

**EFFECT OF ESSENTIAL OIL EXTRACTION IN TERM OF
TIME AND MASS FROM HIBISCUS *ROSA-SINENSIS***

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ABSTRACT

Essential oil can be extracted through many ways. It can be extracted through conventional method (hydrodistillation and steam distillation), solvent extraction, and supercritical fluid extraction (SFE). The aim of this paper is to study the effect of different operational conditions; extraction time, and extraction methods based on the yield of hibiscus obtained, and to study the compounds exist in the extracted oil. In this research, the essential oil was extracted through hydrodistillation (HD) and steam distillation (SD) method by manipulating the time of extraction; 2, 4, and 6 hours for each method. The obtained oil was then analysed by using Gas Chromatography-Mass Spectroscopy (GC-MS). Based on the result, the yield of oil is increasing when the time of extraction is extended for both HD and SD. As for the method of extraction, 6 hours of extraction by SD gave the best yield which was 0.036% compared to HD which was 0.033%. Analyses of the oil by GC-MS indicate that SD produced higher quality of chemicals than HD. Also, there were 11 major chemicals extracted by SD (*cis- α -Terpineol*, *Linalyl anthranilate*, *α -Pinene*, *β -Selinene*, *Nonadecane*, *α -Myrcene*, *Lavandulol*, *(E)- β -Farnesene*, and *Isopropyl Myristate*, *Alloaromadendrene oxide-(1)*, and *Eicosane*), while 9 major chemicals extracted by HD (*cis- α -Terpineol*, *Linalyl anthranilate*, *α -Pinene*, *β -Selinene*, *Nonadecane*, *α -Myrcene*, *Lavandulol*, *(E)- β -Farnesene*, and *Isopropyl Myristate*). SD is good method in extracting more chemicals, but in term of amounts, HD managed to exceed SD.

TABLE OF CONTENT

	PAGE
AUTHOR’S DECLARATION	ii
SUPERVISOR’S CERTIFICATION	iii
COORDINATOR’S CERTIFICATION	iv
ACKNOWLEDGEMENT	v
ABSTRACT	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS	xiii
LIST OF SYMBOLS	xv
CHAPTER 1 INTRODUCTION	1
1.1 Research Background	1
1.2 Problem Statement	2
1.3 Objectives	2
1.4 Scope of Research	3
CHAPTER 2 LITERATURE REVIEW	4
2.1 Introduction	4
2.2 Hibiscus	5
2.2.1 Introduction	5
2.2.2 Hibiscus <i>Rosa-Sinensis</i>	6
2.2.3 Usages of Hibiscus <i>Rosa-Sinensis</i>	6
2.3 Essential Oil	8
2.3.1 Introduction	8
2.3.2 Usages of Essential Oil	9
2.3.3 Volatile Compounds in Hibiscus Essential Oil	10
2.4 Extraction Method	14
2.4.1 Introduction	14

CHAPTER 1

INTRODUCTION

1.1. RESEARCH BACKGROUND

These days, natural based products are becoming popular among the people. This is because these products leave no chemicals behind in the body and there are no side effects if it is taken accordingly. Essential oils are one of the natural based products which are highly in demand now mainly because of its therapeutic uses.

In this research, essential oils are going to be extracted from hibiscus plant. Essential oils derived from hibiscus plant contained various volatile components such as hexadecanoic acid, lenoleic acid, and euganol (Ebije, Oladipupo, AbdulRazaq, & A. Ogunwande, 2014). Each of these volatiles has their own role in medical treatments or therapeutic treatments. For example, euganol is widely used by dentist because it's antiseptic and andante-inflammatory properties.