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A Comparison of Some Methods for the Estimation of
Surface Active Substances in Seawater

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The chemical nature and physico-chemical properties of the sea surface layer^{1,2,3} and of surfactants in subsurface seawater is still the subject of controversial interpretations because of the lack of analytical techniques of sufficient sensitivity, or changes the components undergo during the pretreatment.

To contribute to a better physico-chemical characterization of surface active substances in seawater, the samples from coastal stations in the North Adriatic were analysed for surfactants using direct electrochemical methods (the method of polarographic maximum of mercury(II)^{4,5} and Kalousek commutator technique⁶) of different specific sensitivities for various groups of compounds and the specific spectrophotometric method for anionic detergents⁷. Vertical distribution of dissolved surfactants and their enrichment in the surface layer (taken with the screen technique) have been studied, with special attention being paid to the polluted waters.

Because of the variety of compounds and their mixtures in natural surface layers, the importance and behaviour of mixtures of surfactants have been considered in particular. A possibility of using the interface electrode/seawater as

model for understanding real marine interfaces is discussed.

REFERENCES

1. Liss, P.S., (1975), Chemistry of the Sea Surface Microlayer, in Chemical Oceanography, Vol. 2, Ed. by J.P. Riley and G. Skirrow, Academic Press.
2. Liss, P.S., (1976), The Effect of Surface Films on Gas Exchange across the Air-Sea Interface, 4th International Conference "The Chemistry of Mediterranean", Rovinj, May 1976.
3. MacIntyre, F., (1974) Chemical Fractionation and Sea-Surface Microlayer Processes, in the Sea, Vol. 5, Marine Chemistry, Ed. by E.D. Goldberg Wiley and Sons, New York.
4. Zvonarić, T., (1975), Electrochemical Determination of Surface Active Substances in Seawater, M.Sc. Thesis, University of Zagreb.
5. Žutić, V., Čosović, B. and Kozarac, Z., (1976), Electrochemical Determination of Surface Active Substances in Natural Waters. On the Adsorption of Petroleum Fractions at Mercury Electrode/Seawater Interface, J. Electroanal. Chem., in press.
6. Kozarac, Z., Čosović, B. and Branica, M., (1976), Estimation of Surfactant Activity of Polluted Seawater by Kalousek Commutator Technique, J. Electroanal. Chem., 68, 75-83.
7. Kozarac, Z., Čosović, B., and Branica M., (1975), Spectrophotometric Determination of Anionic Surfactants, Marine Science Communications, 1, 147-163.

DISCUSSION

Question and comment:

1. What are your sampling locations at Rovinj?
(B. KURELEC, Yugoslavia).
- Two sampling locations are close to pollution sources (20 m from the main drain of a fish canning factory, and in the harbour, 15 m from the shore and from the sewage outlet). Nine stations are located along the coast and islands surrounding Rovinj.

