UNIVERSITI TEKNOLOGI MARA

DETERMINATION OF HEAVY METALS IN SHRIMP PASTE AND IT'S POTENTIAL HEALTH RISK

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Project submitted in fulfilment of the requirements for
the degree of
Bachelor in Environmental Health and Safety
(Hons.)

Faculty of Health Sciences

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DECLARATION BY STUDENT

Project entitled "Determination of Heavy Metals in Shrimp Paste and It's Potential Health Risk" is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor, Prof. Madya Rodziah binti Ismail. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

Student's signature:

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(Nur Khairiyah binti Kassim)

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I want to express my love and gratitude to:

The owner of the Great love

The person who cannot be replaced
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The persons who complete my life
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ABSTRACT

The process of industries and agriculture has led to the increased of pollutants emission such as heavy metals into the water bodies and will resulting in the contamination of water. The contamination of sea water at Tanjung Kling and Bintulu with the heavy metals will affect the ecosystems in the sea and thus effect the human through the consumption of processed shrimp that comes from the polluted water. This research was aimed to determine the concentration of Lead, Pb; Cadmium, Cd; and Copper, Cu in shrimp paste which then was compared the level concentration of Pb, Cd, and Cu between shrimp paste from Tanjung Kling, Melaka and Bintulu, Sarawak and thus determine its potential health risk to human on consuming contaminated shrimp paste. The Atomic Absorption Spectrophotometer (AAS; AA800) Perkin Elmer was used to analyse the heavy metals content in the digested shrimp paste. The mean concentration for copper, lead and cadmium in Tanjung Kling shrimp paste is 21.9, 29.6 and 1.4 mg/kg respectively while 9.4, 23.9 and 0.9 mg/kg respectively for shrimp paste at Bintulu. Target Hazard Quotient (THQ) and Hazard Index (HI) was used for the health risk assessment to define the carcinogenicity of the sample. The result shows the THQ and HI for lead, copper and cadmium are more than 1 which signified that a daily exposure at this level is likely to cause any adverse effects.

Keywords: *Health risk assessment, polluted water, pollutants emissions*