APPENDIX C

BACTERIA USED FOR PREBIOTIC PROPERTIES

1. *Lactobacillus fermentum* CM33

Lactobacillus fermentum is a gram-positive species. *L. fermentum* CM33 is identified by morphological characteristics and 16S rDNA nucleotide sequence. It exhibits a good survival rate under the simulated stomach passage model, comparable to known probiotic strains *L. gallinarum* JCM2011 and *L. agilis* JCM1187. *L. fermentum* CM33 is antagonistic to pathogenic bacteria *Listeria monocytogenes*, *Escherichia coli* 0157:H7, *Salmonella typhi*, and *Salmonella enteriditis*. Moreover, the selected lactobacilli exhibit a high growth rate when cultivated in modified MRS containing commercial galactooligosaccharide (GOS) as a sole carbon source, as well as in glucose (Sriphannam *et al*., 2012.) (Figure 1C).

2. *Escherichia coli* O157:H7

Escherichia coli is a gram-negative, facultative anaerobic, rod-shaped bacterium that is commonly found in the lower intestine of warm-blooded organisms (endotherms). However, some strains, such as *E. coli* O157:H7 can cause severe food borne disease and are referred to as enterohaemorrhagic *E. coli* (EHEC). This pathogen produces toxins, known as verotoxins or Shiga-like toxins because of their similarity to the toxins produced by *Shigella dysenteriae* (Mead and Griffin, 1998) (Figure1C).

3. *Samonella enteritidis*

Salmonella enteritidis is a rod-shaped, gram negative, non-motile bacteria, that does not form spores. Unlike other strains of *Salmonella* that are primarily adapted to people, *Salmonella enteritidis* is primarily adapted to animal hosts, at least for the beginning of its life cycle. *S. enteritidis* is considered facultative anaerobe, which means that this bacterium can survive with or without oxygen (Meinhardt, 2009). This strain was obtained from the Faculty of Associated Medical Sciences, Chiang Mai University (Figure 1C).

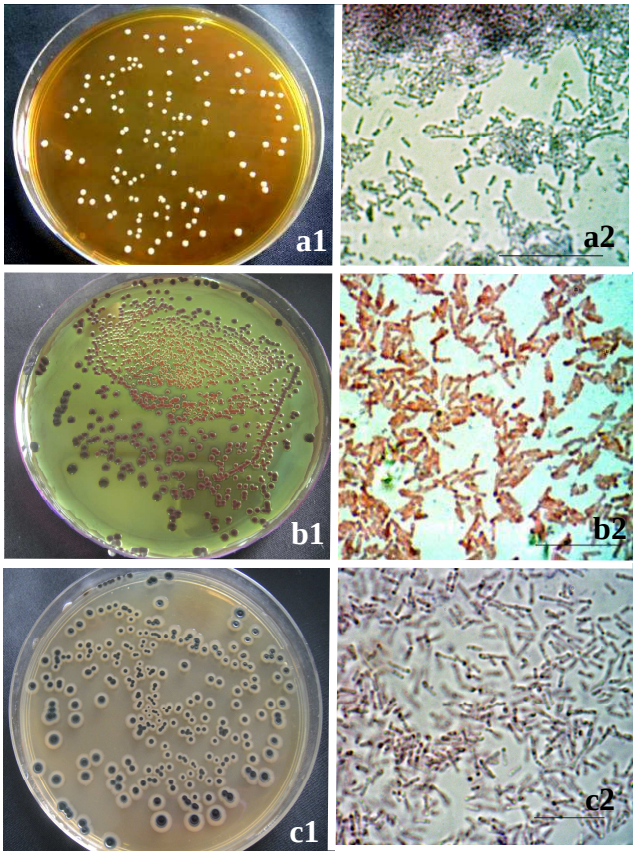

Figure 1C Colonies and morphology of bacteria
a1) Colonies of *Lactobacillus fermentum* CM33 **a2)** Cell morphology of *L. fermentum* CM33 **b1)** Colonies of *Escherichia coli* O157:H7 **b2)** Morphology of *E. coli* O157:H7 **c1)** Colonies of *Samonella enteritidis* **c2)** Morphology of *S. enteritidis*