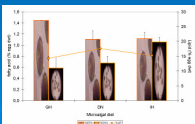


Fig. 3. Egg composition from summer conditioning experiment of *A. purpuratus*.

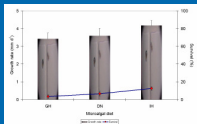


Fig. 4. Larval performance from summer conditioning experiment of *A. purpuratus*. Values correspond to mean and standard error of 3 replicates.

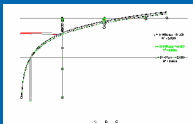


Fig. 5. Effect of starving upon hatchlings of *A. purpuratus*. Larvae from summer conditioning experiment.

CONCLUSIONS

There was a significant interaction between diet type and season of the year to affect gonad's soluble protein contents

Eggs collected from all diets during conditioning summer period varied significantly in protein and carbohydrates composition.

The correlation analysis showed:

- 1) diet's EPA content was positively correlated with egg's EPA, and negatively with protein, carbohydrate and lipid content of eggs
- 2) egg's DHA content presented a positive correlation with DHA on broodstocks diet.

High survival rates was observed in fed larvae with parents fed with IH = endogenous reserves + the reserves consumed by larvae have synergistic effect?