Yuttana Singchada 2006: DNA Markers for *Cryptosporiopsis eucalypti* Resistant/Susceptible Eucalypt Clone Selection using Sequence-Tagged Site Technique. Master of Science (Agricultural Biotechnology), Major Field: Agricultural Biotechnology, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Saowanee Suputtitada, M.S. 108 pages.
ISBN 974-16-1564-7

Isolates of *Cryptosporiopsis eucalypti* were collected from plantation at Ratchaburi, Kanchanaburi and Chachoengsao provinces. Fungal isolates were used for morphology study and pathogenicity test. Nine isolates of *C. eucalypti* showed differences in colony growth on potato dextrose agar (PDA). Twelve clones of eucalypt were selected and screened for disease resistance using intact seedling inoculation and detached leaf techniques. Six clones, SF01, SF06, SF18, SF36, SF94 and SF98 were classified as resistant clones while the other six, SF03, SF07, SF14, SF16, SF70 and SF86 were classified as susceptible clones. The sequence-tagged-site (STS) marker was used to separate resistant group and susceptible group. Primer pairs were designed from the conserved sequence of pathogenesis-related (PR) genes, plant disease resistance (R) genes, and defense-related genes. STS primers were tested with genomic DNA of resistant group and susceptible group by polymerase chain reaction (PCR). Amplified DNA fragments were separated by agarose gel and polyacrylamide gel electrophoresis. Polymorphic bands of resistant group and susceptible group were cloned and sequenced. All sequences were used to align the similarity with other sequences in GenBank. The results showed that six markers from forty one primer pairs could be used for susceptible and resistant clone detection. The Ce1, Ce2 and Ce3 markers could identify the resistant clones while the Ce4, Ce5 and Ce6 markers could identify the susceptible clones. These DNA markers were useful for eucalypt breeding program.

_____ _____ ___ / ___ / ___

Student's signature Thesis Advisor's signature