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APPENDICES

Table A-1 Raw data of Betalactamase activity and ESBL types in 30 strains *E.coli*

No.	Strain no.	Betalactamase activity	<i>Integrase</i> *	ESBL types*			
				TEM	SHV	VEB	CTX-M
1.	U1	+	+	-	-	+	+
2.	U3	+	+	+	-	-	-
3.	U5	+	+	-	-	+	-
4.	U6	+	+	+	-	-	-
5.	U8	+	+	+	-	-	+
6.	U10	+	+	+	+	-	-
7.	U16	+	+	+	-	-	+
8.	U19	+	+	+	-	-	+
9.	U21	+	+	+	-	-	+
10.	U25	+	+	+	-	-	-
11.	U34	+	+	+	-	-	+
12.	U38	+	+	+	-	-	+
13.	U43	+	+	+	-	-	-
14.	U51	+	+	+	-	-	+
15.	U56	+	+	+	-	-	+
16.	U59	+	+	-	-	-	+
17.	B3	+	+	+	-	-	+
18.	B6	+	+	-	-	-	-
19.	B9	+	-	-	-	-	-
20.	B12	+	+	+	-	-	+
21.	B23	+	+	+	-	-	+
22.	B25	+	+	+	-	-	+
23.	B27	+	+	+	+	-	+
24.	P2	+	+	-	-	-	+
25.	P5	+	+	+	-	-	-
26.	P7	+	+	+	-	-	+
27.	P12	+	+	+	-	-	+
28.	P17	+	+	+	-	-	+
29.	P18	+	+	+	-	-	+
30.	P23	+	+	-	-	-	-

* *Integrase* gene and ESBL types were detected by PCR method (Taipobsakul, 2005)

Table A-2 Raw data of sensitivity of alcoholic extract of *T.citna* ROXB. against 30 strains *E.coli*

No.	<i>E.coli</i> strain no.	Concentration of alcoholic extract of <i>T.citrina</i> ROXB.		
		0.02 mg/disk	0.05 mg/disk	0.1 mg/disk
		Inhibition zone (mm.)	Inhibition zone (mm.)	Inhibition zone (mm.)
1.	U1	NZ	NZ	7.13
2.	U3	NZ	NZ	9.14
3.	U5	NZ	NZ	8.14
4.	U6	NZ	NZ	7.99
5.	U8	NZ	NZ	7.56
6.	U10	NZ	NZ	8.35
7.	U16	NZ	NZ	7.30
8.	U19	NZ	NZ	10.01
9.	U21	NZ	NZ	8.03
10.	U25	NZ	NZ	8.68
11.	U34	NZ	NZ	9.27
12.	U38	NZ	NZ	9.66
13.	U43	NZ	NZ	8.75
14.	U51	NZ	NZ	8.31
15.	U56	NZ	NZ	8.45
16.	U59	NZ	NZ	8.34
17.	B3	NZ	NZ	7.86
18.	B6	NZ	NZ	8.41
19.	B9	NZ	NZ	9.55
20.	B12	NZ	NZ	9.75
21.	B23	NZ	NZ	9.95
22.	B25	NZ	NZ	8.06
23.	B27	NZ	NZ	8.29
24.	P2	NZ	NZ	7.31
25.	P5	NZ	NZ	7.48
26.	P7	NZ	NZ	9.10
27.	P12	NZ	NZ	7.62
28.	P17	NZ	NZ	9.25
29.	P18	NZ	NZ	9.48
30.	P23	NZ	NZ	8.84

NZ = no inhibition zone

Table A-3 Raw data of Minimum inhibitory concentration (MIC) of alcoholic extract of *T.citna* ROXB.in 30 strains of *E.coli* by agar dilution method.

No.	Strain no.	MIC (mg/ml)
1.	U1	10
2.	U3	10
3.	U5	10
4.	U6	10
5.	U8	10
6.	U10	10
7.	U16	10
8.	U19	10
9.	U21	10
10.	U25	10
11.	U34	10
12.	U38	10
13.	U43	10
14.	U51	10
15.	U56	10
16.	U59	10
17.	B3	10
18.	B6	10
19.	B9	10
20.	B12	10
21.	B23	10
22.	B25	10
23.	B27	10
24.	P2	10
25.	P5	10
26.	P7	10
27.	P12	10
28.	P17	10
29.	P18	10
30.	P23	10

Table A-4 Raw data of susceptibility testing by disk diffusion method and by agar dilution method.

No.	<i>E.colli</i> strains No.	Ampicillin				Amoxicillin/clavulanic acid		Imipenem		Norfloxacin			
		Disk diffusion method		Agar dilution method		Disk diffusion method		Disk diffusion method		Disk diffusion method		Agar dilution method	
		Zone diameter (mm)	Interpretion	MICs (µg/ml)	Interpretion	Zone diameter (mm)	Interpretion	Zone diameter (mm)	Interpretion	Zone diameter (mm)	Interpretion	MICs (µg/ml)	Interpretion
1.	U1	NZ	R	>256	R	16.16	I	27.12	S	-	R	64	R
2.	U3	NZ	R	>256	R	8.03	R	29.76	S	24.53	S	0.25	S
3.	U5	NZ	R	256	R	15.37	I	29.30	S	37.11	S	0.06	S
4.	U6	NZ	R	>256	R	NZ	R	27.03	S	26.47	S	0.25	S
5.	U8	NZ	R	>256	R	10.97	R	30.45	S	-	R	32	R
6.	U10	NZ	R	>256	R	8.46	R	28.54	S	-	R	32	R
7.	U16	NZ	R	>256	R	15.13	I	30.25	S	-	R	32	R
8.	U19	NZ	R	>256	R	14.15	I	27.53	S	-	R	32	R
9.	U21	NZ	R	>256	R	11.51	R	27.71	S	-	R	0.03	S
10.	U25	NZ	R	>256	R	10.88	R	28.09	S	-	R	64	R
11.	U34	NZ	R	>256	R	11.54	R	27.18	S	-	R	64	R
12.	U38	NZ	R	>256	R	10.91	R	28.86	S	-	R	32	R
13.	U43	NZ	R	>256	R	9.78	R	27.43	S	-	R	32	R
14.	U51	NZ	R	>256	R	17.38	I	28.17	S	-	R	32	R
15.	U56	NZ	R	>256	R	12.55	R	28.64	S	-	R	32	R

R = resistant, I = intermediate, S = susceptible, NZ = no inhibition zone

Table A-4 (continue) Raw data of susceptibility testing by disk diffusion method and by agar dilution method.

No.	<i>E.colli</i> strains No.	Ampicillin				Amoxicillin/clavulanic acid		Imipenem		Norfloxacin			
		Disk diffusion method		Agar dilution method		Disk diffusion method		Disk diffusion method		Disk diffusion method		Agar dilution method	
		Zone diameter (mm)	Interpretion	MICs ($\mu\text{g/ml}$)	Interpretion	Zone diameter (mm)	Interpretion	Zone diameter (mm)	Interpretion	Zone diameter (mm)	Interpretion	MICs ($\mu\text{g/ml}$)	Interpretion
16.	U59	NZ	R	256	R	22.04	S	30.76	S	32.95	S	0.125	S
17.	B3	NZ	R	>256	R	16.56	I	27.40	S	25.61	S	1	S
18.	B6	NZ	R	>256	R	10.76	R	28.61	S	25.69	S	0.5	S
19.	B9	NZ	R	>256	R	18.71	S	29.34	S	25.76	S	1	S
20.	B12	NZ	R	>256	R	15.86	I	27.67	S	-	R	32	R
21.	B23	NZ	R	>256	R	20.37	S	26.56	S	-	R	64	R
22.	B25	NZ	R	>256	R	21.54	S	30.56	S	-	R	64	R
23.	B27	NZ	R	>256	R	12.26	R	28.17	S	17.75	S	2	S
24.	P2	NZ	R	>256	R	14.77	I	29.13	S	13.23	I	32	R
25.	P5	NZ	R	>256	R	13.64	R	23.49	S	26.87	S	0.125	S
26.	P7	NZ	R	>256	R	10.37	R	30.39	S	27.25	S	0.125	S
27.	P12	NZ	R	>256	R	14.95	I	27.60	S	-	R	64	R
28.	P17	NZ	R	>256	R	12.29	R	26.97	S	-	R	32	R
29.	P18	NZ	R	>256	R	11.47	R	26.62	S	-	R	64	R
30.	P23	NZ	R	>256	R	16.92	I	26.73	S	35.90	S	0.06	S

R = resistant, I = intermediate, S = susceptible, NZ = no inhibition zone

Table A-5 Log viable cell counts at time point in 18 strains of *E.coli*

Strain no.	Antimicrobial agents	Log viable count (log CFU/ml) at time point					
		1	2	4	6	8	24
U1	control	5.97	6.11	8.17	9.13	9.90	13.84
	extract (1/2 MIC)	5.81	5.86	6.87	8.27	9.26	10.00
	extract (1MIC)	5.77	5.72	5.87	6.06	6.10	8.69
	norfloxacin (1/2MIC)	5.81	6.05	6.98	8.11	8.97	10.01
	extract (1/2 MIC) + norfloxacin (1/2MIC)	5.84	5.60	5.19	5.40	5.21	5.19
	extract (1MIC) + norfloxacin (1/2MIC)	5.77	5.54	5.31	5.15	5.01	4.87
U16	control	6.04	6.20	10.07	12.29	13.34	15.09
	extract (1/2 MIC)	6.01	6.19	7.29	10.17	11.16	14.09
	extract (1MIC)	6.03	6.08	4.96	6.01	6.13	6.28
	norfloxacin (1/2MIC)	5.97	5.20	4.43	3.51	1.69	1.69
	extract (1/2 MIC) + norfloxacin (1/2MIC)	5.97	4.35	2.69	1.69	1.69	1.69
	extract (1MIC) + norfloxacin (1/2MIC)	6.00	1.69	1.69	1.69	1.69	1.69
U19	control	6.19	6.21	8.90	11.11	12.13	14.19
	extract (1/2 MIC)	6.10	6.19	7.36	10.35	11.29	13.46
	extract (1MIC)	6.04	5.96	5.92	5.91	5.38	5.97
	norfloxacin (1/2MIC)	6.02	5.82	5.19	3.09	2.69	1.69
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.07	5.92	4.24	1.69	1.69	1.69
	extract (1MIC) + norfloxacin (1/2MIC)	5.97	5.16	1.69	1.69	1.69	1.69
U25	control	6.05	6.26	10.27	11.08	11.54	13.90
	extract (1/2 MIC)	6.01	6.07	8.24	10.23	11.27	12.20
	extract (1MIC)	5.98	5.81	6.06	6.16	8.10	11.25
	norfloxacin (1/2MIC)	6.03	6.11	7.13	8.21	8.07	10.95
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.06	6.02	5.98	5.44	5.27	5.16
	extract (1MIC) + norfloxacin (1/2MIC)	6.07	5.94	5.81	5.24	5.19	4.92
U34	control	6.30	6.72	10.95	11.87	13.69	15.14
	extract (1/2 MIC)	6.17	6.25	8.06	10.16	12.13	13.30
	extract (1MIC)	6.14	6.07	6.24	7.90	10.30	12.16
	norfloxacin (1/2MIC)	6.27	6.10	6.13	7.08	9.14	11.20
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.27	6.19	6.10	5.29	5.24	5.11
	extract (1MIC) + norfloxacin (1/2MIC)	6.17	6.03	5.87	5.24	5.17	4.14
B23	control	6.16	6.19	10.25	11.21	12.16	13.25
	extract (1/2 MIC)	6.06	6.16	9.19	10.20	11.29	13.16
	extract (1MIC)	6.07	6.16	6.11	6.29	6.87	10.11
	norfloxacin (1/2MIC)	6.11	6.10	6.18	6.23	7.24	10.41
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.07	5.29	5.24	5.20	5.11	5.02
	extract (1MIC) + norfloxacin (1/2MIC)	6.09	5.08	4.97	4.79	4.24	3.47

