

EFFECT OF IRRIGATION WATER QUALITY AND SOME PRACTICES OF ORGANIC FARMING ON CROP PRODUCTIVITY, QUALITY AND SOIL FERTILITY

Submitted By

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ABSTRACT

Three field trials were conducted at Al-Betaia village – Mashtoul El-Souk District –Sharqia Governorate during two successive winter seasons (2016-2017, 2017-2018). The main objective of this study is detecting the effect of irrigation water quality and some practices of organic farming on wheat (*Triticum aestivum* L.) crop productivity, quality and soil fertility.

The three experiments included the same treatments which were arranged in split-split plot design including three rates of spraying algae extract (zero, 0.50, 0.75 cm/l), three doses of compost fertilizer (zero, 6, 8 ton/fed.) and two rates of bio fertilizer (zero, cerialine + phospharine + potassium dissolving bacteria). Wheat plants were sown in the three sites. The first site was irrigated using potable water (Nile water) where the second site was irrigated with underground water, The third site was irrigated using the agricultural drainage water. At the same area wheat plants were cultivated on isolate experiment included the recommended NPK fertilizer to evaluate such treatments for the productivity of wheat crop from the practical point of view.

The most important results could be summarized in both seasons as follows:

- 1- In most cases, grain yield and yield components of wheat plants were responded significantly, where the highest value of such treatment resulted in the highest grain yield and best yield components. The result of this study improved that the triple treatment of 0.75 cm/l as algae extract spray, 8 ton/fed. of Compost fertilizer in the presence of bio fertilizer was superior comparing the other treatments.
- 2- The results obtained from applying the recommended NPK fertilizer were relatively near to those obtained from the triple treatment of 0.75 cm/l as algae extract spray, 6 or 8 ton/fed. of compost fertilizer in the presence of bio fertilizer.
- 3- Nutrient contents of N, P and K elements in grain and straw of wheat were increased in most cases according to high levels of such treatments comparing to the control ones.

- 4- The obtained results in two growing seasons were the best when wheat plants were irrigated by Nile water in comparison with the other two sources (underground and agricultural drainage water) .
- 5- Some chemical properties of the alluvial soil under study including organic matter content, soil salinity and the degree of acidity (PH) were estimated towards the safe state compared to its values before conducting the three experiments through the two growing seasons

Key words: Irrigated water quality- Compost- Bio fertilizer- Algae extracts.

List of Contents

Title	Page No.
ABSTRACT.....	I
List of Contents	III
List of Tables.....	V
List of Figures	XI
1.INTRODUCTION	1
2. REVIEW OF LITERATURE.....	4
<i>2.1. Effect of foliar application as (algae extract) on:</i>	<i>4</i>
2.1.1. Yield and yield components:.....	5
2.1.2. plant nutrients and protein:.....	7
<i>2.2. Effect of organic fertilizers application :.....</i>	<i>8</i>
2.2.1. Yield and yield components	9
2.2.2. plant nutrients and protein:.....	13
2.2.3. Some Soil chemical properties:	15
<i>2.3. Effect of bio-fertilizers :</i>	<i>20</i>
2.3.1 Yield and yield components	22
2.3.2 Plant nutrients and protein:	27
2.3.3. Some Soil Chemical properties:	29
<i>2.4. Effect of chemical fertilizer:.....</i>	<i>31</i>
2.4.1. Yield and yield components	31
2.4.2. Plant nutrients and protein.....	32
2.4.3. Some Soil Chemical properties:	34
3. MATERIALS AND METHODS.....	35
<i>3.1. The experimental design</i>	<i>35</i>
<i>3.2. Sampling technique.....</i>	<i>38</i>
3.2.1. Yield component parameters :-.....	38

