

Table 1 Lactic acid bacteria from fermented foods.

Fermented foods	No. of collected samples	No. of detected samples	Percent detected samples	No. of isolates
Fermented vegetable (Puk-sian-dong)	22	22	100.0	34
Fermented vegetable (Puk-gard-dong)	26	20	76.9	36
Fermented vegetable (Nor-mai-dong)	46	46	100.0	75
Fermented vegetable (Sa-taw-dong)	15	15	100.0	39
Fermented vegetable (Kra-tium-dong)	8	3	37.5	6
Fermented vegetable (Hao-chai-po)	9	1	11.1	1
Fermented vegetable (See-jek-sai)	2	0	0	0
Fermented vegetable (Tang-sai)	1	0	0	0
Fermented vegetable (Kra -lum-pee-dong)	11	11	100	21
Fermented vegetable (Tang-kwa-dong)	5	5	100	7
Fermented rice (Khao-mark)	3	2	66.7	4
Fermented rice (Thai noodle)	4	1	25.0	2
Total	152	126	82.9	225

Table 2. Properties used to select lactic acid bacteria for use as probiotics.

Probiotic properties	Number of strains tested	Number of strains selected
Stability in bile sult	225	156
Stability at low pH	156	69
Growth aerobically and anaerobically	69	40
Ability to grow without vitamin B12	40	40
Inhibition of pathogens	40	16
Utilization of protein ,fat or starch	16	5

Table 3 Inhibition of pathogens by selected lactic acid bacteria isolated from Fermented vegetables.

Lactic acid bacteria	Source	Inhibition zone (mm)*							
		<i>E. coli</i> O157 H 7				<i>Salmonella</i>			
		38	53	143	165	<i>typhi</i>	<i>typhimurium</i>	<i>paratyphi</i>	<i>entertidis</i>
LK 03	Kra-tium-dong	13.0	13.0	12.5	12.5	13.0	15.0	15.0	16.0
LL 09	Kra-lum-pee-dong	15.0	19.0	12.0	17.0	20.0	18.5	19.0	14.5
LL 13	Kra-lum-pee-dong	13.5	18.0	12.5	13.0	18.0	14.5	18.0	19.0
LN 07	Nor-mai-dong	12.0	10.5	13.5	13.0	12.0	12.5	13.5	12.5
LN 13	Nor-mai-dong	12.5	12.5	14.5	12.5	12.5	13.0	14.0	13.0
LN 18	Nor-mai-dong	13.5	14.0	12.5	13.0	19.0	13.0	19.0	15.0
LN 24	Npr-mai-dong	15.5	10.6	12.5	12.5	13.0	12.5	12.0	13.5
LN 30	Nor-mai-dong	13.0	11.9	13.0	11.5	11.0	11.5	12.0	12.5
LN 35	Nor-mai-dong	15.0	20.0	14.5	15.5	15.0	12.5	17.5	17.0
LN 51	Nor-mai-dong	13.0	12.0	14.5	12.5	20.0	14.0	17.0	13.0
LP 07	Puk-sian-dong	14.5	12.5	13.5	12.5	11.0	16.0	15.0	12.0
LP 11	Puk-sian-dong	15.0	14.5	14.0	12.5	18.0	13.0	19.0	19.0
LP 20	Puk-sian-dong	16.0	12.5	12.5	13.0	14.0	13.5	14.0	15.0
LP 22	Puk-sian-dong	16.0	16.0	14.0	13.0	20.0	11.5	20.0	20.0
LS 35	Sa-taw-dong	15.5	16.0	12.5	14.0	14.0	14.5	20.0	14.0
LT 02	Tang-kwa-dong	13.0	16.0	12.5	13.0	19.0	14.5	20.0	18.0

* Measured as the distance from the edge of lactic acid bacter spot to the edge of clear zone

Table 4 Antibiotic susceptibility of selected strains lactic acid bacteria isolated from fermented vegetables.