Table A-5 (continue) Log viable cell counts at time point in 18 strains of *E.coli*

Strain no.	Antimicrobial agents	Log viable count (log CFU/ml) at time point					
		1	2	4	6	8	24
B25	control	6.09	6.25	9.86	10.21	11.09	14.24
	extract (1/2 MIC)	6.06	6.19	8.25	9.32	10.17	13.38
	extract (1MIC)	6.05	5.98	5.69	6.19	6.29	8.32
	norfloxacin (1/2MIC)	5.98	6.00	6.31	7.13	8.29	10.09
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.07	6.09	6.01	5.97	5.81	5.19
	extract (1MIC) + norfloxacin (1/2MIC)	6.08	5.98	5.95	5.32	5.20	4.95
P2	control	6.10	6.27	9.77	11.23	12.27	13.65
	extract (1/2 MIC)	6.08	6.26	8.25	8.92	10.25	12.77
	extract (1MIC)	6.05	6.20	6.33	7.25	8.29	10.20
	norfloxacin (1/2MIC)	6.07	6.03	5.27	5.14	4.95	4.77
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.09	6.07	5.97	5.69	5.32	5.13
	extract (1MIC) + norfloxacin (1/2MIC)	6.07	5.90	5.25	5.14	4.95	4.84
P12	control	6.13	6.90	10.14	12.38	13.36	14.19
	extract (1/2 MIC)	6.11	6.25	8.81	11.92	12.32	13.30
	extract (1MIC)	6.09	6.14	6.25	7.95	10.16	12.46
	norfloxacin (1/2MIC)	6.10	6.02	6.23	7.25	8.81	10.14
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.13	7.17	6.19	6.07	6.06	5.36
	extract (1MIC) + norfloxacin (1/2MIC)	6.17	6.04	5.19	5.14	4.95	4.06
P17	control	6.13	7.20	8.81	10.17	12.27	14.42
	extract (1/2 MIC)	6.07	6.27	8.34	9.34	11.17	13.14
	extract (1MIC)	6.09	6.04	6.20	7.38	10.27	12.30
	norfloxacin (1/2MIC)	6.06	5.14	6.25	7.25	8.09	10.81
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.07	5.90	5.33	5.31	5.24	5.14
	extract (1MIC) + norfloxacin (1/2MIC)	6.09	5.87	5.27	5.21	4.92	4.06
P18	control	6.11	7.06	9.54	10.17	13.36	14.42
	extract (1/2 MIC)	6.06	7.07	8.34	9.38	11.27	12.35
	extract (1MIC)	6.07	5.95	6.14	6.27	8.20	11.43
	norfloxacin (1/2MIC)	6.09	5.35	6.20	7.14	8.19	11.27
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.04	5.90	5.27	5.20	5.17	5.07
	extract (1MIC) + norfloxacin (1/2MIC)	6.07	5.27	5.00	4.95	4.90	3.90
U8	control	6.04	7.06	11.21	11.48	12.38	15.13
	extract (1/2 MIC)	5.90	7.07	8.81	11.27	12.35	14.42
	extract (1MIC)	5.95	6.87	7.06	7.21	8.39	13.20
	norfloxacin (1/2MIC)	5.90	7.06	10.27	11.17	12.23	13.36
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.00	5.97	5.87	5.32	5.30	5.23
	extract (1MIC) + norfloxacin (1/2MIC)	6.04	5.90	5.74	5.17	5.04	4.11

Table A-5 (continue) Log viable cell counts at time point in 18 strains of *E.coli*

Strain no.	Antimicrobial agents	Log viable count (log CFU/ml) at time point					
		1	2	4	6	8	24
U38	control	6.09	7.20	9.04	9.54	11.27	13.39
	extract (1/2 MIC)	6.07	6.90	8.14	9.38	11.17	13.27
	extract (1MIC)	6.07	6.04	6.20	6.27	8.20	11.43
	norfloxacin (1/2MIC)	6.09	6.17	7.07	8.04	8.27	11.25
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.07	6.02	5.38	5.27	5.17	5.16
	extract (1MIC) + norfloxacin (1/2MIC)	6.07	5.90	5.13	5.04	4.92	4.06
U43	control	5.87	6.17	9.60	11.24	13.14	15.84
	extract (1/2 MIC)	5.77	6.07	9.30	10.09	10.17	11.69
	extract (1MIC)	5.77	5.87	6.09	7.14	7.24	9.69
	norfloxacin (1/2MIC)	5.81	6.04	8.13	9.27	9.81	10.16
	extract (1/2 MIC) + norfloxacin (1/2MIC)	5.81	5.95	5.90	5.87	5.20	5.11
	extract (1MIC) + norfloxacin (1/2MIC)	5.81	5.74	5.60	5.47	5.17	5.02
U51	control	6.14	7.00	8.35	10.17	13.36	13.81
	extract (1/2 MIC)	6.07	6.20	7.38	9.34	13.00	13.14
	extract (1MIC)	6.09	6.11	6.27	8.34	10.27	12.30
	norfloxacin (1/2MIC)	6.00	5.95	6.23	7.32	8.27	12.24
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.00	5.95	5.38	5.27	5.25	5.24
	extract (1MIC) + norfloxacin (1/2MIC)	6.06	5.74	5.20	5.17	5.14	5.02
U56	control	6.09	7.07	9.20	11.24	13.60	13.90
	extract (1/2 MIC)	6.00	7.00	7.92	9.19	10.19	12.90
	Extract (1MIC)	6.08	5.90	6.39	7.14	8.25	12.14
	norfloxacin (1/2MIC)	6.08	5.95	6.04	6.14	6.30	10.20
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.06	6.00	5.77	6.09	5.81	5.19
	extract (1MIC) + norfloxacin (1/2MIC)	6.00	5.79	5.32	5.26	4.87	3.65
B12	control	5.95	7.16	11.13	11.69	13.47	14.00
	extract (1/2 MIC)	5.95	6.24	10.20	11.09	11.97	13.69
	extract (1MIC)	5.95	6.09	6.20	6.84	7.17	10.19
	norfloxacin (1/2MIC)	5.95	6.20	6.60	6.87	7.07	10.09
	extract (1/2 MIC) + norfloxacin (1/2MIC)	5.95	6.07	6.06	5.97	5.84	5.65
	extract (1MIC) + norfloxacin (1/2MIC)	5.92	6.04	5.87	5.74	5.11	4.90
U10	control	6.11	7.16	9.25	12.92	13.65	14.07
	extract (1/2 MIC)	6.07	6.27	8.35	10.17	12.09	12.60
	extract (1MIC)	6.02	6.11	6.27	7.25	9.35	9.60
	norfloxacin (1/2MIC)	6.07	6.14	6.35	8.13	9.04	9.27
	extract (1/2 MIC) + norfloxacin (1/2MIC)	6.06	6.04	4.90	5.23	5.30	5.35
	extract (1MIC) + norfloxacin (1/2MIC)	6.06	6.00	5.95	5.27	5.11	4.38

Table A-6 Log change viable counts at times point and kinetic parameters in 18 strains of *E.coli*

Strain no.	Antimicrobial agents	viable log change					AUBKC ₀₋₂₄	Bacteriolytic Area
		$\Delta 2$	$\Delta 4$	$\Delta 6$	$\Delta 8$	$\Delta 24$		
U1	control	0.14	2.20	3.16	3.93	7.87	252.61	-
	extract (1/2 MIC)	0.05	1.01	2.46	3.45	4.19	211.15	41.46
	extract (1MIC)	-0.05	0.10	0.29	0.33	2.92	165.49	87.12
	norfloxacin (1/2MIC)	0.24	1.17	2.30	3.16	4.20	208.90	43.71
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.24	-0.65	-0.44	-0.63	-0.65	126.63	125.98
	extract (1MIC) + norfloxacin (1/2MIC)	-0.23	-0.47	-0.62	-0.76	-0.90	121.80	130.81
U16	control	0.16	4.03	6.25	7.30	9.05	303.94	-
	extract (1/2 MIC)	0.18	1.28	4.16	5.15	8.08	266.47	37.47
	extract (1MIC)	0.05	-1.07	-0.02	0.10	0.25	145.54	158.4
	norfloxacin (1/2MIC)	-0.77	-1.54	-2.46	-4.28	-4.28	60.98	242.96
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-1.62	-3.28	-4.28	-4.28	-4.28	52.16	251.78
	extract (1MIC) + norfloxacin (1/2MIC)	-4.31	-4.31	-4.31	-4.31	-4.31	44.87	259.07
U19	control	0.04	2.73	4.94	5.96	8.02	281.30	-
	extract (1/2 MIC)	0.09	1.26	4.25	5.19	7.36	263.19	18.11
	extract (1MIC)	-0.08	-0.12	-0.13	-0.66	-0.07	137.80	143.5
	norfloxacin (1/2MIC)	-0.20	-0.83	-2.93	-3.33	-4.33	71.95	209.35
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.15	-1.83	-4.38	-4.38	-4.38	58.20	223.10
	extract (1MIC) + norfloxacin (1/2MIC)	-0.81	-4.28	-4.28	-4.28	-4.28	51.78	229.52

Table A-6 (continue) Log change viable counts at times point and kinetic parameters in 18 strains of *E.coli*

Strain no.	Antimicrobial agents	viable log change					AUBKC ₀₋₂₄	Bacteriolytic Area
		$\Delta 2$	$\Delta 4$	$\Delta 6$	$\Delta 8$	$\Delta 24$		
U25	control	0.21	4.22	5.03	5.49	7.85	276.33	-
	extract (1/2 MIC)	0.06	2.23	4.22	5.26	6.19	254.12	22.21
	extract (1MIC)	-0.11	0.08	0.18	2.21	5.27	205.75	70.58
	norfloxacin (1/2MIC)	0.08	1.02	2.18	2.04	4.92	209.16	67.17
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.04	-0.08	-0.62	-0.79	-0.90	129.65	146.68
	extract (1MIC) + norfloxacin (1/2MIC)	-0.13	-0.26	-0.83	-0.88	-1.15	126.09	150.24
U34	control	0.42	4.65	5.57	7.39	8.84	309.71	-
	extract (1/2 MIC)	0.08	1.89	3.99	5.96	7.13	270.68	39.03
	extract (1MIC)	-0.07	0.10	1.76	4.16	6.02	236.54	73.17
	norfloxacin (1/2MIC)	-0.17	-0.14	0.81	2.87	4.93	216.75	92.96
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.08	-0.09	-0.98	-1.03	-1.16	129.47	180.24
	extract (1MIC) + norfloxacin (1/2MIC)	-0.14	-0.30	-0.93	-1.00	-2.03	120.10	189.61
B23	control	0.03	4.09	5.05	6.00	7.09	266.65	-
	extract (1/2 MIC)	0.10	3.13	4.14	5.23	7.10	264.05	2.60
	extract (1MIC)	0.09	0.04	0.22	0.80	4.04	185.90	80.75
	norfloxacin (1/2MIC)	-0.01	0.07	0.12	1.13	4.30	191.57	75.08
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.78	-0.83	-0.87	-0.96	-1.05	123.68	142.97
	extract (1MIC) + norfloxacin (1/2MIC)	-1.01	-1.12	-1.30	-1.85	-2.62	101.69	164.96

Table A-6 (continue) Log change viable counts at times point and kinetic parameters in 18 strains of *E.coli*

