1. INTRODUCTION

Salmonella is a member of the *Enterobacteriaceae*, and causes food borne salmonellosis in humans. Common symptoms can range from bacterial diarrhea to septicemia (Doyle *et al*., 2001). Most people recover fairly quickly from the illness, but it can be fatal to those with weakness of the immune system such as pregnant women, infants, elderly, and immunocompromised patients. It is often caused by improper storage and cooking of meats that may have been contaminated. Generally, *Salmonella enterica* Typhimurium is one of the most common serotype of infection in humans (WHO, 2001) mostly found in pigs and pork (Nollet *et al*., 2004; Rajic *et al*., 2005; Christensen et al., 2002). Hence, it is a public health significance bacterium.

Asymptomatic pigs play a major role of intestinal carriage and intermittent shedding of small number of *Salmonella*. Also, pork was recognised as a one major source for human salmonellosis (Berends *et al*., 1998). In order to minimize Salmonellosis resulting from pork consumption, it is necessary to prevent the spread within the farms, prevent cross contaminate at the slaughterhouse and purchase *Salmonella*-free piglets to fattening farms. *Salmonella* monitoring program can be achieved by culture of individual pig samples or fecal pool samples or antibodies detection in serum. In order to obtain *Salmonella*-free piglets, sows shouldn't play a role of *Salmonella* shedding; their piglets will carry the agent to the fattening unit. Several studies reported that the prevalence of *Salmonella* by isolation in sow during gestation period, farrowing period and lactation period is 10 % (Nollet *et al*., 2005; Kranker *et al*., 2001). The prevalence of fecal samples for pregnant sows was 8.1% and for young and lactating sows 2.9% (Korsak *et al*., 2003). From the Netherlands it was reported that the prevalence in breeding sow herd was 44.4 % (Van der Wolf *et al*.,2001). With a *Salmonella* control program, the herd apparent prevalence of *Salmonella* was 16.7% in sows (Christensen *et al*, 2002). Sows can maintain *Salmonella* infection in farrow to finish herds. Therefore, the status of *Salmonella* in sows should be classified to facilitate prevention of shedding.

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In Thiland, *Salmonella* is widespread in pre-slaughter pigs with percentage between 6 to 69.5 % (Padungtod and Kaneene, 2006; Patchanee *et al*, 1999). Consequently, the prevalence on pork was relatively high 65% from the report of Angkititrakul *et al*., (2005). Concerning the epidemiology of *Salmonella* from farm to table in the pig production line, need exists to establish the status of *Salmonella* with the objective of set up food quality standards and risk assessment in Thailand.

Significance and impact of the study

At present, in Thailand studies have been done at three points in the pork chain: fattening farm, slaughtering process and pork products in retail but not on breeder sows and weaned piglets. Therefore, this thesis studies *Salmonella* at sow level with the aims to

1. Determine the prevalence of *Salmonella* in breeder sows
2. Determine the incidence of *Salmonella* during the periparturient period
3. Determine *Salmonella* serotypes isolated from these breeder sows
4. Find and to assess some potential risk factors associated with *Salmonella* contaminations in breeder sow

The fundamental information obtained from this study would provide a scientific database for *Salmonella* prevalence, serotype distributions and cross contamination at breeder sow stage in the pork production chain. Finally the result from this study would be combined with results of the study in piglets and previous studies in a pork production chain in order to build a complete model of *Salmonella* transmission from farm to fork as well as designing long-term monitoring trends and setting up strategic measures for control *Salmonella* infection.

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