



The Effect of Salinity on Chlorophyll Content, Relative Water Content and Growth of Local Wheat Landraces

Graduation Project

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Introduction

- **Wheat is one of the most ancient cultivated cereals.**
- **It is the first most important cereal crop in the world.**
- **The total cultivated area in the world is 218543071 ha producing 35312 hg/ha**
- **The total cultivated area in Palestine is 15489 ha producing 22301 hg/ha**
- **Salinity and drought are serious environmental constraint to crop production**



Objectives

- 1. Evaluate the level of tolerance to salinity in local wheat landraces .**
- 2. Study the effect of salinity on chlorophyll content.**
- 3. Study the effect of salinity on plant fresh and dry weight.**
- 4. Study the effect of salinity on leaf relative water content.**



Materials and methods



Plant material

Three local wheat landraces (Norsi, Black Heteyeh and White Heteyeh) and one introduced line (Meridiano) were used in this study.

Experimental design:





Materials and methods

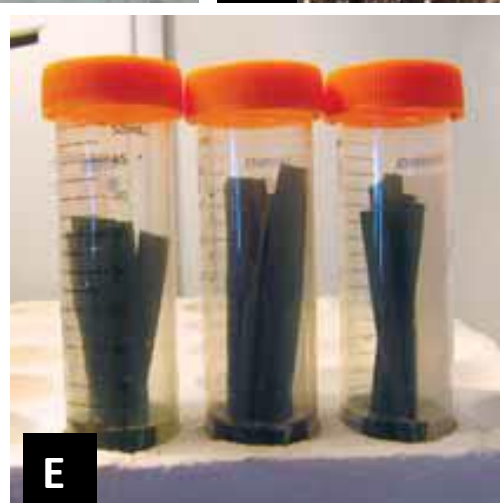


Experimental design:

(50 and 100 mM NaCl) and TW was used as control) .



Leaf relative water content





Materials and methods

Plant fresh and dry weight





Materials and methods



Chlorophyll content





Results:

Table 1: The effect of different levels of NaCl on plant fresh weight

Salinity	Plant fresh weight
Control	1.99067 ^a
50 mM	2.08096 ^a
100 mM	1.46700 ^a

Accessions	
Meridiano	2.64128 ^a
White Heteyeh	1.60856 ^b
Black Heteyeh	1.60856 ^b
Norsi	1.41333 ^b

Means that do not share a letter are significantly different.



Table 2: The effect of different levels of NaCl on plant dry weight

Salinity	Plant dry weight
Control	0.240083 ^{ab}
50 mM	0.307167 ^a
100 mM	0.162250 ^b

Accessions	
Meridiano	0.325889 ^a
White Heteyeh	0.235667 ^{ab}
Black Heteyeh	0.195889 ^b
Norsi	0.188556 ^b

Means that do not share a letter are significantly different.



Table 3: The effect of different levels of NaCl on chlorophyll content (SPDA)

Salinity	SPDA
Control	33.4250 ^a
50 mM	36.7667 ^a
100 mM	35.8667 ^a

Accessions	
Meridiano	43.1222 ^a
White Heteyeh	34.1889 ^b
Black Heteyeh	37.6667 ^{ab}
Norsi	26.4333 ^c

Means that do not share a letter are significantly different.



Table 4: The effect of different levels of NaCl on leaf relative water content (LRWC)

Salinity	LRWC
Control	115.942 ^a
50 mM	92.205 ^b
100 mM	89.495 ^b

Accessions	
Meridiano	97.888 ^b
White Heteyeh	105.023 ^a
Black Heteyeh	95.643 ^b
Norsi	98.302 ^b

Means that do not share a letter are significantly different.



Conclusions and Recommendations



- 1. Salinity had no effect on wheat shoot fresh weight and chlorophyll content.**
- 2. Salinity had no effect on wheat chlorophyll content.**
- 3. Salinity had significant effect on LRWC.**
- 4. White Heteyeh can be considered as a promising material for salinity tolerance.**
- 5. Further studies are needed to study the effect of salinity on the total yield**