Strain no.	Antimicrobial agents	viable log change					AUBKC 0-24	Bacteriolytic Area
		$\Delta 2$	$\Delta 4$	$\Delta 6$	$\Delta 8$	$\Delta 24$		
B25	control	0.16	3.77	4.12	5.03	8.12	272.46	-
	extract (1/2 MIC)	0.13	2.19	3.26	4.11	7.32	252.15	20.31
	extract (1MIC)	-0.07	-0.36	0.14	0.24	2.27	164.94	101.71
	norfloxacin (1/2MIC)	0.02	0.33	1.15	2.31	4.11	200.19	66.46
	extract (1/2 MIC) + norfloxacin (1/2MIC)	0.02	-0.06	-0.10	-0.26	-0.88	136.02	130.63
	extract (1MIC) + norfloxacin (1/2MIC)	-0.10	-0.13	-0.76	-0.88	-1.13	126.98	139.67
P2	control	0.17	3.67	5.13	6.17	7.55	279.82	-
	extract (1/2 MIC)	0.18	2.17	2.84	4.17	6.69	247.35	32.47
	extract (1MIC)	0.15	0.28	1.20	2.24	4.15	201.82	78.00
	norfloxacin (1/2MIC)	-0.04	-0.80	-0.93	-1.12	-1.30	121.66	158.16
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.02	-0.12	-0.40	-0.77	-0.96	130.47	149.35
	extract (1MIC) + norfloxacin (1/2MIC)	-0.17	-0.82	-0.93	-1.12	-1.23	121.92	157.90
P12	control	0.77	4.01	6.25	7.23	8.06	298.73	-
	extract (1/2 MIC)	0.14	2.70	5.81	6.21	7.19	277.35	21.38
	extract (1MIC)	-0.05	0.16	1.86	4.07	6.37	237.89	60.84
	norfloxacin (1/2MIC)	-0.11	0.13	1.15	2.71	4.04	205.51	93.22
	extract (1/2 MIC) + norfloxacin (1/2MIC)	1.04	0.06	-0.06	-0.07	-0.77	142.41	156.32
	extract (1MIC) + norfloxacin (1/2MIC)	-0.13	-0.98	-1.03	-1.22	-2.11	115.94	182.79

Table A-6 (continue) Log change viable counts at times point and kinetic parameters in 18 strains of *E.coli*

Strain no.	Antimicrobial agents	viable log change					AUBKC ₀₋₂₄	Bacteriolytic Area
		$\Delta 2$	$\Delta 4$	$\Delta 6$	$\Delta 8$	$\Delta 24$		
P17	control	1.07	2.68	4.04	6.14	8.29	284.28	-
	extract (1/2 MIC)	0.20	2.27	3.27	5.10	7.07	259.62	24.66
	extract (1MIC)	-0.05	0.11	1.29	4.18	2.03	236.16	48.12
	norfloxacin (1/2MIC)	-0.92	0.19	1.19	6.21	4.75	202.63	81.65
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.17	-0.74	-0.76	-0.83	-0.93	127.43	156.85
	extract (1MIC) + norfloxacin (1/2MIC)	-0.22	-0.82	-0.88	-1.17	-2.03	115.55	168.73
P18	control	0.95	3.43	4.06	7.25	8.31	295.25	-
	extract (1/2 MIC)	1.01	2.28	3.32	5.21	6.29	255.87	39.38
	extract (1MIC)	-0.12	-0.3	0.10	2.13	5.36	208.03	87.22
	norfloxacin (1/2MIC)	-0.74	0.11	1.05	2.10	5.18	207.34	87.91
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.14	-0.77	-0.84	-0.87	-0.97	125.87	169.38
	extract (1MIC) + norfloxacin (1/2MIC)	-0.80	-1.07	-1.12	-1.17	-2.17	111.81	183.44
U8	control	1.02	5.17	5.44	6.34	9.09	298.00	-
	extract (1/2 MIC)	1.17	2.91	5.37	6.45	8.52	286.71	11.29
	extract (1MIC)	0.92	1.11	1.26	2.44	7.25	229.34	68.66
	norfloxacin (1/2MIC)	1.16	4.37	5.27	6.33	7.46	279.85	18.15
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.03	-0.13	-0.68	-0.70	-0.77	129.86	168.14
	extract (1MIC) + norfloxacin (1/2MIC)	-0.14	-0.30	-0.87	-1.00	-1.93	117.90	180.10

Table A-6 (continue) Log change viable counts at times point and kinetic parameters in 18 strains of *E.coli*

Strain no.	Antimicrobial agents	viable log change					AUBKC 0-24	Bacteriolytic Area
		$\Delta 2$	$\Delta 4$	$\Delta 6$	$\Delta 8$	$\Delta 24$		
U38	control	1.11	2.95	3.45	5.18	7.30	266.20	-
	extract (1/2 MIC)	0.83	2.07	3.31	5.10	7.20	261.60	4.60
	extract (1MIC)	-0.03	0.13	0.20	2.13	5.36	208.33	57.82
	norfloxacin (1/2MIC)	0.08	0.98	1.95	2.18	5.16	213.28	52.42
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.05	-0.69	-0.80	-0.90	-0.91	127.22	138.98
	extract (1MIC) + norfloxacin (1/2MIC)	-0.17	-0.94	-1.03	-1.15	-2.01	114.97	151.23
U43	control	0.3	3.83	5.37	7.27	9.97	304.87	-
	extract (1/2 MIC)	0.3	3.43	4.32	4.40	5.92	241.74	63.13
	extract (1MIC)	0.1	0.32	1.37	1.47	3.92	186.65	118.22
	norfloxacin (1/2MIC)	0.23	2.32	3.46	4.00	4.35	222.26	82.61
	extract (1/2 MIC) + norfloxacin (1/2MIC)	0.14	0.09	0.06	-0.61	-0.70	128.93	175.94
	extract (1MIC) + norfloxacin (1/2MIC)	-0.07	-0.21	-0.34	-0.64	-0.79	126.12	178.75
U51	control	0.86	2.21	4.03	7.22	7.67	287.90	-
	extract (1/2 MIC)	0.13	1.31	3.27	6.93	7.07	274.03	13.87
	extract (1MIC)	0.02	0.18	2.25	4.18	6.21	238.36	49.54
	norfloxacin (1/2MIC)	-0.05	0.23	1.32	2.27	6.24	217.35	70.55
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.05	-0.62	-0.73	-0.75	-0.76	128.37	159.53
	extract (1MIC) + norfloxacin (1/2MIC)	-0.32	-0.86	-0.89	-0.92	-1.04	124.70	163.20

Table A-6 (continue) Log change viable counts at times point and kinetic parameters in 18 strains of *E.coli*

Strain no.	Antimicrobial agents	viable log change					AUBKC ₀₋₂₄	Bacteriolytic Area
		$\Delta 2$	$\Delta 4$	$\Delta 6$	$\Delta 8$	$\Delta 24$		
U56	control	0.98	3.11	5.15	7.51	7.81	294.71	-
	extract (1/2 MIC)	1.00	1.92	3.19	4.19	6.90	249.13	45.58
	extract (1MIC)	-0.18	0.31	1.06	2.17	6.06	216.31	78.40
	norfloxacin (1/2MIC)	-0.13	-0.04	0.06	0.22	4.12	180.64	114.07
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.06	-0.29	0.03	-0.25	-0.87	135.59	159.12
	extract (1MIC) + norfloxacin (1/2MIC)	-0.21	-0.68	-0.74	-1.13	-2.35	111.77	182.94
B12	control	1.21	5.18	5.74	7.52	8.05	299.14	-
	extract (1/2 MIC)	0.29	4.25	5.14	6.02	7.74	278.26	20.88
	extract (1MIC)	0.14	0.25	0.89	1.22	4.24	190.26	108.88
	norfloxacin (1/2MIC)	0.25	0.65	0.92	1.12	4.14	189.64	109.50
	extract (1/2 MIC) + norfloxacin (1/2MIC)	0.12	0.11	0.02	-0.11	-0.30	139.91	159.23
	extract (1MIC) + norfloxacin (1/2MIC)	0.12	-0.05	-0.18	-0.81	-1.02	126.41	172.73
U10	control	1.05	3.14	6.81	7.54	7.96	300.18	-
	extract (1/2 MIC)	0.20	2.28	4.10	6.02	6.53	265.26	34.92
	extract (1MIC)	0.09	0.25	1.23	3.33	3.58	206.23	93.95
	norfloxacin (1/2MIC)	0.07	0.28	2.06	2.97	3.20	202.83	97.35
	extract (1/2 MIC) + norfloxacin (1/2MIC)	-0.02	-1.16	-0.83	-0.76	-0.71	128.90	171.28
	extract (1MIC) + norfloxacin (1/2MIC)	-0.06	-0.11	-0.79	-0.95	-1.68	121.53	178.65

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
	Ampicillin								

Figure A-1 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U1 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
	Ampicillin								

Figure A-2 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U3 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
	Ampicillin								

Figure A-3 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U5 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T.citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-4 The indifference result (checkerboard) of alcoholic extract of *T.citrina* plus ampicillin against *E.coli* strain no.U6 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T.citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-5 The indifference result (checkerboard) of alcoholic extract of *T.citrina* plus ampicillin against *E.coli* strain no.U8 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T.citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-6 The indifference result (checkerboard) of alcoholic extract of *T.citrina* plus ampicillin against *E.coli* strain no.U10 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-7 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U16 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-8 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U19 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-9 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U21 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-10 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U25 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-11 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U34 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-12 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U38 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
Ampicillin									

Figure A-13 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U43 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
Ampicillin									

Figure A-14 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U51 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
Ampicillin									

Figure A-15 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U56 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-16 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.U59 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-17 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.B3 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-18 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.B6 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
	Ampicillin								

Figure A-19 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.B9 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
	Ampicillin								

Figure A-20 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.B12 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
	Ampicillin								

Figure A-21 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.B23 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T.citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-22 The indifference result (checkerboard) of alcoholic extract of *T.citrina* plus ampicillin against *E.coli* strain no.B25 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T.citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-23 The indifference result (checkerboard) of alcoholic extract of *T.citrina* plus ampicillin against *E.coli* strain no.B27 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T.citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512

Ampicillin

Figure A-24 The indifference result (checkerboard) of alcoholic extract of *T.citrina* plus ampicillin against *E.coli* strain no.P2 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
Ampicillin									

Figure A-25 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.P5 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
Ampicillin									

Figure A-26 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.P7 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
Ampicillin									

Figure A-27 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.P12 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
Ampicillin									

Figure A-28 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.P17 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
Ampicillin									

Figure A-29 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.P18 Shadow zone : visible microorganism growth, white zone : no microorganism growth

↑ Extract of <i>T. citrina</i>	40	40/4	40/8	40/16	40/32	40/64	40/128	40/256	40/512
	20	20/4	20/8	20/16	20/32	20/64	20/128	20/256	20/512
	10	10/4	10/8	10/16	10/32	10/64	10/128	10/256	10/512
	5	5/4	5/8	5/16	5/32	5/64	5/128	5/256	5/512
	2.5	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256	2.5/512
	1.25	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256	1.25/512
	0.625	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256	0.625/512
	0.3125	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256	0.3125/512
	0	4	8	16	32	64	128	256	512
Ampicillin									

Figure A-30 The indifference result (checkerboard) of alcoholic extract of *T. citrina* plus ampicillin against *E. coli* strain no.P23 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128

Norfloxacin

Figure A-31 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U1 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128

Norfloxacin

Figure A-32 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U16 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128

Norfloxacin

Figure A-33 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U19 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/2	40/4	40/8	40/16	40/32	40/64	40/128	40/256
	20	20/2	20/4	20/8	20/16	20/32	20/64	20/128	20/256
	10	10/2	10/4	10/8	10/16	10/32	10/64	10/128	10/256
	5	5/2	5/4	5/8	5/16	5/32	5/64	5/128	5/256
	2.5	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256
	1.25	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256
	0.625	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256
	0.3125	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256
	0	2	4	8	16	32	64	128	256
	Norfloxacin								

Figure A-34 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U25 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/2	40/4	40/8	40/16	40/32	40/64	40/128	40/256
	20	20/2	20/4	20/8	20/16	20/32	20/64	20/128	20/256
	10	10/2	10/4	10/8	10/16	10/32	10/64	10/128	10/256
	5	5/2	5/4	5/8	5/16	5/32	5/64	5/128	5/256
	2.5	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256
	1.25	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256
	0.625	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256
	0.3125	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256
	0	2	4	8	16	32	64	128	256
	Norfloxacin								

