

**PREVALENCE AND ANTIMICROBIAL
SUSCEPTIBILITY TESTING OF *Vibrio parahaemolyticus*
ISOLATED FROM FRESH WATER AND FRESH WATER
FISH IN NEGERI SEMBILAN**

SITI FARANABILA BT MOHAMMAD YAACOB

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

JAN 2017

This final year project report entitled “Prevalence and Antimicrobial Testing of *Vibrio parahaemolyticus* Isolated from Fresh Water and Fresh Water Fish In Negeri Sembilan” was submitted by Siti Faranabila Bt Mohammad Yaacob, in partial fulfilment of the requirement for the Degree of Bachelor of Sciences (Hons.) Biology, in the Faculty of Applied Science, and was approved by

Dr. Noorlis Binti Ahmad
Supervisor
B.Sc. (Hons.) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
72000 Kuala Pilah
Negeri Sembilan

Ilyanie Hj Yaacob
Project Coordinator
B.Sc. (Hons.) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
72000 Kuala Pilah
Negeri Sembilan

Dr. Nor' Aisyah Binti Abu Shah
Head of School of Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
Beting (Parit Tinggi)
72000 Kuala Pilah
Negeri Sembilan

Date:

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
ABSTRACT	ix
ABSTRAK	x
CHAPTER 1 : INTRODUCTION	
1.1 Background Study	1
1.2 Problem Statement	3
1.3 Significance of the Study	3
1.4 Objectives of the Study	4
CHAPTER 2 : LITERATURE REVIEW	
2.1 <i>Vibrio</i> sp. and phenotype	5
2.2 Study Site	6
2.3 Virulence factors	6
2.4 Cases Related to <i>Vibrio parahaemolyticus</i>	
2.4.1 Incident in Malaysia	7
2.4.2 Incident in Other Asian Countries	8
2.4.3 Incident in Europe Countries	9
CHAPTER 3 : METHODOLOGY	
3.1 Materials	
3.1.1 Raw Materials	10
3.1.2 Chemicals	10
3.1.3 Apparatus	11
3.2 Methods	
3.2.1 Sample Collection	11
3.2.2 MPN Method	12
3.2.3 Morphological Testing	12
3.2.5 Antibiotic Susceptibility	13
CHAPTER 4 : RESULT AND DISCUSSION	15
CHAPTER 5 : CONCLUSION AND RECOMMENDATIONS	25

CITED REFERENCES	27
APPENDICES	30
CURRICULUM VITAE	36

ABSTRACT

PREVALENCE AND ANTIMICROBIAL SUSCEPTIBILITY TESTING OF *Vibrio parahaemolyticus* ISOLATED FROM FRESH WATER AND FRESH WATER FISH IN NEGERI SEMBILAN

Vibrio parahaemolyticus is a Gram negative bacteria that can cause a systemic infection in fish called Vibriosis and also as a main foodborne disease in seafood that easily deteriorates in quality, colors and flavors. A total of 36 samples were collected from *Oreochromis* sp. (Red Tilapia) and fresh water samples in Negeri Sembilan. The sampling was done on the gills, intestinal tracts, flesh and also the fresh water samples. In this study, *Vibrio parahaemolyticus* were identified by morphological testing and the growth of green centered colonies on the Thiosulfate Citrate Bile Sucrose (TCBS) agar. These samples were analyzed using Most Probable Number (MPN) method. The prevalence of *Vibrio parahaemolyticus* was found to be 100% in intestinal tracts followed by 88% prevalence in gills and only 44% found in the flesh part of fish samples. However, the presence *Vibrio parahemolyticus* was at 56%. The density of *Vibrio parahemolyticus* in the whole samples was ranged from 7.5×10^3 to 2.4×10^7 MPN/g. Almost all strain shows a multiple resistance towards all four antibiotics tested with a Multiple Antibiotic Resistant (MAR) index ranging from 0.5 to 0.8 respectively. This results however will indicate that another potential source of food safety issues to consumers.