**Determination of lead in candies and their packaging sold in Malaysia and its potential health risk to children**


ABSTRACT

**Objective**: This study was done to determine the concentration of lead in 3 different types of candies (type I: sugar based candies, type II: milk based candies and type III: chocolates based candies) sold in local market in Malaysia and to assess their potential health risk to children.

**Method**: The candies were purchased from a local market and categorised according to their types. For each category, 15 samples from different brands were selected and the total samples were 45 samples. The sample was extracted using microwave acid digestion and maple furnace and analysed by using Graphite Furnace Atomic Absorption Spectrometry (GF-AAS). The concentration of lead found in different type of candies and their packaging were used to calculate the target hazard quotient (THQ) for health risk assessment.

**Result:** The concentration of lead in 3 different types of candies which were sugar based candies, milk based candies and chocolate based candies varied with the range 0.04-4.24 μg/kg, 0.04-0.26 μg/kg and 0.05-0.47 μg/kg respectively, and packaging varies with the range of 0.01-0.08 μg/kg, 0.02-0.08 μg/kg and 0.01-0.5 μg/kg respectively.

**Conclusion**: Generally, the concentrations of lead in candies and their packaging for the entire sample were not exceeded the permissible limit and the THQ were below 1 for all candies and their packaging, indicating that there was no significant non-carcinogenic health risk by consuming the candies by the children



**Keyword:** Lead (Pb); Candies and packaging; Maple furnace and microwave acid digester; GF-AAS; Health risk assessment (HRA)