

**THE EFFECT OF FUEL ADDITIVES ON PERFORMANCE AND EMISSION OF
FOUR STROKE ENGINE**

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A thesis submitted in partial fulfillment of the requirements for the award of Bachelor
Engineering (Hons) (Mechanical)

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MAY 2010

“I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree”

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ACKNOWLEDGEMENT

First and foremost, I would like to thank God for guidance in giving me an opportunity to complete my final year project.

Firstly, I would like to express my gratitude and most sincere appreciation to my supervisor, Mr Baljit Singh for his guidance; counsel and essential advice for new ideas were a source of great inspiration. My deepest gratitude for Prof Dr Ku Halim from Faculty of Chemical Engineering, for his knowledge and experiences that were used to guide and assist me to prepare and complete this project.

My deepest gratitude goes to my beloved family, for the boundless support and encouragement towards the completion of this dissertation.

Last but not least, I wish to convey my thanks to all my friends for their advice and contribution to this project.

ABSTRACT

This thesis investigates the effect of using palm oil base on four stroke engine performance and exhaust emission. A four stroke, four cylinder SI engine (type Myvi, DVVT DOHC) was used for conducting this study. This investigation focuses on the comparison of performances of an internal combustion engine fitted with the fuel additive. Performance tests were conducted for, fuel consumption, engine torque and engine power, while exhaust emissions were analyzed for carbon monoxide (CO), carbon dioxide (CO₂), oxygen (O₂) and unburned hydrocarbons (HC), and variable engine speed ranging from 2000 to 6000 rpm. The engine performances were tested on a chassis dynamometer. The peak power and torque curve were recorded. A flue gas analyzer was used in the gaseous emissions tests to measure the gaseous emissions such as CO, CO₂, O₂ and HC produced in the exhaust gas. The test was done at three different engine speeds, which are idling speed, 2000 rpm and 3000 rpm. Lastly, for the fuel consumption test, the car was filled with 100 ml of fuel. The test was done for a constant speed of 50 km/h and the distance covered by the car before the engine died was measured. The results showed that the effect of the adding fuel addictive gives more power and fuel efficient compared to the petrol.

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