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

By

MOSTAFA HELMY EL SAYED

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By

MOSTAFA HELMY EL SAYED

B.Sc. Agri.(Soils) Ain Shams Univ., 1976

This thesis for M.Sc. degree has been
approved by :

Prof.Dr. I. M. Antar.....

Head of the executive authority
for land improvement projects.

Prof.Dr. M. A. Mostafa.....

Prof. of Soil Science, Fac. of
Agri., Ain Shams Univ.

Prof.Dr. A. E. El-Leboudi.....

Prof. of Soil Science and Head
of soils department, Fac. of
Agri., Ain Shams Univ.

Date of examination : 26 / 4 / 1992



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MOSTAFA HELMY EL SAYED

B.Sc. Agri.(Soils) Ain Shams Univ., 1976

Under the Supervision of : Prof. Dr. A.E.El_Leboudi

Prof. of Soil Science

Dr. H.E.Abu - Hussin

Lecturer of Soil Science

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 GA₃ 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 GA₃ 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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CONTENTS

	Page
1. INTRODUCTION.....	1
2. REVIEW OF LITERATURE.....	3
2.1. Amendmentation processes.....	3
2.1.1. Gypsum application.....	3
2.1.2. Leaching.....	5
2.2. Crop production under conditions of salt affected soils.....	8
2.2.1. Growth.....	8
2.2.2. Nutritional status.....	13
2.3. Growth regulators - soil salinity interactions...	17
2.3.1. Growth.....	17
2.3.2. Nutritional status.....	20
2.3.3. Biological activities.....	25
3. MATERIALS AND METHODS.....	29
3.1 Experimentation.....	29
3.1.1 The first experiment.....	29
3.1.1.1 Evaluated soil properties.....	29
3.1.1.2 Amelioration process and treatments.	30
3.1.1.3 Plant sampling.....	30
3.1.2 The second experiment.....	30
3.1.2.1 Evaluated soil properties.....	32
3.1.2.2 Growth regulators treatment.....	32
3.2 Methods of analysis.....	34
3.2.1 Soil analysis.....	34

3.2.2 Plant analysis.....	35
4. RESULTS AND DISCUSSION.....	37
4.1 Effect of amelioration process on soil salinity.. and nutrient availability.....	37
4.1.1 Soil salinity and alkalinity.....	39
4.1.2 Nutrient availability.....	43
4.2 Plant behaviour.....	48
4.2.1 Growth.....	48
4.2.2 Nutritional status.....	51
4.2.2.1 Sodium.....	51
4.2.2.2 Potassium.....	55
4.2.2.3 Calcium.....	58
4.2.2.4 Magnesium.....	59
4.2.2.5 Nitrogen and phosphorus.....	60
4.2.2.6 Micronutrients.....	65
4.3 Growth regulators as a practice for developing... salt resistance of tomato plants.....	69
4.3.1 Growth.....	74
4.3.1.1 Low salinity location.....	74
4.3.1.2 Moderate salinity location.....	76
4.3.1.3 High salinity location.....	79
4.3.2 Nutritional status.....	82
4.3.2.1 Low salinity location.....	82
4.3.2.2 Moderate salinity location.....	94
4.3.2.3 High salinity location.....	102
5. SUMMARY AND CONCLUSIONS.....	113

6. REFERENCES.....	119
ARABIC SUMMARY	

LIST OF TABLES

No.	Title	Page
1	Certain soil characteristics of the studied soil samples before amelioration process (first experiment).	31
2	Certain soil characteristics of the studied soil samples of the second experiment.	33
3	Certain soil characteristics of the studied soil samples after amelioration process (first experiment).	38
4	Change % in some chemical characteristics and nutrient availability of concerned soil samples subjected to amelioration process.	40
5	Multi regression equations representing responses of plant growth to both salinity and alkalinity conditions.	71
6	Multi regression equations representing responses of nutrient content of studied plants to both salinity and alkalinity conditions.	72
7	Multi regression equations representing responses of nutrient uptake (mg/plant) of studied plants to both salinity and alkalinity conditions.	73

LIST OF FIGURES

No.	Title	Page
1	The relationship between both SAR and ESP values before and after amelioration process.	44
2	Response of tillering , dry matter content and shoot/root ratio of denaiba plants to both salinity and alkalinity conditions.	49
3	Influence of both salinity and alkainity conditions on the status of concerned elements within denaiba plant parts.	52
4	Influence of both salinity and alkainity conditions on the translocation of concerned elements within denaiba plant parts.	54
5	Influence of both salinity and alkalinity conditions on the balance among concerned elements within denaiba plant parts.	57
6	Influence of both salinity and alkainity conditions on the status of both N and P within denaiba plant parts.	61
7	Influence of both salinity and alkainity conditions on the translocation of N and P within denaiba plant parts.	63
8	Influence of both salinity and alkalinity conditions on the status of concerned micronutrients within denaiba plant parts.	66
9	Influence of both salinity and alkalinity conditions on the translocation of concerned micronutrients within denaiba plant parts.	70

