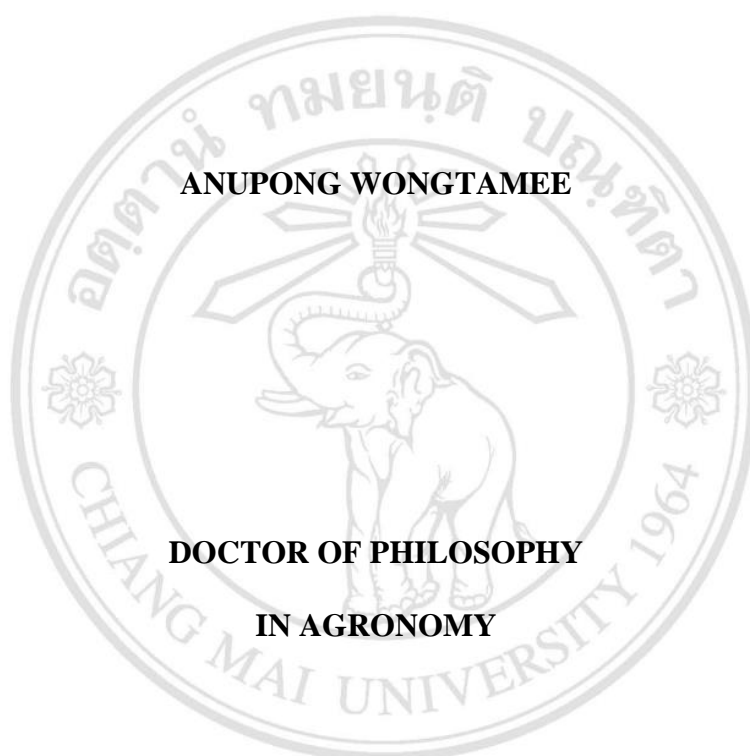


**GENETIC STRUCTURE OF WEEDY RICE (*Oryza sativa* f. *spontanea*)
POPULATIONS IN THAILAND**



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

**THE GRADUATE SCHOOL
CHIANG MAI UNIVERSITY**

MAY 2013

**GENETIC STRUCTURE OF WEEDY RICE (*Oryza sativa* f. *spontanea*)
POPULATIONS IN THAILAND**

ANUPONG WONGTAMEE

**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN AGRONOMY**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

**THE GRADUATE SCHOOL
CHIANG MAI UNIVERSITY**

MAY 2013

**GENETIC STRUCTURE OF WEEDY RICE (*Oryza sativa* f. *spontanea*)
POPULATIONS IN THAILAND**

ANUPONG WONGTAMEE

THIS THESIS HAS BEEN APPROVED
TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
IN AGRONOMY

EXAMINING COMMITTEE

.....*Sunisa M*.....CHAIRPERSON

Dr. Sunisa Niruntrayakul

.....*Sansanee J*.....MEMBER

Assoc. Prof. Dr. Sansanee Jamjod

.....*B. R. U.*.....MEMBER

Prof. Dr. Benjavan Rerkasem

.....*Chanya Maneechote*.....MEMBER

Dr. Chanya Maneechote

.....*Ch. Prom-u-thai*.....MEMBER

Dr. Chanakan Thebault Prom-u-thai

THESIS ADVISORY COMMITTEE

.....*Sansanee J*.....ADVISOR

Assoc. Prof. Dr. Sansanee Jamjod

.....*B. R. U.*.....CO-ADVISOR

Prof. Dr. Benjavan Rerkasem

.....*Chanya Maneechote*.....CO-ADVISOR

Dr. Chanya Maneechote

27 May 2013

ACKNOWLEDGEMENTS

I would thank the Office of the Higher Education Commission, Thailand under the program “Strategic Scholarships for Frontier Research Network for the Ph.D. Program, Thai Doctoral degree”. I also acknowledge the McKnight Foundation for partially financial support in some parts of my research.

I am deeply gratefully thank to my advisor, Associate Professor Dr. Sansanee Jamjod for her extended valuable guidance, constructive idea, valuable moral supports and the encouragement throughout the period of this study.

I am also deeply gratefully thank Professor Dr. Benjavan Rerkasem for her research guidance, valuable advice, moral supports during the long period of this study.

I am gratefully to Dr. Chanya Maneechote for kind suggestions and completed my thesis and valuable advice and provided some weedy rice samples in this study. I also thank to Dr.Sunisa Niruntrayakul and Dr.Chanakan Thebault Prom-u-thai for kind suggestions and Dr. Tonapha Pusadee, Agronomy Division, Department of Plant Sciences and Natural Resource, Faculty of Agriculture, Chiang Mai University, for molecular laboratory work and molecular data analysis.

I would also acknowledge my survey team for surveyed and collected common wild rice and weedy rice samples, farmers from the studied locations from Lower North, Northeast and Central Plain and Thai Rice Research Institute,

Department of Agriculture for providing breeder seed of the cultivated rice varieties. I also thank all staff of the *CMUPNlab*, Agronomy Division, Department of Plant Sciences and Natural Resource, Faculty of Agriculture, Chiang Mai University; students at the *CMUPNlab*, Agronomy Division, Department of Plant Sciences and Natural Resource, Faculty of Agriculture, Chiang Mai University for their help and friendship

Finally, I'm especially grateful to me family. They have aided and encouraged me throughout this endeavor, my beloved family who always behind me giving their love, support, understanding, patience and kindness which enable me to complete this study successfully.

Anupong Wongtamee



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved