

CHAPTER 1

INTRODUCTION

Lactic acid bacteria (LAB) are traditionally applied in the conservative of a variety of fermented food products (Holzapfel *et al.*, 2001). They are also used as starter cultures in industrial and food fermentative since they contribute to the conversion, flavor, and texture of the fermented foods. LAB produce lactic acid as a byproduct from their usual growth and also bacteriocins (antibiotic-like compounds). Knowledge of the LAB in the gut may provide a way to encourage good animal health and control pathogenic bacteria. Their antimicrobial and antifungal activity has already been well established. LAB species are also commonly found among the resident microbiota of the gastrointestinal tract (GIT) and genital-urinary tract of vertebrates (Carr *et al.*, 2002), where they are thought to exert health-associated beneficial effects (Ouwehand *et al.*, 2003). LAB have been awarded the status of “Generally Regarded As Safe” (GRAS) by the American Food and Drug Agency. According to the definition of the World Health Organization, probiotics are live microorganisms which when administered in adequate amounts confer a health benefit on the host (Gilliland *et al.*, 2001). Recommended properties for a probiotics include survival of the gut, persistence in the host and proven safety for human consumption (Charteris *et al.*, 1998 and Tuomola *et al.*, 2001).

In addition, tolerances to low pH and bile salt are important properties for the survival of bacteria under the conditions of the stomach and intestine (Prasad *et al.*, 1999; Kimono *et al.*, 1999). After oral ingestion, bacteria encounter a number of human defense systems that are associated with secretions. These including high concentrations of mucins that cover the gut, gastric acid including a low pH in the stomach and bile salts secreted into luminal content in the proximal small intestine

(Ouwehand et al., 2005). Over the two past decades, interest in LAB physiology and genetics has greatly increased, reflecting their growing importance as starter cultures in fermentation processes and the increasing potential of the probiotics market.

The most widely used probiotic LAB are *Lactobacillus* and *Bifidobacterium* strains and extensive studies on beneficial effects for human health of these species have been reported (Shortt, 1999). More over, Khalil *et al.* (2007) reported that 55 strains of LAB isolated from the feces of 3-6 months old breast-fed infants were demonstrated probiotic characteristics such as tolerance to pH 3 and growth in 0.4% oxgall. Similar to Park *et al.* (2002) that isolated and characterized of LAB from feces of newborn baby withstood environmental conditions such as low pH and high bile concentration. So, isolation and study of acid and bile tolerant strains from the intestinal flora may lead to find a useful probiotic bacteria.

The objectives of this study

1. To isolation and screening the lactic acid bacteria from infant feces.
2. To selection the acid and bile tolerant lactic acid bacteria.
3. To identification the potential acid and bile tolerant lactic acid bacteria.