

Ain Shams University
Faculty of Science

Chemistry and treatment of water in Wadi – El Tumilat, East Delta, Egypt.

Thesis submitted

For the Partial Fulfillment of the Requirements
of the Master's Degree in Science
(Inorganic Chemistry)

By

Eslam Reda Soliman Hassan

(B.Sc. Chemistry & Zoology, 2005)

Desert Research Center

Supervised By

Prof. Dr. Eglal Myriam

Raymond Souaya

Prof. of Analytical and Inorganic Chemistry
Ain Shams University.

Prof. Dr. Khairia Amir

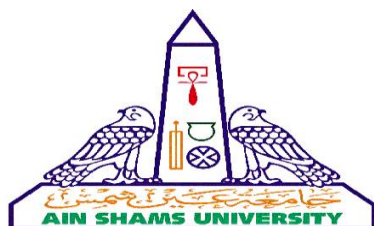
Guindy

Prof. of Hydrogeochemistry
Desert Research center.

Ass. Prof. Yousra Hafiz Kotp

Ass. Prof. of Water chemistry
Desert Research Center.

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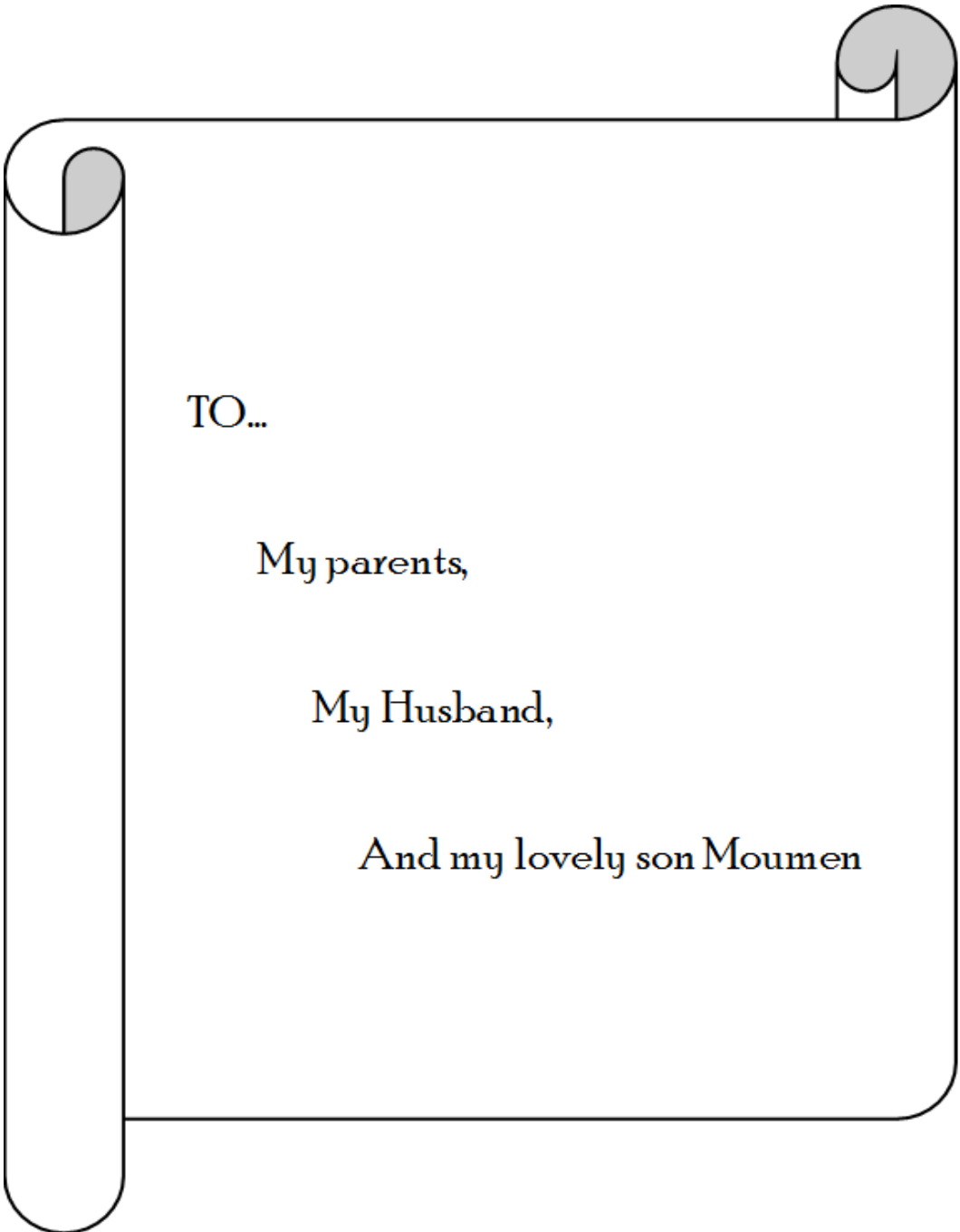
To

