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Doctoral Thesis

DETERMINATION OF BIOAVAILABLE METAL CONCENTRATIONS IN CHUB (*Leuciscus cephalus* L.) GILLS AND IN WATER

Zrinka Dragun

Ruđer Bošković Institute, Division for Marine and Environmental Research,
p.p. 180, 10002 Zagreb

Abstract:

The assessment of metal bioavailability in river Sava, from Otok Samoborski to Jasenovac, was based on determination of cytosolic metal concentrations in chub (*Leuciscus cephalus* L.) gills and of labile metal species concentrations in river water using passive samplers for metals. The dependence of cytosolic concentrations of Zn, Fe, Cu and Mn on biotic factors (gill mass, and total cytosolic protein concentration) and season was established. Basal ranges of essential metal concentrations were defined for chub gill cytosol. Cytosolic concentrations of Fe and Cd are good indicators of river water pollution, while concentrations of Zn, Cu and Mn in gill cytosol do not reflect changes of their concentrations in Sava river water. The differences in labile, i.e. bioavailable, Zn, Cu and Mn concentrations could be observed by deployment of passive samplers in Sava river, even for very low metal concentrations. Two methods for the assessment of bioavailable metal concentrations in Sava river were compared, and the results were partially comparable for Fe and Cd, meaning that the cytosolic concentrations of these metals in chub gills reflect their bioavailability in water, determined by passive samplers.

(174 pages, 128 figures, 70 tables, 226 references, original in Croatian)

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Supervisor: Biserka Raspor, Ph.D., senior scientist RBI Zagreb

Reviewers: Goran I.V. Klobučar, Ph.D., assistant professor, Faculty of Science Zagreb
Nevenka Mikac, Ph.D., senior scientist, RBI Zagreb
Biserka Raspor, Ph.D., senior scientist, RBI Zagreb

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