

UNIVERSITI TEKNOLOGI MARA

**DETERMINATION OF CADMIUM, LEAD AND
COPPER IN *CLARIAS GARIEPINUS* FROM MASS
MARKET**

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**Project paper submitted in partial fulfillment of the
requirements for the degree of
Bachelor in Environmental Health and Safety (Hons.)**


Faculty of Health Sciences

JULY 2014

Declaration by Student

Project entitled "Determination of Cadmium, Lead and Copper Concentration In *Clarias Gariepinus* From Mass Market" 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 Mr. Mohd Izwan bin Masngut as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons.).

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2010474944

910311-02-5866

Date: 18/7/2014.....

ACKNOWLEDGEMENT

Bismillahirrahmanirrahim. In the name of Allah, all Praise is due to Him, I would like to express my sincere appreciation to my supervisor, Mr. Mohd Izwan Bin Masngut for his inspiring guidance, opinion and support to all my activities and in the preparation of this project. Unforgettable, I want to give many thanks to all the Environmental Health and Safety lecturers for the input and reminder in order to complete the project paper.

Many thanks also to Mr. Muhammad Azwat Bin Abdullah for his kindness and patience in training me on the use of various instruments especially on the use of Atomic Absorption Spectrophotometer (AAS) and also for his valuable help especially during method development when running the AAS program. Special thanks also to Mr. Erdzuam , Mrs Maziah and Mr. Shah for their assistance while using the laboratory facilities. I was gratefully thanks to all my friends who have given their encouragement.

Last but not least, my deepest appreciation is extended to my kind father, Mr. Fauzan Bin Abdullah, my lovely mother , Mrs. Zanariah Binti Zakaria and all my siblings who always understanding , give moral support and continuously pray for me.

Finally, great appreciations to the post-graduate students who like to give their ideas during conducting my research. Without all of you, I would never have reached the end today.

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Abstract

Determination of Cadmium, Lead and Copper Concentration in *Clarias gariepinus* from Mass Market

Nur Syafiqah binti Fauzan

Introduction: Living organisms required variety of heavy metals. Fish has been the main supply of inexpensive and healthy protein to a huge percent of the human population. Marine fish or aquaculture fish have the potential to accumulate the heavy metals. Excessive amount of heavy metal may give a health risk effect.

Methodology: A cross-sectional study was done using 150(n) sample of African catfish bought from various places in Selangor. Sample preparations are using dry ash techniques. Sample analysis is using Atomic Absorption Spectrophotometer (AAS). Questionnaires were distributed among catfish purchaser for demographic data. Heavy metal concentrations were compared using One Way ANOVA (SPSS v.18).

Results: The results demonstrate the presence of Cd, Pb and Cu concentrations inside the *Clarias gariepinus*. The mean concentration of Cd was 0.060 mg/kg, Pb was 0.195 mg/kg and Cu was 2.554 mg/kg. Generally, the concentration of Cd, Pb and Cu were ranging from 0 to 0.232, 0.004 to 0.736 and 0.332 to 6.072. The health risk assessment was conducted for both male and female. Hazard Index obtained from three studied heavy metal were below than one ($HI < 1$).

Conclusion: In a conclusion, overall concentration of Cd, Pb and Cu were lower than national and international standards. However, only Pb concentration was slightly higher than European Community Standard. After the health risk assessment was conducted to each three studied heavy metals, the consumer in Selangor area were safely consume the African catfish (*Clarias gariepinus*).

Keywords: Heavy Metals, African catfish, Risk Assessment