HYDROCARBONS LEVELS IN MOLLUSCS (BIVALVES) IN THE MOROCCAN WESTERN MEDITERRANEAN SEA

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Abstract
The Moroccan north-western coasts receive continually high inputs of organic matter mostly anthropogenic, from ship and boat traffic discharges and untreated sewage and waste water discharges. So, it was urgent to assess the degree of contamination by hydrocarbons in the zone from Fnideq to Kaâ Asrass, using biota samples (cockles). In this investigation, the study of hydrocarbons is based on the analysis of chemical indicators (n-alkanes hydrocarbons, isoprenoids, hopanes, LAB) to characterize the contamination's sources (biogenic and petrogenic).
Keywords: Bivalves, Chemical Analysis

Material and methods
Sampling On spring 2003, samples of *Acanthocardia tuberculata* commonly known as cockles, were collected from 7 sites at the western moroccan mediterranean sea.
The bivalves have been immediately shelled, crushed and freeze-dried. *Hydrocarbon analysis* Entire organisms tissues were crushed, freeze-dried and soxhlet extracted (5g) with methanol for 10h. Perdeuterated internal standard (n-C24D50) was added before the extraction. The saponification of the lipid extract was performed with KOH/distilled water (0.7N, 2:3) for 2h. Afterwards liquid/liquid extraction was made with n-hexane 3 times. The lipid extract was concentrated and separated by column chromatography on neutral alumina/silica (v: v) (5% deactivated) and eluted, with 20ml n-hexane. The F1 fraction corresponding to aliphatic hydrocarbons was concentrated under vacuum evaporation to dryness and then re-dissolved in 50 µl prior to the analysis by gas chromatography GC/FID and GC/MS.

Preliminary Results
The distribution of n-alkane in all samples shows a trace of terrestrial biogenic inputs, (important peak n-C27 and n-C29) [1]. n-C17 was detected in some samples, it indicate a phytoplanctonic origin [2]. It also shows an important presence of n-C18 and n-C20 related to bacterial origin [3]. UCM was present in the lower molecular weight range, linked to bacterial degradation of natural organic inputs [4]. Moreover, the CPI close to unity suggests an oil contamination [5]. Prystane was absent in most samples except for the O2 site. Inversely to Phytan, it was absent only in O8 site. The Ratios C17/Pr and C18/Py > 1 indicate a petrogenic contribution which is also confirmed by Pr/Py<1. On the other hand, hopanes series were determined in the GC/MS by monitoring m/z 191 in some samples collected from the study area.The identified component had the thermodynamically stable 17α(H), 21β(H) configuration which is indicative of pollution from fossil fuel products [6]. A series of peaks were identified as being the linear alkylbenzene (LAB). They are used as raw material for synthesizing linear alkylbenzene sulfonates (LAS), which are the anionic surfactants commonly used in synthetic detergents [5]. The concentration of total LAB is summered in the Table. such levels were reported by [6, 7, 5].

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