

Declaration by Student

UNIVERSITI TEKNOLOGI MARA

**HEAVY METALS IN MOSQUITO LARVAL HABITATS
IN SELECTED URBAN HOTSPOT AREAS**

MOHAMAD PIRDAUS BIN AHMAD

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

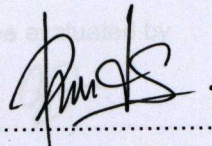
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Project entitled "Assessment of heavy metals (Cd, Cr, Cu, Pb, Fe, Zn and Mn) in mosquito larval habitats in urban hotspot areas" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of En. Hashim bin Ahmad and En Nazri Che Dom 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).

Student's Signature:



(Mohamad Pirdaus bin Ahmad)

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Abstract

Assessment of heavy metals (Cd, Cr, Cu, Pb, Fe, Zn and Mn) in mosquito larval habitats in urban hotspot areas

Mohamad Pirdaus bin Ahmad

Introduction: Heavy metal pollution has a devastating effect on the ecological balance in aquatic environment. There are indication that the level of pollution in water may directly influence the diversity and abundance of larval stage mosquito species. **Objective:** The aim of the study is to establish a baseline of the existing level of heavy metals concentration in potential mosquito larval habitat in the selected hotspot area. **Methodology:** *Aedes* survey was conducted in Subang Jaya Municipality to assess the concentration and distribution of heavy metals (cd, cr, cu, fe, pb, mn and zn) in mosquito larval habitat. The water samples ($n=141$) collected were analyzed using Atomic Absorption Spectrometer (AAS) and other standard laboratory protocols. Then, by using microscope, *Aedes* larvae species was determined and the weight of pupae and length of 3rd instars larvae was measured. **Result:** Assessment of heavy metal on mosquito larval habitat noted that the concentration of heavy metal in hotspot area was found to be relatively higher than corresponding level on the non-hotspot area at all breeding site investigated. Consistent with other finding, the present study proves that the heavy metal concentration is varies between container material and its concentration. The correlation coefficient calculated indicated that copper was associated with length of 3rd instars larvae ($r=0.447$, $p\text{-value} < 0.05$) and weight of pupae ($r=0.430$, $p\text{-value} < 0.05$). Unfortunately, there is no significant correlation detected between other metals with length of 3rd instars larvae and weight of pupae. **Conclusion:** Overall, the key dengue vectors are preferential adapted with the heavy metal concentration and thus effect the development and its lifecycle.

Keywords: Dengue outbreak, Heavy Metal (cd, cr, cu, fe, pb, mn and zn), Mosquito breeding sites