Figure A-35 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U34 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/2	40/4	40/8	40/16	40/32	40/64	40/128	40/256
	20	20/2	20/4	20/8	20/16	20/32	20/64	20/128	20/256
	10	10/2	10/4	10/8	10/16	10/32	10/64	10/128	10/256
	5	5/2	5/4	5/8	5/16	5/32	5/64	5/128	5/256
	2.5	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256
	1.25	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256
	0.625	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256
	0.3125	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256
	0	2	4	8	16	32	64	128	256
	Norfloxacin								

Figure A-36 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. B23 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/2	40/4	40/8	40/16	40/32	40/64	40/128	40/256
	20	20/2	20/4	20/8	20/16	20/32	20/64	20/128	20/256
	10	10/2	10/4	10/8	10/16	10/32	10/64	10/128	10/256
	5	5/2	5/4	5/8	5/16	5/32	5/64	5/128	5/256
	2.5	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256
	1.25	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256
	0.625	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256
	0.3125	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256
	0	2	4	8	16	32	64	128	256

Norfloxacin

Figure A-37 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. B25 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128

Norfloxacin

Figure A-38 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. P2 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/2	40/4	40/8	40/16	40/32	40/64	40/128	40/256
	20	20/2	20/4	20/8	20/16	20/32	20/64	20/128	20/256
	10	10/2	10/4	10/8	10/16	10/32	10/64	10/128	10/256
	5	5/2	5/4	5/8	5/16	5/32	5/64	5/128	5/256
	2.5	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256
	1.25	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256
	0.625	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256
	0.3125	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256
	0	2	4	8	16	32	64	128	256

Norfloxacin

Figure A-39 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. P12 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128
	Norfloxacin								

Figure A-40 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. P17 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/2	40/4	40/8	40/16	40/32	40/64	40/128	40/256
	20	20/2	20/4	20/8	20/16	20/32	20/64	20/128	20/256
	10	10/2	10/4	10/8	10/16	10/32	10/64	10/128	10/256
	5	5/2	5/4	5/8	5/16	5/32	5/64	5/128	5/256
	2.5	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128	2.5/256
	1.25	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128	1.25/256
	0.625	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128	0.625/256
	0.3125	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128	0.3125/256
	0	2	4	8	16	32	64	128	256
	Norfloxacin								

Figure A-41 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. P18 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128
	Norfloxacin								

Figure A-42 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U8 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128
	Norfloxacin								

Figure A-43 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U38 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128
	Norfloxacin								

Figure A-44 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U43 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128
	Norfloxacin								

Figure A-45 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U51 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128
	Norfloxacin								

Figure A-46 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U56 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128
	Norfloxacin								

Figure A-47 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. B12 Shadow zone : visible microorganism growth, white zone : no microorganism growth

Extract of <i>T. citrina</i>	40	40/1	40/2	40/4	40/8	40/16	40/32	40/64	40/128
	20	20/1	20/2	20/4	20/8	20/16	20/32	20/64	20/128
	10	10/1	10/2	10/4	10/8	10/16	10/32	10/64	10/128
	5	5/1	5/2	5/4	5/8	5/16	5/32	5/64	5/128
	2.5	2.5/1	2.5/2	2.5/4	2.5/8	2.5/16	2.5/32	2.5/64	2.5/128
	1.25	1.25/1	1.25/2	1.25/4	1.25/8	1.25/16	1.25/32	1.25/64	1.25/128
	0.625	0.625/1	0.625/2	0.625/4	0.625/8	0.625/16	0.625/32	0.625/64	0.625/128
	0.3125	0.3125/1	0.3125/2	0.3125/4	0.3125/8	0.3125/16	0.3125/32	0.3125/64	0.3125/128
	0	1	2	4	8	16	32	64	128
	Norfloxacin								

Figure A-48 The synergism result (checkerboard) of alcoholic extract of *T. citrina* plus norfloxacin against *E. coli* strain no. U10 Shadow zone : visible microorganism growth, white zone : no microorganism growth

