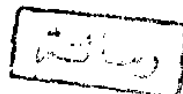


# PHYSIOLOGICAL STUDIES ON POTATO TUBERIZATION UNDER ENVIRONMENTAL STRESS

By



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B.Sc. In Horticulture, Cairo University, 1985

M.Sc. In Horticulture, Ain Shams University, 1994

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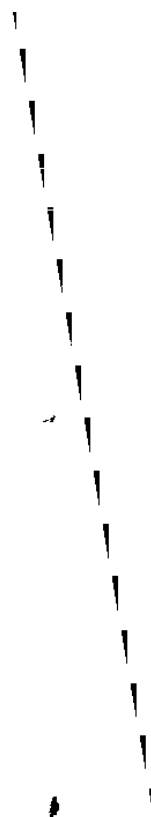
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## APPROVAL SHEET

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## **ABSTRACT:**

Ahmed Abdel-Naby Ahmed , Physiological Studies on Potato Tuberization under Environmental Stress ,Unpublished Doctor of Philosophy , Ain Shams University , Faculty of Agriculture , Department of Horticulture , 1999 .

Growth and productivity of potato plants were reduced significantly with increasing salt concentrations used from 2000 to 6000 ppm. Application of calcium reduced the harmful effects of salinity on the growth and yield of potato plants but highest level of calcium (2 gm  $\text{Ca}^{2+}$ /plant) under saline conditions reduced the productivity of potato plants. High temperatures significantly reduced the yield of potato plants. Using calcium under unfavorable conditions for potato yield was mitigated the harmful effects of high temperatures on the productivity of potato plants. High two levels of calcium concentrations (28.2 and 34.8 gm  $\text{Ca}^{2+}$ /plant) were contributed to the stress on the potato plants under unfavorable conditions. Using intercropping maize or sunflower plants with potato plants during the early stages of potato growth in the early fall season increased the yield of potato plants. In addition, there was an increment of the productivity of potato plants intercropped with different planting densities of maize or sunflower plants (75 and 100 cm) . This increment was significant compared to the potato plants without intercropping in the early fall season. Moreover, it can overcome marketing fluctuation of potato yield in the off season.

**Key Words** : Potato (*Solanum tuberosum L.*).Cultivars (Cara , Salany , Diamant , Nicola , Berber , Alpha , Cludia and Spunta).Hybrid (Serrana x, LT-7).Stress (Salinity and Heat).Salt concentrations (2000 , 4000 and 6000 ppm).Calcium levels (0.25 , 0.5 , 1.0 , 2.0 , 6.6 , 15 , 21.6 , 28.2 and 34.8 gm  $\text{Ca}^{2+}$  / plant).Intercropping (potato with maize or sunflower).Different planting densities of maize and sunflower plants (50 , 75 , 100 and 125 cm).Seed tubers. Potato yield.





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## Contents

<i>No.</i>		<i>Page</i>
1.	Introduction .....	1
2.	Review of Literature .....	3
2.1	The response of potatoes ( <i>Solanum tuberosum</i> L.) to salinity .....	3
2.2	Effect of salinity on the number of plants ..	3
2.3	Effect of salinity on the emergence percentage .....	4
2.4	Effect of salinity on plant growth .....	4
2.5	Effect of water salinity on yield .....	6
2.6	Role of calcium in plants .....	7
2.7	Role of calcium in salinity stress .....	9
2.8	Role of calcium in plant responses to stress.....	10
2.8.1	Potato tuber quality and $Ca^{2+}$ .....	12
2.8.2	Role of calcium in heat stress .....	12
2.8.3	Physiological basis for mitigation of heat stress effects on potato .....	13
2.9	Effect of calcium application on the potato yield .....	13
2.9.1	Heat stress and the tuberization stimulus ...	14
2.9.2	Heat stress and reduction in overall growth.....	14
2.9.3	Heat stress and partitioning to tubers .....	15
2.9.4	Diurnal and seasonal variation in temperature .....	16
2.9.5	The tuberization stimulus and tuber enlargement .....	17
2.9.6	Effects of temperature on the development of the haulm of potato plants.....	18
2.9.7	Effect of temperature on potato crop .....	19
2.9.7.1	Effect of temperature on the development of tubers of potato plants .....	21