10	Influence of both GA ₃ and IAA foliary sprayed on the dry matter content and shoot/root ratio of tomato plants grown at low salinity locations . Vertical bars represent LSD between means at P< 0.05.	75
11	Influence of both GA ₃ and IAA foliary sprayed on the dry matter content and shoot/root ratio of tomato plants grown at moderate salinity location. Vertical bars represent LSD between means at P < 0.05.	78
12	Influence of both GA ₃ and IAA foliary sprayed on the dry matter content and shoot/root ratio of tomato plants grown at high salinity locations. Vertical bars represent LSD between means at P< 0.05.	80
13	Influence of both GA ₃ and IAA foliary sprayed on the concerned elements of tomato plants grown at low salinity location. Vertical bars represent LSD between means at P< 0.05.	83
14	Influence of both GA ₃ and IAA foliary sprayed on the nutritional balance ratios Na/K , Ca/Mg , (Na + K) / (Ca + Mg) and Na / (K + Ca + Mg) of tomato plants grown at low salinity location.	86
15	Influence of both GA ₃ and IAA foliary sprayed on N and P of tomato plants grown at low salinity locations . Vertical bars represent LSD between means at P< 0.05.	88
16	Influence of both GA ₃ and IAA foliary sprayed on Fe and Mn content of tomato plants grown at low salinity locations . Vertical bars represent LSD between means at P < 0.05.	90
17	Influence of both GA ₃ and IAA foliary sprayed on the concerned elements uptake of tomato plants grown at low salinity	91

locations. Vertical bars represent LSD between means at $P < 0.05$.

18	Influence of both GA_3 and IAA foliary sprayed on N and P uptake of tomato plants grown at low salinity location . Vertical bars represent LSD between means at $P < 0.05$.	92
19	Influence of both GA_3 and IAA foliary sprayed on Fe and Mn uptake of tomato plants grown at low salinity locations. Vertical bars represent LSD between means at $P < 0.05$.	93
20	Influence of both GA_3 and IAA foliary sprayed on the status of concerned elements of tomato plants grown at moderate salinity location. Vertical bars represent LSD between means at $P < 0.05$.	95
21	Influence of both GA_3 and IAA foliary sprayed on the nutritional balance ratios Na/K , Ca/Mg , $(Na + K) / (Ca + Mg)$ and $Na / (K + Ca + Mg)$ of tomato plants grown at moderate salinity location.	97
22	Influence of both GA_3 and IAA foliary sprayed on the status of N and P of tomato plants grown at moderate salinity location. Vertical bars represent LSD between means at $P < 0.05$.	100
23	Influence of both GA_3 and IAA foliary sprayed on the status of Fe and Mn of tomato plants grown at moderate salinity location. Vertical bars represent LSD between means at $P < 0.05$.	101
24	Influence of both GA_3 and IAA foliary sprayed on the concerned elements content of tomato plants grown at high salinity locations. Vertical bars represent LSD between means at $P < 0.05$.	103

25	Influence of both GA ₃ and IAA foliary sprayed on the concerned elements uptake of tomato plants grown at high salinity locations. Vertical bars represent LSD between means at P< 0.05.	104
26	Influence of both GA ₃ and IAA foliary sprayed on N and P contents of tomato plants grown at high salinity location. Vertical bars represent LSD between means at P<0.05.	105
27	Influence of both GA ₃ and IAA foliary sprayed on N and P uptake of tomato plants grown at high salinity location. Vertical bars represent LSD between means at P<0.05.	106
28	Influence of both GA ₃ and IAA foliary sprayed on Fe and Mn contents of tomato plants grown at high salinity location. Vertical bars represent LSD between means at P< 0.05.	107
29	Influence of both GA ₃ and IAA foliary sprayed on Fe and Mn uptake of tomato plants grown at high salinity location. Vertical bars represent LSD between means at P< 0.05.	108
30	Influence of both GA ₃ and IAA foliary sprayed on the nutritional balance ratios Na/K , Ca/Mg , (Na + K) / (Ca + Mg) and Na / (K + Ca + Mg) of tomato plants grown at high salinity location.	111

1-INTRODUCTION