

**Evaluating the Quality and Usability of
Ismailia Canal Water and the Effect of
Industrial Drainage**

By

Gamal Abd El-Massih Yassa Keraukose

B. Sc. Agric.(Technology Agriculture Projects),
Ain Shams University,(2004)

A Thesis Submitted in Partial Fulfillment

Of

The Requirement for the Master Degree

In

Environmental Science

**Department of Agricultural Science
Institute of Environmental Studies & Research
Ain Shams University**

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APPEOVEL SHEET

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تقييم جودة وصلاحية مياة ترعة الاسماعيلية ومدى تأثرها بالصرف الصناعى

رسالة مقدمة من الطالب

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قسم العلوم الزراعية البيئية
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/ / ٢٠١٢

/ / ٢٠١٢

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5. Summary

The Ismailia Canal is constructed in the years of 1858-1863. It extends for about 136 km from the river Nile at Shoubra, north of Cairo, to Ismailia city on the Suez Canal. It flows through considerable varieties of geological environs. Canal depth is 6-10 m. The study was carried out through the years, 2008, 2009 and 2010 to evaluate the quality and usability of Ismailia canal water and the effect of Industrial drainage. The Ismailia canal is the principle source of irrigation and drinking water supply for a great area of soil and number of the Egyptian citizens which extends from the source of canal at Shubra to entering. The Suez Canal province. The upstream portion of the Ismailia canal (especially from Cairo to Abu-Zabal, western side) which it is considered the study portion includes the largest industrial zones in the region (Shubra El-Kheima, Mostord stream along these and Abu-Zabal. Making field visits on extension of canal two sides to limit industrial constructions and identifying planted areas and drinking water stations found on canal two sides.

Taking different samples on extension of Ismailia canal water was done periodically before and after what are taken from drinking water stations and water produced in stations. Evaluating natural and chemical characteristics as well as heavy metals (lead, cadmium and copper) in canal water occurred. Taking samples from agricultural soil irrigated from canal water. Plant samples found in irrigated lands of canal water are taken. Evaluating of soil and plants affected by irrigation water was done.

Contents

	Page
1. INTERDUCTION	1
2. REVIEW OF LITERATURE	2
2.1. Characterization of water used for irrigation	2
2.1.1. Water chemical properties	2
2.1.2. Heavy metals content	3
2.2. Effect of water quality on bed sedimenet properties	6
2.2.1. Chemical properties	6
2.2.2. Heavy metals contents	6
2.3. Effect of water quality on soil properties	8
2.3.1 .Soil physical properties	8
2.3.2. Soil chemical properties	9
2.3.3. Soil Heavy metals content	11
2.3.3.1. Copper	12
2.3.3.2. Lead	14
2.3.3.3. Cadmium.....	15
2.3.4. Behaviour of heavy metals in Soil	16
2.3.5. Toxicity of heavy metals in soil	17
2.4. Heavy metals content of plants affected by water quality	21
2.4.1. Heavy metals content of plants	21
2.4.2. Accumulation of heavy metals in plants	24
2.4.3 Uptake of heavy metals by plants	25
2.4.4. Toxicity of heavy metals in plants	26

2.5. Effect of irrigation water quality on plant	26
2.6. Effect of water quality on heavy metals content in aquatic plant	27
2.7. Characteristics of Treated drinking water	28
2.7.1. Chemical Properties	28
2.7.2. Heavy metals content	29
2.8. Health risks impact	30

3. MATERIALS AND METHODS

3. 1. Location	34
3.2. Sampling	34
3.2.1. Water samples collection	36
3.2.2. Sediment sampling	37
3.2.3. Soil sampling	37
3. 2. 4. Plant sampling	37
3. 3. Methods of analysis	38
3. 3. 1. Water, sediment and soil analysis	38
3.3.1.1. Mechanical analyses of sediment and Soil	38
3.3.1.2. Water, sediment and soil chemical analysis	39
3.3.1.3. Determination of some total and available heavy metals (lead, cadmium and copper) in sediment and soil as well as the soluble ones in water	40
3.3. 1. 3. 1. Extraction of total heavy metals in sediment and soil	40
3. 3. 1. 3. 2. Extraction of available heavy metals in sediment and soil	40
3. 3. 1. 3. 3. Determination of the studied heavy metals in water, sediment and soil	41
3. 3. 2. Plant analysis	41
3. 3. 2. 1. Digestion of plant sample	41
3.3. 2. 2. Determination of pb , Cd and Cu	41

