

Certain Organic Pollutant Levels in Surface Sediment of the Mid Black Sea Coast of Turkey

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Abstract

The Black Sea, 4.2×10^5 km² in area and 2200 m. deep is largest enclosed sea in the world. It has suffered from extensive pollution over the last few years due to unmanaged fishing, unrestricted shipping, mineral exploitation, dumping of toxic wastes from coastal cities and pollutants carried by rivers.

The main aim of this study is to determine the sediment quality by analyzing certain environmental pollutants such as water content, organic content and derivatives of certain pesticides at the surface sediment samples which are collected from the coastal side of the Middle Black Sea of Turkey. Sea water sample analyses are also going to be done at the corresponding sampling points of the sediment samples for routine and special pollutant parameters.

After collecting sediments with a Bridge-Ekman grab sampler, for certain organic pollutant analysis such as pesticides, the samples are prepared for Soxhlet extraction by hexan and dichloromethane and then fractionated and analyzed by gas chromatography with electron capture detection (GC-ECD). Reference materials are also be analysed periodically to provide a check on the quality of analytical data.

Finally, it is expected that although in recent years, the use of persistent organic compounds has been limited or totally banned in most countries, including Turkey, due to their ecotoxicity, the illegal use of organic compounds such as DDT particularly in agriculture and the storage of pesticides residues in sediments biologically due to their long residence time may lead us to determine high levels of these pollutants in sediment samples of Black Sea coast. So, this study may be a start for special monitoring works of certain organic pollutants mainly in the sediment samples at the Black coast of Turkey.