
شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم


# شبكة المعلومات الجامعية

# التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

# جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات

## يجب أن

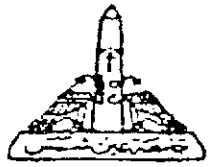
تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

**To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%**

# بعض الوثائق الاصلية تالفة

# بالرسالة صفحات لم ترد بالاصل





Institute of Environmental
Studies and Research
Department of Environmental
Agricultural Science

# HEAVY METALS POLLUTION REDCTION IN SOILS IRRIGATED WITH SEWAGE WATER

By

*Shaker Hosny Salib*

B.Sc. In Soil Science, Faculty of Agriculture, Ain Shams University, 1984
Diploma in Environmental Science, Institute of Environmental
Studies and Research, Ain Shams University, 1988

Thesis

Submitted in Partial Fulfillment of the
Requirements for the Master Degree

In
Environmental Science

Department of Environmental Agricultural Science
Institute of Environmental Studies and Research
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2005

# *APPROVAL SHEET*

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**Date: 26/ 1/ 2005**

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**2005**

# ABSTRACT

This work was carried out to study the effect of irrigation with sewage effluent polluted with heavy metals on some cultivated soils in El-Gabal El-Asfar, El- Saff and Abou-Rawash. Chemical properties and heavy metal contents of Mn, Zn, Pb, Co and Cd of the investigated irrigation water samples were determined . Also, physical and chemical properties and above mentioned heavy metals content of the investigated soils were determined follow up the changes that may take place in status of heavy metals in these soils.

Moreover, an experimental trial was conducted to reduce the heavy metals content of the contaminated soils at Abou Rawash by planting *Pelargonium zonale and Panicum crusgalli* as hyperaccumulating plants (phytoremediation).

The obtained results indicate that irrigation with wastewater increased total and available heavy metals content in the studied soils. The two tested plants (*Pelargonium Zonale and Punicum Crusgalli*) can be used as hyperaccumulator plants and they appeared high capacity for accumulating most heavy metals from metals contaminated soils.

While, *Pelargonium Zonale* plants were more effective as hyperaccumulator plants for the most studied heavy metals than *Punicum Crusgalli* plants.

# ACKNOWLEDGMENT

The author wishes to express his deep appreciation and gratitude to **Prof. Dr. Hesham Ibrahim El Kassas,** Professor of Soil and Water Environment and Head of Environmental Agricultural Science Department, Institute of Environmental Studies and Research, Ain Shams Univ.; **Dr. Ahmed Mahmoud Eissa,** Associate Professor of Soil Science, Soils, Water and Environment Research Institute, Agricultural Research Center (ARC), Egypt and **Dr. Faten Zakria Mahmoud,** Associate Professor of Analytical and Inorganic Chemistry, Faculty of Girls, Ain Shams Univ. for their supervision, guidance and continuous encouragement during the execution of this work.

Thanks are also due to **Dr. Osama Sadek Gendy,** Researcher of Soil Science, Soils, Water and Environment Research Institute, Agricultural Research Center (ARC), Egypt, for his sincere help.

Thanks are also extended to all the staff members of Soil Survey Department, Soils, Water and Environment Research Institute, Agricultural Research Center, for their sincere help and the facilities provided throughout this work.