

## **EFFECT OF SOIL PROPERTIES ON THE SPECIFIC ADSORPTION OF ZINC BY SOME SOILS OF EGYPT.**

**Hussien, M. A. ; H. A. Ahmed and M. N. Ahmed**

**Soil and water Department of Agriculture Faculty Al-Azhar Uni**

### **ABSTRACT**

The present work aims to study the effect of some soil properties on specifically adsorbed zinc in some soils of Egypt. Therefore, surface and subsurface soil samples with different physico – chemical characteristics were selected from different locations. The result showed that the adsorption of zinc correlated positively with all of clay +silt content, pH, calcium carbonate and cation exchange capacity. The data indicated that the adsorption of Zn increased with increasing (pH) and increased with increasing the concentration of Zn added in solution. Zinc desorption decreased as the pH values increased.

**Keywords:** specific adsorption, zinc, soil properties.

### **INTRODUCTION**

Soil pollution may occur as a consequence of different types of unwanted substances.

- Intensive fertilization, as well with mineral as with organic manures.
- The contaminating products are integrated in the complex soil system and distributed amongst the different forms present, namely the solid forms, soluble and insoluble organo-mineral complexes adsorbed and exchangeable forms and free ions in soil solution.

It is very important to know that the physical and chemical properties of the soil play a great role in governing the relation between reactivity and total content of the contaminating substance, however, its action is specifically linked to the nature of the pollutant, which may be more or less toxic.

The aim of this study is to obtain some information regarding the importance of the specific adsorption of zinc, in different soils of Egypt as a contribution dealing with the problem of soil contamination with heavy metals. The specifically adsorbed heavy metal cations could be defined as the amount of adsorbed heavy metal cations in presence of different amounts of some cations large enough to prevent adsorption on normal cation exchange sites as mentioned by McLaren and Crawford, 1973.

### **MATERIALS AND METHODS**

Three locations were selected surface and subsurface. Soil samples were taken and analyzed. Soil samples were air dried and ground to pass through 2- MM sieve. Particle size analysis was carried out using pipette method, electrical conductivity in soil paste extract by Page et al (1982); soil reaction (pH) in the soil paste. pH – Meter; total calcium carbonate by the