



## Polychlorinated Biphenyls (PCB) in sediments of the southern part of Tigris River-Iraq

AL-Hasanayn M. AL-Hasani\* Makia M. Al-Hejuje\* H. T. Al-saad\*\*

\* Department of Ecology, College of Sciences, University of Basrah, Iraq.

\*\* Department of Marine Chemistry, Marine Science College, University of Basrah, Iraq.

E-mail: [makia.khalaf@uobasrah.edu.iq](mailto:makia.khalaf@uobasrah.edu.iq)

### Abstract

Polychlorinated Biphenyls (PCB) are persistent, toxic, bioaccumulative, and widely distributed in the environment because of their high stability and tendency to accumulate in the bodies of living organisms, causing serious health effects. Sediment samples were collected from the southern part of the Tigris River from Autumn, 2022 to Summer, 2023 to investigate their occurrence and determine the concentrations of PCB compounds. Twelve PCB compounds were identified in Tigris River sediments: PCB153, PCB149, PCB141, PCB138, PCB101, PCB52, PCB44, PCB31, PCB28, PCB18, PCB194, and PCB189. A dioxin-like PCB compound was also observed (PCB189). The concentrations of total PCBs in sediment samples ranged from (11.00 ng/g dry weight) during autumn to (38.26 ng/g dry weight) during the summer season, which was highest in the upper station compared to the lower stations, which may be due to human activities, household waste, and neighboring agricultural lands that use fertilizers and pesticides as sources of PCBs compounds.

**Key words:** Polychlorinated Biphenyls, PCB, Tigris River, sediments, pollution

Received: 8/3/2023 Accepted: 30/3/2024

### Introduction

Polychlorinated Biphenyls (PCBs) are persistent, toxic, bioaccumulative, and are widely distributed in the environment. Discharges into the environment can occur via urban and industrial discharge, seepage, leaching from the soil, urban runoff, and volatilization (Combi *et al.* 2016). PCBs have

These organic compounds are not only very stable and difficult to degrade or biodegrade, but also have a highly toxic effect (Al-Hejuje *et al.*, 2017).

Although water analysis is useful for assessing river pollution, sediments can also serve as a pollution indicator. Surficial sediments of the studied rivers represent a