4. Results and Discussion

4.1. Evaluation of Ismailia Canal water for irrigation.....	42
4.1.1. Chemical analysis of water samples.....	42
4.1.2 Heavy metals content.....	47
4.2. Bed sediment properties	50
4.2.1. Particle size distribution	50
4.2.2. Chemical characteristics	52
4.2.3. Heavy metals content.....	55
4.3. Soil properties	60
4.3.1. Particle size distribution	61
4.3.2. Chemical characteristics	62
4.3.3. Heavy metals content.....	64
4.4. Heavy metals content of plants	70
4.5. Evaluation of Ismailia Canal water for drinking	74
4.5.1. Chemical analysis of drinking water samples.....	74
4.5.2. Heavy metals content of drinking water samples	77
5. Summary	79
6. References	87
7. Arabic Summary	—

List of Tables

Table No.	Title	Page No.
1	Water, sediment, soil and plant samples taken from the various locations alongside Ismailia Canal.	36
2	Part of plant samples of the crops cultivated at various sites.	38
3	Chemical analysis of Ismailia Canal Water (mq /L).	44
4	Heavy metals content (mg/L) of water at different locations along Ismailia canal.	48
5	Sediment mechanical analyses of the chosen locations along Ismailia canal.	51
6	Sediment chemical analysis of the chosen locations along Ismailia Canal.	53
7	Heavy metals content (mgkg ⁻¹) of the sediment samples of the chosen locations along Ismailia canal (based on dry weight).	56
8	Soil mechanical analysis of the chosen locations alongside Ismailia Canal.	61
9	Soil chemical analysis of the chosen locations alongside Ismailia canal.	62
10	Heavy metals content (mgkg ⁻¹) of the Soil samples of the chosen locations alongside Ismailia canal (based on dry weight).	65
11	Heavy metals content (mgkg ⁻¹) of different organs of the plants collected from different location alongside Ismailia canal (based on dry weight).	71
12	Chemical analysis of Ismailia canal drinking water.	75
13	Heavy metals content (mgkg ⁻¹) of drinking water at different locations alongside Ismailia canal.	77

List of Figures

Fig. No.	Title	Page No.
1	The chosen sites under study along Ismailia Canal.	35
2	Ec of water samples in the studied area of Ismailia Canal.	45
3	PH of water samples in the studied area of Ismailia Canal.	45
4	Alkalinity parameters in the studied area of Ismailia Canal.	46
5	Soluble cationes in the studied area of Ismailia Canal.	46
6	Water Soluble anions in studied area (Ismailia Canal).	47
7	Heavy metals content of water at different locations along Ismailia canal.	49
8	Sediment mechanical analyses of the chosen locations alongside Ismailia canal.	52
9	Soluble Sediment cations of the chosen locations along Ismailia canal.	54
10	Sediment Soluble anions of the chosen locations along Ismailia Canal.	54
11	Lead content (mgkg ⁻¹) of the sediment samples of the chosen locations along Ismailia Canal (based on dry weight).	57
12	Cadmium content (mgkg ⁻¹) of the sediment samples of the chosen locations along Ismailia Canal (based on dry weight).	57
13	Copper content (mgkg ⁻¹) of the sediment samples of the chosen locations along Ismailia Canal (based on dry weight).	58
14	Soil mechanical analysis of the chosen locations alongside Ismailia Canal.	61

15	Soil soluble cations of the chosen locations alongside (Ismailia canal).	63
16	Soil soluble anions of the chosen locations alongside Ismailia canal.	63
17	Lead content (mgkg^{-1}) of the Soil samples of the chosen locations alongside Ismailia canal (based on dry weight).	66
18	Cadmium content (mgkg^{-1}) of the soil samples of the chosen locations alongside Ismailia canal (based on dry weight).	66
19	Copper content (mgkg^{-1}) of the soil samples of the chosen locations alongside Ismailia Canal (based on dry weight).	67
20	Heavy metals content of different organs of the plants collected from different locations alongside Ismailia Canal (based on dry weight).	72
21	Soluble anions of Ismailia Canal drinking water.stations.	76
22	Soluble cations of Ismailia Canal drinking water.station.	76
23	Heavy metals content of drinking water at different locations alongside Ismailia canal drinking water.	78

List of Abbreviations

Ca⁺⁺	Calcium
Mg⁺⁺	Magnesium
Na⁺	Sodium
K⁺	Potassium
CO₃⁻	Carbonate
HCO₃⁻	Bicarbonate
Cl⁻	Chloride
SO₄⁻	Sulfate
Pb	Lead
Cd	Cadmium
Cu	Copper
EC	Electrical conductivity
pH	Soil reaction
SAR	Sodium adsorption ratio
Adj . SAR	Adjusted Sodium adsorption ratio
SSP	Soluble Sodium percentage
ESP	Exchangeable sodium percentage
CEC	Cations exchangeable capacity
ds/m	Deci-siemens per meter
OM	Organic matter
PPm	Parts per million
gm	grams
mg	Millie grams

Kg	Kilo grams
mq/L	milliequivalents of solute per litre
DTPA	diethylenetriaminopentaacetic -acid
TEA	Triethanolamine
FAO	Food and Agriculture Organization of United Nation
n.d	Not detected