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**NATURAL HONEY AS THE CORROSIONS INHIBITOR FOR ZINC IN  
SOUTH CHINA SEAWATER.**

**By  
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**A project report submitted in partial fulfillment of  
the requirements for the award of the degree of  
Bachelor of Applied Science (Physic Electronic and Instrumentation)**

**DEPARTMENT OF PHYSICAL SCIENCES  
FACULTY OF SCIENCE AND TECHNOLOGY  
UNIVERSITI MALAYSIA TERENGGANU  
2008**



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NATURAL HONEY AS THE CORROSIONS INHIBITOR FOR ZINC IN SOUTH CHINA SEAWATER

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telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Fizik sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah SMSG (FIZIK ELEKTRONIK DAN INSTRUMENTASI), Fakulti Sains dan Teknologi, UMT.

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## DECLARATION

I here by declare that this thesis entitled NATURAL HONEY AS THE CORROSION INHIBITOR FOR ZINC IN SOUTH CHINA SEAWATER is the results of my own research except as cited in references.

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## ACKNOWLEDGEMENT

First of all, I would like to express my appreciation to Prof Dr. Senin B Hassan as my supervisor for my final year project. From the beginning of this final year project, he is the one who guide me through all the processes until achieving of the results that meet the objectives of the final year project. Thanks or his concern, advices, meaningful guidelines and willing to assist me during my work.

Secondly, I would like to thank to all the laboratory assistants who have spent their precious time to give instructions and advices during my project. Besides, I would like to thank to all my fellow friends who have helped me a lot in doing my final year project.

Last but not least, I would like to express my deepest appreciation to my family for their spiritually and emotionally support that give me the strength to carry out this project.

Once again, thank you very much to all those who had contributed to successfully complete this final year project.

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## LIST OF ABBREVIATION

### Abbreviations

<i>et al.</i> ,	and others
ppm	part per million
SEM	Scanning electron microscope
SCC	stress corrosion cracking
%P	inhibitor efficiency
<i>k</i>	constant = 87.6 mm/yr
<i>w</i>	weight change
<i>A</i>	area of test specimen
$\rho$	density of test specimen
<i>t</i>	time

## ABSTRACT

The corrosion inhibition of zinc by present of natural honey was investigated in the presence of South China seawater at atmospheric condition. The effects of South China seawater on the corrosion behavior of zinc, using natural honey inhibitor have been carried out by mass change monitoring. The morphology of the corroded zinc surface was observed using scanning electron microscope. Seawaters have the sufficient corrosive environment due to the chemical ingredients especially of the halides compounds. Natural honey is an organic compound, which can control the corrosion rates of zinc in seawater. The zinc samples were immersed in the South China seawater for a period of seven weeks and corrosion occurred. The rate of the corrosion has a inverse proportional relation to the amount of inhibitor used. The inhibition efficiency of the natural honey for zinc metal in 7 weeks of observation is approximately 83.18% for the average.

## **MADU ASLI SEBAGAI PERENCAT PENGARATAN BAGI ZINK DALAM LARUTAN AIR LAUT.**

### **ABSTRAK**

Kajian ini adalah mengenai keberkesanan penghalang pengaratan iaitu madu asli terhadap zink di dalam air Laut China Selatan pada suhu bilik. Kepengaruhan madu asli terhadap pengaratan zink dapat dikaji melalui eksperimen perubahan berat sampel, pengiraan keberkesanan penghalang pengaratan dan kadar pengaratan. Struktur permukaan zink dapat ditinjau dengan menggunakan mikroskop 'pengimbas electron'. Air laut mempunyai persekitaran yang amat tinggi untuk terjadinya pengaratan kerana kehadiran komposisi kimia terutamanya komponen halide. Madu asli adalah merupakan komponen organik yang berperanan dalam mengawal pengaratan zink. Sampel-sampel zink direndamkan di dalam air Laut China Selatan dalam jangka masa tujuh minggu dan didapati pengaratan berlaku. Kadar penghakisan adalah berkadar songsang dengan jumlah penghalang pengaratan yang digunakan.