

1. INTRODUCTION

Salmonellosis is an important public health problem throughout the world (Srifuengfung *et al.*, 2005). In many countries, the incidences of human *Salmonella* infections or so-called salmonellosis have markedly increased in recent years, although good national or hospital-based surveillance data are frequently lacking (Guerrant *et al.*, 2001). Depending on the causative *Salmonella* serotypes, the clinical symptoms of human salmonellosis correspond to either the enteric fever syndrome (typhoid fever) or to the nontyphoid-dependent gastroenteritis with possible progression to a more serious systemic infection (Lund *et al.*, 2000). However, most of the *Salmonella* infectious forms in humans are due to non-typhoidal salmonellosis, which are commonly associated with the consumption of foods from animal origins and contaminated water (Vaeteewootacharn *et al.*, 2005).

Non-typhoidal *Salmonella* spp., which is an important issue of Veterinary Public Health studies, has been mainly linked to some kinds of animals, for instance, poultry and poultry products. According to Hald *et al.* (2003), pigs are most frequently healthy carriers of *Salmonella* without showing any symptoms of disease. *Salmonella* infections in pigs are of concern for two major reasons: the unapparent clinical disease and high susceptibility to a broad range of *Salmonella* serotypes (Dickson *et al.*, 2003). Infected pigs are considered to be the main and most important reservoirs as well as sources for the introduction and transmission of *Salmonella* on farms and/or other stages in the pork production line (Swanenburg *et al.*, 2001, Hurd *et al.*, 2002, Bouvet *et al.*, 2003, Dickson *et al.*, 2003).

Various stages in the pig and pork chain can be sources of *Salmonella* infection in slaughter pigs and contamination on pork carcasses (Wilcock and Schwartz, 1999). During transportation, feeding withdrawal, environmental contamination, and lengths of times at the lairage - all may contribute to *Salmonella* infection in slaughter pigs.

The occurrences of *Salmonella* at the slaughterhouse level are considered to be due to direct or indirect fecal contamination of slaughter pigs or carcasses (Oosterom, 1991). In addition, during the slaughtering process, carcasses may be contaminated or cross-contaminated by manual or mechanical handling. The contamination caused by, e.g. mechanical transfers, could occur in scalding tanks, de-hairing machinery and polishers. Improper handling during the early processing stages can also trigger *Salmonella* contamination in processed pork and pork products before sending to retail markets (Barends *et al.*, 1997, Berends *et al.*, 1998, Swanenburg *et al.*, 2001, Warriner *et al.*, 2002, Pearce *et al.*, 2003).

Food safety and *Salmonella* is becoming an increasing concern for the global pork market today. Considering that pork is the predominant meat consumed in Thailand, an increasing demand in monitoring *Salmonella* infection throughout the pork production chain has been gradually increasing. In Chiang Mai, where pig production and pork consumption is widespread, research study or identified serotypes of this pathogenic agent is very rare. In response to the “farm to fork” food safety concept this study was conceived with aims of gaining more knowledge about *Salmonella* occurrence and serotypes particularly in the commercial pig production lines. The level at slaughtering is the main area of this study, which had the following objectives.

- To determine the occurrences of *Salmonella* spp. at the slaughterhouse and
- To determine serotypes of isolated *Salmonella*

Significance and impact of the study: The fundamental information obtained in this study would provide a scientific database for *Salmonella* prevalence, serotype distributions and cross contamination at this stage in the pork production chain. Furthermore, the baseline information would be used in formulating hypotheses as well as in designing long-term studies aimed at establishing monitoring trends and setting up strategic measures against *Salmonella*.