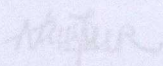


Declaration by Student

UNIVERSITI TEKNOLOGI MARA

**PATHOGENIC MICROORGANISMS IN
COMMUNAL BINS LEACHATE AND
THEIR POTENTIAL HEALTH
IMPACTS TO THE HOUSEHOLD
WASTE COLLECTORS OF
MUNICIPAL COUNCIL**

Student's Signature:
NORAINNOR BINTI RAMLI

Signature: 
Project submitted in fulfillment of the requirements
for the degree of

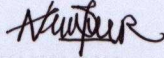
**Bachelor (Hons.) of Environmental Health and
Safety**
Faculty of Health Sciences

JULY 2015

Declaration by Student

Project entitled “Pathogenic Microorganisms in Communal Bins Leachate and their Potential Health Impacts to the Household Waste Collectors of Municipal Council” is a presentation of my original 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 project and discussions. This project was done under the guidance and supervision of Prof. Madya Dr. Hazilia binti Hussain as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirements for the Degree of Bachelor in Environmental Health and Safety (Hons.)

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CHAPTER 3 : METHODOLOGY

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Abstract

PATHOGENIC MICROORGANISMS IN COMMUNAL BINS LEACHATE AND THEIR POTENTIAL HEALTH IMPACTS TO THE HOUSEHOLD WASTE COLLECTORS OF MUNICIPAL COUNCIL

Norainnor binti Ramli

Communal collection is one of the collection system practices in Malaysia. Many types of wastes can be stored in the communal bin, so the volume of leachate produced can increase. As leachate provide suitable habitat for several pathogenic microorganism, concern must be arise in preventing disease and illness especially to the household waste collectors. The purpose of this study is to identify the present of *Escherichia coli* and *Staphylococcus aureus* in communal bins leachate as well as their potential health impacts to the household waste collectors. Fifteen samples of leachate were collected from three different locations of communal bins which include residential, commercial and institutional area in Puncak Alam. The measurement of pH and temperature was carried out. The result showed there is significant correlation between the temperature with the total colony count ($p=0.049$). Then, the leachate samples for cultivation were serial diluted using sterile distilled water and applied for viable counts. The statistical test found that there is significant difference ($p=0.042$) in distribution of total colony count and different area of communal bins. The present of *Escherichia coli* and *Staphylococcus aureus* is identified by streaking the colonies on the Eosin Methylene Blue and Mannitol Salt agar. Most of the samples showed microorganism growth and the samples for all areas showed the contamination. Besides that, a survey questionnaire which specified in the environmental, health and safety components and the health symptoms experienced also was used in this study. For the survey on potential health impacts, the results show that the workers were satisfied with their surrounding environment while the highest unsatisfactory perception on exposure to unpleasant odour. The survey revealed that cough (88%) was the most widely-reported symptom and cellulitis appears to be the least prevalent (43%). The majority of household waste collectors in all municipal councils were careless and ignorant in relation to personal protective equipment. The regularly monitoring must be done to make sure the workers wear personal protective equipment during working. Besides that, as household waste collectors are handling the wastes that contain many pathogenic microorganism, they must aware with their personal hygiene. Overall findings of the study suggest that generally the workers had a positive and satisfactory response towards their working environment.

Keywords: Communal bin, household waste collectors, perception, leachate