

**PURIFICATION AND CHARACTERIZATION OF HIGHLY
IMMUNOGENIC PROTEIN ANTIGENS FROM
*PENICILLIUM MARNEFFEI***

WALLA POOLSRI

**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
THE MASTER OF SCIENCE
IN MICROBIOLOGY**

**GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
MARCH 1999**

**PURIFICATION AND CHARACTERIZATION OF HIGHLY
IMMUNOGENIC PROTEIN ANTIGENS FROM
*PENICILLIUM MARNEFFEI***

WALLA POOLSRI

THIS THESIS HAS BEEN APPROVED
TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE
IN MICROBIOLOGY

EXAMINING COMMITTEE

Nongnuch Vanittanakom.

CHAIRMAN

Associate Professor Dr. Nongnuch Vanittanakom

P. Khanjanasthiti

MEMBER

Associate Professor Dr. Parimondh Khanjanasthiti

Nopporn Sittisombut

MEMBER

Associate Professor Dr. Nopporn Sittisombut

Khuanchai Supparatpinyo

MEMBER

Associate Professor Dr. Khuanchai Supparatpinyo

16 MARCH 1999

© Copyright by the Graduate School, Chiang Mai University

ACKNOWLEDGEMENT

I am really grateful to my thesis advisor, Associate Professor Dr. Nongnuch Vanittanakorn, for her valuable advice, criticism and encouragement throughout this study which enable me to carry out my study successfully.

I would like to thank Associate Professor Dr. Nopporn Sittisombut, Assistant Professor Dr. Pichart Uparanukraw and Assistant Professor Dr. Sumalee Pruksakorn, for their helpful advice and providing some chemicals, biological reagents, and instruments.

I am very much obliged to Assistant Professor Dr. Porn-ngarm Limtrakul for providing high voltage power supply.

I sincerely thank to Mr. Tripet Wannalak for his help on fungal culture.

I would like to thank Associate Professor Dr. Niwat Maneekarn, Chairman of the Department of Microbiology, and the instructors in the Department for their suggestions and discussions throughout the course of this study.

Finally, I would like to express my gratitude and deepest appreciation to my parents, my brothers, and my sister for their love, attention, understanding and encouragement which will never be forgotten. And also sincerely thanks to all my best friends who always encouraged me in this study.

Walla Poolsri