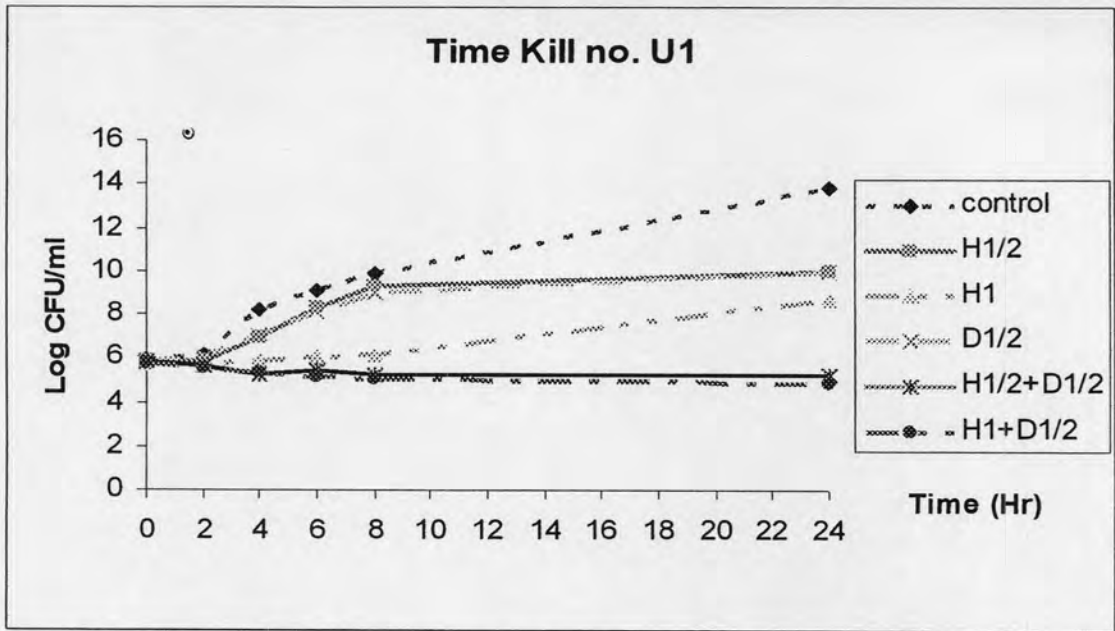


Figure A -49 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U1

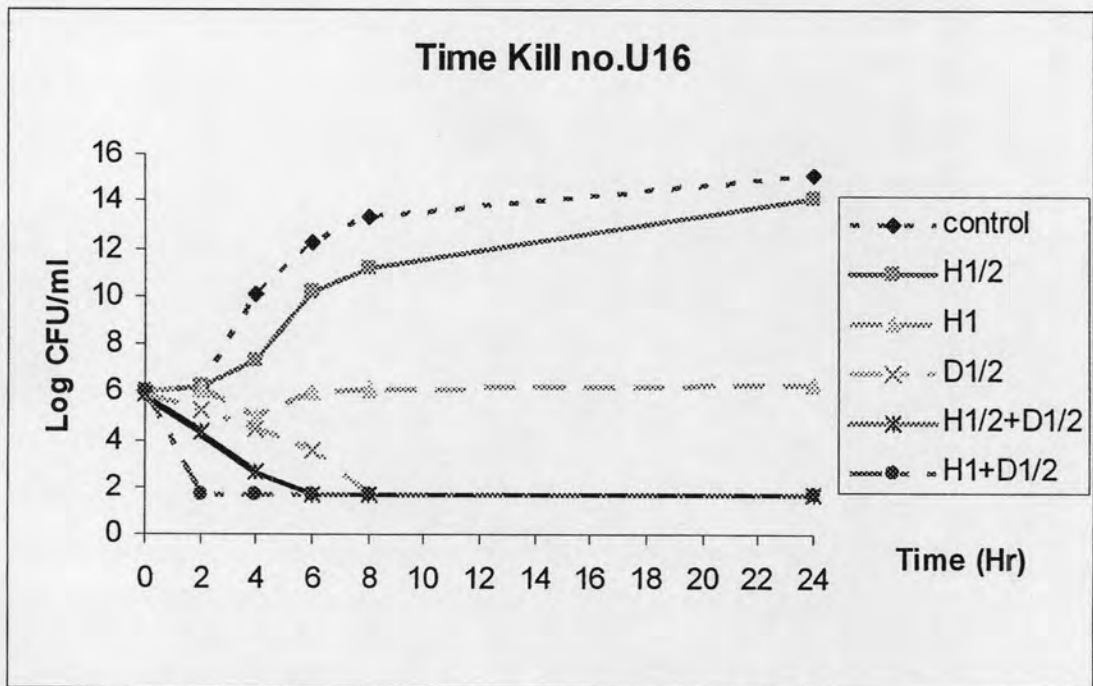


Figure A-50 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U16

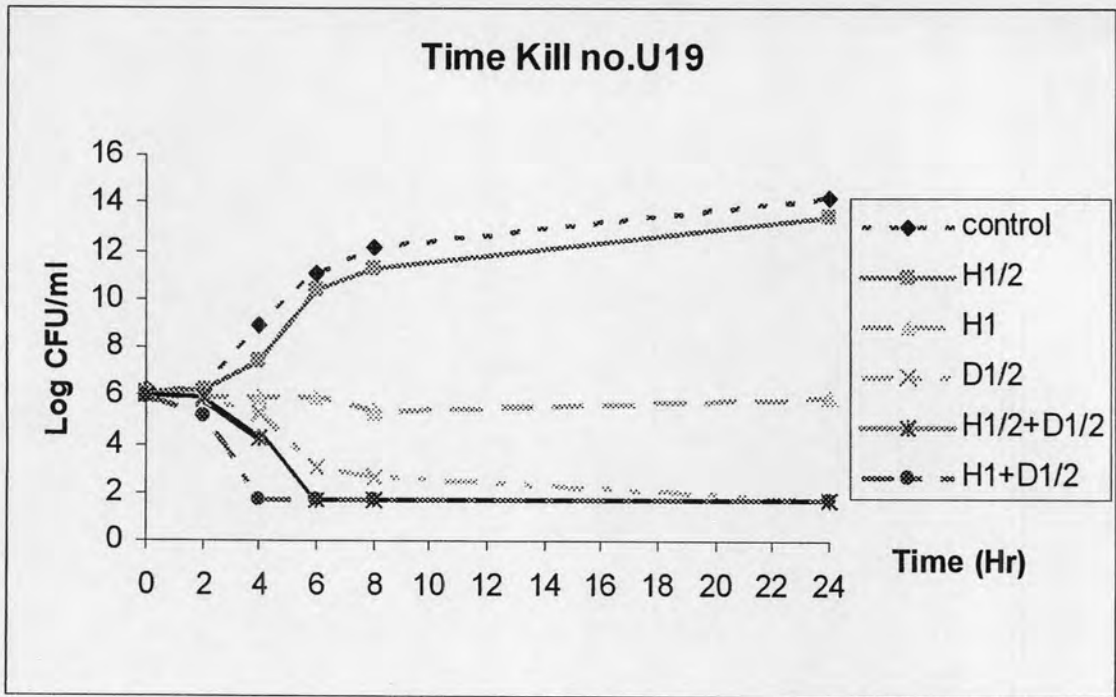


Figure A-51 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U19

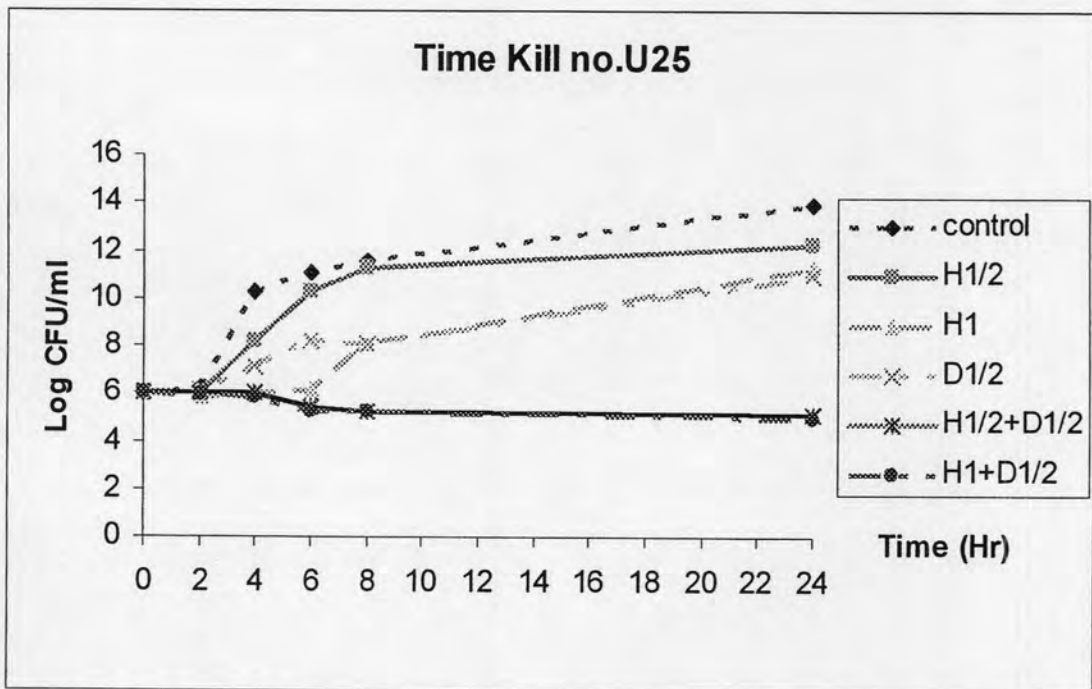


Figure A -52 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U25

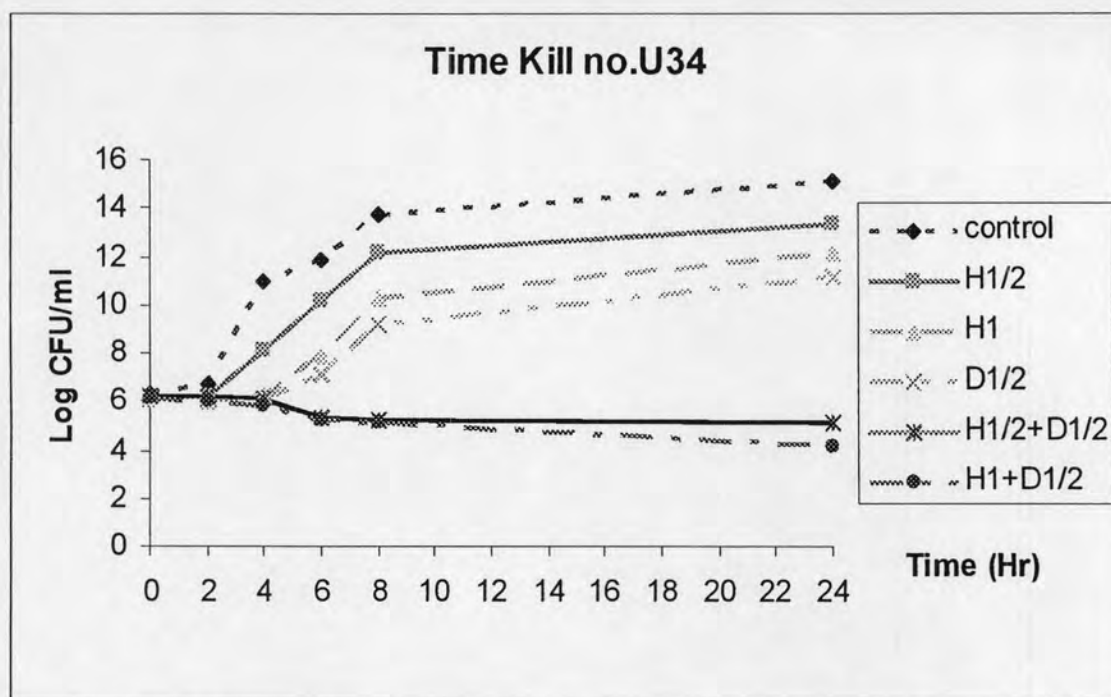


Figure A-53 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U34

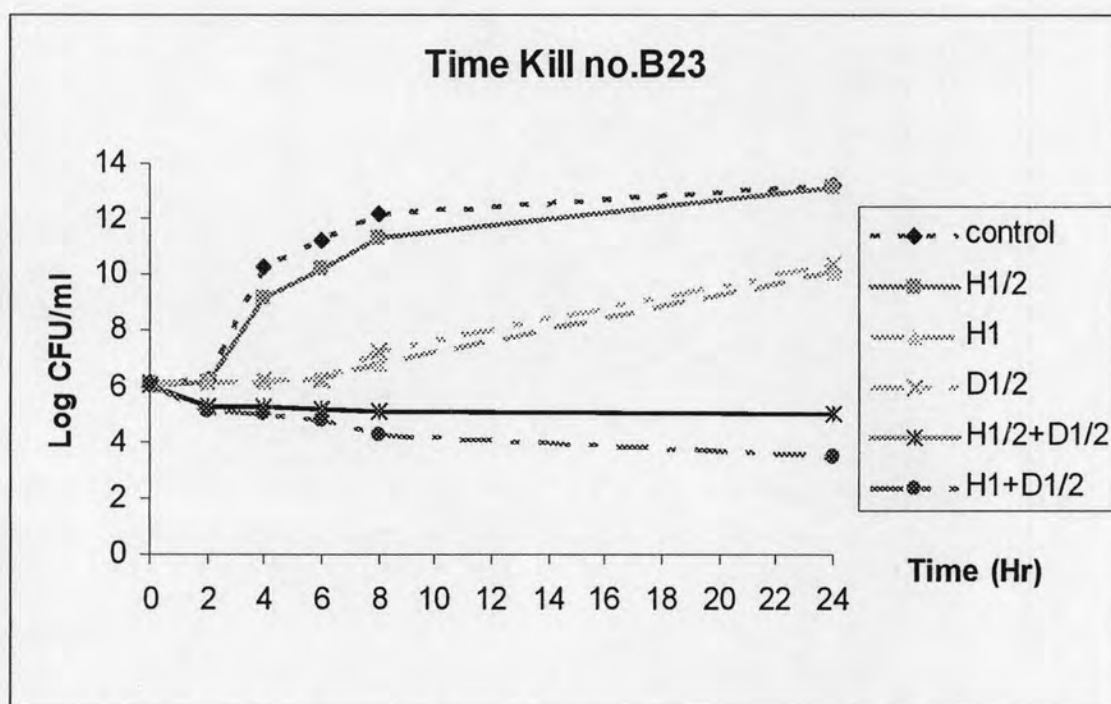


Figure A-54 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. B23

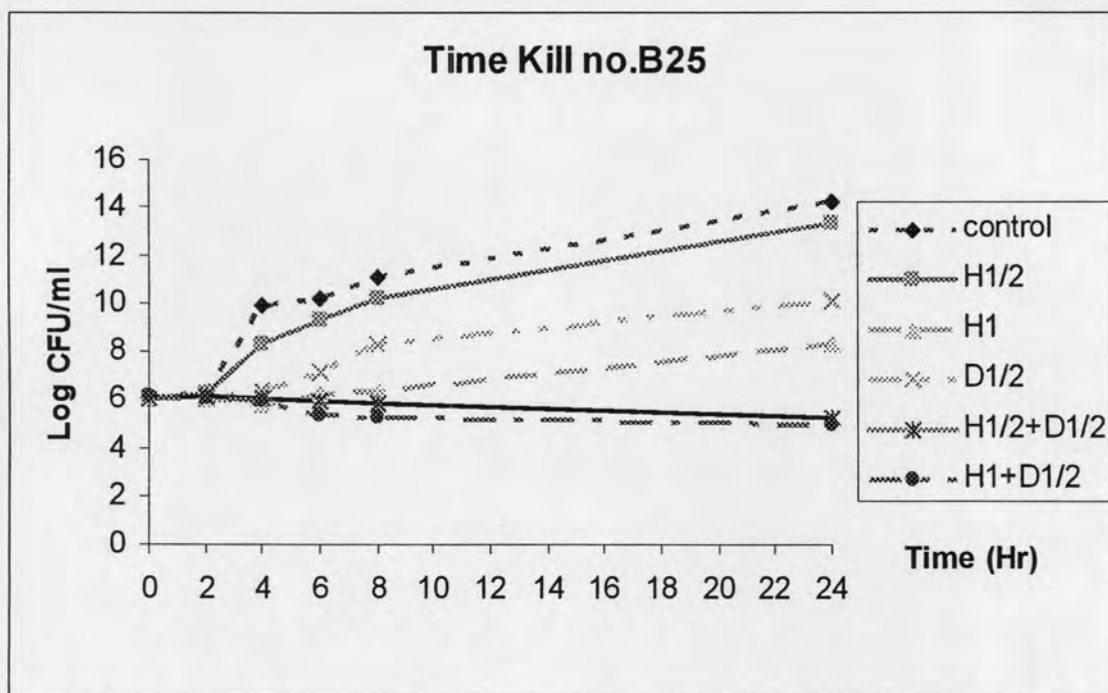


Figure A-55 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. B25

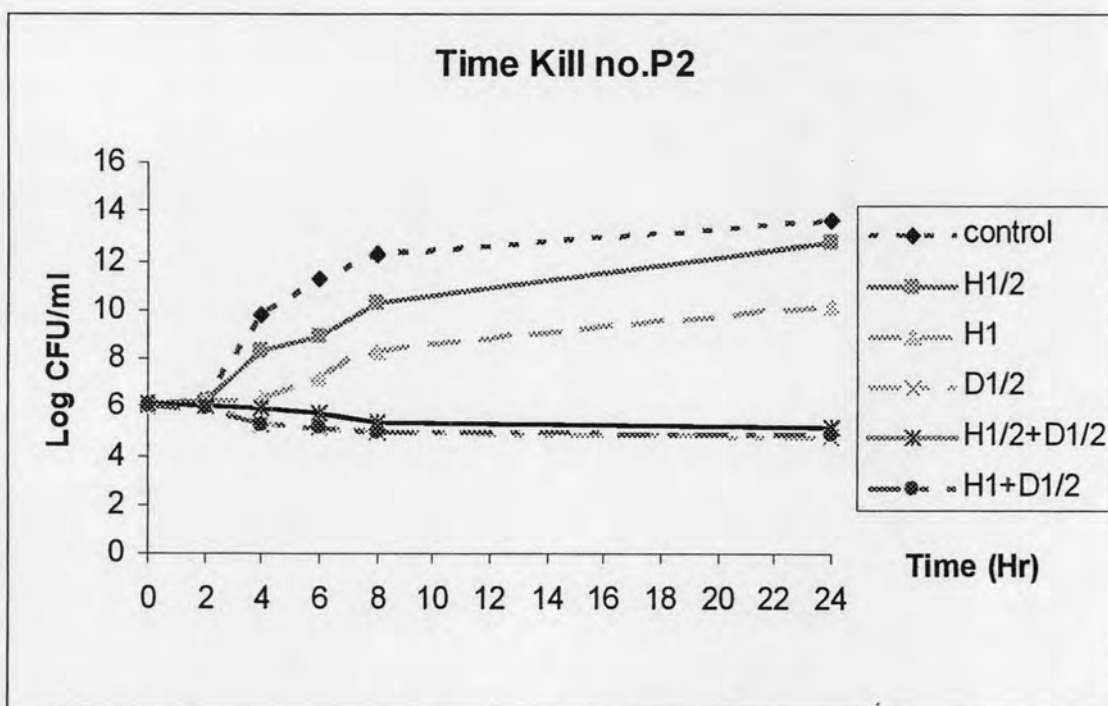


