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Abstract

Changes in Morphology of Hepatocytes and Tissue-Biodistribution in Iron-Overload Gilthead Seabream (*Sparus aurata*) †

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Abstract: Iron is an essential metallic micronutrient for life, but its bioavailability is especially scarce in marine areas. We have studied iron accumulation in gilthead seabream (*Sparus aurata*) to improve the knowledge of iron metabolism in fish. For this aim, acute iron overload was induced by intraperitoneally injection of iron-dextran. Nine different tissues were collected at 72 h after injection. Iron determination was performed in all samples by atomic absorption spectroscopy and liver was stained with hematoxylin–eosin for histologic study. Iron overload provoked big changes in the organization of the liver and, in particular, in the hepatocytes, which presented iron-deposits as hemosiderin and an increase of vacuolation by metabolic stress. Likewise, iron concentration in the studied samples indicated great changes in iron-distribution in tissues. In the control group, intestine, gill and blood are the predominant tissues in total proportion of iron in fish body, while iron overload produced a large increase in liver and spleen. In this way, the liver and spleen are storage organs of iron, and this is accumulated in the cytoplasm of hepatocytes. Hence, the study of iron accumulation has contributed to understand the iron-physiology and open doors to applications in aquaculture.

Keywords: iron metabolism; metal accumulation; gilthead seabream; teleost

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