

The complex mixture of organic matter in the sea comprises of different types of substances such as polysaccharides, proteins, peptides, lipids and humic substances. Most of these compounds (about 70 % of total organic carbon) are surface active, i.e. show a tendency to be concentrated by adsorption processes at the natural phase boundaries of water with the atmosphere, and with solid particles such as sediment, and biota.

In seventies new electrochemical methods were developed for research and monitoring of organic substances with surface active properties in the sea (ZVONARIC *et al.*, 1973; COSOVIC *et al.*, 1977; COSOVIC and VOJVODIC, 1982). The methods are based on measurement of adsorption phenomena at the electrode surface at conveniently selected conditions of potential, time of adsorption and transport mode. This enables a simple, rapid and direct determination of organic surface active substances in marine samples without any pretreatment of the samples. The methods have been widely used in the Adriatic Sea with the aim of determining natural levels of surface active substances, their seasonal variations, horizontal and vertical distributions, and pollutions influences (including also effects of intensive phytoplankton blooms in the North Adriatic Sea).

Special attention was paid to the determination and characterization of the hydrophobic fraction of organic surface active substances. It was found that enrichment of hydrophobic substances at natural phase boundaries is several times higher than for the total dissolved organic matter, thus influencing the mechanisms and rates of processes that occur at natural surfaces (COSOVIC and VOJVODIC, 1989).

Recently attempts are made to compare the surfactant activity values of the seawater samples in the North Adriatic Sea with the corresponding DOC values, which are determined by using a high-temperature catalytic oxidation (HTCO) technique, proposed by SUZUKI and SUGIMURA (SUGIMURA and SUZUKI, 1988).

We expect that reliable information may be obtained which will contribute to the knowledge of chemical composition and reactivity of organic substances in marine and estuaries systems.

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