

BIOACCUMULATION OF HEAVY METALS IN ASIAN
SEABASS, TILAPIA AND GROUPER FROM LAGUNA
TUJOH AND SUNGAI SEMERAK, KELANTAN

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2017

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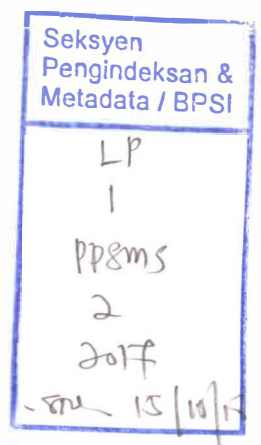
By

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**Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science (Marine Science)**

**School of Marine and Environmental Sciences
UNIVERSITI MALAYSIA TERENGGANU**

2017



This project should be cited as:

Afiqah A. A. (2017). Bioaccumulation of Heavy Metals in Asian Seabass, Tilapia and Grouper from Laguna Tujoh and Sungai Semerak, Kelantan. Undergraduate thesis, Bachelor of Science (Marine Science), School of Marine and Environmental Sciences, Universiti Malaysia Terengganu, Terengganu. 39p.

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1100103694

ACKNOWLEDGMENT

First of all, I would like to give my deep gratitude to my supervisor which is Dr. Nurul Nadia Binti Mohd Yusoff for always giving me a helping hand during my final year project starting from the sampling activities, laboratory works and thesis writing. I also would like to give my appreciation to the laboratory assistants, Encik Raja for the sampling equipments, Encik Sulaiman for the chemical substances and Encik Syed for the apparatus. Not forgetting, to our science officer, Encik Sainol, other research assistants and Master students that have been involved directly and indirectly in this final year project. After that, I would like to show my gratitude to my final year project coordinator and other lecturers that have being supportive and providing such a helpful guidance in finishing the project. After that, I would to thank you my friends that always be there for me through thick and thin. Then, I also would like to thank you my family for the moral support that they have been given to me for all this time.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENT	i
LIST OF FIGURES	iv
LIST OF TABLES	v
ABSTRACT	vi
ABSTRAK	vii
CHAPTER 1: INTRODUCTION	
1.1 Background of Study	1
1.2 Justification of Study	2
1.3 Objectives	4
CHAPTER 2: LITERATURE REVIEW	
2.1 Heavy Metal Studies	5
2.2 Provisional Tolerable Weekly Intake (PTWI)	6
2.3 Biology of Fish	6
2.4 Sources of Heavy Metals	7
2.5 Bioaccumulation of Heavy Metals	8
CHAPTER 3: METHODOLOGY	
3.1 Sampling Area	10
3.2 Sample Collection	10

3.3	Sample Preparation	13
3.4	Sample Analysis	13
3.5	Data Analysis	14
CHAPTER 4: RESULT		
4.1	Water Parameter	15
4.2	Standard Reference Material (SRM)	15
4.3	Heavy Metals concentration in Fish	17
4.4	Heavy Metal Concentration in Sediment	20
CHAPTER 5: DISCUSSION		
5.1	Water Parameter	21
5.2	Heavy Metals Concentration in Fish and Sediment	22
5.3	Bioaccumulation Factor (BAF)	24
5.4	Comparison with Previous Studies	24
5.5	Comparison with Food Safety Guideline	27
5.6	Provisional Tolerable Weekly Intake (PTWI)	28
CHAPTER 6: CONCLUSION		29
REFERENCES		30
APPENDICES		38

