

**EFFECT OF TREATED NATURAL SEDIMENTS
ON NUTRIENTS AVAILABILITY AND
PLANTS GROWN IN NEWLY
RECLAIMED LANDS**

By

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B. Sc. Agic.Sc. (Soil Science), Ain Shams University, 1980

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ABSTRACT

Naima Abd-Elfatah Abd-Elrazek Ismail: Effect of Treated Natural Sediments on Nutrients Availability and Plants Grown in Newly Reclaimed Lands. Unpublished M. Sc. Thesis, Department of Soil Science, Faculty of Agriculture, Ain Shams University, 2010.

This study was carried out to indicate the effect of application of different types and rates of Egyptian natural sediments either loaded or unloaded by certain micronutrients on plant growth in calcareous and sandy soils. Therefore, three raw natural sediments, bentonite, vermiculite and rock phosphate were collected and cleaned from their impurities. The behavior of these sediments in water was evaluated through their subjection to swelling, different times, along with variable temperature and pH values. Also, these sediments were chemically loaded by Cu, Mn and Fe ions from CuSO_4 , MnSO_4 and FeSO_4 , respectively, under different concentrations, temperature and pH values. Moreover, a pot experiment was carried out to evaluate the effect of application for different rates of these unloaded and loaded sediments by the studied heavy metals. The study of the effect of heavy metal ions on the growth and total uptake by Zea-maize plants grown on sandy and calcareous soils will be cleared. The main results indicated that the highest swelling, adsorption and release of the studied heavy metal ions along with different sediment swelling in water took the following order:

bentonite > vermiculite > rock phosphate

Moreover, the growth and total micronutrients uptake of the studied sandy and calcareous soils; under investigation; were highly affected positively.

Key Words: bentonite, vermiculite and rock phosphate sediments;
iron, manganese and copper ions; zea maize,

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