

**UNIVERSITI TEKNOLOGI MARA**

**PARAMETRIC STUDY ON SOURCE  
ROCK POTENTIAL OF WEST  
CROCKER FORMATION, ONSHORE  
SARAWAK**

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## ABSTRACT

West Crocker Formation is located at the North of the Borneo Island and lies in the Western part of Sabah. It is known with their lithologies and are described as a deep-water formation that is formed due to tectonic evolutions. Studies has shows that West Crocker Formation have a good hydrocarbon generation and contain oil prone type II/III kerogen. It indicates that West Crocker Formation is a good source rock for petroleum accumulation and production. Thus, the purpose of this research paper is to determine the potential source rock of West Crocker Formation on onshore Sarawak. The methodology used in this research paper is by analyzing the source rock sample taken from the outcrop sample field using Gas Chromatographhy-Mass Spectrometry (GCMS). From the result obtain, further analysis can be done in order to determine either West Crocker Formation can be a good potential source rock or not trough tracing of chromatogram plot and biomarker application. The chromatogram plot shows that the samples contain marine depositional environment. This is supported through the Ph/n-C<sub>18</sub> Versus Pr/n-C<sub>17</sub> ratios analysis by which it is suggested that the samples are deposited under anoxic depositional environment and the maturity level of hydrocarbon can be interpreted as mature. Other than that, the values of Carbon Preference Index also show that the samples are thermally mature. Based on the studies, West Crocker Formation have sufficient Extracted Organic Matter (EOM) to become potential source rock and contain thermally mature hydrocarbon indicates that the samples have good hydrocarbon generation.

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# TABLE OF CONTENT

	<b>Page</b>
<b>AUTHOR'S DECLARATION</b>	<b>ii</b>
<b>SUPERVISOR'S CERTIFICATION</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>ACKNOWLEDGEMENT</b>	<b>v</b>
<b>TABLE OF CONTENT</b>	<b>vi</b>
<b>CHAPTER ONE INTRODUCTION</b>	<b>1</b>
1.1 Research Background	1
1.2 Objective of Study	2
1.3 Problem Statement	2
1.4 Scope of Research	3
<b>CHAPTER TWO LITERATURE REVIEW</b>	<b>4</b>
2.1 Geological Background	4
2.1.1 Borneo	4
2.1.2 Sarawak	6
2.1.3 West Crocker Formation	9
2.2 Petroleum System	11
2.3 Bitumen Extraction	14
2.4 Gas Chromatography-Mass Spectrometry	14
<b>CHAPTER THREE RESEARCH METHODOLOGY</b>	<b>16</b>
3.1 Overall Experimental Scheme	16
3.2 Sample Preparation	16
3.3 Bitumen Extraction	17
3.4 Gas Column Chromatography-Mass Spectrometry	19

# CHAPTER ONE

## INTRODUCTION

### 1.1 Research Background

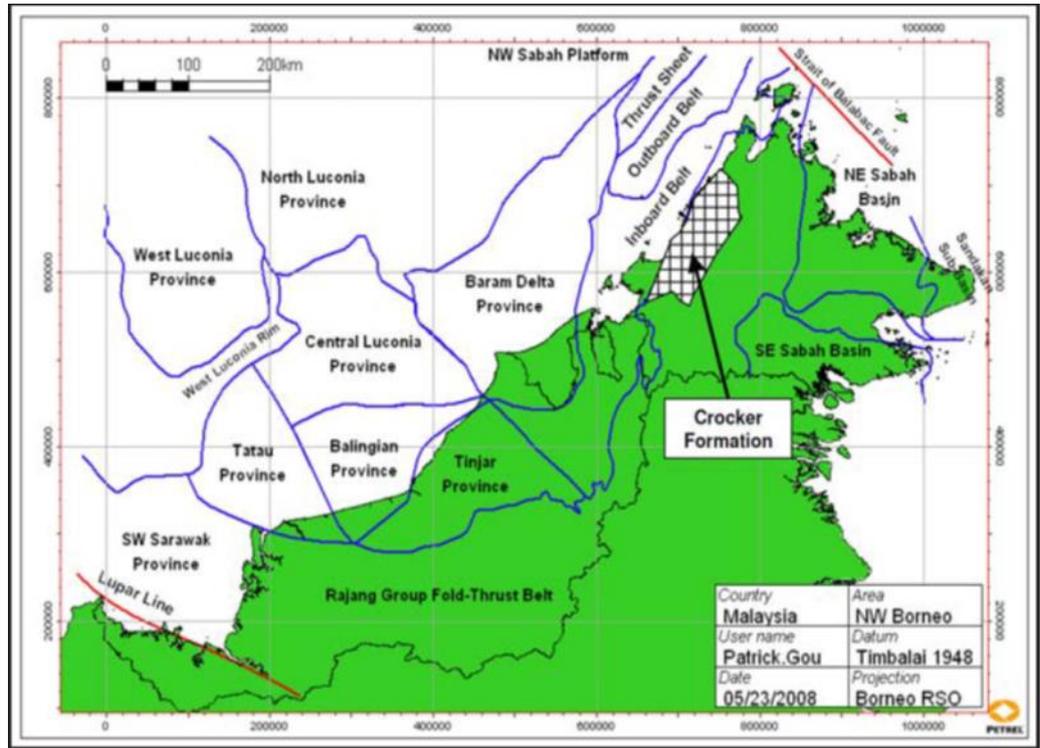


Figure 1 The approximate location of West Crocker Formation marked by the polygon with square patterns.

West Crocker Formation is located at the North of the Borneo Island and lies in the Western part of Sabah. West Crocker Formation is a deep-water formation resulting from tectonic evolutions happens in Sabah and Sarawak. This is due to a series of tectonic event; cause continuous compression, subduction, folding and uplifting of the West Crocker Formation (Mohamed et al., 2016). Various sedimentation process occurs throughout the time thus increase the source rock potential of West Crocker Formation. The West Crocker consist of four different types of lithologies; massive sandstone, thick-bedded sandstone, inter-bedded sandstone-mudstone and thick shale units (Mohamed et al., 2016).