Antibiotics	Isolates of lactic acid bacteria				
	LL13	LN18	LP11	LS35	LT02
Penicillin G (10µg)	M	M	R	M	M
Ampicillin (10µg)	S	S	S	S	S
Ceptazidime (30µg)	R	R	R	R	R
Cefoperazone (75µg)	R	R	R	S	R
Vancomycin (30µg)	S	S	S	S	S
Bacitracin (10µg)	R	S	R	R	R
Kanamycin (30µg)	S	S	S	S	S
Streptomycin (10µg)	S	M	R	S	S
Tetracycline (30µg)	S	S	S	S	S
Chloramphenicol (30µg)	S	S	S	S	S
Erythromycin (15µg)	S	S	S	S	S
Norfloxacin (10µg)	R	R	R	R	R
Polymyxin B (30µg)	M	M	R	M	M

R : Resistant M : Moderately susceptible S : Susceptible

Table 5. Identification of selected lactic acid bacteria from fermented vegetables.

Strain designation	Genus and species	Fermented vegetables
LL13	<i>Lactobacillus plantarum</i>	Kra -lum-pee-dong
LN18	<i>Lactobacillus plantarum.</i>	Nor -mai-dong
LP11	<i>Lactobacillus plantarum</i>	Puk-sian-dong
LS35	<i>Lactobacillus plantarum</i>	Sa-taw-dong
LT02	<i>Pediococcus pentosaceus.</i>	Tang-kwa-dong

