

ACCUMULATION OF SOME HEAVY METALS IN MARINE POLYCHAETE (*EUNICE APHRODITOIS*) AND SEDIMENTS OF THE ADRIATIC COAST

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This paper reports on levels of heavy metals in some marine polychaete (*Eunice aphroditois*) and surrounding sediments from eastern Adriatic coast. Different parts of worms (head, skin and muscle) were examined. Samples were collected at 8 stations in the vicinity of urban centers (Split and Sibenik) where considerable quantities of untreated effluents are discharged and affect significantly the quality of marine ecosystem.

Heavy metals were determined using a double beam AAS, applying a flameless spectrometry. Polychaetes are among the most frequent and abundant marine metazoans in benthic environment. They live in bathyal and abyssal areas, in shelf depths and open coasts in estuaries and in man-made harbours. Today the number of known Eunicadea is about 241 species (FAUCHALD, 1979).

Metal		Head	Skin	Muscle	Sediment	Correlation
Mn	R rsd	0.84-4.73 (2.58)	0.73-6.16 (3.22)	0.41-1.58 (2.25)	99.2-377.9 (0.56)	No
Cr	R rsd	0.49-1.44 (2.21)	0.73-2.29 (4.02)	0.35-1.16 (1.68)	23.6-65.0 (5.27)	No
Ni	R rsd	0.20-0.82 (4.02)	0.31-1.12 (3.05)	0.23-1.17 (1.7)	4.10-14.0 (3.06)	Yes
Pb	R rsd	1.28-37.4 (2.04)	4.00-30.1 (1.26)	2.30-24.9 (1.65)	11.2-67.7 (2.35)	Yes
Cu	R rsd	1.95-11.28 (1.50)	1.70-4.35 (1.31)	0.91-1.68 (1.50)	3.84-11.79 (1.18)	No
Cd	R rsd	0.08-0.29 (2.08)	0.11-0.54 (2.31)	0.14-0.87 (1.77)	0.14-0.74 (7.20)	No
Zn	R rsd	4.46-6.08 (0.95)	6.26-11.87 (0.62)	4.83-8.33 (1.07)	12.92- 40.96 (7.40)	No

Table 1. Range of mass concentrations ($W_m \times 10^6$) of heavy metals polychaetes and sediments on investigated areas. (Values in parenthesis are relative standard deviations - rsd).

Despite their obvious importance the literature on ecological roles of these polychaetes, the information about their feeding and biology remains largely anecdotal. *Eunice aphroditois* is mainly a carnivore. EVANS (1971) found its gut content included annelids, chaetognaths ostracods, copepods, bivalves, a few diatoms and some detritus.

The preliminary results of trace metal concentrations in these worms showed that some of the studied metals are accumulated mainly in head or in skin (Al, Cr, Pb and Cu), whereas others are accumulated in muscle (Zn, Ni).

In our investigation of trace metals in polychaetes and surrounding sediments, where these worms live, we didn't find significant correlations, except for Pb and Ni.

Probably the reason for that is the manner of feeding. This worm is primarily a carnivore, feeding on all kinds of small invertebrates. Spatial distribution of some heavy metal values showed that higher values were recorded in stations with smaller depth or in stations which were situated in an unclosed area (Sibenik). This could be attributed to anthropogenic effects, i.e. to land-based activities.

It is recommended to continue the monitoring of heavy metals concentration in these organisms in order to improve our understanding of their cycling in the marine environment.

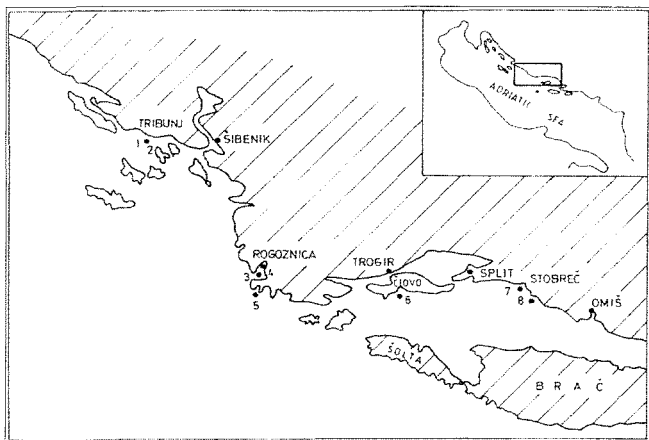


Fig. 1. Study area

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