2.9.8	Intercropping potato with maize plants.....	23
3.	Material and Methods .....	25
3.1	Effect of different levels of salinity on the haulm and yield of potato plants .....	25
3.2	Effect of different levels of calcium under salinity on the haulm growth and yield of potato plants .....	26
3.3	Effect of different levels of calcium under high temperatures on the potato plants.....	26
3.4	Off season planting of early fall potato ....	28
3.4.1	Fertilizers application of intercropping potato with maize and sunflower.....	30
3.5	Intercropping potato with different densities of maize and sunflower .....	30
3.5.1	Fertilizers application of intercropping potato with different densities of maize and sunflower .....	31
4.	Results .....	32
4.1	Effect of different levels of salinity on the haulm and yield of potato plants in the two successive spring seasons 1996 and 1997...	32
4.1.1	Effect of different levels of salinity on the chlorophyll content of potato leaves.....	32
4.1.2	Effect of different levels of salinity on the plant length of potato plants.....	32
4.1.3	Effect of different levels of salinity on the stem number of potato plants.....	36
4.1.4	Effect of different levels of salinity on the leaves number of potato plants.....	36
4.1.5	Effect of different levels of salinity on the total leaf area of potato plants.....	36
4.1.6	Effect of different levels of salinity on the	

	dry weight to fresh weight ratio of haulm of potato plants.....	40
4.1.7	Effect of different levels of salinity on the total soluble solids of potato tubers.....	40
4.1.8	Effect of different levels of salinity on the specific gravity of potato tubers.....	40
4.1.9	Effect of different levels of salinity on the yield per plant.....	44
4.2	Effect of different levels of calcium under saline on the haulm and yield of potato plants in the two successive spring seasons 1997 and 1998.....	44
4.2.1	Effect of different levels of calcium under saline on the plant length of potato plants..	44
4.2.2	Effect of different levels of calcium under saline on the stem number of potato plants.	44
4.2.3	Effect of different levels of calcium under saline on the chlorophyll content of potato plants.....	47
4.2.4	Effect of different levels of calcium under saline on the leaves number of potato plants.	47
4.2.5	Effect of different levels of calcium under saline on the total leaf area of potato plants.....	47
4.2.6	Effect of different levels of calcium under saline on the dry weight to fresh weight ratio of haulm of potato plants.....	50
4.2.7	Effect of different levels of calcium under saline on the dry weight to fresh weight ratio of tubers of potato plants.....	50
4.2.8	Effect of different levels of calcium under saline on the specific gravity of tubers of potato plants.....	50
4.2.9	Effect of different levels of calcium under	

	saline on the total soluble solids of tubers of potato plants.....	50
4.2.10	Effect of different levels of calcium under saline on the yield of potato plant.....	52
4.3	Effect of different levels of calcium under heat stress on the haulm and yield of potato plants in the two successive early fall seasons 1996 and 1997.....	52
4.3.1	Effect of different levels of calcium under heat stress on the plant length of potato plants.....	52
4.3.2	Effect of different levels of calcium under heat stress on the stem number of potato plants.....	52
4.3.3	Effect of different levels of calcium under heat stress on the total chlorophyll content of potato plants.....	55
4.3.4	Effect of different levels of calcium under heat stress on the leaves number of potato plants.....	55
4.3.5	Effect of different levels of calcium under heat stress on the total leaf area of potato plants.....	55
4.3.6	Effect of different levels of calcium under heat stress on the dry weight to fresh weight ratio of haulm of potato plants.....	58
4.3.7	Effect of different levels of calcium under heat stress on the dry weight to fresh weight ratio of tubers.....	58
4.3.8	Effect of different levels of calcium under heat stress on the specific gravity of potato tubers.....	58
4.3.9	Effect of different levels of calcium under heat stress on the total soluble solids of	