THE DETERMINATION OF TOXIC HEAVY METALS IN FRESHWATER PRAWN AND MARINE PRAWN BY NEUTRON ACTIVATION ANALYSIS

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MAY 2003

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Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Sciences (Hons.) Applied Chemistry
in the Faculty of Applied Sciences
Universiti Teknologi Mara

May 2003

ACKNOWLEDGEMENTS

First and foremost I would like to thank Assoc. Prof. Dr. Nor Hadiani Ismail, Head of program Degree of Bachelor Science (Hons). Applied Chemistry for her cooperation in allowing me to gain knowledge from my thesis and her support in making all the apparatus in laboratory available to me in the course of my research.

Secondly I would like to give a special thank you to my supervisor Assoc. Prof. Zuraidah Abdullah Munir for her kindness, patience and guidance in helping me to complete my thesis. Her ideas and suggestion contributed a lot in the preparation of this report. A very special thanks to Assoc. Prof. Dr. Zaini Hamzah for his generosity in helping and showing me the correct way to perform the task required.

Last, but not least a special thank you to my supervisor at MINT, Assoc. Prof. Dr. Abdul Khalik Wood in allowing me to use the equipments in his laboratory to complete my research, to all lab assistant and my classmates for their kindness in sharing their knowledge and experience with me along the completion of my thesis.

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ABSTRACT

THE DETERMINATION OF TOXIC HEAVY METALS IN FRESHWATER AND MARINE PRAWN BY NEUTRON ACTIVATION ANALYSIS

The amounts of toxic heavy metals in freshwater and marine prawn were determined by using gamma spectroscopy. Once the concentrations are obtained the results were used to compare the concentration of toxic heavy metals in freshwater prawn and marine prawn and also to study the effect of location to toxic heavy metals concentration in prawn. The metals being considered in this analysis are lead, mercury, arsenic, cadmium and antimony. Long irradiation was used to determine the concentration of the toxic heavy metals in the samples of prawn. The samples were collected from various locations for freshwater and marine prawn. The gamma spectroscopy was used in this project to determine the amount of toxic heavy metals in prawn body. The method was used is very simple and after preparation of sample was completed, the sample was analyzed using gamma spectrometer. Mercury content in freshwater prawn was in the range 0.02-0.06 mg/kg, whilst mercury content in marine prawn was in the range 0.05-0.31 mg/kg. Lead content in freshwater prawn was in the range 0.83-1.68 mg/kg whilst lead content in marine prawn were in the range 0.45-2.82 mg/kg. Most of the samples did not contain cadmium except Scampi collected at Sungai Besar. Cadmium in this sample is 0.86 mg/kg. Arsenic content in freshwater prawn was in the range 3.16-7.72 mg/kg, whilst the arsenic content in marine prawn was in the range 2.50-11.41 mg/kg. Antimony content in freshwater prawn in the range of 0.58-0.76 mg/kg, whilst antimony content in marine prawn is 0.41 mg/kg. Generally, the amounts of heavy metals in freshwater prawn were lowered compared to marine prawn.