Department of Chemistry

Faculty of Science

Ain Shams University

2020



TO...

My parents,

My Husband,

And my lovely son Moumen

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Eslam Reda

Abbreviation	Description
Ac	Acetonitrile
ASS	Atomic absorption spectrophotometry
CAI	Chloro Alkaline Indices
CH	Carbonate hardness temporary hardness
DLS	Dynamic light scattering
DMSO	Dimethylsulfoxide
DO	1, 4 dioxane
EC	Electrical conductivity
EDTA	Ethylenediaminetetraacetate
EHCW	Egyptian Health Committee for drinking Water standards
END	East Nile Delta
EPA	Environmental protection agency
EPM	Equilibrium Part per million
ES	Effective salinity
FAAS	Flame atomic absorption spectrometry
FEG	Field emanation gun
FTIR	Fourier-transform infrared spectroscopy
GIS	Geographic information system
IC	Ion Chromatography
ICP	Inductive coupled plasma
IR	Infrared
LDS	Least square difference
LSD	The least minimum square difference
MAA	Methacrylic acid
meq/l	Miliequivalent per litre
mg/l	Milligram per litre
Mg-Al-LDH	Magnesium aluminum layered double hydroxide
Mg-Al-MAA LDH	Magnesium aluminum methacrylic acid layered double hydroxide
Mg-Al-AC LDH	Magnesium aluminum acetonitrile layered double hydroxide

Mg-Al-DMSO LDH	Magnesium aluminum dimethylsulfoxide layered double hydroxide
Mg-Al-DO LDH	Magnesium aluminum 1, 4 dioxane layered double hydroxide
μ S/Cm	Microsecond per centimeter
NCH	Non carbonate hardness permanent hardness
OES	Optical emission spectrometry
pH	Hydrogen ion concentration
PPM	Part per million
RSC	Residual Sodium Carbonate
SAR	Sodium adsorption ratio
SEM	Scanning electron microscopy
SLS	Sodium lauryl sulphate
TDS	Total dissolved salts
TGA	Thermogravimetric analysis
TGA - DSC	Thermogravimetric analysis coupled with differential scanning calorimetry
TH	Total hardness
UV	Ultraviolet
WHO	World Health Organization standards for drinking water
WQI	Water quality index (WQI)
XRD	X-ray diffraction

List of Contents

CHAPTER 1	1
INTRODUCTION	1
1.1 General outline.....	1
1.2 Statement of problem:	2
1.3 Location of the study area.....	2
1.4 Climatic conditions:	2
1.5 Geomorphological setting:	6
1.5.1. High land areas:.....	7
1.5.2. Tableland areas:	7
1.5.3. Low land areas:.....	10
1.6. Geological setting:.....	10
1.6.1. Stratigraphic succession and depositional environments:.....	10
1.7. Hydrogeological aspects:.....	15
1.7. Hydrogeologically:.....	15
(A)The Quaternary aquifer:	15
(B)The Miocene aquifer.....	16
1.8. Water treatment:	17
1.9. Thesis framework:	19
CHAPTER 2	21
REVIEW OF LITERATURE	21
2.1. General outlines:	21
2.2. Review of hydrochemistry of Wadi El Tumilat area:	21
2.3. Review of preparation and characterization of Mg-Al-LDHs nanomaterials:	23
CHAPTER 3	32
EXPERIMENTAL.....	32
PART 1	32
3.1 General outlines.	32
3.2 Field studies:.....	32
3.3 Laboratory studies:.....	32

