

ORGANIC MICROCONTAMINANTS IN SEDIMENTS FROM THE SPANISH MEDITERRANEAN SHELF.

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ABSTRACT

This work presents the results of the analysis of sediment samples collected in the Catalan coast and in the Balearic shelf. Sampling was done during the oceanographic cruises "Litoral I" and Baleares I" in 1983. In all samples, analysis of alliphatic hydrocarbons, organochlorinated pesticides and PCB's were done using high resolution gas chromatography (HRGC) techniques.

RESUME

Au cours de ce travail, nous avons étudié les hydrocarbures aliphatiques, pesticides organochlorés et PCB's dans les échantillons de sédiments collectés dans le plateau continental de la côte Catalane et des Baléares, durant les campagnes océanographiques "Littoral I" et "Baléares I" (1983). Tous les échantillons ont été analysés par chromatographie en phase gazeuse à haute résolution. Les sédiments étaient plus contaminés aux environs des zones deltaïques et industrialisées. En général, les niveaux de contamination du plateau Baléaire sont inférieurs à ceux du littoral Catalan.

In samples of sediments from Catalan coast and Balearic shelf we have studied the presence of organochlorinated pesticides, PCB's and alliphatic hydrocarbons as an indicative of human activity in coastal areas (García, 1983), in order to evaluate the anthropogenic contamination. The alliphatic hydrocarbons distribution is not as conclusive as the DDT's and PCB's one, due to the fact that contributions to the system, for the case of the former family of compounds are both autochtonous and allochtonous. The sampling was carried out during LITORAL I and BALEARES I. (1983) cruises.

The sediment samples were taken with a VAN VEEN dredge. The organic microcontaminant analysis were done using HRGC techniques, using FID and ECD detectors and capillary columns (SE-30 and SE-54 coated). The samples were dried (50-60°C during 12 hours), extracted with Hexane-Methy-

lene chloride 1:1 v/v using ultrasounds, evaporated and processed by H_2SO_4 clean up (Murphy, 1972).

Alliphatic hydrocarbons:

The results obtained in the analysis of the sediments from the Catalan coast, suggest the classification of samples in two groups. One with high total alkane concentration (200-600 ppb) corresponding to deltaic sediments (Tordera, Llobregat, Besòs, Ebro and Ter rivers) and sediments collected in front of highly industrialized areas (Montgat, Mataro and Margat). The other group includes samples with total alkane concentrations lower than 100 ppb's, corresponding to sediments collected near low industrialized areas (Blanes, Calella, Arenys and Vilasar).

The levels of total alkanes founded in sediments from the Balearic shelf are generally lower than those from the Catalan coast. The range of total alkanes is comprised between 100 and 400 ppb's.

DDT's and PCB's:

In all studied samples, the DDT's and PCB's follow similar distribution patterns. In the Catalan coast, the highest polluted samples (10-100 ppb's for PCB's and 5-15 ppb's for DDT's) are located in front of deltaic systems and highly industrialized areas, as in the case of alliphatic hydrocarbons. The samples collected between Tordera river and Montgat show the lowest concentrations (less than 10 ppb's for PCB's and less than 5 ppb's for DDT's).

The sediments collected in the Balearic shelf show a mean value of both PCB's and DDT's 5 time lower than those found in Catalan zone. The highest concentrations of these microcontaminants are located in sediments from Ibiza western coast and Palma harbour.

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