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BOOK OF ABSTRACTS

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GH/IGF AXIS GENE EXPRESSION PROFILE IN DEVELOPING ATLANTIC BLUEFIN TUNA (*Thunnus thynnus*)

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Abstract

Atlantic bluefin tuna (ABFT), Thunnus thynnus (Linnaeus, 1758), is a large migratory oceanic top predator, considered as an important worldwide fishery source and a key species in pelagic ecosystems. Survival during the early life stages is crucial for future recruitment success, with larval growth being a determining process. Fish growth and development are mainly controlled by the GH/IGF axis, being involved in skeletal and soft tissue growth, as well as in immune function, appetite control, behavior (including foraging, aggression, and predator avoidance). To characterize the ontogenetic development profile of the GH/IGF axis at the level of gene expression, an ABFT larval rearing experiment (under controlled feeding conditions) was performed in the aquaculture facilities of the Spanish Institute of Oceanography (IEO), in Mazarrón during June 2019. Eggs and larvae from 3 replicates were collected regularly every 2-3 days from 0 until 30 days post-hatching (dph). In a total of 14 sampling points (n = 6-12 larvae) along the ontogeny, growth hormone (gh) and two forms of insulin growth factor (igf1 and igf2) were analyzed by real-time RT-PCR. A sigmoidal gh expression profile was observed, with higher values at 5 and 23 (maximum) dph, and lower values at 0 (minimum), 12 and 30 dph. Nevertheless, igf1 and igf2 showed a gradual increase from early days, also with lower values at 0 and 12 dph, but with maximum levels at 30 dph. Results are discussed considering growing rates and transition from larvae to juvenile, underlining the importance of gh/igf axis during the ABFT early development and growth.

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COMPARATIVE ANALYSIS OF ENDOCRINE FACTORS DURING THE ONTOGENY OF THE EUROPEAN SEA BASS (*Dicentrarchus labrax*)

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Abstract

European sea bass (*Dicentrarchus labrax*) is an important aquaculture species in the Mediterranean. The hatchery production stage of this species is of crucial importance as it supplies the juveniles and determines the productivity and quality of the commercialized fish. Growth is a trait of particular importance in aquaculture since bigger and more robust juveniles have a higher market value. The growth axis, which includes factors released from the pituitary gland, liver and locally in tissue has an important role in determining skeletal growth, which is intimately linked with somatic growth. The present study aimed to determine the relative importance of different endocrine factors in determining growth performance during the hatchery stage by studying sea bass larvae collected under different production regimes from several different hatcheries. Total RNA was extracted from larvae and used to produce cDNA that was used for quantitative PCR. A panel of genes encoding endocrine factors linked to skeletal and somatic growth performance were quantified from first feeding (4dph) until mid-metamorphosis (~50dph) from pre-selected and classified fish batches based on size and skeletal quality. The study provided insight into the profile of hormones that regulate production traits of interest, and these were correlated with skeletal quality and size. Despite differences in the genetics of broodstock, management and production regimes at the different participating hatcheries there was surprising constancy of endocrine profiles.

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