



**DETECTION OF DRUG RESISTANT *Vibrio cholerae* ISOLATED
FROM *Portunus pelagicus* (Blue Swimming Crab)
IN QUEZON PROVINCE**

A Research Presented to the
Biological Sciences Department
College of Science and Computer Studies
De La Salle University-Dasmariñas
City of Dasmariñas, Cavite

In Partial Fulfilment of the Requirements for the Degree
Bachelor of Science in Human Biology

**OBLENA, ALFONSO LUIS O.
RIVERA, KERRY ALEXANDRIA D.**

June 2018



ABSTRACT

Vibrio cholerae, a Gram-negative bacterium which inhabits the marine environment is known as a causative agent of cholera. This descriptive study design deals with the detection of drug resistant *V. cholerae* isolated from *Portunus pelagicus* (Blue Swimming crab) obtained from the Dalahican Fish Port Complex in Quezon Province. The study used Alkaline Peptone Water (APW), in preparation for the isolation of the viscera and crab meat from the sample. Samples were homogenized with a blender and underwent incubation for 18 hrs at 30°C. The bacterium was isolated and streaked onto the Thiosulfate Citrate Bile Salts Sucrose (TCBS) agar for detecting sucrose-fermenting samples. Suspected yellow *V. cholerae* colonies were isolated and grown in a different petri dish. Isolated colonies resembling *V. cholerae* were placed into the Brain Heart Infusion Broth (BHIB) in preparation for the antibiotic susceptibility testing. Five isolates were subjected to an antimicrobial assay matched with 0.5 McFarland standard prepared with the Mueller-Hinton Agar (MHA). Isolates were tested to seven different antibiotics. Amikacin, ciprofloxacin, nalidixic acid, neomycin, norfloxacin, streptomycin and cephalixin were used to determine the drug resistance profile of the isolates. Results have shown fifteen cultured isolates of *V. cholerae* displayed resistance to cephalixin while six isolates were resistant to streptomycin. On the other hand, fifteen isolates were susceptible to ciprofloxacin and nalidixic acid while fourteen isolates were susceptible to neomycin and norfloxacin. Eleven isolates were susceptible to amikacin while seven isolates were susceptible to streptomycin.

Key words: Gram-negative bacteria, Vibrio cholerae, Portunus pelagicus, antimicrobial assay



TABLE OF CONTENTS

Title Page	1
Abstract	2
Approval sheet	3
Acknowledgments	4
Table of Contents	5
CHAPTER 1 INTRODUCTION	
1.1 Background of the Study	7
1.2 Conceptual Framework	9
1.3 Objectives of the Study	10
1.4 Scope and Delimitations	10
1.6 Significance of the Study	11
1.7 Definition of Terms	11
CHAPTER 2 LITERATURE REVIEW	
2.1 Conceptual Literature	12
2.2 Related Studies	22
CHAPTER 3 METHODOLOGY	
3.1 Research Design	27
3.2 Research Setting	27
3.3 Research Procedure	28
3.4 Data Gathering	29



CHAPTER 4 RESULTS AND DISCUSSION

4.1	Results	30
4.2	Discussion	33

CHAPTER 5 SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1	Summary	37
5.2	Conclusion	38
5.3	Recommendation	39

Cited References	40
------------------	----

Appendices

A.	Taxonomic Account of <i>Portunus pelagicus</i>	45
B.	Standard Procedure	47
C.	Results for Colonial Characterization	51
D.	Disc Diffusion Supplemental Tables	52
E.	Photo Documentation	53

Curriculum Vitae	53
------------------	----