

CONTENTS

	PageNo.
ABSTRACT	I
ACKNOWLEDGMENT	III
CONTENTS	IV
List Of Figures	VII
List Of Tables	XII
List Of Abbreviations	XIII
CHAPTER 1	1
INTRODUCTION	1
1/1. General Overview	1
1/2. Location and setting	1
1/3. Objectives and Significance	1
1/3/1 Geochemical approaches	3
1/3/2 Mathematical and graphical approaches	3
1/4. Aim of Study (Scope and purpose of the study)	3
1/5. Material and data used in the study area	4
1/6. Methods of investigation and interpretation	4
CHAPTER 2	7
GEOLOGICAL SETTING OF THE STUDY AREA	7
2/1. Stratigraphy of the study area	7
2/1/1 Pre-Rift Stratigraphy	7
2/1/2 Syn-Rift Stratigraphy	10
2/2. Structural Setting	12
2/3. Tectonic Evolution	18
2/4. Geologic History	19
2/4/1 Pre-Discovery	19
2/4/2 Discovery	19
2/4/3 Post-Discovery	20
2/5. Exploration activities of the study area	21
2/6. Hydrocarbon elements of the Gulf of Suez	22
2/6/1 Reservoir rocks	22

2/6/2 Source rocks	23
CHAPTER 3	24
GEOCHEMICAL STUDIED	24
3/1. Introduction	24
3/2. Material and Methodology	24
3/2/1 Pyrolysis Analysis	24
3/2/2 Thermal burial history modeling	29
3/2/3 Bitumen analyses	29
3/2/4 Crude oil analyses	30
3/2/5 Gas Chromatographic GC analyses	30
3/2/6 Gas Chromatography-Mass spectrometry(GC-MS)analyses	30
CHAPTER 4	34
SOURCE ROCK EVALUATION	34
4/1. Source Rock Classification	34
4/2. Organic Richness	34
4/3. Genetic Type of Organic Matter	48
4/4. Depositional Environments	49
4/4/1 Normal Alkanes(n-alkanes)	49
4/4/2 Isoprenoids	61
4/4/3 Biological Markers Distribution	61
4/4/3/1 Triterpanes (m/z 191 frangmtogram)	67
4/4/3/1a Tricyclic terpanes	67
4/4/3/1b Hopanes	70
4/4/3/2 Steranes (m/z 217 frangmtogram)	76
4/5. Thermal Maturation	76
4/5/1 Rock-Eval pyrolysis	78
4/5/2 Biological markers as maturity indicator	89
4/6. Time of Hydrocarbon Generation and Expulsion	89
CHAPTER 5	98
GEOCHEMICAL CHARACTERISTICS OF CRUDE OILS	98
5/1. Characterization of oil based on bulk parameters	98
5/1/1 API gravity	99
5/1/2 Sulphur content	101

5/1/3 Hydrocarbon Classes	101
5/1/4 Stable carbon isotope composition	102
5/2. Molecular biomarker parameters	107
5/2/1 Normal alkanes	107
5/2/2 Isoprenoids	108
5/2/3 Triterpanes	115
5/2/4 Steranes	118
5/3. Oil-Source Rock Correlation	120
5/3/1 C15+ Normal Alkanes	120
5/3/2 Isoprenoids	123
5/3/3 Triterpanes	123
5/3/4 Steranes	125
CHAPTER 6	127
SUMMARY AND CONCLUSION	127
REFERENCES	131
ARABIC SUMMARY	