

**UNIVERSITI TEKNOLOGI MARA**

**CONTAMINATION OF CADMIUM, LEAD AND ZINC  
IN *A. GRANOSA* AND SEDIMENTS AT JERAM,  
SELANGOR AND ITS POTENTIAL HEALTH RISKS**

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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 "Contamination of Cadmium, Lead and Zinc in *A. granosa* and Sediments at Jeram, Selangor and its Potential Health Risks" 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 Assoc. Prof. Dr. Hazilia bt Hussain 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).

Student's Signature



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## Abstract

### Contamination of Cadmium, Lead and Zinc in *A. granosa* and Sediments in Jeram, Selangor and its Potential Health Risks.

Izzat bin Rusli

**Introduction:** This study aims to determine the concentration of heavy metals (Cd, Pb, Zn) in the *A. granosa* and sediment, the relationship between the concentration of both variables and assessing the health risk associated with the problem.

**Methodology:** The study was done at a commercially cultured cockle's bed, coastal area of Pantai Remis, Jeram that receives discharge from various industries, a landfill and oil palm plantation. 5 samples of *A. granosa* and sediments, and 10 samples of river water were taken for analysis of Cadmium, Lead and Zinc using Graphite Furnace Atomic Absorption Spectrometer (Perkin Elmer 800). Data were analyzed using IBM SPSS version 20. Finally, health risk assessments were done.

**Result:** All of the reading of heavy metal concentration taken including for the river water did comply with the Food Act 1983. For *A. granosa* samples, concentration of cadmium shows the highest value while concentration of zinc seems to be the highest in sediment. There was a fair positive correlation for concentration of cadmium ( $r=0.505$ ,  $p=0.385$ ), and zinc ( $r=0.700$ ,  $p=0.189$ ) in commercially cultured *A. granosa* and sediment. Lead on the other hand shows a poor negative correlation ( $r=-0.379$ ,  $p=0.530$ ). The Hazard Index indicates a value lesser than 1 which meant that there are minimum potential risks from consumption of *A. granosa* as per calculated daily dose.

**Conclusion:** Consumption of the *A. granosa* cultured in Jeram, Selangor are can be concluded as safe as the level of cadmium, lead and zinc in *A. granosa* is low enough that it is safe for consumption apart from the low hazard index.

**Keywords:** *A. granosa*, Sediments, Cadmium, Lead, Zinc