3936670 MTMT/M : MAJOR : MEDICAL TECHNOLOGY ; M.Sc.(MEDICAL TECHNOLOGY)
KEY WORDS : *SALMONELLA*/ TRANSPOSON/ PROBE/ COLONY HYBRIDIZATION

RUNGROT CHERDTRAKULKIAT :TRANSPOSON MUTAGENESIS AS A TOOL FOR ISOLATING *SALMONELLA* SPECIFIC PROBE. THESIS ADVISORS: KESARA WAT-AKSORN, Ph.D., SRISURANG TANTIMAVANISH, Ph.D., AMORNRUT LEELAPORN, Ph.D. 95 p. ISBN 974-664-276-6

Salmonellosis is currently a global public health concern and can be caused by different serovars of *Salmonella* spp. Invasion is one of the most important aspects to cause systemic disease in their hosts. The conventional method for identification of *Salmonella* spp. was time consuming and laborious, thus the requirement for rapid identification has become an urgency demand.

The aims of this study were designed to isolate *Salmonella* gene affecting invasion of host cell by transposon mutagenesis and to select this region for use as a probe for detection of *Salmonella* isolated from clinical specimens by colony hybridization. A transposon, Tn*phoA*, was used to mutagenize *S. choleraesuis* strain 18585 and 3400. All mutants were screened by testing the ability to invade HEp-2 cells. The invasiveness of mutant strain C3400-104 was reduced by 94% when compared to the native strain. The Tn*phoA* fused chromosomal DNA fragment of this strain was subcloned into pGEM-7Zf(+) vector. This clone, G104-19, was subjected to digestion with various restriction enzymes for its restriction map. The 0.4 kb and 2.1 kb chromosomal fragments from this clone were chosen for detecting *Salmonella* spp. by colony hybridization. The 0.4 kb probe gave 81.8% sensitivity and 87.2% specificity, while the 2.1 kb probe gave 85.5% sensitivity and 77.7% specificity. Although the 2.1 kb probe gave higher sensitivity than 0.4 kb probe, it gave a false positive with other members in family *Enterobacteriaceae*. Therefore, 0.4 kb probe was suggested for further study as a specific probe for rapid detection of *Salmonella* spp. from both human clinical specimens and food samples.