

Biomarker responses and contaminants levels, after depuration in two resident species from Douro Estuary.

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The levels of contaminants in the marine environment have increased as a consequence of anthropogenic activities, and organic trace contaminants, such as PCBs, DDT/DDE, PAHs are ubiquitously present in the aquatic environment, and can be evaluated through the measurement of specific biomarkers. The most commonly used biological effects as biomarkers are the biotransformation enzymes and oxidative stress responses. Two estuarine species, flounder (*Platichthys flesus*) and mullet (*Mugil cephalus*), were used in order to evaluate the effects of chronic exposure to pollutants in Douro Estuary, and the depuration of contaminants by the fish and biomarkers responses after different periods of depuration in unpolluted water.

In both species we have measured the presence of PCBs, DDTs and fluorescent aromatic compounds (FACs). As biomarkers we have evaluated phase I and phase II biotransformation enzymes, the antioxidant enzymes and also oxidative damages in lipids and proteins, in mullets and flounders before and after depuration.

This study reports the accumulation of significant levels of PCBs and DDTs in both species tissues and that mullets and flounders display different levels for the biomarkers analysed. After depuration an overall decrease has occurred in the biomarkers analysed for mullets, whereas for flounders the responses were more transient. The depuration period had different effects in both species, with mullets being a more suitable sentinel species for the presence of contaminants.