Poly Aromatic Hydrocarbons Accumulated on Pholcidea Spider Webs in Basra Province

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Abstract. The study determined the concentrations of poly aromatic hydrocarbons accumulated on Pholcidea spider webs in Basra province from September 2021 to August 2022. It included five distributed stations over The province (Basra Center, Qurma Ali, Shatt Al-Arabs, Abu Al-Khasib and Al-Rumaila). The content of aromatic hydrocarbons (PAHs) in spider web samples was determined by Gas Chromatography-Mass Spectrometer (GC-MS), Japanese-made and located at the Basra Oil Company, Nahran Bin Omar site, Shimadzu type. The results showed that the average concentration of hydrocarbons is higher in Basra station at 0.2798 dry weight and less in Al-Khasib station at 0.0028 dry weight. High temperatures compared to average temperatures, and the results showed a decrease in the level of deposition of aromatic hydrocarbons (PAHs), the detected hydrocarbons in the atmosphere of other countries showed a high level of concentration compared to the results of the current study, and it was proved that the aromatic hydrocarbons in the nets of Pholcidea spiders are caused by A major determinant of traffic emissions is that the main determinant of hydrocarbon accumulation in spider webs is that only high molecular weight compounds can be effectively measured using spider webs. The aromatic hydrocarbons pattern showed similar levels of the compounds in all collected samples. However, these PAH levels were compounds from different sources such as industrial or traffic activities at different locations.

Keywords. Aromatic hydrocarbons, Spider webs, Pollution, Basra.

1. Introduction

Algae, fungi, bacteria, and lichens have been used as biomarkers in air, soil, and water. They have recently become popular in environmental studies as a way to monitor the accumulation of pollutants in the environment. Biomonitoring is defined as the use of biota to estimate environmental pollution. This method provides good information on the quantity and quality of pollutants in the atmosphere [1,2]. The term “pollution” refers to the introduction into the environment by humans of substances or energy that are likely to be hazardous to human health or harm living resources and ecosystems. These substances include gases (such as hydrocarbons, nitrogen oxides, and carbon monoxide), and particulates (i.e. Dust, smoke, and fumes) [3].

Exposure to air pollutants explained by [4] constitutes a danger to the environment. Various studies have shown that the proportion of air pollutants continues to rise to levels that exceed acceptable values. Air pollution occurs naturally due to gases from volcanoes, fires, pollen, germs, and dust [5]; as for human sources, they result from mineral extraction, processing, smelting, and power generation [6]. Hydrocarbons have been classified as a pollutant in the United States [7]. Forest fires, volcanoes,

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