

**EXPOSURE ASSESSMENT FOR MERCURY AND OTHER METALS IN  
COMMONLY CONSUMED FISH OF WEST PENINSULAR MALAYSIA**

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Submitted for PhD in Applied Science

January 2014

## **Acknowledgements**

Many people have contributed to the success of my PhD project. I would like to take this opportunity to thank those who have significantly contributed either directly or indirectly to this. First and foremost, my ultimate gratitude goes to Allah Almighty for giving me this golden opportunity to complete my PhD despite the challenges and obstacles experienced during my stay in Australia. This has certainly made me grow as a better person each and every single day. Thank you Allah.

I would like to also thank my first supervisor, Dr. Simon Foster for your time and assistance throughout my project and making sure that everything worked well. A big thank you goes to Prof Bill Maher, my second supervisor for prompt review in checking my thesis chapters even though I found it hard to decipher the handwritings sometimes. Thank you also to Frank Krikowa for assistance in conducting analyses for my project and giving advice to optimize my project. To my fellow labmates; Rod, Chamani, Rajani thank you for your help in solving statistics questions and assistance in lab analysis. Thanks a lot also to Larissa who have motivated me to write my thesis and assisted me in reviewing some of the chapters. To Max and Sally, I really appreciate your assistance in running the SDS-PAGE. Not forgetting my housemate cum my best friend and travel buddy, Nur Hafizah who shared my ups and downs as well as providing emotional support, I will treasure our friendship till the end of time. To my fellow Malaysian friends in Canberra, thank you for your friendship.

Last but not least, I would like to thank my families in Malaysia, Mama, Along, Baby, uncles, aunts, cousins and friends for emotional support and motivations to keep me going. I would like to also dedicate this PhD to my late father. Thank you Ayah! Without you, I won't be where I am now.

## **Abstract**

Fish is a cheap supply of protein and is considered among the main source of protein for majority of populations in Asia. Eating fish has always been associated with health benefits due to high content of omega-3 fatty acids (EPA and DHA). As consumption of fish is the main route of exposure to pollutants in humans, it is the main interest of this study to determine the concentrations of metals (with special interest in mercury) in commonly consumed fish in West Peninsular Malaysia. Due to the toxicity of mercury which depends on its bioavailability and chemical form, it is insufficient to measure only total concentrations of mercury. Hence, mercury speciation was also measured in this study. As mercury has a high affinity for sulphur, the most likely binding ligand of mercury is free sulfhydryl groups in protein cysteine residues. There is limited information, however, on the binding sites of mercury in fish proteins. A more detailed examination on the biochemical associations of mercury in fish proteins was assessed using size exclusion chromatography and SDS-PAGE to determine the molecular weights of protein bound mercury. Reversed phase chromatography was then used to determine the chemical associations of mercury. The implications for the metabolism and toxicity of mercury in fish were discussed.

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