

UNIVERSITY TEKNOLOGI MARA

**ASSESSMENT OF INDOOR
BIOAEROSOLS IN KITCHEN AND
AGE-SPECIFIC DOSE RATE
EXPOSURE**

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

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DECLARATION BY STUDENT

This project entitled “Assessment of Indoor Bioaerosols in Kitchen and Age-Specific Dose Rate Exposure” is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due with reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor, Mr. Razi Ikhwan Bin Md Rashid. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Environmental Health and Safety (Hons.).

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In the name of Allah, the Most Gracious and the Most Merciful

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ABSTRACT

Assessment of Indoor Bioaerosols in Kitchen and Age-Specific Dose Rate Exposure

Nur Atiqah Binti Said

Indoor air quality has become a concern based on several research studies which have been carried out regarding cooking activities. This study was undertaken to assess the concentration of indoor bioaerosols in the kitchen for each stages of cooking and estimate the age-specific dose rate exposure to students and staffs. The study also determines the influence of thermal factor of the level of concentration of bioaerosols. A total of 48 samples of biological air samples of bacteria and fungi was set up in culinary and pastry laboratories. Passive sampling technique was applied by exposing the agar plate for 15 minutes for each stage of cooking. The age-specific dose rate exposure was estimated by formula which includes the concentration of bioaerosols. The concentrations of bacterial and fungal contaminations in culinary laboratories are 812.561 CFU/m³ and 1113.995 CFU/m³ respectively, which exceeds the Malaysian standard limit before cooking activities. Indoor bacterial and fungal concentration was strongly negative correlated to temperature (-0.807) and moderately positive correlated (0.677) to relative humidity. The age-specific dosed rate exposure of bacteria and fungi was higher towards students compared to the staffs in culinary which are 3.1×10^7 CFU/kg/day and 3.0×10^7 CFU/kg/day respectively. Indoor bioaerosols concentration were affected by the age-specific dose rate exposure in the kitchen and also significantly influenced by thermal factors.

Keywords: *bioaerosols, kitchens, stages of cooking, thermal factor, age-specific dose rate exposure*