

UNIVERSITI TEKNOLOGI MARA

**DETERMINATION OF CADMIUM, COPPER AND
CHROMIUM IN *OREOCHROMIS NILOTICUS*
FROM MASS MARKET**

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**Project paper submitted in partial fulfillment of the
requirement 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, Copper and Chromium in *Oreochromis niloticus* From Mass Market" is the 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 Science in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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2010826548

910501-08-5798

Date: *18/7/2014*

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ACKNOWLEDGEMENT

In the name of Allah, the most Gracious and the Most Merciful.

Alhamdulillah, all praise to Allah for the strength and His blessing in completing this thesis.

First and foremost, I would like to thank my supervisor, Mr Mohd Izwan Bin Masngut for his supervision and constant support His invaluable help of constructive comments and suggestions throughout the experimental and thesis works have contributed to the success of this research.

My sincere thanks also goes to Mr Muhammad Azwat, Mr Erdzuam, Mr Syah and Mdm Maziah for their assistance during conducting the experiment and while using the laboratory facilities.

Last but not least, my deepest gratitude goes to my beloved parents; Mr Mohamad Zawawi Bin Sofian and Mrs Salmah Binti Hussain for their endless love, prayers and encouragement. To those who indirectly contributed in this research, your kindness means a lot to me. Thank you very much.

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Abstract

Determination Of Cadmium, Copper And Chromium In *Oreochromis Niloticus* From Mass Market

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Introduction: Heavy metals have a possibility to accumulate in marine environments such as water, sediments, and fish, and later transferred to human beings via the food chain. Heavy metals contamination in fish has become an important global concern due to the health risks associated from fish consumption. Fish is considered as a good bioindicator of aquatic ecosystem due to its ability to accumulate metal.

Methodology: The study design used was Cross Sectional Study. The sampling was conducted randomly (n=150) from mass market around Selangor. Dry ashing technique was used for sample digestion. Graphite Furnace Atomic Absorption spectroscopy (GFAAS) Model PinAAcle 900T was used to analyzed heavy metal concentration. 100 questionnaires have been distributed. One Way ANOVA was used for determine comparison of mean concentration in cadmium, copper and chromium.

Result: The analysis showed that the mean concentration for cadmium in *oreochromis niloticus* were 0.063 mg/kg, while the level of copper were 4.174 mg/kg. The mean concentrations of chromium detected in *oreochromis niloticus* were 0.466 mg/kg. The ranking order of mean concentration of heavy metal in *oreochromis niloticus* were Cu (4.174) > Cr (0.466) > Cd (0.063). Health Risk Assessment was calculated and it show that Hazard Index is less than 1. This indicates no concern that threshold effect or cancer will occur.

Conclusion: This study indicates the presence of cadmium, copper and chromium from mass market around Selangor. However, the level of cadmium, copper and chromium detected were lower than permissible limit for both national and international standard. Health risk assessment indicates that *oreochromis niloticus* from mass market around Selangor are safe for human consumption.

Keywords: *Oreochromis Niloticus*, heavy metal, mass market, health risk assessment, aquaculture