

UNIVERSITI TEKNOLOGI MARA

**ASSESSING POTENTIAL HEALTH RISK OF
HEAVY METAL EXPOSURE IN INSTANTLY
FOODS COMMONLY CONSUMED IN
SELANGOR, MALAYSIA**

HANIM AKILAH BINTI ADNAN

Project submitted in fulfilment of the requirements

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Declaration by Student

Project entitled “Assessing potential health risk of heavy metal exposure in instantly foods commonly consumed in Selangor, Malaysia” 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 my project supervisor, Mr. Nasaruddin Bin Abd Rahman. 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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(Hanim Akilah Binti Adnan)

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Abstract

Assessing Potential Health Risk of Heavy Metal Exposure In Instantly Foods Commonly Consumed In Selangor, Malaysia

HANIM AKILAH BINTI ADNAN

Food are the main sources of toxic elements intake for humans and have detrimental effects on various metabolic processes if they are present in relatively high concentrations. Heavy metal is mainly the result of human activities such as agriculture, mining, construction and industrial processes. Heavy metals are individual metals and metals compounds that can give impact to human health, and generally human are exposed to the heavy metals by ingestion or inhalation. Metals are divided into two categories namely hazardous and non-hazardous group. The main objective of this study is to determine the concentration of heavy metals in peanuts, rice and anchovies and to assess the potential health risks associated with heavy metals due to intake of these types of staple food.

The parameters which cadmium (Cd), copper (Cu) iron (Fe), lead (Pb), and zinc (Zn) were conducted on rice, peanuts and anchovies. This research is a cross sectional study. The sample has been randomly collected by purchased them from different retail shops in three different cities in Selangor province including Puncak Alam, Shah Alam, and Meru. All the samples were collected to be analyzed. The analysis for heavy metal were performed on a heated furnace-atomic absorption spectrometer (FAAS). Then all the data and results were analyzed using Statistical Package Social Science. The results shown that there were significant differences on the concentration presents in the rice, peanuts and anchovies for the heavy metals for Cd, Cu, Fe, Pb and Zn since the p values is < 0.005 . It was found that the mean concentration in rice and peanuts samples decreased from $Zn > Fe > Pb > Cu > Cd$. While the mean concentration in anchovies samples decreased from $Fe > Pb > Zn > Cu > Cd$. Target Hazard Quotient of heavy metal (Zn, Pb, Cu, Cd, Fe) was calculated to estimate the potential health risk to consumer. Health Risk Assessment indicates that rice, peanuts and anchovies are not safe for consumption regarding to its hazard index is greater than 1 for Cd, and Pb. As a conclusion, all samples analyzed in this study are poses potential health risk in future. Therefore, further assessment of heavy metals in staple foods from the contaminated sources is necessary.

Keywords: Heavy Metals, Health Risk Assessment, Staple Food, Instantly Food

Kata kunci: Logam berat, Penilaian Risiko Kesehatan, Makanan ruih Makanan Segera