UNIVERSITI TEKNOLOGI MARA

HEAVY METALS CONTAMINATION IN CANNED LYCHEE AND ITS POTENTIAL RISK TO HUMAN HEALTH

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Project paper submitted in partial fulfilment 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 Contamination in Canned Lychee and Its Potential Risk to Human Health is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due to 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 and En. Nasaruddin bin Abd Rahman as Co-supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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Abstract

HEAVY METALS CONTAMINATION IN CANNED LYCHEE AND ITS POTENTIAL RISK TO HUMAN HEALTH

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The safety issues related to the possibility of heavy metals in canned food are of concern. A study was conducted to determine the concentrations level of heavy metals (Pb,Cd,Sn,Fe) in canned lychee, to compare level of heavy metals (Pb, Cd, Sn, Fe) between different year of expiry date in canned lychee with Food Regulations 1985 and FAO/WHO Codex Alimentarious Commission 1980 and its potential risk. Lead, cadmium, tin and iron in canned lychee was determined using Atomic Absorption Spectrometry (AAS). A comparative cross sectional study was done to compare level of heavy metals (Pb, Cd, Sn,Fe) between three different year expiry date and its potential risk. Health Risk Assessment (HRA) was carrying out to calculate and estimate dietary intake of canned lychee. Lead concentration obtained from canned lychee sample ranged from 0 to 0.864 mg/kg while cadmium concentration obtained from canned lychee sample ranged from 0 to 0.172mg/kg. Tin concentration obtained from canned lychee sample ranged from 0 to 164.16 mg/kg while iron concentration obtained from canned lychee sample ranged from 2.73 to 14.24 mg/kg. Level of lead, cadmium, tin and iron in canned lychee were found below permitted level. All the canned lychee samples had high content of heavy metals (Pb,Cd,Sn,Fe) that will be expired on 2012 compare to 2013 and 2014. Health risk is significantly associated with heavy metals (Pb,Cd,Sn,Fe) exposure in canned lychee. As a conclusion, this study was indicated that all the samples analyzed are safe for human consumption and did not give adverse effect to human health.

Keywords: *Lead, Cadmium,Tin, Iron, Atomic Absorption Spectrometry*