



UNIVERSITI TEKNOLOGI MARA

HEAVY METALS IN EDIBLE SEAWEEDS AND ITS
POTENTIAL HEALTH RISK

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Project paper submitted in partial fulfillment of the requirements
for the degree of
Bachelor in Environmental Health and Safety (Hons.)

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Declaration by Student

Project entitled "Heavy Metals in Edible Seaweeds and Its Potential Health Risk" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Tn. Hj. Hashim Bin Ahmad as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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Fadilah Binti Mohammad Aris

Abstract

Introduction: Heavy metals exist in many forms in the environment we live. As rapid pace of industrialization as well as indiscriminate human activities occurred, the geochemical cycles and biochemical balance of heavy metals in the nature has been drastically altered. Human bodies are exposed to heavy metals through the breathed air, water and food consumed (Singh et al., 2011). The traditional use of seaweeds as food in China, Japan and Korea has moved along when people from these countries migrated around the world. Seaweeds is consumed by small pockets of the population along the coastal areas of Peninsular Malaysia and East Malaysia (Ismail and Hong, 2002). **Objectives:** To determine heavy metals concentration in edible seaweeds and its potential health risk on human. **Methodology:** Cross sectional study was implemented whereby sixty samples of edible seaweeds imported from China and Korea were taken from several markets in Selangor. The samples were treated with wet acid digestion and subjected to Atomic Absorption Spectrometry for analysis of arsenic, cadmium and lead. Hazard Index (HI) was also determined. **Results:** The average concentration of cadmium and lead contravene the Malaysian Food Act 1983 Standard for cadmium of 1 mg/kg and 2 mg/kg for lead. There are significant difference between the concentration of arsenic, cadmium and lead in laminaria seaweed from China and Korea. HI for cadmium exposure is more than 1. **Conclusion:** HI indicates that people whom exposed to seaweeds with 0.00131 mg/kg/day of cadmium may develop potential adverse health effect. Industrialization in China leads to higher heavy metals concentration. **Recommendation:** The importation of seaweeds should be made with more precautions especially seaweeds from China.

Keywords: Heavy metals, seaweeds, HI.