

CHAPTER VII

CONCLUSION

Salmonella enterica is a major pathogen in humans as well as in animals. They are widely dispersed in nature and are common inhabitants of the intestinal tract of domesticated and wild mammals, reptiles, birds, and even insects (54). Antimicrobial resistance in nontyphoid *Salmonella* serotypes has been a global problem. Surveillance data demonstrated an obvious increase in overall antimicrobial resistance among salmonellae from 20%-30% in the early 1990s to as high as 70% in some countries at the turn of the century (54). The resistance rate varies with different serotypes and different antibiotics. From the result of antimicrobial resistance in this studied concluded that *Salmonella* Schwarzengrund isolated from human and chicken meat in Thailand have the same pattern of high antimicrobial resistance that resisted to nalidixic acid > sulfamethoxazole > sulfamethoxazole+trimethoprim > ampicillin > tetracycline > gentamicin > streptomycin > neomycin > chloramphenicol and ciprofloxacin respectively but it was not resistance to cefotaxime and cefotaxime+clavulanic acid. In addition, *Salmonella* Schwarzengrund isolated from human was resistance to one antimicrobial 1%, two antimicrobial 13%, and multidrug resistance (resistance to antimicrobial agent \geq three antimicrobial agents) 86%. *Salmonella* Schwarzengrund isolated from chicken meat was resistance to one antimicrobial 0%, two antimicrobial 1%, and multidrug resistance 67%. As the number of infection and the corresponding use of antimicrobials have increased, so has the high prevalence of resistance. Antimicrobial resistance arises in several ways, including acquisition of resistance genes via horizontal gene transfer and selection of resistant variants in the population. In the case of *Salmonella*, the situation is more complicated, because the use of antimicrobials for therapeutic or preventive purposes in veterinary medicine and as growth promoters in animal feed may promote the emergence, thereby presenting a potential risk to public health from zoonotic infections. Although the route of transmission of antimicrobial-resistant salmonellae is complex, evidence obtained in many epidemiological and laboratory studies suggest that the primary source of antimicrobial-resistant *Salmonella* infection is foods of animal origin.

infection is foods of animal origin. Recent surveys with molecular techniques provide firm evidence indicating that the development of antimicrobial-resistant salmonellae that cause infections in human. So this study highlights the need to be aware of regionally specific resistance rate to avoid inappropriate antimicrobial use and this information can be used to monitor magnitude and trends such as can identify spread of resistant clones and can identify 'New' resistance phenotypes. Moreover it can inform treatment guidelines and policy decisions and monitor effect of interventions.

Pulsed-field gel electrophoresis (PFGE) base on analysis of the whole genome by restriction endonuclease digestion might also be useful for investigation of sources of salmonellosis (51). The objective of the present study was to analyze the DNA profile of *S. Schwarzengrund* found in Thailand and to determine the significance of chicken meat as a food vehical for human infection by using PFGE. In the present study, using PFGE patterns suggested that DNA profile of *S. Schwarzengrund* from human and chicken meat have a high similarity and can divided to two genotyps (A and B) and 7 subgenotyps (B1, B2, B3, B4, B5, B6, and B7) base on percent similarity of the sample. The present study showed that even the DNA profile Of isolates from susceptible or resistant to antimicrobial agents were not difference. Furturemore, the result from dendogram suggested that DNA profile of *S. Schwarzengrund* isolated from human patients and chicken meat have high similarity some strain up to 100%isimilarity so *S. Schwarzengrund* isolated from human patients and chicken meat may be the same clone. That can be guideline the transmission of *Salmonella* Schwarzengrund to human. Chicken meat may be a vehicle in outbreaks and in cases of person to person spread. So the studied information may be useful for control and prevention of *Salmonella* Schwarzengrund contamination in human and animal in the future.

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