

UNIVERSITI TEKNOLOGI MARA

**POTENTIAL HEALTH RISK OF SELECTED HEAVY
METALS CONTAMINANT IN WELL WATER OF
RESIDENT IN KOTA BHARU, KELANTAN**

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**Project paper submitted in fulfillment of the requirements
for the degree of
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Declaration by Student

Project entitled "Potential Health Risk of Selected Heavy Metals Contaminant in Well Water of Resident in Kota Bharu, Kelantan" is a presentation of my original research work. Wherever contributions of others are involved, my 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 Assoc. Prof. Dr. HaziliabintiHussain as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons.)

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Abstract

Potential Health Risk of Selected Heavy Metals Contaminant in Well Water of Resident in Kota Bharu, Kelantan

HAZWANI BINTI AHMAD

INTRODUCTION: Well water is completely developed to be consumed by people for domestic purposes; drinking, cooking and personal hygiene in Kelantan. However, the well water is vulnerable to be contaminated by heavy metals. **OBJECTIVE:** The aim of this study were to measure the selected heavy metals (Aluminium, Lead and Iron) contaminant in well water among the resident in Kota Bharu Kelantan and their potential health risk. **METHODOLOGY:** The design of this study is a cross sectional study. The well water samples were collected directly from thirty (30) private well owned by residents of Kg Kemumin. The water was sampled three times around the study area during December 2013 to February 2014. Total samples for this study was 90. Samples from well were collected using stainless steel bucket .About 250 mL well water was taken for each private well. Samples were stored in cool box to maintain the temperature during transport to the laboratory and were preserved with nitric acid and stored in chiller at 4°C before being analyzed. Samples were allowed to warm up to room temperature before analyze by GFAAS. While, pH was measured by pH meter and turbidity was measured by turbidity meter. Besides, a quantitative assessment was conducted to assess the potential health risk of residents. **FINDINGS:** The mean concentration of lead (>0.01mg/L) exceeded the Malaysia Standard. While, the mean concentration of aluminium and iron was below the Malaysia standard with the finding <0.2mg/L and <0.3mg/L respectively. The pH level also exceeded the standard. In addition the result show there was a significant correlation (p-value< 0.05) between some heavy metals (Al, Pb dan Fe) and selected parameters (pH and Turbidity). There was a significant difference (p-value <0.05) between lead and months. The hazard index for aluminium and lead was less than 1. Thus, it is unlikely to cause health risk to the residents. **CONCLUSION:** The concentration of heavy metals was detected in well water at Kg Kumumin. However, there possibilities to cause adverse effects to residents were considered low.

Keywords: aluminium, lead, iron, well water, potential health risk