

Accumulation of Mercury species by Mussels *Mytilus galloprovincialis* in estuarine and marine environment

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Research study concerning the mercury cycle in the Krka River Estuary demonstrated that this area is in the greatest part unpolluted with respect to mercury. Mercury distribution in the native mussel populations showed that they are significantly affected by the internal biological factors, which results in different spatial mercury pattern in mussels from that one observed in sediments and water.

The aim of this work was to study the accumulation of mercury species under better biologically controlled conditions, which can be provided using transplanted mussels of a known age with more uniform biometric characteristics than the native ones (1).

A culture of one-year old mussels *Mytilus galloprovincialis*, Lmk. were transplanted to four locations in the Krka River Estuary and nearby coastal area (Eastern Adriatic coast). Biometric parameters of mussels and total and methyl mercury concentration in soft tissues were analyzed four times during 1988/89 (270 days). Both total and methyl mercury concentrations were significantly correlated with shell weight, wet weight and dry weight of mussels. Mercury concentrations were generally decreasing with a dry weight of mussels, but a pronounced accumulation of organic form over the total mercury can be recognized from the slopes of the regression lines. The amount of methyl mercury accumulated per liter of water by an average mussel was twice higher than for the total mercury, and from such calculations the methyl mercury concentrations in water of the Krka River Estuary was estimated.

From this experiment it can be proved that even transplanted mussels can not be used as bioindicators for low mercury concentration level in water.

Further investigations lead to:

- (i) the exchange of mercury speciation by biotransportation, and
- (ii) the determination of limits of required difference in the mercury-water concentration level for the applicability of transplanted mussels as indicator organisms for mercury monitoring.

REFERENCES

- MARTINCIC D., KWOKAL Z., PEHAREC Z., MARGUS D. and BRANICA M., 1992.- Distribution of Zn, Pb, Cd and Cu between seawater and transplanted mussels (*Mytilus galloprovincialis*), *The Sci.Tot.EnvIRON.*, (in press).