

شبكة المعلومات الجامعية







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 على هذه الأفلام قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار في درجة حرارة من ١٥-٥٠ مئوية ورطوبة نسبية من ٢٠-٠٠% To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%



بعض الوثائـــق الإصليــة تالفــة



بالرسالة صفحات لم ترد بالإصل



PEDOCHEMICAL STUDIES ON SOME SOILS IN TOSHKI REGION

BY

AHMED MOHAMED GOMAA ALY B.Sc. Agric. (Soils), Ain Shams University (1976)

A thesis submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in Agricultural Science (Soil Science)

Department of Soils

Faculty of Agriculture, Moshtohor

Zagazig University, Benha Branch



PEDOCHEMICAL STUDIES ON SOME SOILS IN TOSHKI REGION

BY

AHMED MOHAMED GOMAA ALY

B.Sc. Agric. (Soils), Ain Shams University (1976)

This thesis for M. Sc. degree

Under the Supervision of:

Prof. Dr. Fahmy M. Habib. F. J. Halish

Prof. of Soil Sci., Fac. of Agric., Moshtohor, Zagazig Univ., Benha Branch.

Prof. Dr. Adel M. Abdel-Rahman Zayed. Zayed A.M.

Prof. of Soil Sci., Soils, Water and Envirn. Res. Ins., Agric. Res. Center.

| | | |
|------|--|--|

APPROVAL SHEET PEDOCHEMICAL STUDIES ON SOME SOILS

IN TOSHKI REGION

BY

AHMED MOHAMED GOMAA ALY

B.Sc. Agric. (Soils), Ain Shams University (1976)

Prof. Dr. Fahmy M. Habib

Prof. of Soil Science, Fac. of Agric., Moshtohor, Zagazig Univ.,
Benha Branch.

Prof. Dr. El-Sayed A. Khater

Prof. of Soil Science, Fac. of Agric., El-Fayoum, Cairo Univ.

Prof. Dr. Hassan Hamza Abbas

Prof. of Soil Science, Fac. of Agric., Moshtohor, Zagazig Univ.,
Benha Branch.

Prof. Dr. Adel M. Abdel-Rahman Zayed

Prof. of Soil Science, Soils, Water and Envirn. Res. Ins., Agric. Res. Center.

Date of Examination: 24 / 4 / 2005.



ACKNOWLEGEMENT

I am very grateful to Prof. Fahmy M. Habib, the main supervisor and the Professor of Soil Science at Soil Department of Agriculture Faculty at Moshthor for his choice of this interesting investigation, guidance, willingness, encouragement, advices and valuable comments.

Also, my sincere and deep gratitude to Prof. Dr. Adel M. Abdel-Rahman Zayed, the Professor of Soil Science at Soils, Water and Environment Research Institute, Agricultural Center(ARC), for his advices, helping during the courses and kindly supervision of this research work from the first to the end.

Many thanks and appreciations to Dr. Tarek Maher M. Ashoub, Asst. Prof. of Soil Science and the staff members of Soil Survey Section at Soils, Water and Environment Research Institute, Agricultural Research Center (ARC), for their helping during this research.

Also, thanks to my family, especially my son Eng. Sherif, for their helping during this research.

Contents

| 1. INTRODUCTION. | 1 |
|--|----|
| 2. REVIEW OF LITERATURE. | 2 |
| 2.1-Physiographic features of the studied area. | 2 |
| 2.1.1- Location. | 2 |
| 2.1.2- Meteorological data of the studied area. | 2 |
| 2.1.3- Topography. | 7 |
| 2.1.4- Geology. | 7 |
| 2.1.5- Geomorphology. | 13 |
| 2.1.6- Natural vegetation. | 19 |
| 2.1.7- Drainage condition in the Western Desert. | 20 |
| 2.1.8- Water resources. | 21 |
| a) Ground water. | 21 |
| b) Nile water. | 22 |
| 2.2- Soils. | 23 |
| 2.2.1- Physical properties. | 23 |
| 2.2.2- Chemical properties. | 25 |
| 2.2.3- Total and available micronutrients and | |
| trace elements. | 27 |
| 2.2.3.1-Total iron. | 27 |
| 2.2.3.2- Total manganese. | 29 |
| 2.2.3.3- Total zinc. | 30 |
| 2.2.3.4- Total copper. | 32 |
| 2.2.3.5- Statistical measures of trace elements. | 34 |
| 2.2.3.6- Available iron. | 35 |
| 2.2.3.7- Available manganese. | 36 |
| 2.2.3.8- Available zinc. | 37 |
| 2.2.3.9- Available copper. | 37 |

| 2.2.3.10- Trace elements status in South Valley | |
|---|----|
| soils. | 38 |
| 2.2.4 -Grain size analysis :- | 40 |
| 2.2.4.1 - Grain size parameters: | 40 |
| 2.2.4.2 -Grain size image: | 44 |
| 2.2.5 -Environment of deposition:- | 45 |
| 2.2.6Mineralogical properties : | 46 |
| a)- Mineralogical composition of the clay fraction. | 46 |
| b)- Minerals pattern of the non-clay fraction. | 48 |
| c)-Origin of parent materials at the studied area. | 52 |
| 2.2.7- Soil classification. | 54 |
| 2.2.8- Land evaluation and land suitability. | 55 |
| 3. MATERIALS AND METHODS. | 57 |
| 3.1- LANDSAT image visual interpretation. | 57 |
| 3.2- Field work. | 57 |
| 3.3- Laboratory analyses. | 57 |
| 3.3.1- Physical analyses. | 61 |
| 3.3.2- Chemical analyses. | 61 |
| 3.3.3- Mineralogy analyses. | 62 |
| 3.4- Soil classification. | 64 |
| 3.5- Land evaluation. | 65 |
| 4. RESULTS AND DISCUSSION. | 66 |
| 4.1- Remote sensing inventory. | 66 |
| 4.2- Soil characteristics. | 66 |
| 4.2.1- Pediplain of sandstone. | 67 |
| 4.2.1.1-Soil morphology. | 67 |
| 4.2.1.2-General view on soil characteristics. | 73 |
| 4.2.1.3-Total contents of micronutrients and | |
| trace elements. | 80 |