3.2.2. Yield	38
3.2.3. Soil sampling.....	39
3.2.4. Methods of Soil analysis.....	39
3.2.5. Water analysis	40
3.3. Statistical analysis	41
4. RESULTS AND DISSCUSSION	42
<i>4.1 Effect of spraying wheat plant with algae extract and soil application of compost and biofertilizer under different irrigation water qualities on wheat production.....</i>	<i>42</i>
4.1.1. Yield components.....	42
4.1.1.1. Plant height (cm)	42
4.1.1.2. Number of spikes /m ²	48
4.1.1.3. Number of grains/spike.....	53
4.1.1.4. Grains weight/spike (g)	59
4.1.1.5. Weight of 1000 grain (g)	63
4.1.2 Yield	69
4.1.2.1. Grain yield (kg/fad)	69
4.1.2.2. Straw yield (kg/fad)	79
4.1.2.3. Biological yield (kg/fad).....	84
4.1.3. Harvest index %	88
4.2. Plant nutrients:.....	94
4.2.1. N , P ,K and protein percentage in wheat plants:-	94
4.2.1.1 N , P ,K% in wheat grains:.....	94
4.2.1.2 N , P ,K% in wheat straw:	105
4.2.1.3 Protein percentage in wheat grains:	115
4. 3. Some soil properties after harvesting:	120
4. 3. 1. Soil available of N,P,K (mgkg ⁻¹) as well as organic matter percentage.....	120
4. 3. 1.1. Soil available of N,P,K (mgkg ⁻¹).....	120
4. 3. 1.2. Soil organic matter percentage.....	131
4. 3. 1.3. soil salinity.....	136
4. 3. 1.4. Soil PH	141
SUMMARY	146
REFERENCES.....	150
الملخص العربي.....	1
المستخلص العربي.....	4

List of Tables

Table No.	Title	Page No.
Table 1:	The Chemical composition of algae extract was given	36
Table 2:	Some physical and chemical analysis of compost was given	37
Table 3:	Some physical and chemical characteristics of the experimental soil in both seasons.	40
Table 4:	Some chemical characteristics of the used experimental water	41
Table 5:	Mean values of plant height cm as affected by spray of algae extract, compost and biofertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.	45
Table 6:	Mean values of plant height as affected by spray of algae extract, compost and biofertilizer with underground water irrigation source in 2016/2017 and 2017/2018 growing seasons.	46
Table 7:	Mean values of plant height cm as affected by spray of algae extract, compost and biofertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.	47
Table 8:	Mean values of spikes no. /m2 as affected by spray of algae extract, compost and biofertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.	50
Table 9:	Mean values of spikes no. /m2 as affected by spray of algae extract, compost and biofertilizer with underground water irrigation source in 2016/2017 and 2017/2018 growing seasons.	51
Table 10:	Mean values of spikes no. /m2 as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.	52
Table 11:	values of grains no./spike as affected by spray of algae extract, compost and bio - fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.	56
Table 12:	values of grains no. /spike as affected by spray of algae extract, compost and biofertilizer with underground water irrigation source in 2016/2017 and 2017/2018 growing seasons.	57
Table 13:	values of grains no. /spike as affected by spray of algae extract, compost and biofertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.	58
Table 14:	Mean values of grains weight / spike g as affected by spray of algae extract, compost and biofertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.	60

Table 15: Mean values of grains weight / spike g as affected by spray of algae extract, compost and biofertilizer with underground water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	61
Table 16: Mean values of grains weight / spike g as affected by spray of algae extract, compost and biofertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	62
Table 17: Mean values of 1000 grain weight g as affected by spray of algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	65
Table 18: Mean values of 1000 grain weight g as affected by spray of algae extract, compost and biofertilizer with underground water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	66
Table 19: Mean values of 1000 grain weight g as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	67
Table 20: The relative increase percentage of wheat yield components as affected by main treatments under various irrigation water in the second season.....	68
Table 21: Mean values of grain yield kg/fad as affected by spray of algae extract, compost and biofertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	72
Table 22: Mean values of grain yield kg/fad as affected by spray of algae extract, compost and bio fertilizer with underground water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	73
Table 23: Mean values of grain yield kg/fad as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	74
Table 24: Mean values of straw yield kg/fed as affected by spray of algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	81
Table 25: Mean values of straw yield kg/fed as affected by spray of algae extract, compost and biofertilizer with underground water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	82
Table 26: Mean values of straw yield kg/fed as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	83
Table 27: Mean values of biological yield kg/fad as affected by spray of algae extract, compost and biofertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	85

