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Microbiological and Physical Assessment of University Halls at Faculty of Applied Sciences Universiti Teknologi Mara

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Structured Abstract

Background: The study conducted at the Faculty of Applied Sciences, Universiti Teknologi MARA, successfully determined the total count of microorganisms, investigated the physical hazards contributing to poor IAQ, and compared these findings with established IAQ standards, revealing that the microbial load and physical conditions such as temperature and humidity are within acceptable limits, thus providing a satisfactory indoor environment for the university community. This research underscores the importance of continuous monitoring and management to maintain a healthy indoor air quality, which is essential for the well-being and productivity of students and staff in educational settings.

Methods: The study was conducted in three university halls (DK Delta, DK Gamma, and DK C Bestari) with a combined student population of three thousand. For microbiological sampling first the plate must be prepared for the sampling which is Malt Extract Agar (MEA) and Tryptic Soy Agar (TSA). Microbial sampling will be performed using a Biostage Single Stage Impactor, while physical parameters such as temperature and humidity will be measured using Environment Monitors (EVM-7). The collected data will be compared against the IAQ standards set by ICOPIAQ 2010 and ASHRAE Standard 55.

Results: Preliminary results indicate that the total count of bacteria and fungi is within acceptable limits. The physical conditions of temperature and relative humidity also fall within the comfortable range for occupants. These findings suggest that the current state of IAQ in the university halls is satisfactory, but continuous monitoring is essential to maintain these standards.

Conclusion: The study successfully achieved its objectives, revealing that the microbial and physical conditions of the university halls are within the recommended standards. However, the existence of microorganisms underscores the need for ongoing management and monitoring to ensure a safe and healthy indoor environment. The study's outcomes will guide the development of strategies to enhance IAQ, including improved ventilation systems and general hygiene practices.

Keywords: Environment Monitors (EVM-7), Tryptic Soy Agar (TSA), Malt Extract Agar (MEA), Industry Code of Practice on Indoor Air Quality (ICOP IAQ)

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