

ASSESSMENT OF CADMIUM AND LEAD IN THE ORGANS
OF SARDINE (*Sardinella gibbosa*) IN SELECTED
KLANG VALLEY MARKETS

NG HUI CHENG

B. Sc. (Hons.) FOOD SCIENCE & NUTRITION
FACULTY OF APPLIED SCIENCES
UCSI UNIVERSITY

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ABSTRACT

Heavy metals in fish have become public concern due to the potential risks to human from fish consumption. The main objectives of this study are to elucidate the amount of cadmium and lead found in *Sardinella gibbosa* in five different wet market and supermarket within Klang Valley; to determine and compare the concentration of heavy metals within six different organs (flesh, brain, gills, liver, kidney and intestine) of *Sardinella gibbosa* and to estimate health risk of consuming sardine. Cadmium and lead levels were determined in *Sardinella gibbosa* which were collected from selected five wet markets and five supermarkets in Klang Valley. The heavy metal content in brain, flesh, gills, liver intestine and kidney from the fish samples were determined by flame atomic absorption spectrometry (FAAS). There were no significant differences in cadmium and lead levels in the sardine samples between the wet markets and supermarkets, however the cadmium and lead levels in the sardine samples from supermarket were observed slightly higher than the metals level in wet market. The brain contained the highest amount of heavy metal among others different parts of sardine samples, while the muscle tissue had the lowest heavy metal level. The lead and cadmium concentration in flesh of sardine samples in present study was ranging from 1.047 - 1.466 mg/kg and 0.804 - 1.441 mg/kg. The heavy metal values in the muscle tissue of fish were compared to permissible level set by standard regulations to assess the food safety level. The estimated daily intake (EDI) and estimated weekly intake (EWI) of heavy metal level in the muscle tissue of fish were assessed for human uses according to provisional permissible tolerable daily intake (PTDI) and provisional permissible tolerable weekly intake (PTWI). Large consumption of fish that are contained in high heavy metal level should be avoided especially the high risk group such as pregnant women and children to prevent potential health risks.

UCSI Education Sdn. Bhd. (1994) 01010
No. 1, Jalan Menara Gading, UCSI Heights,
56000 Kuala Lumpur, Malaysia
Tel: 603-9101 8880 Fax: 603-9102 3606
Website : www.ucsi.edu.my