LIST OF FIGURES

Figure		Page
3.1	The sampling locations of (A) Laguna Tujoh and (B) Sungai Semerak, Kelantan	12
4.1	Iron (Fe) concentration, mg/kg (dry weight) in muscle, gill and liver tissue of Asian Seabass and Tilapia from Laguna Tujoh, n=20	17
4.2	Lead (Pb), copper (Cu) and cobalt (Co) concentration, mg/kg (dry weight) in muscle, gill and liver tissue of Asian Seabass and Tilapia from Laguna Tujoh, n=20	18
4.3	Iron (Fe) concentration, mg/kg (dry weight) in muscle, gill and liver tissue of Asian Seabass and Grouper Sungai Semerak, n=20	19
4.4	Lead (Pb), copper (Cu) and cobalt (Co) concentration, mg/kg (dry weight) in muscle, gill and liver tissue of Asian Seabass and Tilapia Sungai Semerak, n=20	19
4.5	Heavy metals concentration, mg/kg (dry weight) in sediment from Laguna Tujoh and Sungai Semerak for Fe and Pb, Cu and Co, n=5	20

LIST OF TABLES

Table		Page
3.1	Mean of weight and length of the fish	13
4.1	Physical parameter of sampling sites	15
4.2	Recovery test for Standard Reference Material (SRM) of sediment	16
4.3	Standard Reference Material (SRM) for fish	16
5.1	Bioaccumulation Factor (BAF) for fishes from Laguna Tujoh and Sungai Semerak	24
5.2	Comparison of heavy metals concentration between previous studies, mg/kg (dry weight)	26
5.3	Comparison between heavy metals concentration, mg/kg (dry weight) and Food Safety Guideline	27
5.4	Calculated Provisional Tolerable Weekly Intake (PTWI) for each sample	28

ABSTRACT

Laguna Tujoh and Sungai Semerak are two of the largest locations for cage culture activity in Kelantan. Fish such as Asian seabass, Tilapia and Grouper are the common types of cage cultured organism. Twenty fishes and five sediments samples were collected from each study area to determine the concentration of Fe, Pb, Cu and Co as well the bioaccumulation factor (BAF) of each studied metals. Samples were digested using microwave digestion method which then measured using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES). Liver was accumulated the highest concentration of Fe in Laguna Tujoh with 386 mg/kg in Asian seabass and 205 mg/kg in Tilapia, while in Sungai Semerak with 139 mg/kg in Asian seabass and 193 mg/kg in hybrid Grouper. Bioaccumulation Factor (BAF) of muscle was calculated from the ration of concentration in the muscle over sediment. BAF values greater than 1 was found for Cu in the liver of all types of fish except for hybrid Grouper. This suggests that liver could be a good bioindicator of Cu pollution.

BIOAKUMULASI LOGAM BERAT DALAM ASIAN SEABASS, TILAPIA DAN GROUPER DARI LAGUNA TUJOH DAN SUNGAI SEMERAK, KELANTAN

ABSTRAK

Laguna Tujoh dan Sungai Semerak ialah antara dua lokasi terbesar bagi aktiviti penternakan ikan di Kelantan. Ikan seperti Asian Seabass, Tilapia dan Grouper antara ikan yang biasa diternak untuk aktiviti penternakan ikan. Dua puluh ekor ikan dan lima sampel sedimen diambil bagi setiap kawasan kajian bagi menentukan konsentrasi Fe, Pb, Cu, dan Co selain menentukan “Bioaccumulation Factor” (BAF) bagi setiap logam berat yang dikaji. Sampel dicerna dengan menggunakan “Inductively Coupled Plasma Optical Emission Spectrometry” (ICP-OES). Sampel hati mengakumulasi Fe dengan konsentrasi paling tinggi dari Laguna Tujoh dengan 386 mg/kg di dalam Asian Seabass dan 205 mg/kg di dalam Tilapia, manakala di Sungai Semerak dengan 139 mg/kg di dalam Asian Seabass dan 193 mg/kg di dalam Grouper. “Bioaccumulation Factor” (BAF) bagi sampel tisu otot dikira menggunakan nisbah konsentrasi logam berat dalam ikan kepada konsentrasi logam berat dalam sedimen. Nilai BAF yang melebihi 1 dijumpai bagi Cu di dalam sampel hati dalam kesemua jenis ikan kecuali Grouper. Ini menunjukkan bahawa sampel hati ialah “bioindicator” yang bagus bagi pencemaran Cu.