



THESIS

STUDIES ON MOLECULAR EPIDEMIOLOGY OF ANTIMICROBIAL RESISTANCE GENES IN SALMONELLA ISOLATED FROM PIG FARMS

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GRADUATE SCHOOL, KASETSART UNIVERSITY

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STUDIES ON MOLECULAR EPIDEMIOLOGY OF ANTIMICROBIAL RESISTANCE GENES IN SALMONELLA ISOLATED FROM PIG FARMS

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Salmonella strains isolated from pigs, which collected from five farms (A, B, C, D and E) in Thailand exhibited resistance to several classes of antimicrobial agents. Of 230 *Salmonella* isolates, 211 isolates (91.74%) presented dramatically resistance phenotype as multi-drug resistant (MDR) strains with the dominant patterns of ASuT, ASSuT, AGSSuT, ACKNSSuT, ACKSSuSxtT and AApCGNS-SuSxtT. Among those MDR strains from five farms, only four isolates including each of *S. Stanley*, *S. Anatum* and two *S. Panama* harbored class 1 integrons carrying *aadA* gene cassettes, which conferred resistance to streptomycin. Furthermore, 30 MDR isolates of Farm A (*S. Corvallis*, *S. Rissen* and *S. 1,4,5,12:i:-*) were chosen to examine resistance genes transferring by conjugation. Ten isolates of *S. Corvallis* with resistance pattern AGSSuT and 10 isolates of *S. Rissen* with resistance pattern ACKSSuSxtT were capable of transferring resistance genes to *E. coli* via conjugative plasmid. Likewise, *S. Stanley* CC1 strain containing class 1 integron carrying *aadA1* resistance gene could also transfer the *aadA1* and other resistance genes to *E. coli* by conjugative plasmid. These results suggested that class 1 integrons and conjugative plasmids play an important role in the dissemination of resistance genes among these isolates. Moreover, the 30 MDR strains of Farm A were also subtyped using plasmid profiling and RFLP-PCR analysis of flagellin genes, which reflected to the specific serotypes. In this study, the combination of resistance patterns, RFLP profiles and conventional serotyping revealed *S. Corvallis*, *S. Rissen* and *S. 1,4,5,12:i:-* were the endemic strains in Farm A.

Student's signature

Thesis Advisor's signature

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