Figure A-56 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. P2

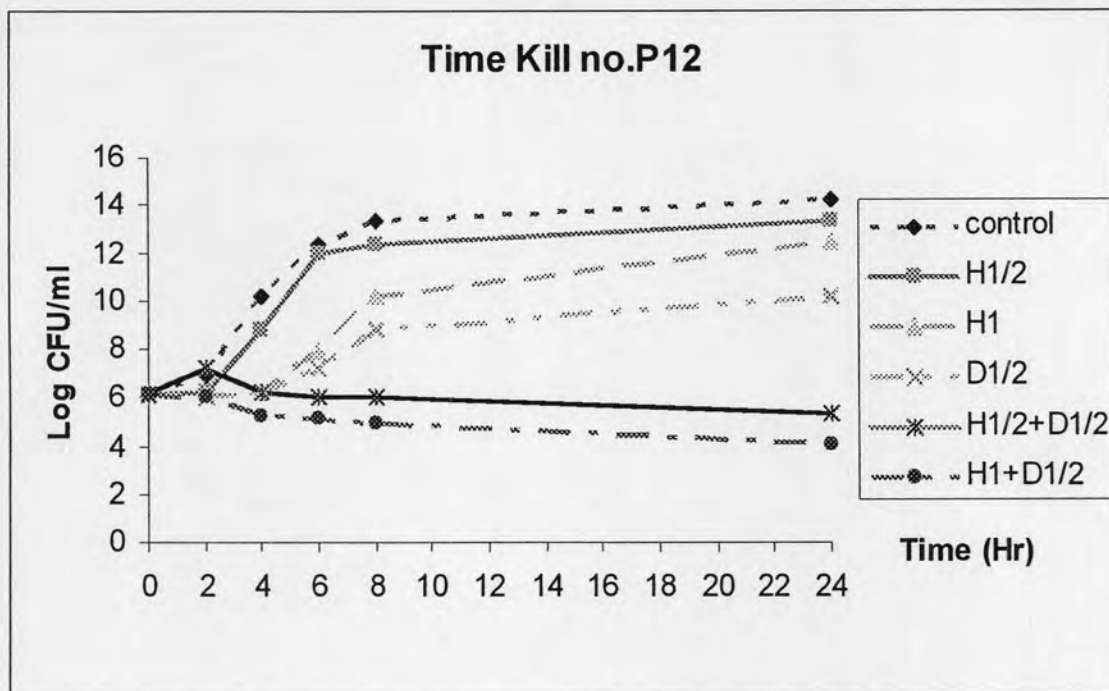


Figure A-57 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. P12

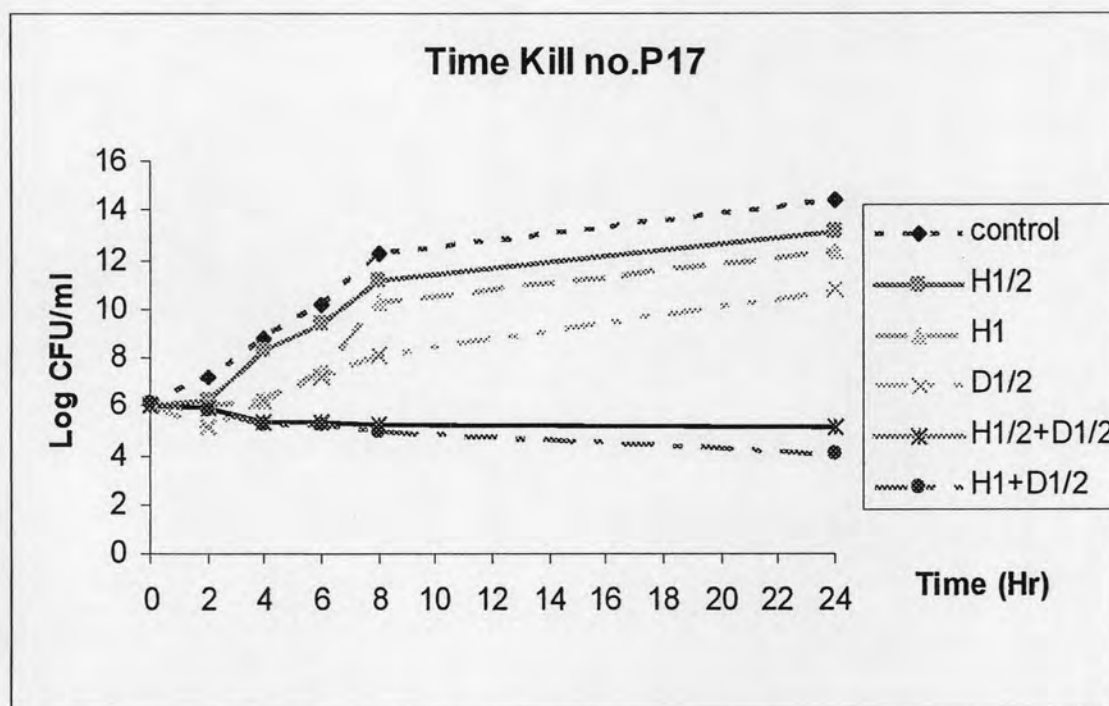


Figure A-58 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. P17

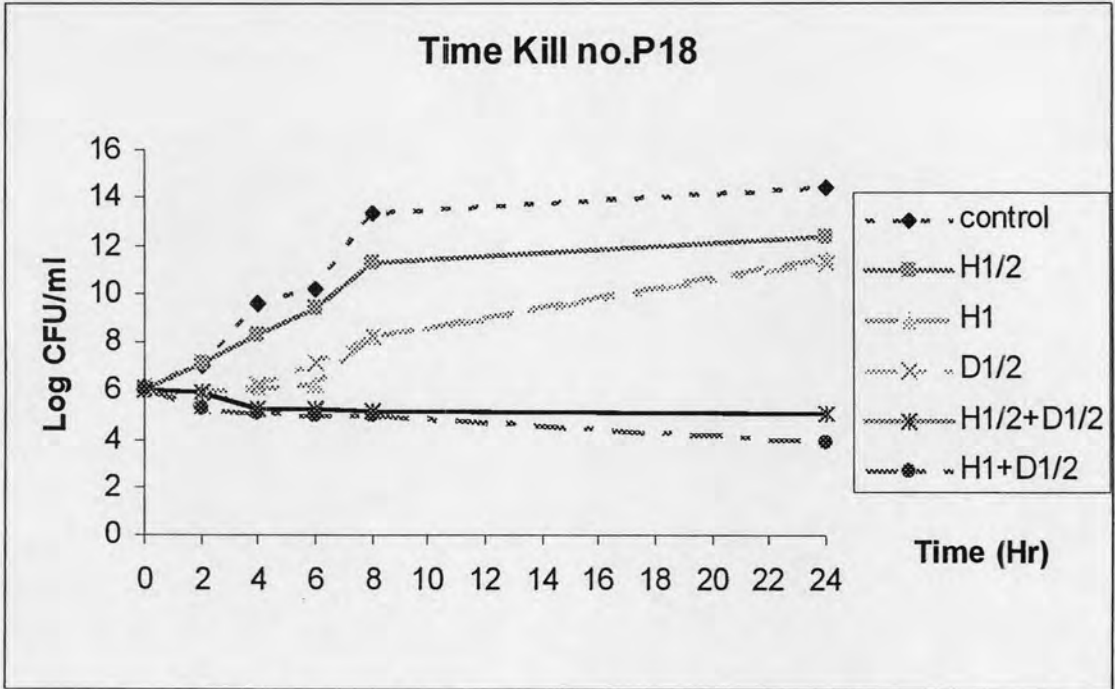


Figure A-59 Time kill curves showing the antibacterial activity of the combination of Norfloxacin 1/2 MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1/2 MIC and Norfloxacin 1/2 MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. P18

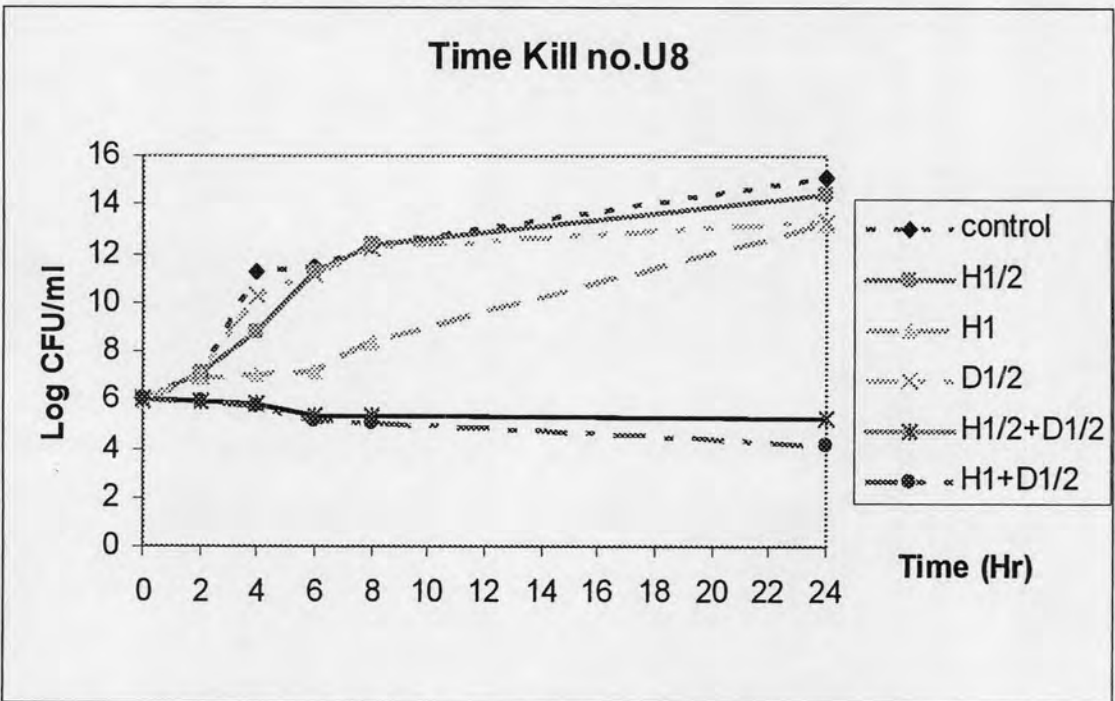


Figure A -60 Time kill curves showing the antibacterial activity of the combination of Norfloxacin 1/2 MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1/2 MIC and Norfloxacin 1/2 MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U8

