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
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To

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TO…

My parents,

My Husband,

And my lovely son Moumen

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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
µS/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

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