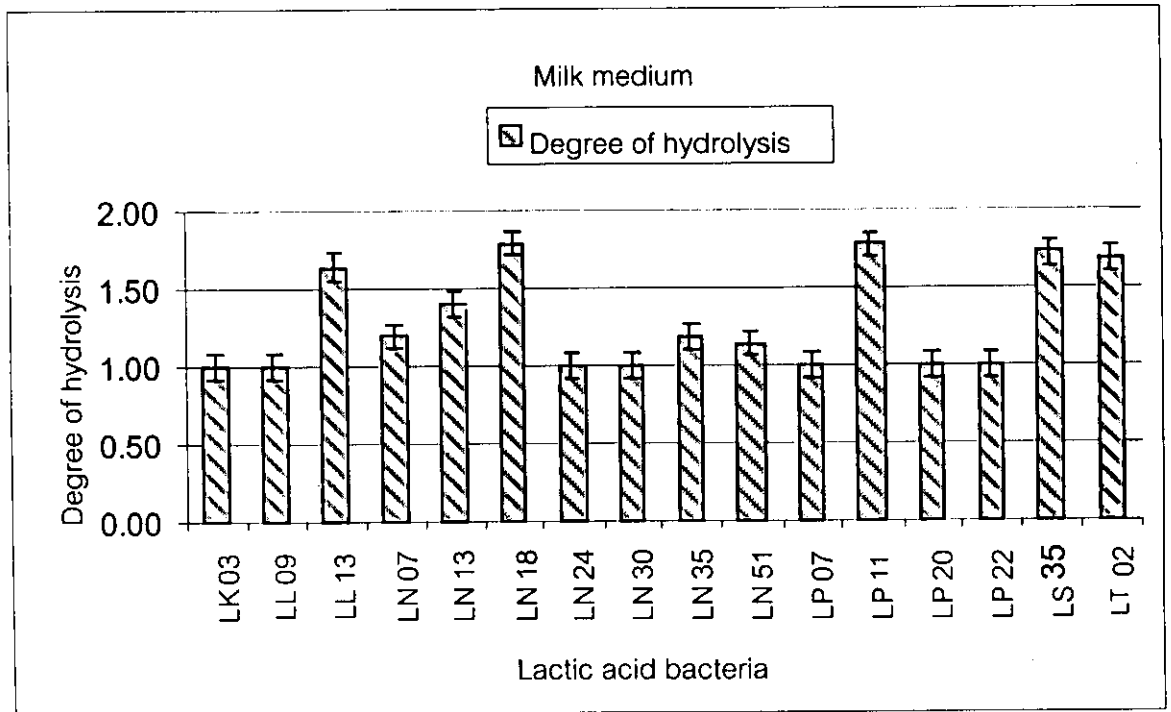
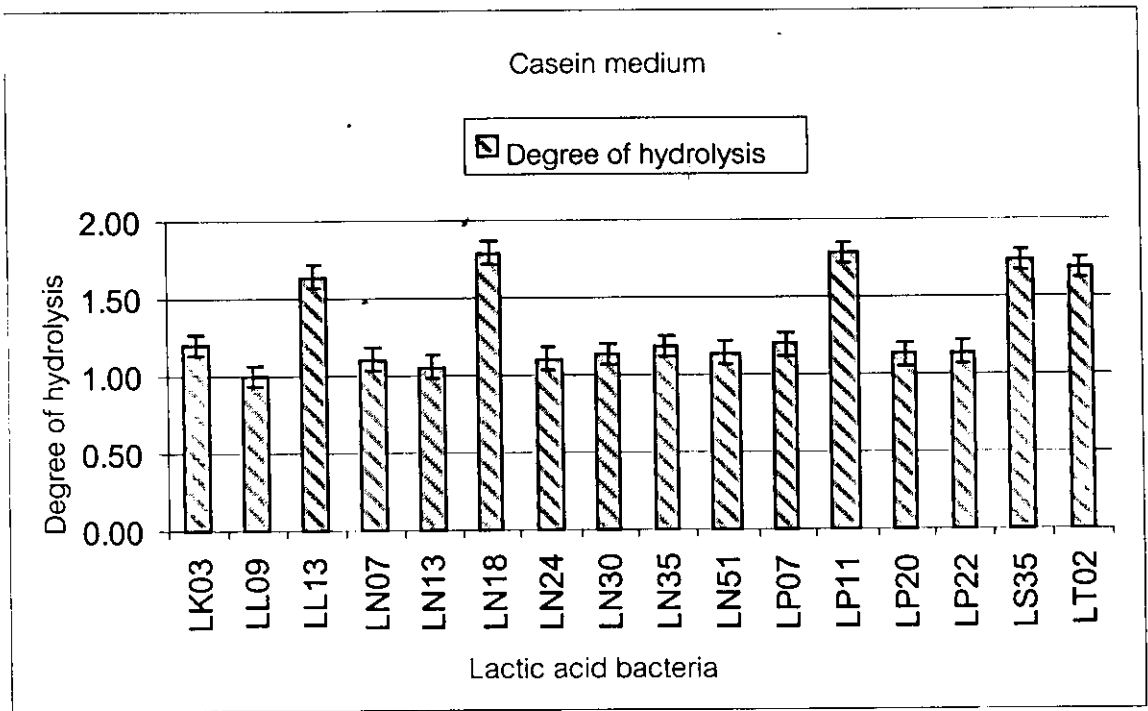


Figure 1 Degree of hydrolysis on casein and milk medium of selected lactic acid bacteria

