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Source and distribution of aliphatic compounds in sediments core samples from Shatt Al-Arab Estuary, Um Qaser and Khor Al-Zubair

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Abstract

The present study were determined the concentrations of aliphatic compounds for sediment cores to eight sites ,six of them along Shatt Al-Arab estuary (Qurna,Dear, Kerma ,Ashar, Abo Al-Kasseb and FAO) in additional to two stations at Khor Al-Zubair and Um Qaser. aliphatic compounds has been measured using capillary gas chromatography, and we can see that normal alkane the study areas have taken two pattern the first (C١٠-C٢٠) The second type was (C٢٠-C٣٤) and there is the predominance of the odd carbon and number which mainly derived from Diatoms addition to the C١٥-C١٩ compounds) and odd carbon numbers n-alkanes from C١٥ to C١٩ which originated mainly from algae and bacteria while the carbon number (C٢٧-C٣٣), are derived from wax of vascular higher plant leaves whereas the main source of long chain even carbon numbers(C٢٠ - C٣٠)in sediments are produced by bacterial activity and the present of (C١٨ and C٢٠) indicate a petroleum source The distribution of normal alkanes in the sediment core values was (١,٧٨٥- ٠,٢٤٤) at Qurna) (٠,٣٩ -٣,٨٨٩) at Dear, (٤,٢٥٥-١,٣٤٧) at Kerma), (٨,٢٣٧- ١,١٥٣) at Ashar , (٥,٩٩٨- ١,١٩٥) at Abo Al-Kaseeb , (٧,٤٣٤- ١. ٥٤٢) at Fao , (٢,١٤٩ -١,٢٦٠) at Umm Qasr ,(١,٧٣٩-١,٠٣٧) µg/g dry weight, at Khor Al-Zubair. The highest values of total aliphatic compounds were recorded in Ashar while lowest values find out Qurna , both results of each of the (CPI) and (Pr/Phy) indicate that source or n- Alkan in all study area is biogenic and anthropogenic while the ratio (pri/C١٧) (Phy /C١٨) indicate different bacterial activity in the study area .The high average concentrations of Total petroleum hydrocarbons recorded in the Ashar (١٨,٠٨٣) while the lower average were recorded in Qurna area (١,٢٥٤) µg/g dry weight. The analysis of the Total Organic Carbon were analyzed and high percentage recorded in Ashar (١,٦١٤٪) and the lowest recorded in the Qurna (٠,٦٥٨٪).,Ashar have high value due to the presence of sources of oil pollution from the movement of boats and ships and the presence of oil refineries such as Al-Amuftih and Abadan which affected the areas, while low value in qurna because the sources of pollution where few or almost non-existent, where no industrial activities that cause pollution in the region in addition to being represented the confluence of the Tigris and Euphrates point and thus exposed to continuous washing The Grain Size of sediment were also analyzed and the silt loam was predominate in most of the study areas.