PART 2	36
3.4. Preparation of Mg-Al-LDHs and their composites:	36
3.4.1. Production of raw and modified Mg-Al LDH:	36
3.4.2. Preparation of Mg-Al LDH nanoparticles using sodium lauryl sulfate (SLS):	36
3.4.3. Preparation of nanocomposite Mg-Al LDH using different organic monomers:	36
3.5. Characterization of nanocomposite Mg-Al LDHs:	37
3.5.1. Fourier Transform Infrared Spectrophotometer (FTIR):	37
3.5.2. Scanning electron microscope (SEM):	37
3.5.3. X-ray diffraction (XRD):	37
3.5.4. Nuclear magnetic resonance spectroscopy (NMR spectra):	38
3.5.5. Particle size analysis:	38
3.5.6. Thermogravimetric analysis (TGA) measurement:	38
3.6. Chemical stability:	38
3.7. Ion exchange studies:	39
3.7.1. Adsorption capacity:	39
3.7.2. Removal property:	39
3.7.3. Distribution studies:	40
3.7.4. Kinetic studies:	40
3.8. Regeneration and reuse of the Mg-Al-MAA LDH adsorbent for Sr^{2+} , NO_3^- and $\text{B}_4\text{O}_7^{-2}$ removal:	42
3.9. Real water application:	43
CHAPTER 4	44
RESULTS AND DISCUSSIONS OF CHEMISTRY OF GROUNDWATER	44
4.1. General outlines	44
4.2. Chemistry of surface water:	46
4.3. The Chemistry of groundwater	47
4.3.6. Major ion relationship:	72
4.3.6. A. Hydrochemical coefficients (ion ratios):	72
4.3.6. B. The hypothetical salts assemblages:	78

4.3.6. C. Ion dominance and chemical water type:.....	84
4.3.7. Hydrogeochemical processes affecting groundwater quality:.....	85
4.3.7.1. Ion exchange:	85
4.3.7.2. Silicate weathering	86
4.3.7.3. Evaporation	88
4.3.7.4. Mixing.....	90
4.3.8. Statistical analysis:.....	90
4.3.8.1. Correlation matrix analysis among the variables	90
4.3.8.2. Hierarchal cluster analysis (HCA):	92
4.3.9. Geochemical classification and evolution of groundwater in the studied aquifers based on the origin of water mineralization:.....	94
4.3.9.1. Piper's trilinear diagram:	94
4.3.9.2. Semi – logarithmic diagram:.....	97
CHAPTER 5	103
EVALUATION OF GROUNDWATER.....	103
5.1. General outlines	103
5.2 Evaluation of groundwater for human drinking:	103
5.3 Evaluation of groundwater quality for drinking of livestock and poultry:	107
5.4 Evaluation of groundwater quality for irrigation purposes:	109
5.4.1 Salinity level:.....	109
5.4.2. Boron concentration (B^{3+}):	110
5.4.3 Residual sodium carbonate (RSC):.....	111
5.4.4 U.S. Laboratory classification of irrigation water (Richards, 1954):.....	114
CHAPTER 6	117
PREPARATION AND CHARACTERIZATION OF NANOCOMPOSITE Mg-Al LDHs.....	117
6.1. General outline:	117
6.2. Preparation of nanocomposite Mg-Al LDH:	117
6.3. Characterization of nanocomposite Mg-Al LDHs:	119
6.3.1. Chemical stability:.....	119
6.3.2. FTIR Spectroscopy:	120

6.3.3. Scanning Electron Microscopy (SEM):	123
6.3.4. X-Ray Diffraction measurements:	125
6.3.5. Nuclear magnetic resonance spectroscopy (NMR):	128
6.3.6. Particle size analysis:.....	131
6.3.7. Thermogravimetric analysis (TGA) measurement:	133
6.3.8. Removal efficiency:	135
6.3.9. Adsorption capacities:.....	137
6.4. Effect of pH.....	137
6.5. Effect of temperature	140
6.6. Kinetics studies:	143
6.6.1. Pseudo-first-order kinetic model:	143
6.6.2. Pseudo-second order kinetic model:	146
6.6.3. Elovich equation:	152
6.7. Reusability of the Mg-Al–MAA LDH adsorbents	155
6.8. Application to naturally contaminated groundwater samples:.....	158
6.9. Adsorption mechanism:	158
Summary and recommendations	164
REFERENCES	173
Appendices	189
Arabic Summary.....	