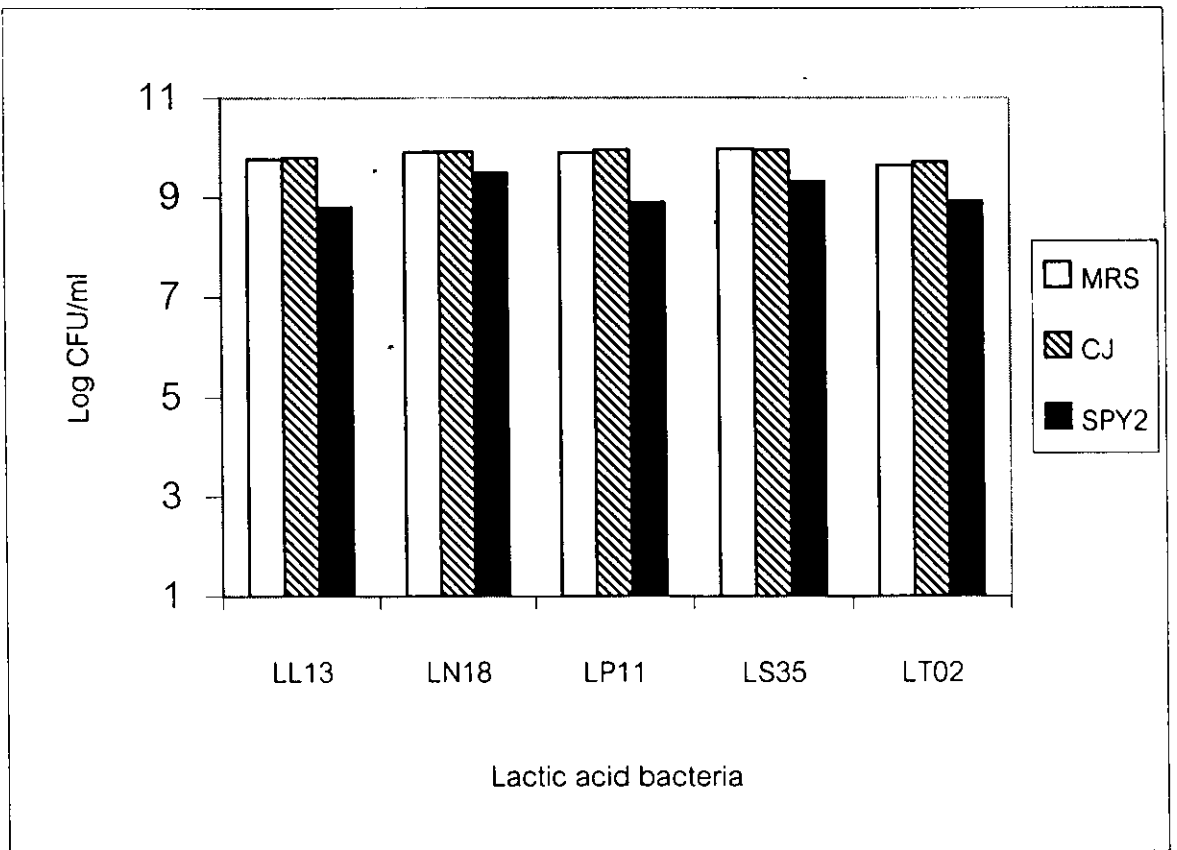


Figure2 Growth of selected strains of lactic acid bacteria in MRS medium and vegetarian medium (Coconut juice (CJ), SPY2) based on viable cells at 37°C 24 h.

