



**UNIVERSITI TEKNOLOGI MARA**

**ABUNDANCE OF *Aedes* MOSQUITO IN  
SELECTED FOOD COURTS IN RELATION  
TO DENGUE OUTBREAK IN AMPANG JAYA**

**NURUL DIANA MOHAMAD**

**BACHELOR IN ENVIRONMENTAL HEALTH  
AND SAFETY (HONS.)**

**JULY 2015**

### Declaration by Student

Project entitled "Abundance of *Aedes* Mosquito in Selected Food Courts in Relation to Dengue Outbreak in Ampang Jaya" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Dr Nazri Che Dom as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons.)

Accepted to be evaluated

by:

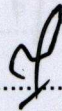


(Dr Nazri Che Dom)

Project Supervisor

Student's Signature:

Date:



(Nurul Diana Mohamad)

2011695284

870527 - 03 - 5410

Date: 06/07/15

TABLE OF CONTENT  
**ACKNOWLEDGEMENT**

ACKNOWLEDGEMENT

Bismillahirrahmanirrahim. Assalamualaikum and Alhamdulillah, all praise to Allah S.W.T. The Most Gracious and The Most Merciful for giving me continuous good health, strength, effort and confidence to complete my study. My greatest salaam to the great Prophet Muhammad S.A.W.

First of all, I would like to express my infinite appreciation and gratitude to my compassionate project supervisor, Dr Nazri Che Dom for his constant supports, advises, constructive criticisms and guidances throughout conducting this research. I also extent my gratefulness to all the lecturers from Environmental Health Department for their continuous support and guidance since the beginning of my study.

My appreciation and gratitude are extended to Ampang Jaya Municipal Council for their integrated cooperation and supports throughout the study being conducted. Special appreciation to all my supportive assistants Mr. Shazlan Akop, Mr. Muhd Iqbal Hakim Azrin and Mr. Khalid Mohd Saad for contributing their time, energy and effort towards the accomplishment of this project.

Finally, I wish to convey my special thanks and appreciation to my family members and friends for their physically, mentally and spiritually supports and contribution towards completion of this study. May Allah bless all of you, thank you.

|       |                                  |    |
|-------|----------------------------------|----|
| 1.7.3 | Breeding Containment Preferences | 10 |
| 1.7.4 | Dengue Fever                     | 11 |
| 1.7.5 | Dengue Outbreak Episode          | 11 |
| 1.7.6 | Incidence Rate of Dengue Fever   | 11 |

|       |  |                  |      |
|-------|--|------------------|------|
| 1.7.7 | Mosquito La                            | TABLE OF CONTENT | 12   |
|       |  |                  | 12   |
|       | <b>ACKNOWLEDGEMENT</b>                 |                  | i    |
|       | <b>TABLE OF CONTENT</b>                |                  | ii   |
|       | <b>LIST OF TABLES</b>                  |                  | vi   |
|       | <b>LIST OF FIGURES</b>                 |                  | vii  |
|       | <b>LIST OF PLATES</b>                  |                  | x    |
|       | <b>LIST OF APPENDICES</b>              |                  | xi   |
|       | <b>LIST OF ABBREVIATION</b>            |                  | xii  |
|       | <b>ABSTRACT</b>                        |                  | xiii |
|       |  |                  | 16   |
|       |  |                  | 21   |
|       | <b>CHAPTER ONE: INTRODUCTION</b>       |                  |      |
| 1.1   | Background Information                 |                  | 1    |
| 1.2   | Problem Statements                     |                  | 3    |
| 1.3   | Study Justifications                   |                  | 6    |
| 1.4   | Study Objectives                       |                  | 8    |
| 1.4.1 | General Objective                      |                  | 8    |
| 1.4.2 | Specific Objectives                    |                  | 8    |
| 1.5   | Study Hypothesis                       |                  | 8    |
| 1.6   | Conceptual Framework                   |                  | 9    |
| 1.7   | Conceptual and Operational Definitions |                  | 10   |
| 1.7.1 | <i>Aedes</i> Index (AI)                |                  | 10   |
| 1.7.2 | <i>Aedes</i> Mosquito                  |                  | 10   |
| 1.7.3 | Breeding Containment Preferences       |                  | 10   |
| 1.7.4 | Dengue Fever                           |                  | 11   |
| 1.7.5 | Dengue Outbreak Episode                |                  | 11   |
| 1.7.6 | Incidence Rate of Dengue Fever         |                  | 11   |

## Abstract

### ABUNDANCE OF *Aedes* MOSQUITO IN SELECTED FOOD COURTS IN RELATION TO DENGUE OUTBREAK IN AMPANG JAYA

By

Nurul Diana bt Mohamad (2011695284)

**Introduction:** Dengue fever is major international public health concern caused by *Aedes aegypti* and *Aedes albopictus* in tropical and sub-tropical region, predominantly urban and semi-urban area. Urban state such as Selangor, Johor and Perak are main contributor to the high incidence rate of dengue fever in Malaysia. Although many studies have been conducted, most of them mainly focusing on highly populated residential and other urbanized area, neglecting other human favourite spots area by which at par in producing risk to the transmission of dengue virus. **Objective:** This study aimed to determine the abundance of *Aedes* mosquito in selected urban food courts in relation to dengue outbreak in Ampang Jaya Municipal Council (AJMC) territorial area. **Methodology:** A cross sectional study was conducted in nine selected urban and semi-urban food courts in AJMC by using the Mosquito Larvae Trapping Devices (MLTDs) and dengue cases reported at localities adjacent to the food courts within the period of 2010 to 2014. The study was divided into several phases; preliminary data process, instrumentation preparation, field sampling, data collection process and data analysis. **Results:** The highest MLTD Index reported in urban food court with  $42.81 \pm 5.11$  (Level 4). In term of species, *Aedes albopictus* is more abundance compared to *Aedes aegypti*, but there is no significant difference observed between the MLTDs infestation indoor and outdoor of the urban and suburban food courts, ( $\chi^2 (1, N=37) = 2.86, p > 0.05$ ). **Conclusion:** The highest MLTD Index is recorded in urban food court with the value of  $42.81 \pm 5.11$  as compared to suburban food courts  $38.80 \pm 4.40$ . The highest RR was also recorded in urban food court with the value of 0.05 as compared to suburban with the lower value of  $RR = 0.03$  indicating that urban area are prone to experience dengue outbreak compared to suburban area.

Keywords: dengue fever, dengue outbreak, *Aedes* mosquito, food courts, MLTDs, relative risk