

Rinnapa Somsanook 2013: Assessment of Genetic Diversity of *Xanthomonas oryzae* pv. *oryzae* in Thailand. Master of Science (Agricultural Biotechnology), Major Field: Agricultural Biotechnology, Interdisciplinary Graduate Program. Thesis Advisor: Miss Sujin Patarapuwadol, Ph.D. 89 pages.

Thirty-one isolates of *Xanthomonas oryzae* pv. *oryzae*, were collected from 21 rice-growing provinces in Thailand during the year 2008 to 2010. Amplified fragment length polymorphism (AFLP) and the repetitive sequence-based polymerase chain reaction (rep-PCR) techniques were employed for the genetic diversity assessment among *X. oryzae* pv. *oryzae* isolates. The polymorphic bands were recorded and comparative analyzed. Similarity coefficients were calculated by using Dice's coefficient and the cluster analysis was calculated by using unweighted pair group method with arithmetic averages (UPGMA). Based on AFLP analysis, *X. oryzae* pv. *oryzae* were grouped into 9 clusters, whereas 5 and 9 clusters were identified by REP primer and ERIC primer analysis. The fitness of dendrograms was determined by cophenetic correlation (r). The matrix revealed high reliable values of these techniques at $r = 0.95180$, 0.95928 and 0.85325 respectively. Our results show that populations of *X. oryzae* pv. *oryzae* in Thailand are highly diverse, especially strains from the Northern and Upper Central regions of Thailand. Cultivar-specific effects and geographical conditions may have influence on this pathogen variation.

Student's signature

Thesis Advisor's signature