

**UNIVERSITI TEKNOLOGI MARA**

**PARTICULATE MATTERS AND LUNG  
FUNCTION PERFORMANCES IN WOOD BASED  
INDUSTRIES**

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

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## Declaration by Student

Project entitled "Particulate Matters and Lung Function Performances in Wood Based Industries" 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 done under the guidance of Dr K. Subramaniam as Project Supervisor and Mr Razi Ikhwan Md Rashid as Co-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

### Particulate Matters and Lung Function Performances in Wood Based Industries

Nurul Aziemah Bt Che Nazir

**Introduction:** Wood dust is a complex substance generated from processing of woods in wood based industries. Its composition depends to the species of trees being processed where it is categorized into softwood and hardwood. Objective of this study are to determine the concentration of particulate matter (PM<sub>10</sub>) and lung function performances, and correlate the exposure to wood dust and lung function performance of workers in wood industries.

**Methodology:** Cross – sectional study was conducted in wood based small medium industries (SMIs) located in Selangor. Respondents were (n=32) from production line who were exposed to wood dust. The personal exposure of PM<sub>10</sub> was measured using GILLIAN® air sampling pump. Lung function performance of workers was measured using spirometer. Questionnaire was used to obtain the demographic data and respiratory symptoms of workers. Data were analyzed using SPSS version 20.

**Results:** Study found that the mean and standard deviation of PM<sub>10</sub> was 2.64 (1.67) mg/m<sup>3</sup>. The comparison of PM<sub>10</sub> mean with the standard limit has very strong significance level with p<0.05. As for lung function performances, there were no significant different of lung function between industries. Result shown there was no correlation between exposure to wood dust and lung function of workers. However, there was medium negative correlation between duration of employment and lung function.

**Conclusion:** In conclusion, 12.5% of the workers exposed to wood dust concentration had exceeded the standard limit. Nevertheless, mean of PM<sub>10</sub> did not exceed the standard limit. 15.6% of the exposed workers had decreased in their lung function performances. However, there is no significant correlation between wood dust exposure and lung function performances.

**Keywords:** *wood based small medium industries, wood dust, particulate matter (PM<sub>10</sub>), lung function performances*