

**UNIVERSITI TEKNOLOGI MARA**

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**INDOOR AIRBORE BACTERIA AND FUNGI  
CONTAMINATION IN CLASSROOMS AND STAFF'S  
ROOMS AT UiTM PUNCAK ALAM**

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STAFF'S ROOMS AT UiTM PUNCAK ALAM

**DARAWISA BINTI LALIAH**

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**BACHELOR IN**

Project submitted in full compliance for the degree of

**ENVIRONMENTAL HEALTH AND SAFETY (HONS.)**

Faculty of Health Sciences

**FACULTY OF HEALTH SCIENCE**

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### Declaration by Student

Project entitled Indoor Airborne Bacteria and Fungi Contamination in Classrooms and Staff's rooms at UiTM Puncak Alam 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 carried out under the guidance Tn.Hj. Mohd Pozi bin Mohd Tahir 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).

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## Abstract

### Indoor Airborne Bacteria and Fungi Contamination in Classrooms and Staff's rooms

of UiTM Puncak Alam

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Indoor air quality is influenced by various factors including microbiological contaminants. Microbiological contamination in indoor air environment becomes a vital issue recently, as microorganisms including bacteria and fungi act as form of biological pollutant. Indoor airborne bacteria and fungi are two parameters in determining the level of microbiological contamination in indoor buildings. As exposure to certain species of airborne bacteria and fungi may cause certain diseases and also allergy symptoms to human, therefore it is significant to determine the level of microbiological contamination in classrooms and staff's room of university's building. Data collection was carried out at classrooms and staff's rooms. Air sampling had taken using open-plate method in determining total bacteria count and total fungal count (cfu/m<sup>3</sup>) together with physical measurement. Sampling procedure is based on AIHA (2008) and Sayuti et., al (2003). Health symptoms data was collected by using Checklist Health Survey. Data was recorded in Microsoft excel 2007 and SPSS Ver.18.0 for data analysis. Mean of relative humidity (%), temperature (°C), total bacteria count (cfu/m<sup>3</sup>) and total fungal count (cfu/m<sup>3</sup>) in classrooms are 61.54%, 20.12 °C, 249.38 cfu/m<sup>3</sup> and 885.02 cfu/m<sup>3</sup> respectively while in staff's rooms are 69.95%, 24.14 °C, 318.26 cfu/m<sup>3</sup> and 1099.55 cfu/m<sup>3</sup> respectively. High level of bacteria contamination occur at 7 classrooms and 8 staff's rooms while high level of fungi contamination occur at 20 classrooms and 26 staff's. Type of bacteria and fungi which mostly colonized in classrooms and staff's rooms is *Staphylococcus sp* (gram-positive cocci), *Neisseria sp* (gram-negative cocci), *Bacilli sp* (gram positive rod) and gram negative rod bacteria, *Aspergillus sp*, *Penicillium sp*, *Alternaria sp*, *Cladosporium sp*, *Stachybotrys sp*. and *Botrytis sp*. There is significant difference between total fungal count (cfu/m<sup>3</sup>) in staff's rooms and classrooms at p-value 0.029. There is also significant positive linear relationship between health symptoms and total fungal count (cfu/m<sup>3</sup>) among staffs. In conclusion, bacteria and fungi contamination occurs at both staff's rooms and classrooms. High level of contamination of fungi had obviously affected toward occupant's health, so that this condition should be prevented before become worse in future. **Keywords:** *Microbiological contamination, bacteria, fungi, classrooms, staff's rooms, health symptoms*