IMPROVING GILTHEAD SEABREAM (*SPARUS AURATA*) JUVENILES ADAPTABILITY TO ADVERSE CONDITIONS *VIA* NUTRITION

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Introduction

The Aquaculture industry is a key animal production sector to provide food and nutrition for direct human consumption, and by 2030 with the increasing population more 40 million metric tons of aquatic products will be necessary to maintain the actual seafood consumption *per capita*. Hence, it is important to study strategies to increase the production in aquaculture in a sustainable way. In winter, when water temperature drops below 13°C, gilthead seabream reduces activity, feed intake, metabolism, and growth. Therefore, it is essential to determine how nutrition may help the fish to cope with adverse conditions in order to establish predictability and ensure optimal feed utilization during the whole production cycle. The objective of the present study was to mitigate the impact of adverse water temperature during gilthead seabream juveniles' production through diet formulation.

Materials and methods

Gilthead seabream juveniles with an average body weight of 155g were distributed by nine 500L-tanks, at an initial density of 8.6 kg/m^3, in a flow-through system. Fish were fed once a day, *ad libitum*, with one of the three experimental diets: Control (43%Protein:17%Lipids); Low (41%P:17%L); Low$^+$ (41%P:17%L). A mixture of feed additives was included in the Low$^+$ diet. Each diet was assigned to triplicate tanks. The impact of experimental dietary formulations on several juvenile key performance indicators (growth, FCR, K, proximal composition, nutrient retention, diet digestibility, HSI and VSI) were determined at the end of the experimental period (84 days).

Results and Discussion

In order to ensure a sustainable growth, the Aquaculture industry needs to improve aquafeeds sustainability through a reduction in dietary fishmeal inclusion and/or an increase in feed efficiency by adding additives to the fish diets. At the end of the experimental period key performance indicators, like growth and FCR were similar between the fish fed Control and the Low$^+$ diet. In addition, energy digestibility was higher for fish fed Low$^+$ diet when compared to the other diets. This absence of significant differences in growth performance indicators implies a significant reduction of protein and fishmeal in juveniles' seabream diets. The results indicate that is possible to mitigate adverse conditions through a nutritional approach.

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