

EFFECTS OF CONSUMING CANNED FISH EXPOSED
TO HEAVY METAL (Cd) CONTAMINATION IN
WHITE RATS

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**EFFECTS OF CONSUMING COOKED FISH EXPOSED TO HEAVY METAL
(Cd) CONTAMINATION IN WHITE RATS**

By

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LIST OF ABBREVIATIONS

CdCl ₂	Cadmium Chloride
g	gram
ICPMS	Inductively Coupled Plasma-Mass Spectrometry
µg/L	Microgram per litre
mg/L	Miligram per litre
ppb	Part per billion
ppm	Part per million

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ABSTRACT

The presence of heavy metal in the environmental can give a harmful to human body. The study on the presence of heavy metal in the food chain and the effect of the metal to the organs had been done. This study was conducted to determine the effects of cadmium contaminated cooked fish to liver and kidney and to correlate the level of cadmium contamination in cook fish tissue and white rats by ICPMS (Inductively Coupled Plasma-Mass Spectrometry). The aim of study was to determine the effects of uptake cadmium by human through cook foods. *Nile* tilapia was exposed with three different concentrations of cadmium, 1.172 ppm, 2.344 ppm and 4.688 ppm for four days. Forty-five of white rats were divided into five groups. Group A have set as control untreated group, group B as control treated with control fish and group C,D and E was treated with fish that have contaminated with 1.172 ppm, 2.344 ppm and 4.688 ppm cadmium. Every three rats from each group were dissected at days 1, 3 and 7 post-treatment. The liver and kidney were collected for histology and open acid digestion process. The fish also have open acid digestion process. ICPMS (Inductively Coupled Plasma-Mass Spectrometry) have detected the present of heavy metal on the fish but in the liver and kidney, some of result have shown undetected limit. The liver and kidney showed abnormal tissue morphology after first day of feeding. The cells swollen have occurred from first until seventh days. This result was due to the effect of cadmium on liver and kidney of white rats.

KESAN PENGAMBILAN IKAN YANG TELAH DIMASAK YANG DICEMARI OLEH LOGAM BERAT (Cd) PADA TIKUS PUTIH

ABSTRAK

Kehadiran logam berat dalam persekitaran hari ini telah mengganggu sistem tubuh manusia. Kajian mengenai kehadiran logam berat di dalam rantai makanan dan kesannya kepada organ manusia telah dijalankan. Kajian ini bertujuan untuk mengenalpasti kesan pengambilan ikan masak yang telah dicemari oleh cadmium ke atas hati dan ginjal dan melihat hubung kait antara pengumpulan cadmium di dalam tisu ikan dan organ tikus menggunakan ICPMS (Inductively Coupled Plasma-Mass Spectrometry). Matlamat kajian adalah untuk melihat kesan pengambilan cadmium oleh manusia melalui makanan yang telah dimasak. Ikan tilapia telah didedahkan kepada cadmium pada kepekatan berbeza, 1.172 ppm, 2.344 ppm dan 4.688 ppm selama empat hari. Empat puluh lima ekor tikus telah diagihkan kepada lima kumpulan iaitu kumpulan A sebagai kumpulan kawalan yang tidak dirawat, kumpulan B dirawat dengan ikan yang tidak didedahkan pada cadmium. Kumpulan C, D dan E pula masing-masing dirawat dengan ikan yang telah dicemari oleh .172ppm, 2.344ppm dan 4.688ppm cadmium. Tiga ekor tikus akan dibedah pada hari pertama, ketiga dan ketujuh. Hati dan ginjal akan dikutip untuk diproses bagi kerja histologi dan pencernaan oleh asid. Ikan juga diambil untuk pencernaan oleh asid. Bacaan ICPMS (Inductively Coupled Plasma-Mass Spectrometry) telah menunjukkan kehadiran cadmium di dalam ikan. Namun, bagi hati dan ginjal, kebanyakan sampel berada di bawah takat yang dapat dikesan oleh mesin. Tisu hati dan ginjal telah menunjukkan perubahan dari hari pertama hingga hari ke tujuh. Tisu telah menunjukkan berlakunya pembengkakan sel pada hari pertama hingga ke tujuh. Ini disebabkan oleh kesan cadmium terhadap hati dan ginjal tikus putih.