



**Ain Shams University
Faculty of Science**

**EXTRACTION OF URANIUM AND COPPER
FROM CALCAREOUS SHALE, UM BOGMA
FORMATION, G. ALLOUGA, SOUTH WESTERN,
SINAI-EGYPT.**

A Ph.D. Thesis Submitted

To

**Chemistry Department
Faculty of Science
Ain Shams University**

By

Soaad Mohamed Sabry Ahmed Elashry

**M. Sc. (Inorganic Chemistry)
Nuclear Materials Authority**

2018



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Chemistry Department
Faculty of Science-Ain Shams University

For the requirements
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Abbreviations used

ADU	Ammonium diuranate
AMP	Ammonium molybdophosphate
BSE	Back scatter electronic
Cuprizone	Oxalic acid bis(cyclohexylidene hydrazide)
DEHPA	Diethylhexyl-phosphoric acid
Ea	Activation energy
EDTA	Ethylene di amine tetra acetic acid
EDX	Energy dispersive X-ray
ESEM	Environmental scanning electron microscope
g/L	Gram per litre
HCHO	Formaldehyde
hr	Hour
IAEA	International Atomic Energy Agency
ICP-AES	Inductively coupled plasma mass spectrometer
ICP-OES	Inductively coupled plasma optical emission spectrometer
IRA-400	Amberlit IRA-400 resin
ISL	Insitu leaching
K_d	Distribution constant
L.O.I	Loss on ignition
LIX984N	2- hydroxy-5-nonylacetophenone oxime
NMA	Nuclear Materials Authority
ppm	Part per million
R	Universal gas constant, 8.314 Jmol ⁻¹ K ⁻¹
REEs	Rare earth elements
RIa-mag	Glycidyl methacrylate chelating resin
rpm	Round per minute

S/L	Solid- liquid ratio
T	Reaction temperature, K ^o
TBP	Tributyl phosphate
TPPO	Triphenyl phosphine oxide
w.s.r	Wet settled resin
XRD	X-ray diffraction
XRF	X-ray fluorescence
ΔH	Enthalpy change
ΔS	Entropy change

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