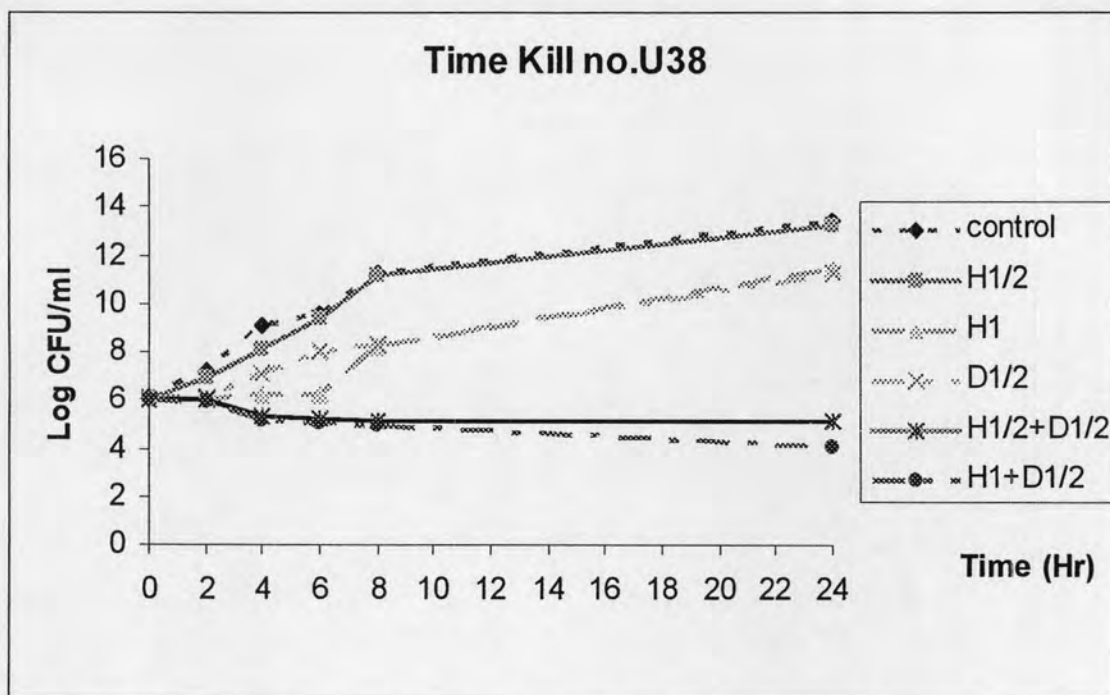


Figure A-61 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U38

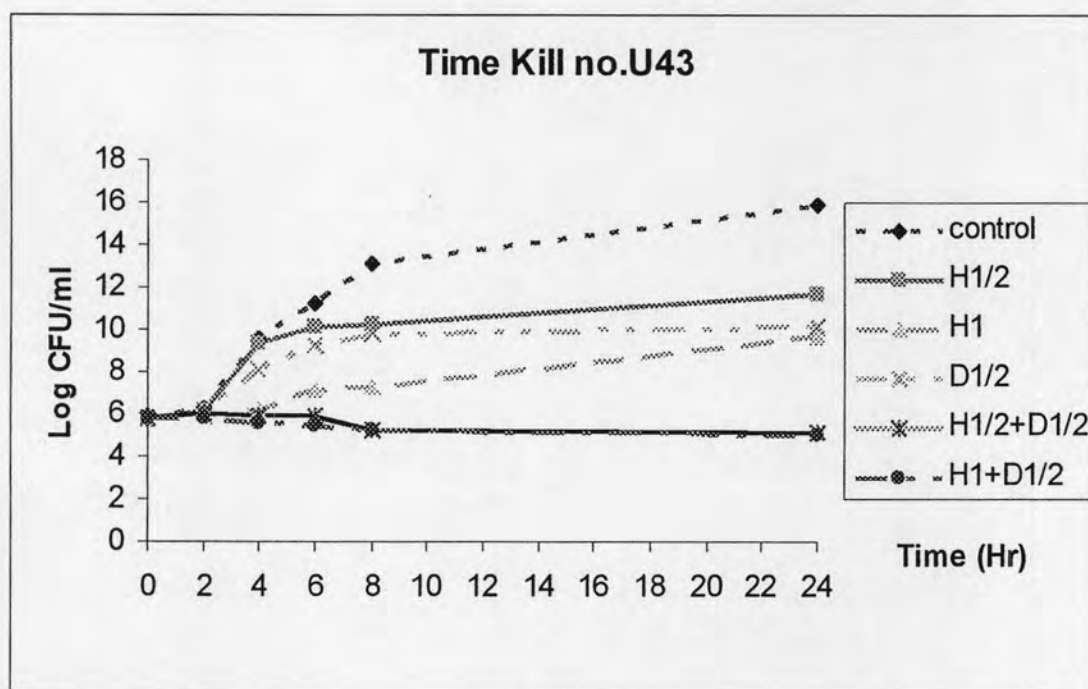


Figure A -62 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U43

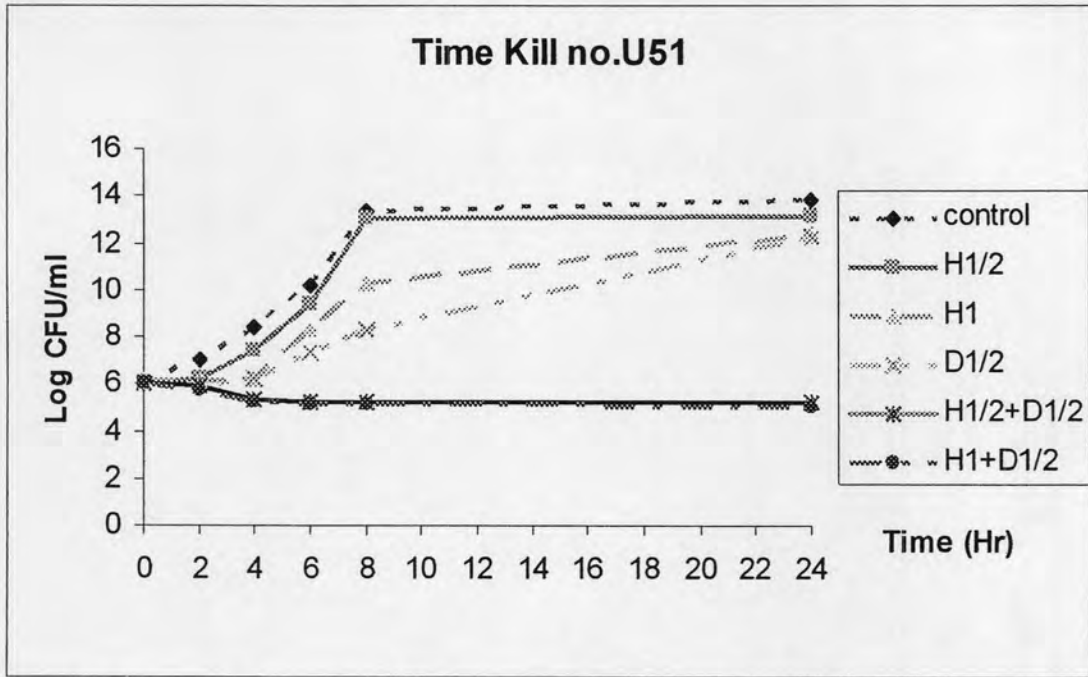


Figure A-63 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U51

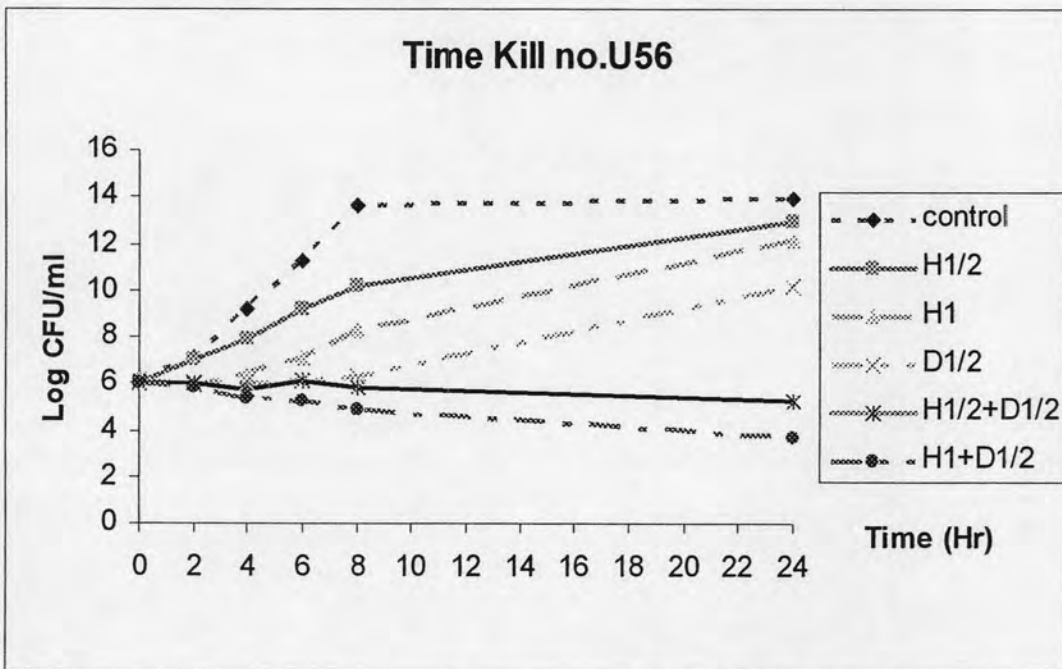


Figure A-64 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U56

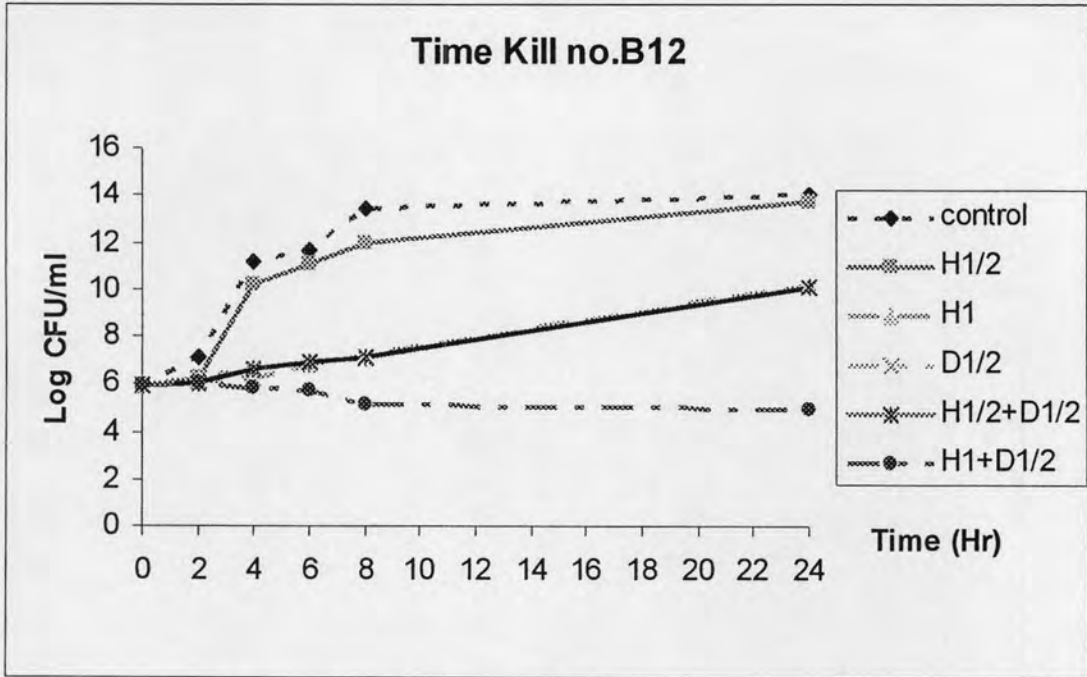


Figure A -65 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. B12

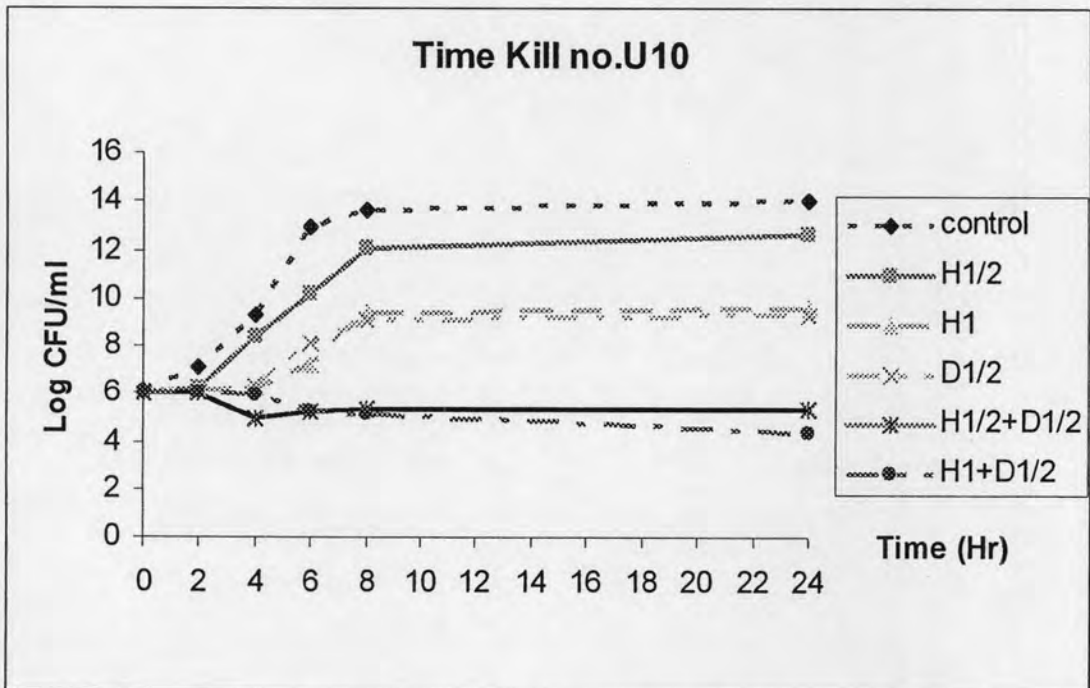


Figure A -66 Time kill curves showing the antibacterial activity of the combination of Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. $\frac{1}{2}$ MIC and Norfloxacin $\frac{1}{2}$ MIC plus Alcoholic extract of *Terminalia citrina* ROXB. 1 MIC against *E.coli* strain no. U10

