

**II INTERNATIONAL SYMPOSIUM OF ECOLOGISTS OF THE
REPUBLIC OF MONTENEGRO**

ISEM2

**THE BOOK OF ABSTRACTS
AND PROGRAMME**



Hotel Fjord, Kotor, 20-24. 09. 2006

PUBLISHER

Centre for Biodiversity of Montenegro –
Podgorica
The Republic Institution for the Protection
of Nature – Podgorica
Natural History Museum of Montenegro
University of Montenegro, Institute for
Marine Biology

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CITATION

Pešić, V. & Hadžiablahović, S. (Eds.)
Abstract Book and Programme, II
International Symposium of Ecologists of
Montenegro. Kotor, 20-25.09.2006.

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THE EXPRESSION OF CYP1A IN THE HEPATOPANCREAS OF ANALYSED FISH SPECIES AT THE MOUTH OF THE RIVER BOJANA

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CYP1A is a well-established biomarker of fish exposure to xenobiotics. Polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) are ubiquitous environmental pollutants in the aquatic environment. They induce a dose-dependent transcriptional induction of CYP1A genes and resulting increased concentrations of proteins. Our aim was to characterize the ecological impact of chemical contaminants in view of their toxicological potential. For that reasons the relative changes of CYP1A concentrations in the hepatopancreas of the Red mullet-*Mullus barbatus*, European hake-*Merluccius merluccius* and Tub gurnard-*Trigla lucerna* were examined in spring, at the mouth of the river Bojana. All species are of considerable commercial importance. In this work chemical analysis of seawater was performed and CYP1A induction was estimated by immunoblot analysis. Chemical analyses of seawater and sediment revealed the presence of anthracene, benzo(A)pyrene, pcb28 and pcb101. CYP1A was detected in the hepatic microsomal fraction in all examined fish species as an adaptive response to the slightly increased concentrations of PAHs and PCBs. It was shown in this study that CYP1A is a sensitive biomarker demonstrating that pollutants entered the organisms and elicited toxic effects at the critical target(s). The apparent initiation of the defense response in fish suggests that the contaminants present in seawater have an ecotoxicological potential. These findings could be interpreted as an early-warning signal for the deleterious effects of the pollutants.
