CHAPTER 1

INTRODUCTION

In recent years, health and over weight have been big problems for consumers. The new food have been developed for high nutrient, low fat and calories. Soy products such as soy flour, soy protein concentrate, soy protein isolate are popularly used in many products for reducing fat and cost. In meat industry, soy protein isolate is commonly used in meat-base products for their functional properties to reduce fat and cost (Lecomte et al., 1993; Ho et al., 1997; Hin et al., 2000; Ramezani et al., 2003). However, in Thailand soy protein isolate has some disadvantages as it is imported from oversea and costly. Its manufacturing process is also complicate. Soybean has been shown to be a rich source of isoflavones, a weak form of the female hormone estrogen. Isoflavones have been shown to inhibit the growth of cancer cells, lower blood cholesterol and inhibit bone resorption. Consumption of soy food has been on the rise because the establishment of the October 1999 U.S. Food and Drug Administration (FDA) has approved soy protein claims, which links the intake of products high in soy protein with positive health benefits such as a lower risk in heart diseases.

Tofu is an important source of protein and high potential of being a satisfactory meat additive that can reduce fat and calories if substituted for the fat in meat emulsion products (Jeng et al., 1988; Ho et al., 1997). However, high moisture content in tofu causes microorganism grows rapidly. Tofu powder is the product from ground-dried tofu that can be used as the ingredient in processed meat products. It has a proximate composition of 52.54% protein, 29.78% fat and 4.65% water (Panyathitipong and Puechkamut, 2002). Tofu powder has a high protein and essential fatty acid, linolenic and linoleic acid. Panyathitipong and Puechkamut (2002) found that the emulsion made from tofu powder had good emulsion stability but the solubility of this tofu powder was very low. Chotipratoom (2003) reported that tofu powder emulsion could substitute in meat emulsion up to 90% but the products had altering flavor and cracked during frying. Because of the limitation of the tofu powder functionality, its properties should be improved. Aside from this fact the poor functional properties can be a result from the process on preparation. Therefore, the effects of processing on the quality of tofu powder will be elucidated in this experiment and new product will be made using tofu powder as a raw material. The emulsion gels formulated by different mixture of tofu powder and surimi will be developed to yield products

with a good texture and taste. The correlation between microstructure texture and chemical properties of the gels also will be studied. All of these experiments will promote tofu powder to become one of the valuable food ingredients for meat industry.

The objectives of this research are:

1. To study the preparation process of tofu powder to improve its functional properties
2. To study the physicochemical properties of the emulsion gels that are prepared from tofu powder and surimi
3. To develop surimi emulsion gels from tofu powder that yield product with a satisfactory sensory quality