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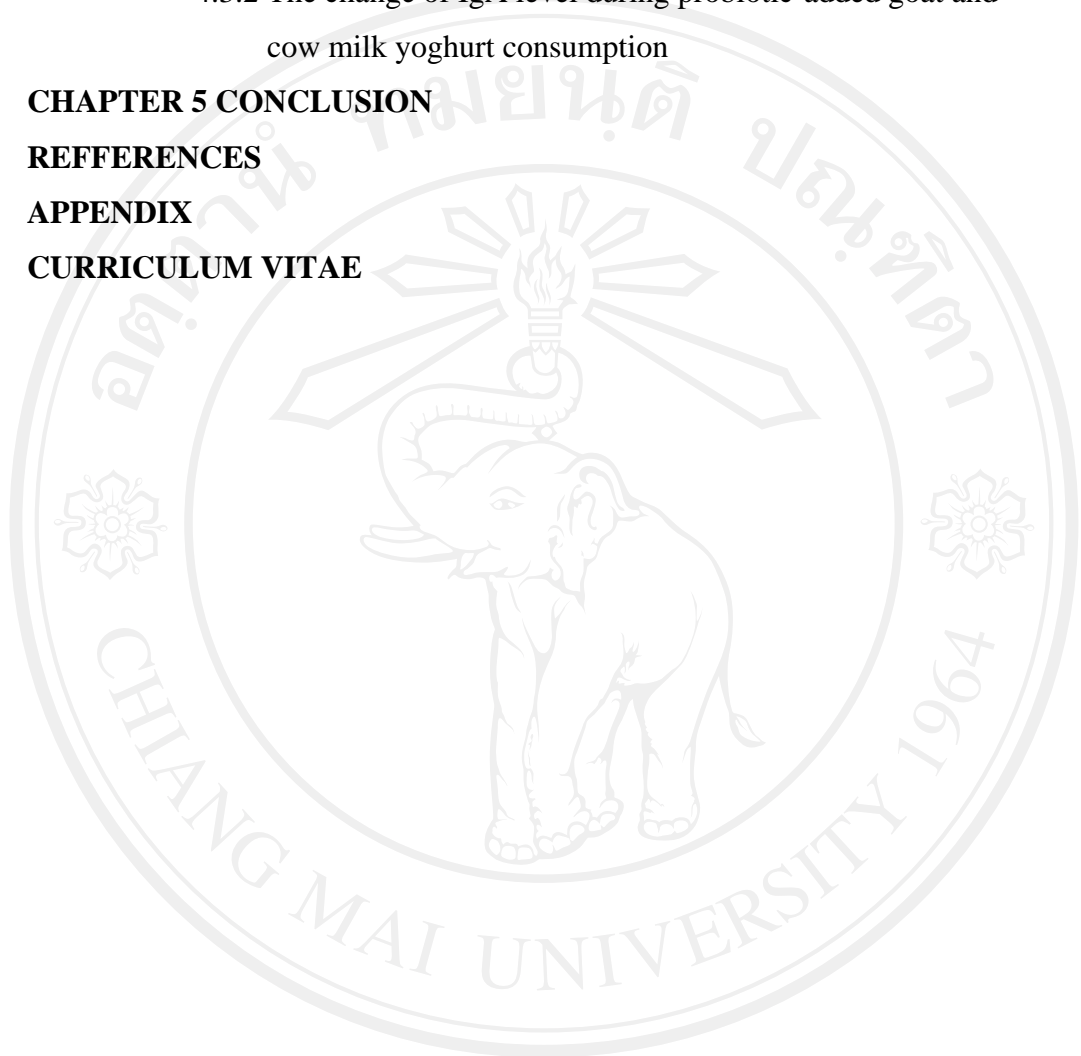
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ABBREVIATIONS AND SYMBOLS

DE	Dextrose Equivalent value
MRS	deMan-Rogosa-Sharpe
MRD	Maximum Recovery Diluent
HHD	Homofermentative and Heterofermentative Differential
LAB	Lactic Acid Bacteria
PET	Polyethylene tetrathalate
SGJ	Simulated Gastric Juice
PP	Polypropylene
Al	Aluminum
PE	Polyethylene
IgA	Immunoglobulin A
log cfu/ml	logarithmic of colony per milliliter
cfu/ml	Colony per milliliter
cfu/g	Colony per gram
min	Minute
h	Hour

INTRODUCTION

1.1 Background information

Goat milk has special nutritional properties that make it attractive to some consumers. It is easier to digest and may have certain therapeutic value. The use of goat milk becomes an opportunity to diversify the dairy market since it allows to develop added value fermented products with particular characteristics. Goat milk has long been and will always be consumed as part of a healthy balanced diet as it contains an impressive array of nutrients and, therefore, plays an important role in assisting individuals to meet their nutrient requirements. Scientific data are continuously being published that, not only, document the already available knowledge but also add new information regarding the influence of this remarkable mammary secretion on the maintenance of health and prevention of disease. Reason for use of goat milk in manufacturing of yoghurt is that it is smoother and whiter as compared with cow milk product. On the other hand, goat milk differs from cow or human milk in higher digestibility, distinct alkalinity, higher buffering capacity, and certain therapeutic value in medicine and human nutrition. Goat milk may contain various elements of nutritional or toxicological importance (Alferez *et al.*, 2001).

During recent years, an increase interest has developed in foods that contribute to a positive effect on health apart from their nutritional value. Among these functional foods, much attention has been focused on probiotic products. Probiotic foods contain microorganisms or components of microbial cells that have a beneficial effect on the health and well-being of the consumer host. Viability of probiotic bacteria to high counts at least 10^7 cfu/g or ml of product is recognized as an important requirement during manufacturing and marketing of probiotic foods in order to achieve the claimed health benefits (Dave and Shah, 1997). Modulation of host immunity is one of the most commonly-purposed benefits of the consumption of probiotics. Reasonable, but limited, clinical evidence exists to support this concept. However, general claims regarding probiotic modulation of host immunity vastly overstate current knowledge of both the fate of ingested probiotic products and their

specific effects on molecular and cellular components of the immune system. Probiotics such as *Lactobacillus acidophilus* and *Bifidobacterium bifidum* have been shown to influence selected aspects of immune function. Such altered function can involve one or several components of an immune response (Berman *et al.*, 2006). Although several in vitro and in vivo studies on probiotic effects on immunity have been reported, the specific mechanisms of the observed changes remain unclear. Moreover, many probiotic preparations have been tested in several separate laboratories with diverse and sometimes contradictory results (Herich and Levkut, 2002).

The aim of this work was to develop a mixture goat and cow milk yoghurt of a satisfactory quality, in terms of sensory characteristics and survival of probiotic bacteria. The starter cultures used were *Streptococcus thermophilus* and *Lactobacillus bulgaricus*. The probiotic bacteria *L. acidophilus* and *B. bifidum* were selected as they are commercially strains with low acidification activity.

1.2 Objectives of this research

1. To develop a formula of mixture goat and cow milk yoghurt containing the probiotic bacteria of a satisfactory quality.
2. To evaluate the effect of a microencapsulation method on the survival of probiotic bacteria.
3. To compare the effect of drying methods (spray-drying and freeze drying) on the survival of probiotic bacteria.
4. To investigate the effect of a long-term consumption of the goat and cow milk yoghurt containing probiotic bacteria on IgA production in healthy adolescents.