

UNIVERSITI TEKNOLOGI MARA

**EFFECT OF EXPOSURE TO PARTICULATE
MATTER 2.5 ON LUNG FUNCTION
PERFORMANCE OF CONSTRUCTION
WORKERS**

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

Faculty of Health Sciences

July 2018

DECLARATION BY STUDENT

Project entitled “Effect of Exposure to Particulate Matter 2.5 on Lung Function Performance of Construction Workers” is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor, Mrs Siti Rohana Bt Mohd Yatim. 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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ACKNOWLEDGEMENT

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

Blessing and peace upon our beloved Prophet Muhammad SAW. Praises to Allah S.W.T with His bless and help I finally managed to complete my study successfully. I am deeply thankful to people who help me directly or indirectly in contributing in completing this study.

I would like to express my deepest gratitude to my supervisor, Mrs. Siti Rohana Binti Mohd Yatim for excellent guidance, caring, patience, and providing me with many knowledge, thus contribute to provide ideas for my write up from the beginning till the end of my research journey. A token of appreciation to my family who always been my backbone and support throughout this research. Besides that, thank you to all lecturers in the Department of Environmental Health and Safety, Faculty of Health Sciences for guidance, knowledge and encouragement in carrying out this research.

I would like to acknowledge to all staff from the department and laboratory for being cooperative and assisted me during conducting my research. I deeply thank for the kindness and patience. A special gratitude to my beloved friends from HS243 for the support and encouragement for completing study together. Thanks to all of you.

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ABSTRACT

The aim of this study is to determine the concentration of PM_{2.5} emitted from construction activities which are masonry, plastering, and mixing of concrete and to evaluate the lung function performance by peak expiratory flow rate (PEFR) of the exposed construction workers. The concentration of PM_{2.5} was measured by using Dustrack. The sampling period is 8 hours per day for 6 days for each activity. Each activity demonstrate a different pattern and level of PM_{2.5} concentration. Based on result obtained, the masonry has the highest mean concentration of PM_{2.5} which is 79.98 µg/m³. Masonry and mixing of concrete just slightly different and both activities are exceed the standard limit. Meanwhile, the peak expiratory flow rate (PEFR) test was conducted by using peak flow meter. A total 80 participants were participated in PEFR test. Moreover, participants from plastering activity has the highest mean of PEFR which is 343.65 L/min. Masonry and mixing of concrete activity has a lower mean of PEFR with 329.26 L/min and 298.62 L/min respectively. Meanwhile, there is a significant negative correlation between age and PEFR of participants. Higher age group tend to have lower PEFR value. Lastly, the mean concentration of PM_{2.5} and PEFR has significant negative correlation. The higher the mean concentration of PM_{2.5}, the lower the PEFR. The null hypothesis is failed to reject.

Keywords: Particulate matter 2.5, peak expiratory flow rate, lung function performance