ASSESSMENT OF WATER QUALITY BY MEANS OF PHENOLIC COMPOUNDS AROUND CHIANG MAI CITY

YUPIN PEETRAGORN

A THESIS SUBMITTED TO THE GRADUATE SCHOOL
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE IN
ENVIRONMENTAL RISK ASSESSMENT
FOR TROPICAL ECOSYSTEMS

ลิขสิทธิมหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rights reserved

GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
APRIL, 1995

ASSESSMENT OF WATER QUALITY BY MEANS OF PHENOLIC COMPOUNDS AROUND CHIANG MAI CITY

YUPIN PEETRAGORN

THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ENVIRONMENTAL RISK ASSESSMENT FOR TROPICAL ECOSYSTEMS

EXAMINING COMMITTEE

Assoc. Prof. Dr. Kate Grudpan

MEMBER

Prof. Dr. Dr. h. c. mult. Paul Müller

MEMBER

Dr. Joachim Krüger

MEMBER

Miss Sunanta Wangkarn

4 April 1995

Copyright of the Graduate School, Chiang Mai University

ACKNOWLEDGEMENTS

I am deeply grateful to my supervisor and co-supervisors, Assoc. Prof. Dr. Kate Grudpan and Achan Sunanta Wangkarn of Faculty of Science, Chiang Mai University and Dr. Joachim Krüger of the Institute for Biogeography, University of Saarland, Germany, for their kind supervision, invaluable guidance and constant encouragement during the course of this research project. A special word of thanks is extended to Mr. Pisan Kitsawatpaiboon for his kindly help in using gas chromatography-mass spectrophotometer (GC-MS). I am grateful also to Thai Unique and Lachat Instrument for the on loan Quick Chem 1000 FIA instrument.

I would like to express my sincere gratitude to the Deutsche Gesellschaft für Technische Zusammaenarbeit (GTZ) for providing 2 years scholarship for me to pursue the International Master's Degree Program in Environmental Risk Assessment for Tropical Ecosystems (ERA) at Chiang Mai University.

I also wish to thank all my classmates for a wonderful time we shared, especially Mr. La Karimuna, Mr. Jose Frazier Pallomina Gomez, Mr. Sakchai Ovatnupat, Ms. Alice Sharp for their helpful in the field. Special thanks also to Ms. Piyanetr Sritarathikhun for her help and understanding.

Last and most of all, I wishes to show my heartfelt gratitude here to my parents, my brothers and sister for their tender love, care and endless encouragement.

Yupin Peetragorn April 1995