List of Tables

NO	Description	Page
1	Hydrological data of the ground and surface water of Wadi El Tumilat.	3
2	Mean meteorological data of summer and winter months in the study area.	5
3	Statistical and frequency distribution of water salinity in the study area.	52
4	Water classification according to its hardness (Hem, 1985).	54
5	The values of total, permanent, temporary hardness and alkalinity of the groundwater samples collected from Wadi El Tumilat.	55
6	The concentration of Ca^{2+} and Mg^{2+} in the different aquifers at Wadi El Tumilat	60
7	The concentration of Na^{+} and K^{+} in the different aquifers at Wadi El Tumilat	62
8	Major anions distribution for the Quaternary and Miocene aquifer in the Wadi El Tumilat.	65
9	Distribution of sulfate in the Quaternary and Miocene aquifer in Wadi El Tumilat.	67
12	Distribution of chloride in the Quaternary and Miocene aquifer in Wadi El Tumilat.	69
13	Distribution of Silica in the Quaternary and Miocene aquifer in Wadi El Tumilat.	71
14	Silica concentrations in the groundwater of the Quaternary aquifer at Wadi El Tumilat.	71
15	Values of ions ratios in the investigated groundwater in the study area.	76
16	Hypothetical salts assemblages in the Quaternary and Miocene aquifers of the study area.	79
17	Hypothetical Salts, Ion Dominance, and Water Type of the groundwater (Quaternary and Miocene Aquifer).	80

19	Ion dominance and chemical water type of the different groundwater samples collected from Wadi El Tumilat area.	84
20	Correlation matrix of the hydrochemical variables of the Quaternary aquifer.	91
21	Correlation matrix of the hydrochemical variables of the Miocene aquifer.	91
23	Water quality guidelines for human drinking.	104
25	Guide to the use of saline waters for livestock and poultry drinking.	107
26	Evaluation of groundwater samples of the Quaternary and Miocene aquifers in the study area for drinking of livestock and poultry.	108
28	Crops and their salt tolerance (Richards, 1954).	110
31	Classification of irrigating water on the basis of Boron concentration (Leeden et al. 1990).	111
32	Classification of ground and surface water for irrigation water on the basis of residual sodium carbonate (RSC) values (Eaton, 1950).	112
33	The values of RSC and SAR of the ground and surface water samples.	113
34	The water quality classes according to the U.S. salinity laboratory Staff, (Richards, 1954).	115
35	Chemical stabilities (5 mg/50 ml) of Mg-Al-MAA LDH, Mg-Al-AC LDH, Mg-Al-DMSO LDH and Mg-Al- DO LDH.	120
36	Thermodynamic parameters using Mg-Al-MAA LDH, synthetic nitrate, strontium and borate solution.	143
37	kinetic parameters (pseudo-first order) for the adsorption of Sr^{2+} , NO_3^- and $\text{B}_4\text{O}_7^{2-}$ on Mg- Al – MAA LDH.	146
38	kinetic parameters (pseudo-second-order) for the adsorption of Sr^{2+} , NO_3^- and $\text{B}_4\text{O}_7^{2-}$ on Mg- Al – MAA LDH.	150

39	Arrhenius parameters for the adsorption of Sr^{2+} , NO_3^- and $\text{B}_4\text{O}_7^{2-}$ on Mg- Al –MAA LDH.	152
40	Kinetic parameters (Elovich equation) for the adsorption of Sr^{2+} , NO_3^- and $\text{B}_4\text{O}_7^{2-}$ on Mg- Al –MAA LDH at different reaction temperature.	154
41	Brackish water sample before and after passing into adsorption process at Mg-Al- MAA LDH, V/m (mL/g) = 100, $T=25^\circ\text{C}$ and 24h contact.	163