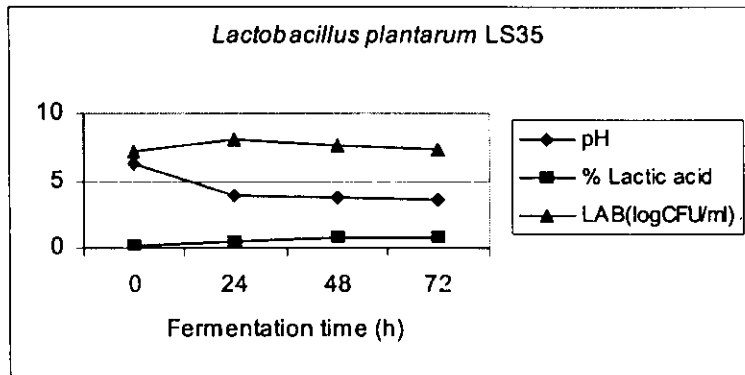
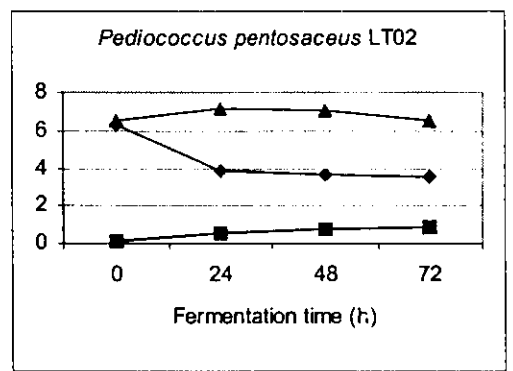
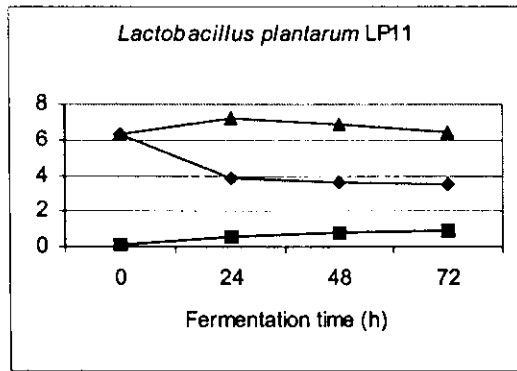
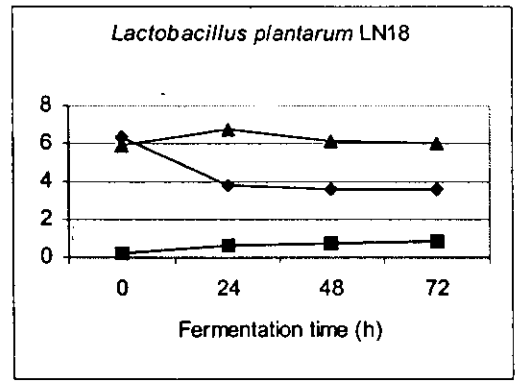
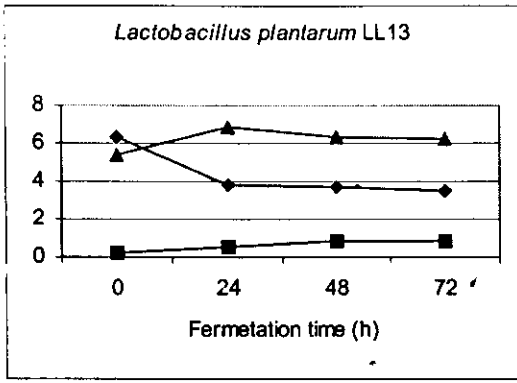


Figure 3 Time course of lactic fermentation of carrot juice by selected strains of lactic acid bacteria

