

UNIVERSITI TEKNOLOGI MARA

**FUNGAL CONTAMINATION
IN ELDERLY CARE CENTRE AND
SICK BUILDING SYNDROME**

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Project submitted in fulfilment of the requirements for
the degree of

**Bachelor in Environmental Health and Safety
(Hons.)**

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DECLARATION BY STUDENT

Project entitled “Fungal Contamination in Elderly Care Centre and Sick Building Syndrome” is a presentation of my original work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgment of collaboration research and discussions. The project was done under the guidance of Project Supervisor, Dr. Farah Ayuni Bt Shafie. 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).

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In the name of Allah, The Most Gracious, The Most Merciful.

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ABSTRACT

Fungi is ubiquitous as it can be found anywhere worldwide and poses serious health threat to public health, with favourable condition such as temperature and carbon dioxide that inhibit fungal growth and contributes to occurrence of Sick Building Syndrome (SBS). Sick Building Syndrome is a situation where occupants experienced acute health effect which is linked to amount of time spent in the building. This study is conducted at elderly care centre to identify environmental factors of fungal contamination and environmental condition that contribute to Sick Building Syndrome, to evaluate relationship between indoor air quality and fungal contamination in indoor environment and to identify genus of common indoor fungi in indoor air environment. Methods used are environmental monitoring and checklist of building inspection. Indoor air quality parameter measured are temperature and carbon dioxide by using Q-Trak. Total colony count of fungi represent fungi colony measured using Potato Dextrose Agar (PDA) with open plate method. Checklist for building inspection used to determine environmental condition of building and identification of fungi determined by using culture characteristics. For both ECC, average temperature level exceeded the limit by ICOP which are 29⁰C and average carbon dioxide level are 488.38 ppm and 470.67 ppm respectively. Average total colony count of fungi isolated in both ECC are 170 cfu/m³ and 183 cfu/m³ respectively. Descriptive statistics is used to determine mean difference between each parameter measured and Pearson's correlation is used to determine relationship between temperature and carbon dioxide with fungal growth and there is strong correlation between carbon dioxide and fungal growth. Three genera identified in this study are common fungi in indoor environment which is *Aspergillus* sp. *Cladosporium* sp., and *Penicillium* sp. This study concludes that changes in indoor air quality influence the growth of fungi and SBS. This study suggests further evaluation on indoor air quality, fungal growth and sick building syndrome, and changes should be made to improve the quality of life among elders in elderly care centre.

Keywords: *Fungi, Indoor Air Quality, Sick Building Syndrome, Ventilation*