ACKNOWLEDGEMENTS

I would sincerely like to acknowledge the efforts of many people who contributed to the research, to this thesis in particular.

I am very grateful to thank my thesis advisor Dr. Takashi Nakase and Assoc. Prof. Dr. Savitree Limtong for their direction suggestion and encouragement. I am equally grateful to my co-advisors, Dr. Wichien Youngmanitchai and Dr. Manee Tantirungkij for their valuable advice and providing suggestion for improvement. I wishes to thanks Assoc. Prof. Dr. Niphone Thaveechai, graduate school representative for his advice for improvement.

I would like to thank Dr. Kazaburo Mikata, Dr. Motofumi Suzuki, for their help and giving me valuable knowledge, Dr. Hiroko Kawasaki and Dr. Bundit Fungsin for their help and supported in DNA sequencing experiments.

I wish to thank Dr. Morakot Tunticharoen, Director of National Center for Genetic Engeneering and Biotechnology (BIOTEC), Dr. Kanyawim Kiratikara, Head of the BIOTEC central research unit and Ms. Wanchern Potacharoen, Advisor of BIOTEC Culture Collection, for giving me a chance to study the Ph.D. course.

I also thank the staff in BIOTEC Culture Collection Laboratory, especially to Ms. Hatairat Jun-ngam and Ms. Somjit Am-in for their kindness and helpful and also thank to my friends for helpful and friendship. Special thanks go to Mr. Veera Sri-Indrasutdhi for his encouragement and helpful.

Finally, I am very grateful to thank my family for their heartful supports.

Sasitorn Jindamorakot May 2006