

**SYNTHESIS AND DECARBOXYLATION OF
2-(4-METHOXYLPHENYL)- 1-METHYL-4,5-DIOXO-PYROLLIDINE-3-CARBOXYLIC
ACID ETHYL ESTER**

ISLAILI ULFAH BT YAAKOB

**BACHELOR OF SCIENCE (Hons.)
CHEMISTRY
FACULTY OF APPLIED SCIENCE
UNIVERSITI TEKNOLOGI MARA**

NOVEMBER 2009

**SYNTHESIS AND DECARBOXYLATION OF
2-(4-METHOXYLPHENYL)- 1-METHYL-4,5-DIOXO-PYROLLIDINE-3-CARBOXYLIC
ACID ETHYL ESTER**

ISLAILI ULFAH BT YAAKOB

**Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Chemistry
in the Faculty of Applied Sciences
Universiti Teknologi MARA**

NOVEMBER 2009

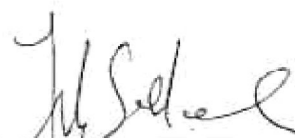
This Final Year Project Report entitled "2-(4-methoxyphenyl)-1-methyl-4,5-dioxo-pyrollidine-3-carboxylic acid ethyl ester" was submitted by Islaili Ulfah Yaakob, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Chemistry in the Faculty of Applied Science, and was approved by



Prof. Madya Dr. Zurina Shameeri
Supervisor
B. Sc. (Hons.) Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor



Prof. Madya Dr. Chan Chin Han
Project Coordinator
B. Sc. (Hons.) Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor



Prof. Madya Dr. Faizah Md Salleh
Head of Programme
B. Sc. (Hons.) Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Date: 23 NOV 2009

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS	vii
ABSTRAC	viii
ABSTRAK	ix
CHAPTER 1 INTRODUCTION	
1.1 Background	1
1.2 Significance of study	7
1.3 Objectives of study	7
CHAPTER 2 LITERATURE REVIEW	
2.1 Synthesis of 2,3-dioxopyrrolidines <i>via</i> multicomponents reaction	8
2.2 Decarboxylation of 2,3-dioxopyrrolidines	10
CHAPTER 3 METHODOLOGY	
3.1 Materials	
3.1.1 Chemicals	13
3.1.2 Instruments for analysis	
3.2 Methods	14
CHAPTER 4 RESULTS AND DISCUSSION	17
CHAPTER 5 CONCLUSION AND RECOMMENDATIONS	28
CITED REFERENCES	30
APPENDICES	31
<i>CURRICULUM VITAE</i>	40

ABSTRACT

SYNTHESIS AND DECARBOXYLATION PROCESS

The main focus of this experiment was synthesizing 2,3-dioxopyrrolidine for the first part. There were three main reagents to achieve the first part of this experiment. The reagents were diethyl oxalate, methyl amine and aldehyde groups. The two different aldehyde groups used were anisaldehyde and benzaldehyde. The structures of the 2,3-dioxopyrrolidine were determined using NMR. The second part of this experiment is decarboxylation. Each product from the first part underwent reflux for 2 hours in 10% HCl. The mixture obtained from decarboxylation was extracted with dichloromethane and ethyl acetate. The mixture then evaporated under reduced pressure.