Thirteen strains of bacteria which positive reaction with ELISA Agdia® kit specific for
Pantoea stewartii were tested by standard detection method and compared with P. stewartii subsp
stewartii LMG2715; the type strain, P. agglomerans 4633, 4045, 20569 Erwinia chrysanthemi
E.carotovora subsp. carotovora and Escherichia coli. The standard methods compose of gram
staining, motility test, growth on nigrosine selective medium and salt tolerance. PCR detection by
using specific primer to 16s-23s rRNA/ITS, cpsD and hrpS gene of P. stewartii subsp. stewartii were
also tested. The bacteria were clustered by AFLP DNA fingerprint, carbon source utilization, soluble
protein SDS-PAGE profile and 16s rDNA sequences were also compared. From the results indicated
that these 13 bacterial strains were not P. stewart; subsp. stewart;ii. However, all strain except XE7
and W strains were identified as P. agglomerans. The result revealed that only PCR detection of hrpS
gene was a specific detection method for P. stewartii subsp. stewartii.

PCR based detection techniques of hrpS gene as a target gene for detection of Pantoea
stewartii subsp. stewartii from infected plant and seed sample namely direct-PCR, magnetic bead-
PCR, ampli-disk PCR and real-time PCR were compared with ELISA for detection efficiency. The
result indicated that direct-PCR is the best method based on fast, easy, sensitivity, reliability and low
cost. The detection sensitivity of direct-PCR was in the range of $10^{-2} - 10^{-1}$ colony forming unit (cfu) per
reaction in plant sample. For seed lot sample, sensitivity of detection was in the range of 0.02 –
0.007% of seed contamination and detection efficiency was increased from 33 to 83% by sub-sample
seed detection. Furthermore, this detection efficiency was covered the rate of seed to seedling
transmission and should be used as a standard detection method of this pathogen in Thailand.