



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



شبكة المعلومات الجامعية
@ ASUNET



شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



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 الأصلية تالفة

بالرسالة صفحات لم ترد بالاصل

A study on some trace metals as related to soil environment

B5637

By

Nadia Abd El-Azeem Mohamed

B. Sc. Agric (Soil Sci.), Fac. of Agric., Ain Shams Univ., 1975

M. Sc. Agric. (Soil Sci.), Fac. of Agric., Ain Shams Univ., 1990

A thesis submitted in partial fulfillment

of

the requirements for the degree of

DOCTOR OF PHILOSOPHY

In

AGRICULTURAL SCI.

(SOIL SCIENCE)

Department of Soil Science
Faculty of Agriculture
Ain Shams University

1998

ASTUDY ON SOME TRACE METALS AS RELATED TO SOIL ENVIRONMENT

By

Nadia Abd El-Azeem Mohamed

B.Sc. Agric. (Soil Sci.), Fac. of Agric., Ain Shams Univ., 1975

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Under the supervision of :

Professor Dr. Farida Hamed Rabie Professor of Soil
Science Faculty of Agriculture , Ain shams
university

Professor Dr. Saad El-Demerdash El-Kady Professor of Soil
Sci , Desert Research , center .

Approval sheet

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Nadia Abd El-Azeem Mohamed

B.Sc. Agric. (Soil Sci.), Fac. of Agric., Ain Shams Univ., 1975
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This thesis for Ph.D. degree has been approved by :

Professor Dr. Somaya Ahmed Hassanein

Somaya Hassanein

Professor of Soil Institute of
Soil, Water and Environment
Research, A R C, (Giza).

Professor Dr. Mohamed Ahmed Mostafa

M.A. Mostafa

Professor of Soil Science ,
Fac. of Agric., Ain Shams
University .

Professor Dr. Farida Hamed Rabie

F.H. Rabie

Professor of Soil Science
Faculty of Agriculture , Ain
Shams University (Supervisor)

Date of examination : 21 8 . 1998.

vegetable crops (corn grain, egg plant, okra, and fruits) and also from some citrus fruits (seedless, baladi, lemon and mandarin) grown in the different soils were analyzed for their content of heavy trace metals.

Results obtained showed that:

- A very slight variation in texture was observed upon irrigating soils with sewage water especially soils irrigated for 75 years.
- Organic matter content is generally higher in soils irrigated with sewage water than those irrigated with Nile water or virgin soils.
- Irrigating soils with waste water decreased CaCO_3 content and pH of the surface layers.
- There is generally an increase in EC values of the soils irrigated with sewage water than those of the Nile irrigated or virgin soils, though the EC the studied soil did not exceed 4.0ds/m.
- In respect to total and extractable trace metals in soils, the highest values of these were found in the surface layers (0-10cm), then these values decrease with increasing soil depth, and increased with increasing irrigation periods.
- In respect to plants which are grown in this farm the results obtained indicated that:

Levels of most trace metals in the edible parts are within the permissible levels. Few metals, i.e., Cd, Co, Ni and Cr are considered within the contaminated levels: i.e :- egg plant fruit is considered contaminated with Cd, Co and Ni, while okra is considered contaminated with Cd and Cr, and green pepper is

Heavy trace metals As Related to Soil Environment

Unpublished PH. D., Thesis university of Ain shams,
Faculty of Agriculture, Department of Soil Science, 1998.

Abstract

Irrigation with sewage water is considered an environmental component which affect the content and status of heavy trace metals in soils and consequently plant grown on them.

The current work is undertaken to study the content and status of some heavy trace metals as related to soil environment.

The investigated area is located in El-Gabal El-Asfar farm in which sewage water is used in irrigation for more than 75 years.

Eleven soil profiles were taken to represent soils irrigated for different periods (23, 37 and 75 years) besides one profile irrigated with Nile water and other profile from the vergin soils in the same area. Water samples were collected from sewage drain and from El-Qalag Canal. Samples from some

vegetable crops (corn grain, egg plant, okra and green pepper fruits) and also from some citrus fruits (seedless, baladi, lemon and mandarin) grown in the different soils were analyzed for their content of heavy trace metals.

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considered contaminated with Ni only. Regarding citrus fruits, in all varieties, concentration of all heavy metals increased with increasing irrigation period . Juice in all varieties has lowest concentration of heavy metals. All heavy trace metals in citrus fruit parts are within the permissible levels except Pb and Cd. Lead and cadmium content in citrus grown in El-Gabal El-Asfar (juice) was computed and compared with the tolerable level of Pb and Cd proposed by WHO and FAO.