

100024860			
440		2000	
-			
-	1		
	-		
100 C			
	_		

HAK MILIK PERPUSTAKAAN KUSTEM

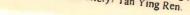
1100024860

respusicikoan olei Universiti Sains Don Teknologi Malaysia (Ku

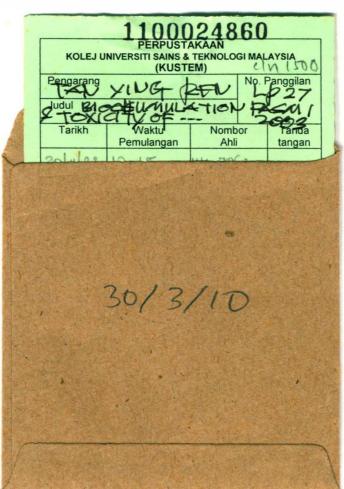
=N 1500



Bioaccumulation and toxicity of cadimium and copper singly at in combination to seabass (lates calcarifer) / Tan Ying Ren.







BIOACCUMULATION AND TOXICITY OF CADMIUM AND COPPER SINGLY AND IN COMBINATION TO SEABASS (*Lates calcarifer*)

BY

TAN YING REN

This project report is submitted in partial fulfillment of the requirements for the degree of Bachelor of Science (Marine Science).

FACULTY OF SCIENCE AND TECHNOLOGY COLLEGE UNIVERSITY SAINS AND TECHNOLOGY MALAYSIA 2002 / 2003

1100024860

This project report should be cited as:

Tan Y.R. 2003. Bioaccumulation and Toxicity of Cadmium and Copper Singly and in Combination to Seabass (Lates calcarifer). Undergraduate thesis, Bachelor of Science in Marine Science, Faculty Science and Technology, College University Science and Technology Malaysia, Terengganu.136p.

No part of this project report may be reproduced by any mechanical, photographic, or electronic process, or in the form of phonographic recording, nor may it be stored in a retrieval system, transmitted, or otherwise copied for public or private use, without permission from the author and supervisor of this project. 7897-200

ACKNOWLEDGEMENTS

First and for most, I would like to take this golden opportunity to express my sincere gratitude and appreciation to my supervisor, Assoc. Prof. Dr. Noor Azhar bin Mohd. Shazili for his continuous comments and patience's throughout the course of the project.

I would also like to thank the member of examination board for their patience in reviewing my thesis. For all the assistance and help from the laboratory assistances and hatchery workers, En.Yaacob, Sulaiman, Raja and Kamari, I would like to extend my gratitude.

I wish to thank my parents for their support and loving encouragements as well as the tower of strength in my hour of needs.

Last but not least, I cannot adequately express my gratitude to my beloved Hueyminn and course mates who made these years of study a most memorable one.

ABSTRACT

Experiments had been conducted on seabass (*Lates calcarifer*) to determine the bioaccumulation and toxicity of cadmium and copper singly and in combination. Toxicity tests were conducted with 2 different salinities, 5ppt and 15ppt. Approximately 10 times more acute toxic effect were observed in the toxicity test at lower salinity of 5ppt exposure. At 5ppt salinity, the 96-h LC50 values of cadmium and copper to seabass (*Lates calcarifer*) singly was found to be 1.56 mg L⁻¹ and 2.43 mg L⁻¹. While 15.54 mg L⁻¹ and 24.29 mg L⁻¹ at the 15ppt salinity exposure. Mixtures experiments involving cadmium and copper in combined, fish were exposed to proportions of 96-h LC50 concentrations of each metal sum up to 1.0. More than addictive mortality effects caused by cadmium in the mixtures were observed. The bioaccumulation patterns of metals shown by seabass (*Lates calcarifer*) were less complex. Cadmium and copper did not show interactions, however copper tended to accumulated in sea bass (*Lates calcarifer*).

ABSTRAK

Kajian bioaccumulasi dan ketoksikan cadmium dan kuprum secara individu dan kombinasi keatas seabass (*Lates calcarifer*) telah dilaksanakan. Kajian ketoksikan telah dijalankan dalam 2 keadaan saliniti yang berbeza, 5ppt dan 15ppt. Didapati kajian yang dilakukan pada saliniti yang lebih rendah 5ppt menunjukkan kesan ketoksikan yang berlebihan 10 kali berbanding dengan 15ppt. Keputusan 96-h LC50 kepada cadmium dan kuprum dalam saliniti 5ppt adalah 1.56 mg L⁻¹ dan 2.43 mg L⁻¹masing-masing. Manakala 15.54 mg L⁻¹ dan 24.29mg L⁻¹ telah diperhatikan dalam kajian 15ppt. Dalam eksperimen yang melibatkan cadmium dan kuprum dalam kombinasi, ikan telah didedahkan kepada campuran dua logam kepada jumlah 1.0 unit 96-h LC50 kepekatan.Cadmium menunjukkan kesan ketoksikan lebih daripada kesan tambahan. Dalam kajian bioakumulasi, seabass (*Lates calcarifer*) tidak menunjukkan kesan yang begitu rumit. Tiada interaksi antara cadmium and kuprum, manakala kuprum lebih diakumulasikan dalam seabass (*Lates calcarifer*)