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Concentration of some Heavy Metals Emissions from Electrical Generators in Air and Green Plants in Basrah City, Iraq

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Abstract: The current study deals with determination of four heavy metal concentrations (Lead, Chromium, Cadmium and Nickel) in emissions released from electric generators in Basrah city, which used diesel or gasoline fuel, and their concentrations in leaves of six green plant species: *Phoenix dactylifera* (Date palm), *Lawsonia* sp. (Hinna), *Ficus carica* (Fig), *Cordia myxa* (Bamber), *Ziziphus* sp. (Seder) and *Cynodon* sp. (Thaiyil) that exposed to the emissions. The higher concentration of Lead (272.88 µg/g dry weight) was recorded in emissions of generators that using gasoline fuel as compared with those using diesel fuel, whereas the highest concentrations of Chromium, Nickel and Cadmium (11.72, 9.63 and 10.63 µg/g dry weight, respectively), were recorded in the emissions of generators that using diesel fuel. Cadmium, Chromium and Nickel recorded high concentrations in plants leaves exposed to emissions of the generators that using diesel fuel as compared with those using gasoline fuel. The higher averages concentrations were recorded in *P. dactylifera* (7.51, 1.50 and 6.36 µg/g dry weight, respectively), while the highest concentration of Lead (48.93 µg/g dry weight) was recorded in plants leaves exposed to emissions of generators using gasoline fuel.

Keywords: Air pollution, Heavy metals, Green plants, Electrical generators, Emission, Basrah city

Introduction

The term "heavy elements" refers to any metallic element that has a relatively high density (above 5 g/cm^3) and some of them are toxic or poisonous even at low concentrations (Lenntech Water Treatment and Air Purification, 2004).

Heavy metals exist in the environment as a result of natural processes or as pollutants produced by human activities. Factories, combustion of byproducts and traffics release large amount of dangerous and toxic gases to the atmosphere. These gases carry a lot of heavy element particles that ultimately precipitate on the soil surface and plants leaves (Fernandes & Henriques, 1991). Naturally, the main sources of heavy metals in plants is air, water and soil, where the absorption of these elements takes place either by roots or shoot system (Keane et al., 2001;

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