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

POTASSIUM EXCHANGE BEHAVIOUR IN SOME SOILS OF EGYPT

BY

MAGDY HASSAN KHIDER
B. Sc. Agric. (Soil Sci.), Cairo University, 1979
M. Sc. Agric. (Soil Sci.), Ain Shams University, 1995

A thesis submitted in partial fulfillment
of
the requirement for the degree of
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in
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Department of Soil Science
Faculty of Agriculture
Ain Shams University

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APPROVAL SHEET

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ABSTRACT

Magdy Hassan Khider. Potassium exchange behaviour in some soils of Egypt. Unpublished Doctor of Philosophy Dissertation, Department of Soil Science, Faculty of Agriculture, Ain Shams University, 2001.

This work was carried out to study the potassium status, available potassium, potassium supplying power, influence of anions on potassium supplying power, the maximum adsorption capacity, the bonding energy of potassium and the fixation capacity of potassium in four surface soil samples (0-30 cm) taken to represent the Nile alluvial soils (El-Kanater and Beni-Suef) and calcareous soils (Borg El-Arab and El-Hammam). The obtained results showed that the amount of soluble and exchangeable K represent the least cationic amount in the investigated soils. The total K in the studied soils tends to be relatively high in each of fine and medium textured soil samples, while the low values were recorded in the coarse textured soil samples. The amounts of available K extracted by the different methods gave the following descending order: amounts extracted by successive extractions with boiling in $\underline{N}$ HNO_3 > the extracted K by $\underline{N}$ HNO_3 > the extracted K by 0.01 $\underline{N}$ $CaCl_2$ > the extracted K by concentrated H_2SO_4 > the extracted K by 0.5 $\underline{N}$ HCl. The obtained data of potassium Q/I showed that potassium buffering capacity in soils becomes higher as the texture becomes finer. Using $SO_4^=$ instead of Cl^- leads to decrease the value of the potassium buffering capacity.

The bonding energy for K in the calcareous soils was higher than those of the alluvial ones.

The maximum adsorption capacity for K in the alluvial soils was higher than those of the calcareous ones.

Potassium fixation increased in the treated samples by increasing potassium concentration in the added K solutions and the fixed K values were higher in the alluvial soils than the calcareous soils.

Key words: K status, potassium potential, potassium exchange, potential buffering capacity quantity intensity parameters, free energy.