DISTRIBUTION OF ORGANIC AND TOTAL LEAD BETWEEN MUSSELS *MYTILUS GALLOPROVINCIALIS* AND SEAWATER

N. MIKAC[1], M. BRANICA[1], Y. WANG[2] and R.M. HARRISON[2]

[1]Center for Marine Research Zagreb, Institute Ruder Boskovic, Zagreb, Croatia
[2]School of Biological Sciences, University of Birmingham, United-Kingdom

Organolead compounds are introduced into the environment by their use as anticnock additive in gasoline. It was estimated that about 1% of the lead in gasoline is emitted from vehicles in the form of tetra- and trialkyllead compounds. The presence of alkyllead compounds was established in different kinds of abiotic environmental samples (air, rainwater, surface waters, sediment, dust), but, there is a lack of data on level and behaviour of these compounds in biota. Particularly, there is no data on the level of organolead compounds in mussels *(Mytilus* species), which are well known as indicator organism of heavy metal pollution. The aim of this work is to establish the level of organolead compounds in mussels Mytilus galloprovincialis from the Eastern Adriatic Coast and to study a bioaccumulation of these compounds to mussels in their natural habitats.

For the organolead determination homogenized mussels tissue is digested in TMAH (tetramethylammonium hydroxide), organic lead is extracted into hexane in the form of carbamate complexes and propylated (RADOJEVIC *et al.*, 1986) for GC AAS (gas chromatography/atomic absorption spectrometry) detection, or reextracted into acidic aqueous solution (MIKAC and BRANICA, 1992) for the electrochemical detection (DPASV, differential pulse anodic stripping voltammetry). Total lead in mussels is measured by DPASV after acid (HNO_3 + $HClO_4$) digestion.

A previous study (MIKAC and BRANICA, 1992) in the Sibenik area showed that the gasoline station represents a continuous source of organolead compounds. Mussels were collected in urban harbours (towns of Sibenik, Zadar and Split) and in the unpolluted Krka estuary (Sibenik area). Soft mussels tissue contained alkyllead compounds in the concentration range of < 0.1-14.3 ngPb/g w.w. Triethyl, trimethyl and tetraethyl lead derivatives were detected. The highest concentrations were found in mussels collected in front of the gasoline stations, but a low level of these compounds (< ngPb/g) was also found in samples from the unpolluted area.

Alkyllead compounds make only a small portion (0.1-1%) of the total lead in mussels, similarly as it was the case for surface waters (MIKAC and BRANICA, 1994). Bioconcentration factors (BF) for organolead and the total lead between mussels and seawater are calculated (Table 1). Generally, BF are lower for organic than for the total lead, except in mussels collected in front of the gasoline station. Obviously, going from the pollution source of organic lead BF is decreasing for the organic lead (as a consequence of decreasing organolead level in the water phase), but is increasing for the total lead.

Table 1. Bioconcentration factors for organic and total lead between mussels and seawater

Sampling site and date	**Bioconcentration factor for lead compounds** ($ngPbkg_{-1}$ w.w. in mussels/$ngPbl_{-1}$ in seawater) OrgPb	TotPb	Ref.
February 1992			
SI GS	2860	2260	This
SI H1	1400	13380	work
September 1993			
SI GS	>1200	4740	"
SI H1	> 800	5720	
SI H2	>1600	5510	
April 1994			
ST GS	1200	1044	"
ZD H	>1000	5570	
SI E1	-	7-11000	1
SI E2	-	16-25000	"

I-Sibenik, ST-Split, ZD-Zadar
GS-gasoline station, H-harbour, E-Krka estuary
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