

CHAPTER I

INTRODUCTION AND OBJECTIVES

1.1 Introduction

Foodborne zoonoses account for most of the emerging bacterial zoonoses resulting from globalization and distribution of food which can be illustrated by the emergence of *Escherichia coli* O157:H7 or *Salmonella* Enteritidis (Velge et al., 2005). Outbreaks of foodborne diseases result in costs for patient treatment, compensation for hospitalization or death, management of the disease outbreak by the public health service, loss of labor productivity, and commercial repercussions for the food industry (Todd, 2006). Previous monitoring in Thailand indicated that coliforms were found in food samples (17.8%), in food containers (19.2%), and on food preparers (18.4%). The percentages of food preparation which achieved hygienic standards were 20.1%, 8.1%, 13%, and 51.7% in restaurants, fresh markets, school canteens and hospital canteens, respectively (WHO, 2010). Therefore, surveillance of foodborne diseases has been an increasing priority in public health in many countries (Doyle and Erickson, 2006). The risk of foodborne diseases in humans is crucial and needs to be assessed (Fosse et al., 2008).

Meat consumption in developing countries increased continuously from a modest average annual per capita consumption of 10 kilograms in the 1960s to 26 kilograms in 2000, and will reach 37 kilograms around the year 2030 according to FAO projections (Heinz and Hautzinger, 2007). Meat consumers demand high quality, convenient, innovative, regular and safe meat products with natural flavor and taste and an acceptable shelf-life (Aymerich et al., 2008). Quality control of meat production should be provided from the farm of origin, ante- and post-mortem inspection, and during storage of meat until it is consumed (Bender, 1992).

Northern Thai sausage is fresh pork sausage (Heinz and Hautzinger, 2007). Its ingredients include coarse minced pork with 20% fatty tissue. The pork is mixed with seasonings such as garlic, soy sauce, fish sauce, chili paste, shrimp paste, glutamate, and herbs such as lemon grass and bergamot leaves (Heinz & Hautzinger 2007). This mixture is stuffed into pig intestine casings. The sausages are cooked by grilling or frying (Kumopas, 2000). Northern Thai sausage (Sai-oua) is a popular traditional pork product in Chiang Mai, which is not only an everyday food for residents, but also plays an important role as a souvenir product for tourists (Sompat 2008). However, this product can also cause foodborne diseases. The aim of this study is to evaluate the microbiological quality of Northern Thai sausage as compared with the Thailand Community Product Standard Criteria 294/2004. Some growth factors including temperature, water activity, and pH were observed and compared to previous studies.

1.2 Objectives

1. To determine the total colony count, yeasts and molds, and to determine the presence of *Salmonella* spp., *Escherichia coli*, *Staphylococcus aureus* and *Clostridium perfringens* in Northern Thai sausage.
2. To compare the microbiological characterization of Northern sausage with the Thai Community Product Standard criteria 294/2004.
3. To observe and compare microbiological characteristics and their growth factors in Northern Thai sausage in different collection time periods.