LIST OF FIGURES

Figures	Title	Page
Figure 1.1.	Flow chart indicating the various steps in order to isolate and	20
	characterize a novel probiotic strain	
Figure 1.2.	Cholesterol as the precursor for the synthesis of new bile acids	34
	and the hypocholesterolemic role of bile salt hydrolase (BSH)	
Figure 1.3.	Schematic representation of small intestinal and colonic	37
	metabolism of lactose	
Figure 1.4.	Diagram showing differentiation of monocytes to M1 and M2	44
	macrophages	
Figure 1.5.	Schematic representation of potential mechanisms of action of	47
	probiotic lactobacilli	
Figure 1.6.	Prospective health attributes of probiotics	50
Figure 2.1.	0.8% Agarose gel stained with ethidium bromide for 16S-23S	67
	rRNA gene intergenic region PCR amplification	
Figure 2.2.	Bile salt tolerance: growth of lactobacilli under different bile	68
	salt concentrations	
Figure 2.3.	Adhesion of <i>Lactobacillus</i> isolates to HT-29 epithelial cell line	74
	compared with standard strains LGG	
Figure 2.4.	Adhesion of <i>Lactobacillus</i> isolates to Caco-2 epithelial cell line	75
	compared with standard strains LGG	
Figure 2.5.	Adhesion of Escherichia coli to HT-29 cells following	76
	competition with, inhibition by, and displacement by various	
	lactobacilli	
Figure 2.6.	Adhesion of Escherichia coli to Caco-2 cells following	77
	competition with, inhibition by, and displacement by various	
	lactobacilli	
Figure 3.1.	pH of curd prepared using different lactobacilli	95
Figure 3.2.	Protein concentration of whey	96

Figure 4.1. (A)	0.8% agarose gel stained with ethidium bromide with the total RNA from uninduced PBMCs, PBMCs stimulated with various lactobacilli and <i>E. coli</i>	114
Figure 4.1. (B)	0.8% agarose gel stained with ethidium bromide with the β -	114
	actin specific region amplicons from cDNA prepared from	
	uninduced PBMCs, PBMCs stimulated with various	
	lactobacilli and E. coli	
Figure 4.2. (A)	0.8% agarose gel stained with ethidium bromide with the total	115
	RNA from uninduced macrophages, macrophages stimulated	
	with various lactobacilli and E. coli	
Figure 4.2. (B)	0.8% agarose gel stained with ethidium bromide with the β -	115
	actin specific region amplicons from cDNA prepared from	
	uninduced macrophage, macrophages stimulated with various	
	lactobacilli and E. coli	
Figure 4.3. (A)	M1 and M2 marker expression level in PBMCs after co-	119
	incubated with different lactobacilli	
Figure 4.3. (B)	M1 and M2 marker expression level in macrophages after co-	123
	incubated with different lactobacilli	
Figure 4.4. (A)	0.8% agarose gel stained with ethidium bromide with the total	126
	RNA from uninduced PMNs, PMNs stimulated with various	
	lactobacilli and E. coli	
Figure 4.4. (B)	0.8% agarose gel stained with ethidium bromide with the β -	126
	actin specific region amplicons from cDNA prepared from	
	uninduced PMNs, PMNs stimulated with various lactobacilli	
	and <i>E. coli</i>	
Figure 4.5.	Cytokine expression level in PMNs after co-incubated with	130
-	different lactobacilli	

LIST OF TABLES

Tables	Title	Page
Table 2.1.	Reaction system for 16S-23S rRNA gene intergenic region amplification	60
Table 2.2.	Conditions for 16S-23S rRNA gene intergenic region amplification	60
Table 2.3.	16S-23S rRNA gene intergenic sequence analysis and GenBanksubmission of selected isolates	67
Table 2.4.	Survival rate of <i>Lactobacillus</i> strains in the presence of 0.3% and 1% bile salts	69
Table 2.5.	Survival rate of different <i>Lactobacillus</i> strains under acidic condition	70
Table 2.6.	Spectrum of antimicrobial activity exhibited by various lactobacilli	71
Table 2.7.	Spectrum of antibiotic susceptibility exhibited by various lactobacilli	73
Table 3.1.	β-Galactosidase activity of different lactobacilli isolates	90
Table 3.2.	Cholesterol removal using different lactobacilli directly in MRS broth	92
Table 3.3.	Cholesterol lowering assay using <i>Lactobacillus</i> fermented curd	94
Table 3.4.	α -Galactosidase activity of different lactobacilli	98
Table 4.1.	RT-PCR (Reverse transcriptase) reaction system for cDNA synthesis	108
Table 4.2.	RT-PCR (Reverse transcriptase) conditions for cDNA synthesis	108
Table 4.3.	PCR reaction system for β -actin specific amplification	109
Table 4.4.	Conditions for β -actin specific amplification	109
Table 4.5.	Conditions for qRT PCR amplification	110

Table 4.6.	Reaction system for qRT-PCR	110
Table 4.7.	M1 and M2 Primers used for qRT-PCR analysis	111
Table 4.8.	Primers used for qRT-PCR analysis (for PMNs)	112
Table 4.9.	Summary of M1 and M2 marker expression in PBMCs after co-	120
	incubated with different lactobacilli	
Table 4.10.	Summary of M1 and M2 marker expression in macrophages after	124
	co-incubated with different lactobacilli	
Table 4.11.	Summary of pro- and anti-inflammatory cytokine expression in	131
	PMNs after co-incubated with different lactobacilli	