CHAPTER 1
INTRODUCTION

1.1 Rational

High pressure, up to 1,000 MPa, was used extensively in food industry for food preservation (Ledward, 1995). This technology offers advantages of increasing shelf-life, minimal heat damage, retention of freshness, flavor, texture and colour, no vitamin C loss, no undesirable changes in food during pressure-shift freezing due to reduced crystal size and multiple ice-phase form, and minimal undesirable functionality alterations. Changes may improve functional properties of food constituents, resulting value-added products. In addition, high pressure processing causes no environmental pollution, low energy and low running costs (Heremans, 1995; Tewari *et al.*, 1999).

Recently high pressure technology has received considerable attention as a method of processing meat with major applications in stabilizing and texturising meat paste in combination with thermal processing (de Lamballerie-Anton *et al.*, 2002). Previous research has shown various high pressure applications in meat processing such as minced beef, cod muscle, turbot muscle, poultry batters and poultry sausage (Angsupanich and Ledward, 1998; Carballo *et al.*, 2001; Carlez *et al.*, 1995; Chevalier *et al.*, 2001; Mor-Mur and Yuste, 2003). However, pressurisation of ostrich meat has not been reported.

Ostrich produces red meat that is similar in taste and texture to veal and beef (Shanawany, 1999; Sukwanmanee, 2002) and has similarity in protein content, and amino acid composition compared with other types of red meats. Ostrich meat, however, is low in intramuscular fat, sodium contents and cholesterol levels which can be advantageous over other red meats in healthy product markets (Sales and Hayes, 1996). Since high pressure processing is well known for its minimal negative effects on food quality and ostrich meat is consider a healthy red meat, this research study was interested in the application of high pressure impressing of a high quality ostrich meat product. In this study, ostrich meat was processed into "yor" (Thai

sausage) which is widely consumed in Thai market. The processing of ostrich-meat yor requires a non-meat protein for texture modification since meat protein alone does not produce a typical yor characteristics.

1.2 Research objectives

General objective of this study was to show high pressure processing which was a new technique for making ostrich-meat yor.

Specific objectives were as follows:

1.2.1 To investigate the optimal percentage of sodium tripolyphosphate, sodium chloride, pepper and garlic added in ostrich-meat yor.

1.2.2 To evaluate the optimal level of pressure, temperature and holding time on physicochemical properties and rheological behaviours of ostrich-meat yor.

1.2.3 To investigate the effects of soy protein isolate, whey protein isolate and wheat gluten on physicochemical properties and rheological behaviours of ostrich-meat yor.

1.2.4 To compare physicochemical and sensory properties, and rheological behaviours of the pressurised and heat-treated ostrich-meat yor.