

**ASSESSMENT OF HEAVY METALS CONTAMINATION IN
COMMERCIAL COSMETIC PRODUCTS**

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ABSTRACT

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Atomic Absorption Spectroscopy (AAS) technique was applied to determine and analyse the concentration of heavy metal such as Zn, Pb and Ni in three different skin whitening creams and one herbal cream that available from retail shop in Jengka, Pahang. The samples were digested using acid and then analyzed using AAS. All metals were detected in all samples but with different concentrations. Zinc was range between 6.4 mg/kg and 17.7 mg/kg. Nickel and lead concentration range were lower compared to Zn which were 3.1 mg/kg to 4.2 mg/kg and 6.2 mg/kg to 13.0 mg/kg respectively. The detection of Zn in the whitening creams is under permissible limit as set by FAO / WHO and Health Canada 2007 standard which is 50 mg/kg. Hazard index (HI) values for H1, W1, W2 and W3 were 2.13×10^{-6} , 4.39×10^{-6} , 3.33×10^{-6} and 3.65×10^{-6} respectively. All values of HI were less than 1 and it is believed that there was no significant risk of non-carcinogenic effects. However, some of the samples contained lead exceeds the permissible limit set by FAO/WHO and Health Canada which is 10 mg/kg. Overall analysis proved that the concentration of heavy metals in herbal cream, H1 was lower compared to other whitening creams, W1, W2 and W3. Since the HI values were lower than 1, all products were safe to use. But, it is better to take precaution in using whitening creams since the presence of excess heavy metals may lead to accumulative toxicity in the body beyond the acceptable limit.

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