Table 28: Mean values of biological yield kg/fed as affected by spray of algae extract, compost and biofertilizer with underground water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	86
Table 29: Mean values of biological yield kg/fed as affected by spray of algae extract, compost and biofertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	87
Table 30: Mean values of harvest index % as affected by spray of algae extract, compost and biofertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	90
Table 31: Mean values of harvest index % as affected by spray of algae extract, compost and biofertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	91
Table 32: Mean values of harvest index % as affected by spray of Algae extract, compost and biofertilizer irrigated with agricultural drainage water source in 2016/2017 and 2017/2018 growing seasons.....	92
Table 33: The relative increase percentage of wheat yield as affected by main treatments under various irrigation water in the second season.....	93
Table 34: Mean values of grain nitrogen % as affected by spray of algae extract, compost and biofertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	96
Table 35: Mean values of grain nitrogen % as affected by spray of algae extract, compost and biofertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	97
Table 36: Mean values of grain nitrogen % as affected by spray of algae extract, compost and biofertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	98
Table 37: Mean values of grain phosphorous % as affected by spray of algae extract, compost and biofertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	99
Table 38: Mean values of grain phosphorous % as affected by spray of algae extract, compost and biofertilizer with underground water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	100
Table 39: Mean values of grain phosphorous % as affected by spray of algae extract, compost and biofertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	101
Table 40: Mean values of grain potassium % as affected by spray of algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	102

Table 41: Mean values of grain potassium % as affected by spray of algae extract, compost and bio fertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	103
Table 42: Mean values of grain potassium % as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	104
Table 43: Mean values of straw nitrogen % as affected by spray of algae extract, compost and biofertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	106
Table 44: Mean values of straw nitrogen % as affected by spray of algae extract, compost and bio fertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	107
Table 45: Mean values of straw nitrogen % as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	108
Table 46: Mean values of straw phosphorous % as affected by spray of algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	109
Table 47: Mean values of straw phosphorous % as affected by spray of algae extract, compost and bio fertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	110
Table 48: Mean values of straw phosphorous % as affected by spray of algae extract, compost and bio fertilizer with under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	111
Table 49: Mean values of straw potassium % as affected by spray of algae extract, compost and bio - fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	112
Table 50: Mean values of straw potassium%as affected by spray of algae extract, compost and bio fertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	113
Table 51: Mean values of straw potassium % as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	114
Table 52: Mean values of grain protein% as affected by spray of algae extract, compost and bio- fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	116
Table 53: Mean values of grain protein % as affected by spray of algae extract, compost and bio fertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	117

Table 54: Mean values of grain protein % as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	118
Table 55: The relative increase percentage of grain NPK and protein by main treatments under various irrigation water in the second season.....	119
Table 56: Mean values of soil available N mgkg-1 as affected by spray of algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	122
Table 57: Mean values of soil available N mgkg-1 as affected by spray of algae extract, compost and biofertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	123
Table 58: Mean values of soil available N mgkg-1 as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	124
Table 59: Mean values of soil available P mgkg-1 as affected by spray of algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	125
Table 60: Mean values of soil available P mgkg-1 as affected by spray of algae extract, compost and bio fertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	126
Table 61: Mean values of soil available P mgkg-1 as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	127
Table 62: Mean values of soil available K mgkg-1 as affected by spray of algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	128
Table 63: Mean values of soil available K mgkg-1 as affected by spray of algae extract, compost and bio fertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	129
Table 64: Mean values of soil available K mgkg-1 as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	130
Table 65: Mean values of soil OM % as affected by spray of algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	132
Table 66: Mean values of soil OM % as affected by spray of algae extract, compost and bio fertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	133

Table 67: Mean values of soil OM % as affected by spray of algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	134
Table 68: The relative increase percentage of soil NPK by main treatments under various irrigation water in the second season.	135
Table 69: Mean values of soil EC dsm-1 as affected by spray of A algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.	138
Table 70: Mean values of soil EC dsm-1 as affected by spray of A algae extract, compost and bio fertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.....	139
Table 71: Mean values of soil EC dsm-1 as affected by spray of A algae extract, compost and bio fertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	140
Table 72: Mean values of soil PH as affected by spray of algae extract, compost and bio fertilizer under Nile water irrigation source in 2016/2017 and 2017/2018 growing seasons.	143
Table 73: Mean values of soil PH as affected by spray of algae extract, compost and biofertilizer irrigated with underground water source in 2016/2017 and 2017/2018 growing seasons.	144
Table 74: Mean values of soil PH as affected by spray of algae extract, compost and biofertilizer under agricultural drainage water irrigation source in 2016/2017 and 2017/2018 growing seasons.....	145

List of Figures

Figures No.	Title	Page No.
Fig. 1:	Main effect of spraying algae extract on wheat grain yield.....	75
Fig. 2:	Main effect of soil application of compost on wheat grain yield.	76
Fig. 3:	Main effect of soil application of bio fertilizer on wheat grain yield.	77
Fig. 4:	Interaction effect among spraying algae extract, soil application of compost and biofertilizer on wheat grain yield.....	78