

Thesis Title Dietary Intake of Lead and Cadmium of
 Thai Adults in Bangkok Area
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ABSTRACT

Because of the increasing in industrialization in Thailand, especially in Bangkok and surrounding areas, the industrial use of potent toxic metals including lead and cadmium has been growing steadily and subsequently increases the mobilization of these metals into the environment such as soil, water, air and food as well. Apart from the occupational exposure, the major route of entry of lead and cadmium into the body is through diet. It is therefore desirable to know whether the levels of intakes of these elements were harmful to human health. Thus, this study aims to determine the daily dietary intakes of lead and cadmium in Thai adults living in Bangkok area. An additional objective was to test and modified the suitable and practical method for the determination of lead and cadmium contents in food.

Food samples were collected from 30 adults by duplicate portion technique on five consecutive days including weekend. After homogenization, subsampling and freeze-drying, the samples was wet digested with concentrated nitric acid. The pH of digested samples were adjusted to be 8.5 before the APDC was added to form complex with the metals. The metal complexes were extracted into chloroform and back-extracted into diluted nitric acid solution. The analysis of lead and cadmium in the extracted samples was performed by GFAAS.

It was found that the average dietary intakes were 79.8 $\mu\text{g/day}$ and 16.1 $\mu\text{g/day}$ for lead and cadmium, respectively. The individual average intake of lead and cadmium were lower than the FAO/WHO provisional tolerable intake, only an average cadmium intake value from a pregnant approached the upper range of limit.