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Phenols in the Sea Water, Sediments and Some Marine Organisms of the Intertidal Zone of the Adriatic East Coast

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Phenols concentration were determined in sea water, sediments and some marine organisms. It seems that there is a relationship between the increased phenols concentration of phenols in marine organisms.

Les concentrations de phénols ont été déterminées dans l'eau, sédiments et quelques organismes de la mer Adriatiques. Les résultats obtenus, indique que les concentrations de phenols élevées dans l'eau influencent sur les concentrations dans les organismes.

At the chosen locations of the Adriatic east coast samples of the sea water, sediments and sea organisms were taken. Phenols concentration was determined in these samples by 4-aminoantipyrene method, and in the sea organisms also by the p-nitroaniline method (1). Problems of the phenols analysis were discussed earlier (2). The phenols concentration was at least twice determined at the 109 chosen places along the whole east coast of the Adriatic sea. The most polluted place was the harbour of Split where the phenols concentration reached 600 $\mu\text{g}/\text{l}$ of the sea water. The phenols concentration

was below 1 $\mu\text{g}/\text{l}$ in the places far away off settlement and industry. Seventeen different kinds of the sea organisms, which are living in the intertidal zone, were taken. The phenols concentration determined in these organisms was up to 43 mg/kg. The samples of sediments showed up to 72 μg phenols/kg of the strained sediment, except near the hospital Rab, where was 157 $\mu\text{g}/\text{kg}$.

The correlation coefficient of the phenols concentration in the water and 77 biological samples was, $r = + 0,31$ ($P < 0,01$) what indicates the light connection. In the other, our examinations, for 48 samples, the same coefficient was much higher, $r = + 0,73$ ($P < 0,01$).

The presence of the endogenous phenols, caused by the metabolisms of the plants and animals, must be taken into consideration. At the places where phenols concentration was under 1 $\mu\text{g}/\text{l}$ of the sea water, the phenols concentration in the sea organisms was under 5 mg/kg.

From our results can be concluded that the phenols are accumulated at least in some organisms, specially in *Ulva lactuca* ($r = + 0,7$, $P < 0,01$). The low phenols concentration in the sediments, which contain a lot of organic matter or various microorganisms, can be explained by very active phenols biodegradation.

REFERENCES

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2. Mikličan (R.), Štilinović (L.), Vukić-Katović (B.), Munjko (I.), 1975 - Naša iskustva sa 4-antipirinskom i p-nitroanilinskom metodom za odredjivanje ukupnog fenola u vodama i različitim biološkim uzorcima. Zaštita '75, Beograd, pp. 65-66. Jugoslavensko društvo za zaštitu voda.

DISCUSSION

Questions and comments:

1. Quel schéma extractif utilisez vous dans le dosage des phenols par la méthode a l' amino-4 antipyrine?

(R. KANTIN, France)

- We used chloroform at pH 10.

2. Avez vous observé des effects letaux ou subletaux sur les organisms planctoniques a de tells concentrations (0,6 ppm dans la port de Split)? (R. KANTIN, France)

- We have not observed plankton in our investigation.

