

LONG TERM STUDY OF UNDERNUTRIED CHILDREN
IN MALAYSIA AND THEIR IDEAS IN 1980

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PERPUSTAKAAN KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA (KUSTEM)			
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Judul Study: Func. Function			
Tarikh	Waktu Pemulangan	Nombor Ahli	Tanda tangan

**LUNG FUNCTION STUDY OF KINDERGARTEN CHILDREN IN VILLAGE
AND TOWN AREAS IN TERENGGANU**

By

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**Research Report submitted in partial fulfilment of
the requirements for the degree of
Bachelor of Science (Biological Sciences)**

**Department of Biological Sciences
Faculty of Science and Technology
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA
2004**



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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

Lung Function Study Of Kindergarten Children In Village And Town Areas In Terengganu
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disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi
sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda
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ACKNOWLEDGEMENT

I would like to express my gratitude to my final year project supervisor, Cik Faridah Mohamad for her endless advice, guidance, patience and constructive comments throughout the course of this project.

Special thanks to Pusat Kegiatan Masyarakat (PKM), Yayasan Cawangan Terengganu and two private kindergartens (Tadika Permai and Tadika Pendidikan Akhlak Terengganu) for their permission and support for the study. Also thank all the children, children's parents participating in the study and also the kindergarten teachers who made the data collection work possible.

And lastly to my course mates and friends, I would like to express my appreciation for the friendships we have.

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LIST OF ABBREVIATIONS

API	-	Air Pollution Index
DOE	-	Department of Environment, Malaysia
EPA	-	Environment Protection Agency
FEV ₁	-	Forced expiratory volume in one second
FEV ₁ %	-	Percentage of FEV ₁ /FVC
FVC	-	Forced vital capacity
PKM	-	Pusat Kegiatan Masyarakat
PSI	-	Pollutant Standards Index
ppm	-	Parts per million
SPM	-	Suspended particulate matter
VC	-	Vital capacity
VOCs	-	Volatile organic compounds
µg/m ³	-	Microgram per cubic meter

ABSTRACT

Motor vehicle emission contributes the most to air pollution in Malaysia and there is widespread public concern over their effect on lung function, particularly among children. This study was carried out to compare the level of lung function in kindergarten children living in town areas in Kuala Terengganu and those living in cleaner village areas in Setiu. Spirometric tests were undertaken by 200 kindergarten children (102 boys, and 74 girls, aged 5 to 6 years) to measure the vital capacity (VC), forced vital capacity (FVC) forced expiratory volume (FEV_1) and percentage of forced expiratory volume ($FEV_1\%$). Children in the two areas showed no significant difference in age, height and weight; therefore represent homogeneous samples in this study. Exposure to a profile of heavy traffic showed markedly lower lung function value for both male and female kindergarten children in Kuala Terengganu town. In comparison with the lung function value between Malay and Chinese subjects, the lung function values of Malay subjects were lower. Finding from the study suggests that the lung function might be greatly associated with the level of air quality and racial differences.

ABSTRAK

Pembebasan partikel daripada kenderaan jalan raya merupakan salah satu pencemaran udara semakin serius yang mungkin membawa kemudaratan kepada fungsi paru terutama di kalangan kanak-kanak. Kajian ini telah dijalankan untuk membandingkan fungsi paru kanak-kanak tadika di antara kawasan bandar, Kuala Terengganu dengan kampung, Setiu. Ujian fungsi paru di kalangan 200 orang murid tadika (102 lelaki, 74 perempuan yang berumur antara 5 hingga 6 tahun) telah dijalankan dengan menggunakan spirometer untuk mengukur nilai VC, FVC, FEV₁ dan FEV₁%. Kanak-kanak kedua-dua tempat ini masing-masing tidak menunjukkan perbezaan yang signifikan terhadap faktor saiz badan, umur dan jantina. Kanak-kanak yang tinggal di kawasan yang terdedah kepada pencemaran udara dalam jangka masa yang panjang (bandar) jelas menunjukkan fungsi paru yang rendah. Selain itu, dalam perbandingan fungsi paru antara murid-murid melayu dengan murid-murid Cina di kawasan bandar, nilai fungsi paru murid-murid melayu didapati lebih rendah. Keputusan kajian ini mencadangkan bahawa fungsi paru kanak-kanak mungkin berhubung-kait rapat dengan tahap pencemaran udara sesuatu kawasan dan juga perbezaan bangsa.