UNIVERSITI TEKNOLOGI MARA

A COMPARATIVE STUDY ON HEAVY METALS CONCENTRATION BETWEEN HOUSE WITH AND WITHOUT HOME WATER FILTER

NOOR SUHADAH BT ABDUL AZIZ

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Declaration

This Project paper entitled A Comparative Study on Heavy Metals Concentration between House With and Without Home Water Filter is a presentation of my original research work. Wherever contribution 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 work was done under the guidance of Ms. Farah Ayuni Sahafea Shafie (Project Supervisor) and Mr. Nasaruddin B. Abd Rahman (Project Co-Supervisor), at the Universiti Teknologi Mara (UiTM).

[Noor Suhadah Bt Abdul Aziz]

In my capacity as supervisor of the candidate's project, I certify that the above statements are true to the best of my knowledge.

[Ms. Farah Ayuni Sahafea Shafie]

Date:

ACKNOWLEDGEMENT

In the name of Allah, The Most Gracious, The Most Merciful..

Alhamdulillah, all praise is to Allah, The Supreme Lord of the Universe. Piece and blessing to Prophet Nabi Muhammad S.A.W., all the prophets, their families and all the Muslims.

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Abstract

Lack access to clean and safe drinking water is a public health hazard. Due to the poor quality of supplied drinking water, respondents start to take additional measure by purchasing and installing their own home drinking water filter to improve the quality of their drinking water. A comparative study was conducted to determine heavy metals level (Lead, Cadmium, Copper and Iron) in respondent's tap water, to compare heavy metals level between filtered and unfiltered water and to compare the probable hazard associated with exposure to heavy metals in drinking water between respondents consuming filtered water and unfiltered water (n=140). Total of 60 tap water samples were collected and were analyzed using Graphite Furnace Atomic Absorption Spectrometry (GFAAS). Results shows that level of Lead (0.02 mg/L) and Iron (0.63 mg/L) in respondent's tap water was violated the maximum acceptable value for Lead (0.01 mg/L) and Iron (0.3 mg/L) under National Standard For Drinking Water Quality 2004. There were significant differences in heavy metals level exist between filtered and unfiltered water ($P < 0.05$). Heavy metals level in unfiltered water was high compared to filtered water. Data also showed that there were significant differences in health hazard exist between respondents consuming filtered water and unfiltered drinking water ($P < 0.05$). Respondents consuming unfiltered water shown to get adverse health effect associated with the exposure to heavy metals in their drinking water. It was revealed that the use of home water filter can remove certain amounts of heavy metals in drinking water thus reduce health hazard associated to that particular contaminants.

Key words: Home Water Filter, Heavy Metals, Hazard Index