Sarocha Panchanawaporn 2008: Molecular Screening for Peptaibiotics Producing Fungi. Master of Science (Biotechnology), Major Field: Biotechnology, Department of Biotechnology. Thesis Advisor: Assistant Professor Suttipun Keawsompong, Ph.D. 96 pages.

Peptaibiotics are defined as a group of polypeptide antibiotics that contain the α-aminoisobutyric acid (Aib) and have been shown to have a wide spectrum of biological activities. The synthesis of peptaibiotic compound involves a non-ribosomal system based on peptide synthase (*nrps*) genes. A wide variety of novel forms of these compounds have been discovered and identified solely on chemical techniques. The present work used established PCR strategies in a screening for peptaibiotic producing fungi. The putative peptaibiotics producing strain, *Trichoderma asperellum* BCC12530, was used to identify the relevant genes and prove the peptaibiotics producing, and compared with TLC analysis and bioassays. These protocols were adapted to screen 57 strains of various filamentous fungi. Molecular screening by PCR with specific primers was less specific to target the peptaibiotic producing fungi than other methods used in this study. The strains presenting *nrps* gene from the total fungal isolates were 1.87 times more than another two screening methods. Chemical and bioassay analyses could be used, together with the molecular approach for the efficient screening of peptaibiotic producing fungi, some of which have been previously reported to produce peptaibiotics. *Clonostachys rogersoniana* BCC4862 and *Mariannaea camptospora* BCC12193 showed interesting results indicating the gene and Aib related to peptaibiotic production. This capability will be used for further primary screening of peptaibiotics from other sources and the results validated as the potential screening protocols.

_____ _____ __ / __ / __

Student's signature Thesis Advisor's signature