



Effect of Some Heavy Metals in the Industrial Flows on Shatt al-Arab River

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ABSTRACT

The current study was conducted at three stations (Al-sibah, Alnajibiya and Almas-hab marsh) during the period from December 2020 to November 2021 along the Shatt al-Arab River. A flame Atomic Absorption Spectrophotometer (FAAS) was used to measure the concentration of some heavy metals (lead, cadmium, copper and iron) in water. The results showed seasonal changes in concentrations of heavy metals in the Shatt al-Arab River. No lead concentration was recorded by FAAS at Alnajibiya and Almas-hab marsh stations during autumn, while it was detected with a value of 0.746 mg/L at Al-siba station during autumn. In addition, cadmium was not detected by FAAS at Alnajibiya and Almas-hab marsh stations in autumn, whereas it was 0.008 mg/L at Alsiba station in winter. The highest concentration of copper was 0.319mg/ L at Al-siba station during winter, while the lowest concentration was (0.001) mg/L recorded at Alnajibiya station in spring. Iron was between 0.703 and 9.0 mg/L at Almas-hab marsh station in the winter and summer seasons, respectively. The study showed that the heavy metals concentrations in the water of the Shatt al-Arab River are arranged in the following order: iron, followed by lead, copper and cadmium.

INTRODUCTION

Pollution of aquatic environment with organic and inorganic substances is one of the main reasons that may threaten the life of human beings who use this water for various purposes, as well as its effect on the survival of aquatic organisms, causing extinction of aquatic species and decreasing biodiversity (Ongley, 1996; Aly *et al.*, 2020)

Heavy metals are considered the most dangerous pollutants in ecosystems, especially in the aquatic environment. Heavy metals concentrations have recorded an increase in Shatt al-Arab and the Arabian Gulf (Al-Saad, 1995). They have gained a significant concern due to their stability in the environment, causing multiple harmful effects on aquatic creatures, even at low concentrations (Parihar *et al.*, 2019). People have received these pollutants by drinking water or consuming fish and other contaminated aquatic organisms (Belabed *et al.*, 2017; Kumar *et al.*, 2019).