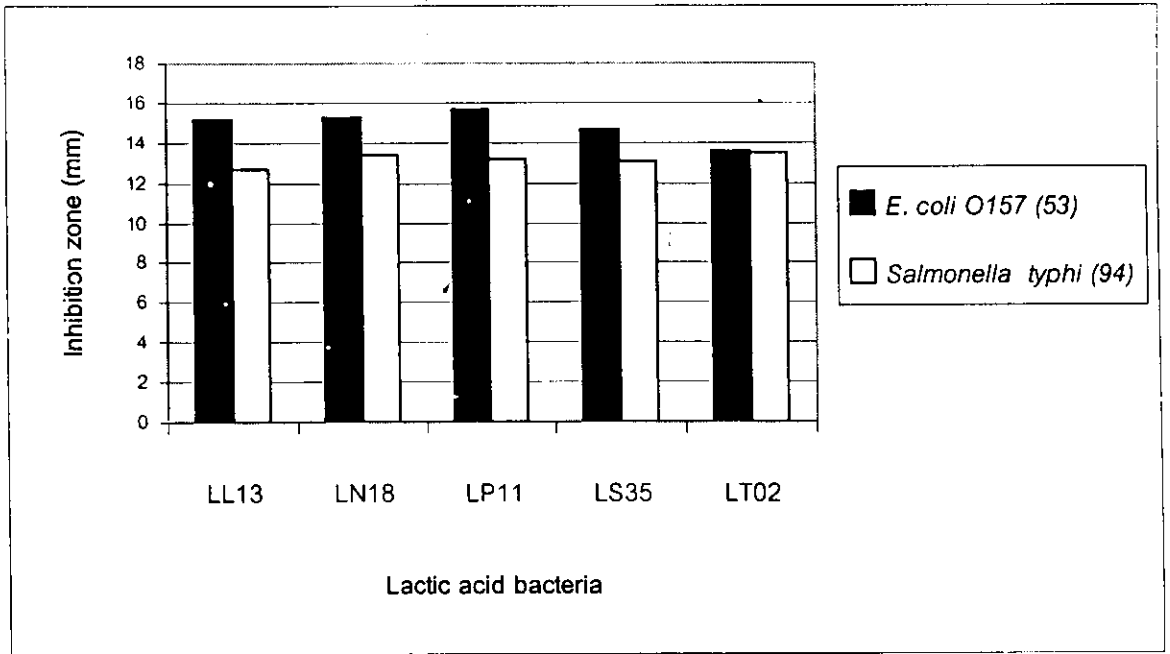


Figure 4 Inhibition of pathogens by fermented carrot juice with selected strains of lactic acid bacteria at 72 h of fermentation.

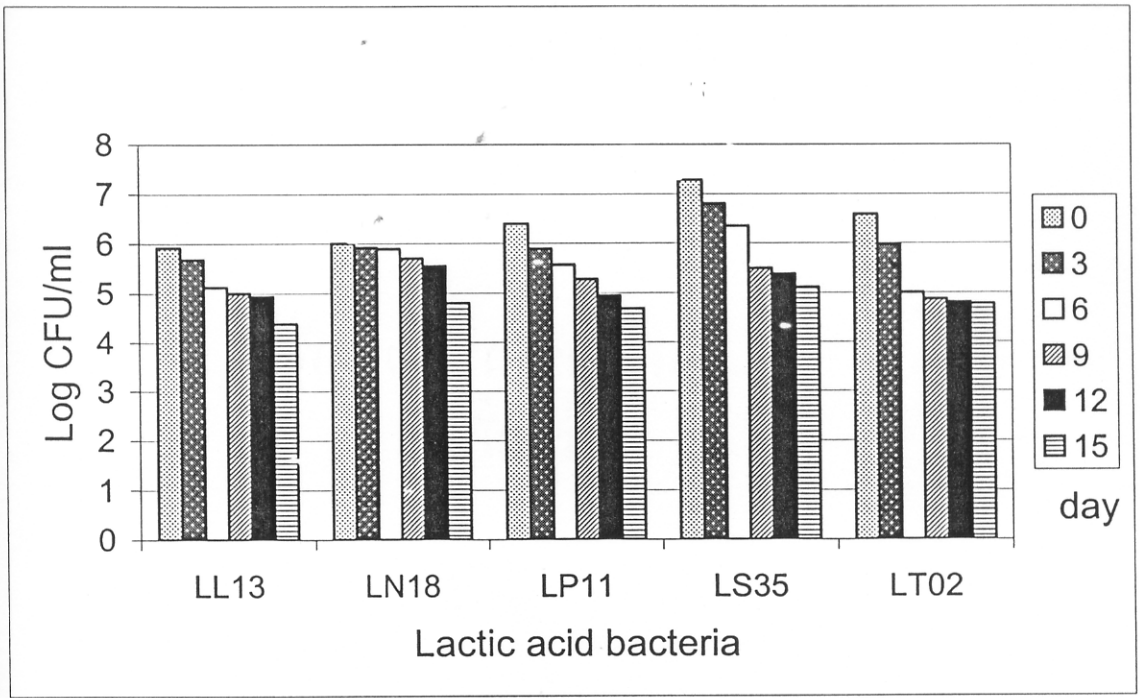


Figure 5 Effect of cold storage (4°C) on viability of lactic culture in fermented carrot juice