

Monitoring of Total Petroleum hydrocarbons (TPHs) in the sediments of some local regions of southern Iraq

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Abstract - Petroleum hydrocarbons are pollutants with a wide range of dangerous organic chemicals, which have received a considerable attention because they are widely distributed in the environment, many of which have a mutated potential, cause genetic toxicity and carcinogenic effects on natural ecosystems. Spatiotemporal variations of total petroleum hydrocarbons (TPHs) in the sediments of some regions of southern Iraq were measured during 2019, the highest concentration were 14.94 $\mu\text{g/g}$ in Al-Burqa at Al-Hammar marsh, and the lowest was 2.05 $\mu\text{g/g}$ in Al-Sadda station in the East of Al-Hammar marsh too. These results were compared with previous studies since 1982 in the same region, these studies were calculated to estimate a bulk value for each study. The results of the present study showed that TPHs concentration in water and sediments at Al-Hammar marsh, Al-Chibayesh marsh and Shatt Al-Arab river were within the permissible limits and there were no significant differences spatially and temporally in the study area. So we can conclude that there is no real total petroleum hydrocarbons pollution in these specific water bodies southern Iraq since 1982.

Keywords: Total petroleum hydrocarbons (TPHs), sediments, Al-Hammar marsh, Al-Chibayesh marsh, Southern Iraq.

Introduction

Water is one of the most important natural resources at all; it is considered as a fundamental factor in human life. Water sources have witnessed a significant deterioration recently in the absence of sufficient attention. The last twenty years have been marked by a great deterioration in the Iraqi environment from air pollution to water and soil pollution.

Iraq is experiencing a period of water-related decline due to multiple pollution sources, and the absence of the right strategies for developing and promoting the basis for providing a clean water (Al-Batat, 2009).

The real attention to oil pollution began in 1922 after the emergence of visible cases of oil stains on the surface of water in different seas and oceans and this prompted scientists to study this phenomenon and its effects on the aquatic environment (Al-Saad *et al.*, 2003).

Hydrocarbons could reach the aquatic environments through natural sources such as natural perfusion from the seabed, or unnatural sources which are the most influential and harmful, this could be happen by the transportation of oil and its derivatives using oil tankers, the balance water resulting from it, and the repairing of their reservoirs.

Oil exploration processes and extraction from the seas, as well as oil refineries discharges, the export ports and washing the loading platforms surly added quantities of hydrocarbons to water (NRC, 2003 and Nasir, 2007).