

**RISK ASSESSMENT OF HEAVY METAL IN DIFFERENT
BRANDS OF TABLE TOP WATER FILTER**

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ABSTRACT

RISK ASSESSMENT OF HEAVY METAL IN DIFFERENT BRANDS OF TABLE TOP WATER FILTER

Heavy metals are toxic elements for human and may enter through consumption of polluted water. Water filter is one of the alternatives that people use nowadays as a source of drinking water and daily use. However, it is necessary to monitor and determine the safety and trace metal contaminants. This study was conducted to determine the concentration of heavy metal in different brands of table top water filter and potential health risk arise from that filtered water. Water samples were collected from three different types (brand A, B, C) of table top water filters. Samples were analyzed using Atomic Absorption Spectrometry (AAS) to determine the concentration of Copper (Cu), Chromium (Cr), Zinc (Zn), Iron (Fe) and Aluminium (Al). The results showed that the concentrations of Cr and Al were under detection limit meanwhile the mean concentration of Cu in filtered water in sample A was the highest (0.161 ± 0.0007 mg/L) compared to filtered water from sample B and C. However the mean concentration for Fe and Zn were the highest in sample C (0.145 ± 0.0007 mg/L) and (0.012 ± 0.0007 mg/L), respectively. All of the examined samples had these trace metal in concentration below permissible limit by WHO standard. Heavy metal contaminations were evaluated for risk assessment, chronic daily intake (CDI) and hazard quotient (HQ). Results revealed that HQ values were < 1 for all metals, suggesting that no adverse health effects are expected. It can be assumed that there is no basic public health problem by consumption of water filter in regarding these toxic metal.

Keywords: Atomic Absorption Spectrometry (AAS), Heavy metal, Risk assessment