

UNIVERSITI TEKNOLOGI MARA

**DETERMINATION OF ECHIMIDINE AND HELIOTRINE IN
TROPICAL HONEY BY LC-MS/MS**

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**Project paper submitted in partial fulfillment of the requirements for
the degree of
Bachelor in Environmental Health and Safety (Hons.)**

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Declaration by Student

Project entitled "Determination of Echimidine and Heliotrine in Tropical Honey by LC-MS/MS" is a presentation of my original research work. Wherever contribution of others are involved, every effort is made to indicate this clearly, with due references to the literature, and acknowledgment of collaborative research and discussions. The project was done under the guidance of Dr. Mehdi Sameni as Project Supervisor. It has been submitted to the Faculty of Health Sciences in Partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons.).

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TABLE OF CONTENTS

TITLE PAGE	
ACKNOWLEDGEMENT.....	ii
TABLE OF CONTENTS.....	iii
LIST OF TABLES.....	v
LIST OF FIGURES.....	vi
LIST OF APPENDICES.....	vii
LIST OF ABBREVIATION.....	viii
ABSTRACT.....	xi
CHAPTER 1.....	1
INTRODUCTION.....	1
1.1 Background Information.....	1
1.2 Problem Statement.....	3
1.3 Study Justification.....	3
1.4 Study Objectives.....	3
1.5 Study Hypothesis.....	4
1.6 Conceptual Framework.....	5
1.7 Conceptual and Operational Definitions.....	5
CHAPTER 2.....	7
LITERATURE REVIEW.....	7
2.1 Structure of Pyrrolizidine alkaloids (PAs).....	7
2.2 Presence of PAs in honey.....	8
2.3 Health effects.....	9
2.4 Liquid chromatography mass detector (LC-MS/MS).....	10
CHAPTER 3.....	12
METHODOLOGY.....	12
3.1 Materials.....	12
3.2 Sampling.....	12
3.3 Extraction.....	12

Abstract

Determination of Echimidine and Heliotrine in Tropical Honey by LC-MS/MS

Nurfayyadhah binti Omar

Objective: The aim of this study was to determine the presence of echimidine and heliotrine in tropical honey available in Peninsular Malaysia. **Methodology:** Thirty samples of tropical honey consists of pure honey and retail honey were randomly purchased from local supermarket all over Malaysia. The determination of pyrrolizidine alkaloids (PAs) are then analyses using LC-ESI-MS/MS with some modification. The linearity, recoveries, LOD and LOQ were determined in this study. **Results:** 13.33% and 6.66% of the honey samples were contaminated with echimidine and heliotrine, concentration varying from 8.773 to 22.033 ng/g and 13.100 to 19.892 ng/g, respectively. The linearity were achieved with R^2 0.99, it shows good recoveries and the LOD was 1 ng/g as well as LOQ was 4 ng/g. **Conclusion:** The results showed that 20% of total analysed tropical honey samples were contaminated with PAs.

Keywords: *pyrrolizidine alkaloids, echimidine, heliotrine, tropical honey, LC-ESI-MS/MS*