UNIVERSITI TEKNOLOGI MARA

HEAVY METAL IN EDIBLE MUSHROOMS (*P. sajor-caju*) AND ITS POTENTIAL HEALTH RISK

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Project submitted in fulfilment of the requirements for
the degree of
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(Hons.)

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DECLARATION BY STUDENT

Project Entitled “Heavy Metal in Edible Mushrooms (*P. sajor-caju*) and Its Potential Health Risk” is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor, Dr Nadiatul Syima Mohd Shahid. 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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In the name of Allah, The Most Gracious, The Most Merciful.

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ABSTRACT

Introduction: Mushroom able to take up pollutants in their fruiting bodies during growth stage and this include the accumulation of heavy metals in mushroom tissue which unevenly distributed between head and stipe parts. **Objective:** Three metal elements (Cadmium, Lead and Copper) were studied to evaluate the contamination of heavy metals in grey oyster *(Pleurotus sajor-caju)* mushroom and to assess the potential health risk towards consumer. **Methodology:** Twenty mushroom samples including head and stipe and twenty substrate samples were collected from farms in Selangor. The concentration of Cd, Pb and Cu in samples was determined by using Atomic Absorption Spectrometer (AAS) after acid digestion process. **Finding:** Cu had the highest accumulation in head and stipe of the mushroom at 13.18 mg/kg and 10.52 mg/kg, respectively while the lowest reading for both parts was Cd with 1.08 mg/kg and 0.59 mg/kg. There was significant difference between concentration of Cd, Pb and Cu in head and stipe of the mushroom. Concentrations of the three metals in substrate were statistically correlated with concentration in head and stipe. Bioconcentration factor (BCF) was calculated and most of head and stipe were bioexclusors to Cd, Pb and Cu. Target Hazard Quotient (THQ) of Cd, Pb and Cu was less than one but hazard index (HI) showed that both head and stipe were above one and indicated that consumption of *P. sajor-caju* mushroom may cause adverse health effect. **Conclusion:** Substrate composition played a role in the bioaccumulation in *P. sajor-caju* as increasing of heavy metals concentration in substrate bring significant impact on the concentration in mushroom. Proper cooking and processing mushroom to leach out heavy metals were recommended in ensuring quality of food and lowering the health risk.

Keywords: Heavy metals, Pleurotus sajor-caju, Atomic Absorption Spectrometer (AAS), BCF