

1. INTRODUCTION AND OBJECTIVES

1.1. Introduction

Among the various important pathogenic bacteria that are known to cause mass food-poisoning, belongs to the genus *Salmonella* (Krieg and Holt, 1984). The ingestion of these organisms in contaminated food or water may lead to salmonellosis, a serious bacterial toxin-infection syndrome associated with gastroenteritis, typhoid and non-typhoid (Jay, 1996). Although most people survive a *Salmonella* infection, it can be life-threatening for infants and elderly and for persons already weakened by other serious diseases. The accidental contamination of *Salmonella* in raw and processed foods is a major problem for the food and feed industries worldwide due to the following reasons: (i) their strong pathogenic characteristics, (ii) their frequent presence in raw products, (iii) their rapid development in foods that are not kept properly after preparation, (iv) their responsibility for highly-publicized toxin-infection which may discredit a manufacturer or a type of food product (Axelsson and Sorin, 1997).

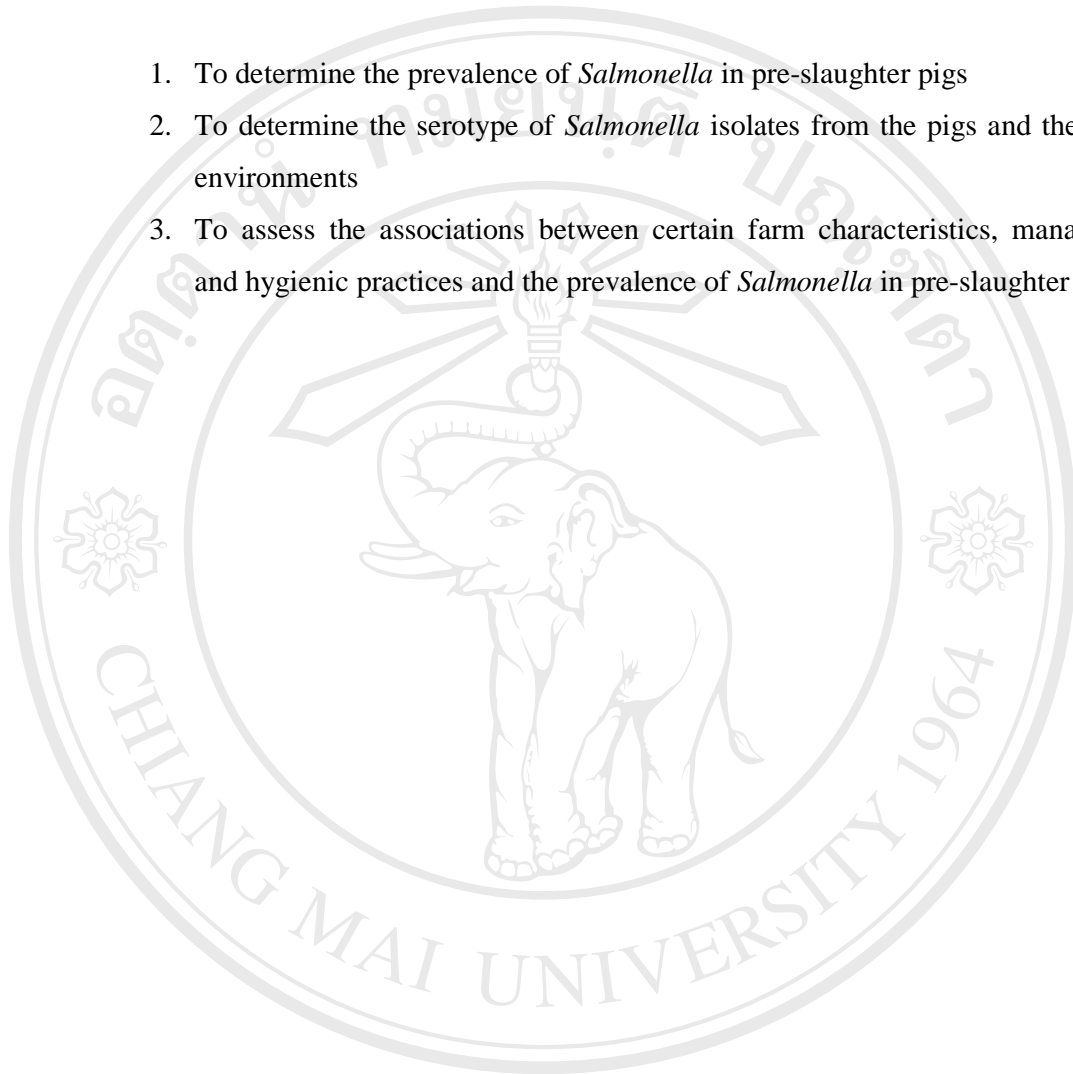
The wide spread of *Salmonella* in the natural environment, coupled with the intensive husbandry practices used in the meat, fish, and shell fish industries and the recycling of offal and inedible raw materials into animal feeds, have favored the continued prominence of this human bacterial pathogen in the global food chain. Poultry meat and eggs are a predominant reservoir of *Salmonella*, and pork is generally recognized as the second important source of human salmonellosis (D'Aoust *et al.*, 2001, Hanes, 2003, Jay, 1996). A study in Great Britain during 1999-2000 found, that the carriage rate of *Salmonella* in prime slaughter cattle and sheep was very low compared with pigs. This suggested that future control measures should be focused on reducing *Salmonella* infection on pigs and minimizing contamination of carcass at slaughter (Davies *et al.*, 2004).

Thailand is a primary chicken-meat exporting country. Importing countries such as Japan or the European Union are going to require a zero tolerance for *Salmonella* because of its pathogenicity for humans (Regulation EC No 2160/2003). The quality assurance programs and regulations for controlling *Salmonella* infection in the poultry production chain are presented in Thailand, and are rather effective. In the case of pork, however, we can not export fresh pork because of FMD (OIE, list A) and the regulations to control the safety and quality of pork and pork products have not attracted much attention. However, since the avian influenza outbreak in Thailand, the demand for pork and pork products within the country has increased. Recently, Thai government has included pork as a “price control” product. As a probable subsequence, the pork production business will expand and be better controlled. The DLD (Department of Livestock Development) of Thailand encourages farmers to improve the standard production system and the bio-security of the farm. If any farm meets the standard set by the DLD, it will be certified as a ‘Standard Pig Farm’. This is the primary step to guarantee that the important diseases are under control. However, control measures, specific to *Salmonella*, are still far from the attention of most Thai pig farmers.

This project was to determine the prevalence and the risk factors associated with *Salmonella* contamination in fattening-pigs at the pre-slaughter stage. Fattening-pigs carrying *Salmonella enterica* are implicated as a main source of carcass and pork contamination at the later stages (Beloeil *et al.*, 2004). *Salmonella* control programs in the pork production chains should start from the farm, then embrace the slaughterhouse and finally the market.

1.2. Objectives

1. To determine the prevalence of *Salmonella* in pre-slaughter pigs
2. To determine the serotype of *Salmonella* isolates from the pigs and the farm environments
3. To assess the associations between certain farm characteristics, managerial and hygienic practices and the prevalence of *Salmonella* in pre-slaughter pigs



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