بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

PEDOLOGICAL FEATURES STUDIES OF SOME VERTISOLS AND ARIDISOLS IN EGYPT

By

SAMY ABD ELGAYED ABD ALLAH

B . Sc. . Agric . (Soil Sci.) , Ain Shams Univ. 1981

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Morphology of Vertisols profiles :

ABSTRACT

SAMY ABD ELGAYED ABD ALLAH . Pedological features studies of some Vertisols and Aridisols in Egypt .Unpublished Ph .D, thesis,University of Ain Shams,Faculty,of Agriculture,Department of Soil Science,2000 .

The purpose of this investigation is to study in details the pedological features formed in some soils belonging to Aridisols and Vertisols. To fulfill this prupose, 21 soil profiles representing different Aridisols and Vertisols were selected from the different regions in Egypt. Soil samples were collected and prepared for physical, chemical, mineralogical and micromorphological analysis. The results of this work can be summarized as follows :-

A : Physical , chemical and mineralogical properties of the Aridisols :

Soil texture classes indicate extremely variable texture between sandy loam and clay , $CaCO_3$ content ranges from 0.5 to 66.18 % and T.S.S expressed in EC values from 3.24 to 155 dS/m , gypsum content from nil to 25.8 % organic matter from 0.10 to 1.10 % depending on great soil group and environmental features.

The x- ray diffraction patterns are different in different great soil groups. Pridominant minerals are kaolinite and calcite, or kaolinite and palygroskite, or montmorillonite in the Haplocalcids, Aquisalids and Haplogypsids respectively

B:Physical, chemical and mineralogical proparties of the Vertisols :

The soil texture is clay throughout the entire depth of most profiles, clay content varies widely from 43.03 – 72.53 % $CaCO_3$ content is generally low and varies in the different soil sites , it ranges from 0.43 – 8.25 % . Soil salinity differes from one locality to another , the EC values range from 4.0 – 18.32 dS/m at 25 ^{0}C

The clay fractions are dominated with of momtmorillonite followed by kaolinite, mica and interstratified mimerals , accessory mimerals present in the clay fraction are few amount of quartz and feldspars .

C.The micromorphology of Vertisols profiles :

The microstructures are fissures , cracks , and weakly to moderately developed subangular blocky structure . Coarse materials are single and compound mineral grains dominated by quartz , feldspars, mica and opaque minerals , poorly

sorted to well sorted. The fine materials are dominated by clay , mediun and fine silt mixed with amorphous iron oxides . The b. fabric of the ground mass are speckled , mosaic speckled and lipied . planar voids are dominated such as vughs, channels , chambers and compound packing voids . Many kind of pedofeatures , dominanted by ferruginous oxides having sharp boundaries . common typic lenticular gypsum crystals ,. loose discontinuous crystals of lenticular gypsum spreaded in the ground mass .

D. The micromorphology of the Aridisols profiles :-

Most of these soils have granular, crumby , vughy and platy structure , coarse materials dominated by macro and meso minerals . Fine materials dominanted by, medium and fine silt , calcium carbonate . The b. fabric of the ground mass are speckled , crystallitic and lipid. Compound packing voids are dominant as well as large irregular vughs and chambers . Many kinds of pedofeatures are observed in the thin sections , i.e, coarse irregular calcareous nodules with different sizes and shapes, micritic calcite nodules, and . idiotopic and hypidiotopic gypsum crystals. Typic well formed large cemented lenticular gypsum crystals, typic granular crystalline gypsum infilling some chambers .

Key words :
Vertisols – Aridisols – Physical – Chemical – Mineralogy – Micromorphology

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