Table A-7 Medicinal Plants Studied. Their Families, common name, Part used

Scientific name	Family	Common name	Part used
<i>Vitex negundo</i> L.	Labiatae	Chinese chaste	Whole plant
<i>Psidium guajava</i> Linn.	Myrtaceae	Guava	Leaf
<i>Ocimum sanctum</i> Linn.	Labiatae	Holy basil (red)	Leaf
<i>Ocimum sanctum</i> Linn.	Labiatae	Holy basil (white)	Leaf
<i>Spilanthes acmella</i> (Linn.)	Compositae	Pak-khrad-hua-van	Leaf
<i>Impatiens balsamina</i> Linn.	Balsaminaceae	Garden balsam	Whole plant
<i>Hopea odorata</i> Roxb.	Dipterocarpaceae	Iron wood	Bark
<i>Terminalia citrina</i> ROXB.	Combretaceae	Sa-moa-dee-ngoo	Fruit
<i>Terminalia bellirica</i> ROXB.	Combretaceae	Beleric myrobalan	Fruit
<i>Terminalia Chebula</i> Retz.	Combretaceae	Myrabolan wood	Fruit
<i>Garcinia mangostana</i> Linn.	Guttiferae	Mangosteen	Bark
<i>Punica granatum</i> Linn.	Punicaceae	Pomegranate	Bark
<i>Schleichera oleosa</i> (Lour.)	Sapindaceae	Kusum	Bark
<i>Cinnamomum bejolghota</i> (Ham.) Sweet.	Lauraceae	Cinnamon	Bark
<i>Shorea roxburghii</i> G.Don.	Dipterocarpaceae	Shorea white meranti	Bark
<i>Azelia xylocarpa</i> Roxb.	Leguminosae	Makhaa mong	Bark
<i>Quercus infectoria</i> Olivier	Fagaceae	Nut gall	Fruit
<i>Myristica fragrans</i> Houtt.	Myristicaceae	Nutmeg tree	Flower
<i>Phyllanthus emblica</i> Linn.	Euphorbiaceae.	Emblic myrabolan	Fruit
<i>Spondias cytherea</i> Sonn.	Anacardiaceae.	Hog plum	Leaf
<i>Houttuynia corcata</i> Thuhb.	Saururaceae.	Chameleon plant	Leaf
<i>Curcuma longa</i> Linn.	Zingiberaceae	Turmeric	Root
<i>Acorus calamus</i> Linn.	Araceae.	Sweet flag	Root
<i>Artocarpus lakoocha</i> Roxb.	Moraceae.	Chiness box tree	Bark

Table A- 8 Inhibition zone of extracts from 11 medicinal plants at concentration 0.02 and 0.05 mg/disk in 30 strains of *E.coli*

Scientific name	Plant used*	Solvent *	Strain no. / inhibition zone (mm.)														
			U1	U3	U5	U6	U8	U10	U16	U19	U21	U25	U34	U38	U43	U51	U56
<i>Psidium guajava</i> Linn.	L	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Ocimum sanctum</i> Linn.	L	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Ocimum sanctum</i> Linn.	L	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Hopea odorata</i> Roxb.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Terminalia citrina</i> ROXB.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Terminalia citrina</i> ROXB.	Fr	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Schleichera oleosa</i> Lour.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Punica granatum</i> Linn.	P	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Cinnamomum bejolghota</i> (Ham.) Sweet.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Shorea roxburghii</i> G.Don.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Azelia xylocarpa</i> Roxb.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ

L = leaf, Br = bark, Fr = fruit, P = peel
W = water extract, E = alcoholic extract
NZ = No Zone

Table A-8 (continue) Inhibition zone of extracts from 11 medicinal plants at concentration 0.02 and 0.05 mg/disk in 30 strains of *E.coli*

Scientific name	Plant used*	Solvent *	Strain no. / inhibition zone (mm.)														
			U59	B3	B6	B9	B12	B23	B25	B27	P2	P5	P7	P12	P17	P18	P23
<i>Psidium guajava</i> Linn.	L	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Ocimum sanctum</i> Linn.	L	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Ocimum sanctum</i> Linn.	L	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Hopea odorata</i> Roxb.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Terminalia citrina</i> ROXB.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Terminalia citrina</i> ROXB.	Fr	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Schleichera oleosa</i> Lour.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Punica granatum</i> Linn.	P	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Cinnamomum bejolghota</i> (Ham.) Sweet.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Shorea roxburghii</i> G.Don.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Azelia xylocarpa</i> Roxb.	Br	w	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
		E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ

*L = leaf, Br = bark, Fr = fruit, P = peel
W = water extract, E = alcoholic extract
NZ = No Zone

Table A-9 Inhibition zone of extracts from 9 medicinal plants at concentration 0.1 mg/disk in 6 strains of *E.coli*

Scientific name	Plant used*	Solvent*	Strain no. / inhibition zone (mm.)					
			U3	U16	U34	U59	B23	P7
<i>Curcuma longa</i> Linn.	R	E	NZ	NZ	NZ	NZ	NZ	NZ
<i>Acorus calamus</i> Linn.	R	W	NZ	NZ	NZ	NZ	NZ	NZ
<i>Terminalia bellirica</i> ROXB.	Fr	E	9.82	9.11	10.44	10.74	10.14	9.40
		W	6.54	7.12	6.71	6.82	6.52	6.42
<i>Terminalia Chebula</i> Retz.	Fr	E	NZ	NZ	NZ	NZ	NZ	NZ
		W	NZ	NZ	NZ	NZ	NZ	NZ
<i>Artocarpus lakoocha</i> Roxb.	Br	E	NZ	NZ	NZ	NZ	NZ	NZ
		W	NZ	NZ	NZ	NZ	NZ	NZ
<i>Spondias cytherea</i> Sonn.	L	E	NZ	NZ	NZ	NZ	NZ	NZ
		W	NZ	NZ	NZ	NZ	NZ	NZ
<i>Spilanthes acmella</i> (Linn.)	L	E	NZ	NZ	NZ	NZ	NZ	NZ
<i>Houttuynia corcata</i> Thuhb.	L	E	NZ	NZ	NZ	NZ	NZ	NZ
		W	NZ	NZ	NZ	NZ	NZ	NZ
<i>Impatiens balsamina</i> Linn.	WP	E	NZ	NZ	NZ	NZ	NZ	NZ
<i>Vitex negundo</i> L.	WP	E	NZ	NZ	NZ	NZ	NZ	NZ
		W	NZ	NZ	NZ	NZ	NZ	NZ

*L = leaf, Br = bark, Fr = fruit, WP = whole plant, R = root
W = water extract, E = alcoholic extract
NZ = No Zone

Table A- 10 Inhibition zone of extracts from *Quercus infectoria* Olivier at concentration 0.05 and 0.1 mg/disk in 5 strains of *E.coli*

Scientific name	Plant used*	Solvent*	Strain no. / inhibition zone (mm.)				
			U21	U25	U43	B3	P17
<i>Quercus infectoria</i>	Fr	E	7.56	7.12	7.90	8.06	7.22

*Fr = fruit, E= alcoholic extract

Table A-11 Inhibition zone of extracts from 6 medicinal plants at concentration 0.1 mg/disk in 30 strains of *E.coli*

Scientific name	Plant used*	Solvent *	Strain no. / inhibition zone (mm.)														
			U1	U3	U5	U6	U8	U10	U16	U19	U21	U25	U34	U38	U43	U51	U56
<i>Punica granatum</i> Linn.	P	E	7.95	8.18	7.32	8.86	8.86 _⊙	7.82	7.29	9.40	7.75	8.53	8.57	9.24	8.67	7.81	7.96
<i>Terminalia citrina</i> ROXB.	Fr	E	7.13	9.14	8.14	7.99	7.56	8.35	7.30	10.01	8.03	8.68	9.27	9.66	8.75	8.31	8.45
<i>Quercus infectoria</i> Olivier	Fr	E	9.50	11.21	11.05	10.26	11.15	12.25	12.05	11.02	11.46	11.02	10.35	11.03	10.97	10.94	11.05
<i>Myristica fragrans</i> Houtt.	Fl	E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Phyllanthus emblica</i> Linn.	Fr	E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Psidium guajava</i> Linn.	L	E	NZ	7.67	7.23	7.94	7.65	7.57	7.59	8.16	8.23	8.00	7.73	8.71	8.64	7.32	7.86

*L = leaf, Fl = flower, Fr = fruit, P = peel
 E = alcoholic extract
 NZ = No Zone

Table A-11 (continue) Inhibition zone of extracts from 6 medicinal plants at concentration 0.1 mg/disk in 30 strains of *E.coli*

Scientific name	Plant used*	Solvent *	Strain no. / inhibition zone (mm.)														
			U59	B3	B6	B9	B12	B23	B25	B27	P2	P5	P7	P12	P17	P18	P23
<i>Punica granatum</i> Linn.	P	E	7.59	8.20	9.12	9.16	9.27	8.86	8.21	7.99	8.53	9.13	8.73	7.18	8.57	8.49	9.01
<i>Terminalia citrina</i> ROXB.	Fr	E	8.34	7.86	8.41	9.55	9.75	9.95	8.06	8.29	7.31	7.48	10.75	7.62	9.25	9.48	8.84
<i>Quercus infectoria</i> Olivier	Fr	E	10.28	10.25	10.10	11.25	11.27	11.94	12.77	12.43	11.48	9.38	11.04	12.30	11.48	10.45	11.85
<i>Myristica fragrans</i> Houtt.	Fl	E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Phyllanthus emblica</i> Linn.	Fr	E	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ	NZ
<i>Psidium guajava</i> Linn.	L	E	6.80	7.17	7.33	8.24	8.75	7.23	7.96	7.58	NZ	7.11	8.12	7.14	8.65	8.11	11.94

*L = leaf, Fl = flower, Fr = fruit, P = peel
 E = alcoholic extract
 NZ = No Zone

Table A-12 Minimum inhibitory concentration (MIC) of alcoholic extracts from 3 medicinal plants at concentration 5.0 mg/ml in 30 strains of *E.coli*

Strain no.	MIC (mg/ml.)		
	<i>Terminalia bellirica</i> ROXB.	<i>Punica granatum</i> Linn.	<i>Terminalia citrina</i> ROXB.
U1	20	40	10
U3	40	NZ	10
U5	40	40	10
U6	40	NZ	10
U8	40	NZ	10
U10	40	NZ	10
U16	40	NZ	10
U19	40	NZ	10
U21	40	NZ	10
U25	40	40	10
U34	40	NZ	10
U38	40	40	10
U43	40	NZ	10
U51	40	40	10
U56	40	40	10
U59	40	40	10
B3	40	NZ	10
B6	40	40	10
B9	40	NZ	10
B12	40	NZ	10
B23	40	NZ	10
B25	40	NZ	10
B27	40	40	10
P2	40	NZ	10
P5	40	40	10
P7	40	-	10
P12	40	-	10
P17	20	40	10
P18	40	-	10
P23	40	-	10

NZ = No Zone

BIOGRAPHY

My name is Juthamaneewong, I was born on October 5, 1979 at Khon-Kaen. I have graduated the bachelor degree in Microbiology from Kasetsart University since 2003. I have enrolled for the master's degree in Pharmacology (Inter-Department), Faculty of Graduate School, Chulalongkorn University since June 2004.