

Carotenoids in sediments as a markers of processes in marine environment
(Karotenoidy w osadach jako wskaźniki procesów zachodzących w środowisku morskim)

Magdalena Krajewska (Lawręc), Grażyna Kowalewska, Małgorzata Szymczak- Żyła

Carotenoids are a large group of natural compounds, which are ubiquitous in the environment. They are abundant in freshwater and marine organisms: plants, algae, bacteria and zooplankton. Already in water column and later in sediments they undergo different reactions. Pigments are unstable compounds and can degrade both under abiotic and biotic factors- in the presence of light, oxygen, herbivore grazing, microorganism activity. Their concentration in sediments depends mainly on primary production, phytoplankton taxonomy, sedimentation rate, hydrological and post-depositional conditions. Carotenoids are used as valuable chemotaxonomic markers of plankton in water column and proxies in sediments. They differ in stability and, due to that, carotenoids in marine sediments are indicators, not only of organic matter sources but also pre- and post-depositional conditions. As a result of development of various chromatographic techniques, the quantitative studies of these compounds has been reported, mainly for water column as well as for recent sediments, though their variety and differentiated stability still make their quantitative analysis in sediments a real challenge.

This work presents a concentration and distribution of carotenoids in recent sediments from the Gulf of Gdansk (Southern Baltic), Oslo/Drammenfjord (North Sea) and Hornsund, Kongsfjorden, Adventfjorden (Spitsbergen). The results are related to taxonomy and environmental conditions in all the sampling locations.