



**LEAD AND CADMIUM BIOACCUMULATION IN *Clupea harengus*  
(HERRING) FROM ROSARIO BAY, CAVITE**

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 of Bachelor of Science in Medical Biology / Biology major in  
Human Biology

**KASANDRA CHRISTINA A. PATAM**

**DEA DANE S. SUILEN**

March 2014



### ABSTRACT

This study determined and compared the lead and cadmium present in the gills and muscles of herring. The herring samples were obtained on October 2013. Results were reinforced using Flame Atomic Absorption Spectrometer and quantitative analysis confirmed the presence of lead and cadmium in all fish samples. One-way ANOVA determined the significance between the levels of Pb and Cd concentration, which were found to be 0.7648, 0.3766, 3.7161 and 0.6990 ug/g. F-values were found to be 6.047, 4.390, 13.816 and 6.306, respectively. Lead in gills was found to have the highest concentration of 0.7648. Mean Cd concentration in gills is found to be significantly higher than in muscles. Significant difference is due to the increased Pb and Cd concentration in the environment, which may be in ionic form, thus, easily accumulated, and the prolonged and direct exposure of gills to the water than muscles, metallic adsorption, and presence of mucus and feeding habit. The Pb and Cd mean concentrations also exceeded the permissible therefore; it is not advisable for public consumption.



## 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 Objectives of the Study	9
1.3 Scope and Limitations	10
1.4 Significance of the Study	10
1.5 Definition of Terms	12
CHAPTER 2 LITERATURE REVIEW	
2.1 Conceptual Literature	14
2.2 Related Studies	22
CHAPTER 3 METHODOLOGY	
3.1 Research Design	28
3.2 Research Setting	28
3.3 Research Procedure	29
3.4 Data Gathering and Statistical Analysis	31



CHAPTER 4 RESULTS AND DISCUSSION

4.1 Results 32

4.2 Discussion 33

CHAPTER 5

5.1 Conclusion 38

5.2 Recommendation 38

Cited References 40

Appendices 54

A. Map of the Study Site 54

B. Standard Procedure 55

C. Photodocumentation 57

D. Raw Data 73

E. Curriculum Vitae 77