STUDIES ON NUTRITIONAL STATUS OF PLANTS GROWN UNDER DIFFERENT STAGES OF SOIL AMELIORATION

By

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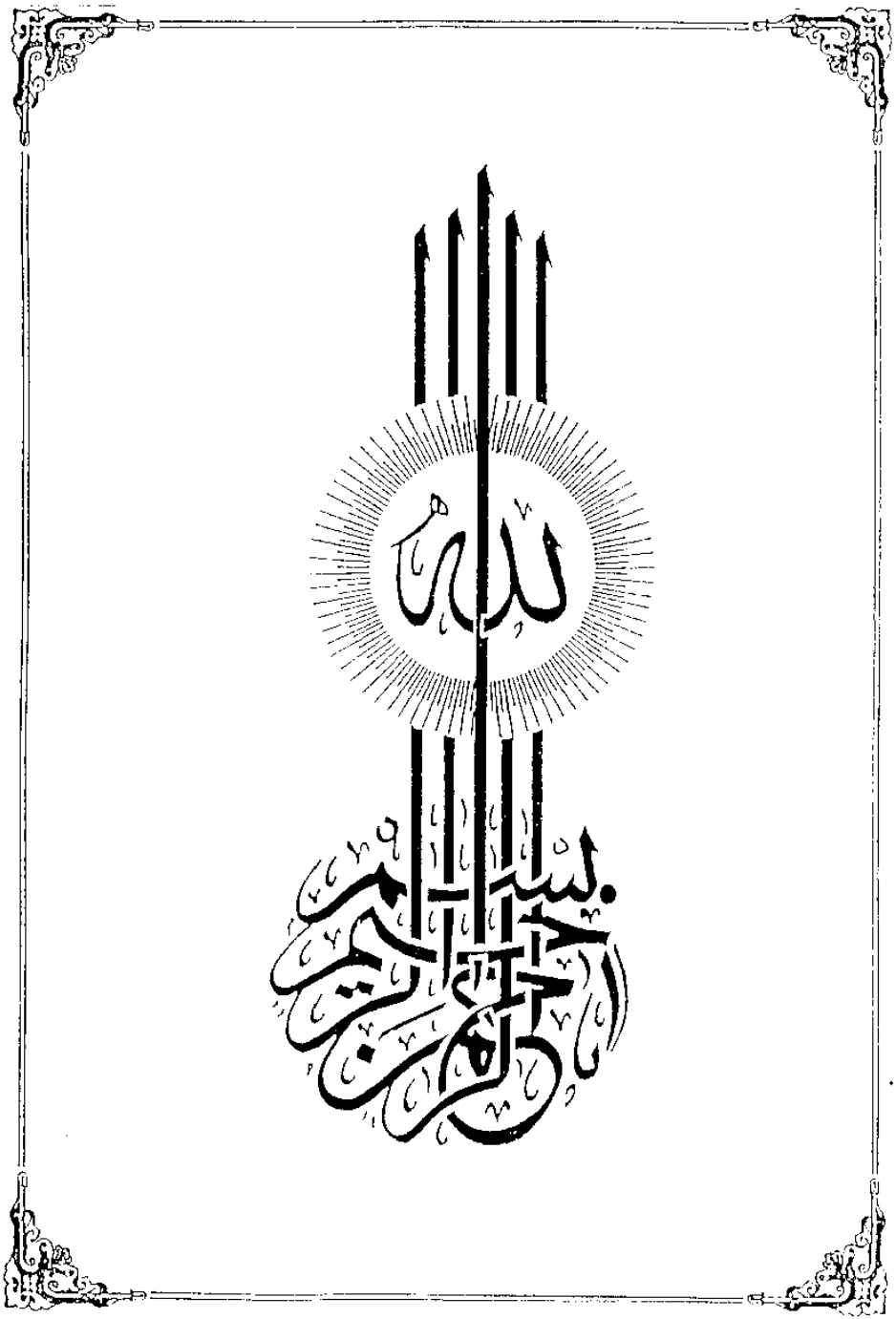

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ABSTRACT

Two main experiments were carried out on deteriorated soils at Fayoum region. The first experiment was assigned to evaluate the effects of soil amelioration practice on chemical properties and nutrient availability for concerned soils as well as the growth and nutritional composition of grown denaiba plants. The second experiment involved three locations varied in their salinity and alkalinity to evaluate the influence of both IAA and GA_3 on behaviour of grown tomato plants.

For the first experiment, gypsum application with continuous leaching process improved some soil chemical properties such as EC, SAR and ESP. Availability of N,K,Fe and Mn in the studied soils, relatively opposite to P and Zn along with Cu,increased as the amelioration process goes on.

In general, a beneficial effect for concerned amelioration process was encountered on the dry matter content and shoot/root ratio of grown denaiba plants, opposite to that of tillering. Under conditions of salt-affected soils, a positive effect for higher salinity and alkalinity was encountered, opposite to K and to some extent Zn and Cu, on the accumulation of Na, Ca, N and to some extent Mg and Fe ions within the plant tissues. This was reflected on the ratios of Na/K , (Na+K)/(Ca+Mg) and Na/(K+Ca+Mg) within denaiba plant parts, Ca/Mg ratio being non affected.

For the second experiment , application of both growth regulators on tomato plants, grown at low salinity location, had generally a slight depressive effect on dry matter content of both shoots and roots, such response being more pronounced as plants get advanced in age. This was opposite to that at both moderate and high salinity locations with stimulation being extended to values of shoot/root ratio at the first growth stage of plants opposite to that at second one, such trend being true under all salinity locations.

Under moderate and high salinity locations, and to some extent low salinity one, application of both IAA and GA_3 generally stimulated the accumulation of K and Ca and to some extent N, P and Mg along with Mn, opposite to Na and to some extent Fe, ions within the plant tissues.

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