List of Figures

NO	Description	Page
1	Geomorphological map of the study area (after Shata, 1965-Ismail, 2008)	6
2	The major branches of the River Nile and Wadi El Tumilat as a subbranch of the pelusaic branch (modified after Said, 1971 and Ismail, 2008).	9
3	Idealized compiled stratigraphic coloumnar section, Heleopolis basin, East of Nile Delta.	11
4	Representative lithostratigraphic section for Wadi El Tumilat, (after Geriesh, 1994).	14
5	Compiled geological map of the study area.	14
6	Countour map of Quaternary aquifer thickness, east of the Nile Delta, (after Hefny, 1980)	17
7	Wells location map of Wadi El Tumilat area	45
8	The electrical conductance in the Quaternary Aquifer	48
9	The electrical conductance in the Miocene Aquifer	49
10	The pH value in the Quaternary Aquifer	50
11	The pH value in the Miocene Aquifer	50
12	The distribution of salinity in the Quaternary Aquifer	51
13	The distribution of salinity in the Miocene Aquifer	52
14	Iso- salinity contour map of the groundwater samples.	53
15	Total hardness of the Quaternary aquifer in the study area	57
16	The Total hardness of the Miocene aquifer in the study area	58
17	Alkalinity in the Quaternary aquifer	59
18	Alkalinity in the Miocene aquifer	59
19	Major cations (Ca^{2+} , Mg^{2+}) distributions in the Quaternary aquifer of wadi El Tumilat	61
20	Major cations (Ca^{2+} , Mg^{2+}) distributions in the Miocene aquifer of wadi El Tumilat	61

21	Sodium and potassium distribution in the Quaternary aquifer of Wadi El Tumilat	63
22	Sodium and potassium distribution in the Miocene aquifer of Wadi El Tumilat.	63
23	Carbonate and bicarbonate distribution in the Quaternary aquifer of Wadi El Tumilat.	64
24	Carbonate and bicarbonate distribution in the Miocene aquifer of Wadi El Tumilat.	65
25	Sulfate distribution in the Quaternary aquifer of Wadi El Tumilat.	66
26	Sulfate distribution in the Miocene aquifer of Wadi El Tumilat.	67
27	Chloride distribution in the Quaternary aquifer of Wadi el Tumilat.	68
30	Chloride distribution in the Miocene aquifer of Wadi El Tumilat.	69
31	Silica distribution in the Quaternary aquifer of Wadi El Tumilat.	70
32	Silica distribution in the Miocene aquifer of Wadi El Tumilat.	71
33	Plot of Na^+ vs. Cl^- in the groundwater.	74
34	Plot of Ca^{2+} vs Mg^{2+} in the groundwater samples of the study area.	75
35	Plot of $(\text{rCl}^- - \text{rNa}^+)$ vs Cl^- in the groundwater samples of the study area.	76
36	Bar diagram of the chloro-alkaline indices for the Quaternary aquifer at study area.	85
37	Scatter diagram of $(\text{Ca}+\text{Mg})-(\text{HCO}_3+\text{SO}_4)$ vs. $(\text{Na}+\text{k}-\text{Cl})$ for the Quaternary aquifer.	86
38	Scatter diagram of $\text{Ca}^{2+}/\text{Na}^+$ vs $\text{HCO}_3^-/\text{Na}^+$ (mmol/l) and $\text{Ca}^{2+}/\text{Na}^+$ vs. $\text{Mg}^{2+}/\text{Na}^+$ (mmol/l) for the Quaternary aquifer.	87
39	Scatter diagram of $\text{Ca}^{2+}/\text{Na}^+$ vs $\text{HCO}_3^-/\text{Na}^+$ (mmol/l) and $\text{Ca}^{2+}/\text{Na}^+$ vs. $\text{Mg}^{2+}/\text{Na}^+$ (mmol/l) for the Miocene aquifer.	88