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APPENDICES

Table 1. Effects of Asiaticoside on MTT reduction in N1E-115

Table 1.1 : 24 hr of incubation							
Group	Control	100 mM	75 mM	50 mM	25 mM	10 mM	1 mM
1	100	100.75	110.26	104.63	102.25	111.26	109.76
2	100	88.05	97.04	97.37	99.45	98.25	97.59
3	100	85.88	92.32	94.69	96.30	96.11	99.91
4	100	88.40	89.89	89.42	91.65	99.44	109.55
5	100	93.46	92.77	90.14	93.85	111.33	108.79
6	100	99.05	100.38	105.51	100.09	107.22	95.25
Mean	100	92.60	97.11	96.96	97.27	103.94	103.48
S.E.M.	0	2.53	3.04	2.83	1.65	2.79	2.71

Table 1.2 : 48 hr of incubation							
Group	Control	100 mM	75 mM	50 mM	25 mM	10 mM	1 mM
1	100	88.97	81.50	85.98	100.37	96.07	96.64
2	100	90.33	97.43	108.61	97.43	100.91	90.03
3	100	87.80	94.50	86.60	82.30	86.84	88.04
4	100	91.98	92.48	82.96	90.98	83.21	104.01
5	100	103.39	96.35	106.25	103.13	108.33	107.55
6	100	94.58	99.29	98.59	95.52	90.58	96.11
Mean	100	92.84	93.59	94.83	94.95	94.32	97.06
S.E.M.	0	2.32	2.60	4.55	3.05	3.81	3.11

Table 2 . Effects of *C. asiatica* extract on MTT reduction in N1E-115

Group	Control	100µg/ml	75µg/ml	50µg/ml	25µg/ml	10µg/ml	1µg/ml
1	100	101.47	111.31	102.94	111.65	104.64	114.71
2	100	104.51	113.89	96.88	84.61	98.15	113.19
3	100	111.88	102.75	98.57	82.95	95.16	102.64
4	100	107.04	106.34	107.96	108.42	103.11	91.93
5	100	102.55	93.04	99.65	113.46	108.12	90.02
6	100	109.94	98.65	96.53	88.90	94.79	95.27
Mean	100	106.23	104.33	100.42	98.33	100.66	101.29
S.E.M.	0	1.69	3.20	1.78	5.84	2.22	4.38

Group	Control	100µg/ml	75µg/ml	50µg/ml	25µg/ml	10µg/ml	1µg/ml
1	100	97.93	105.17	106.46	104.39	100.00	107.24
2	100	86.76	84.25	90.18	85.39	97.03	91.78
3	100	101.79	97.70	92.09	94.13	100.00	96.68
4	100	97.10	91.06	93.24	85.51	97.58	97.58
5	100	96.24	97.24	103.26	105.01	95.74	84.46
6	100	97.12	92.64	97.47	88.95	85.62	83.08
Mean	100	96.16	94.68	97.12	93.90	96.00	93.47
S.E.M.	0	2.04	2.90	2.67	3.66	2.19	3.69

Table 3 . Effects of SNAP on MTT reduction in N1E-115

Group	Control	3 mM	2 mM	1.5 mM	1 mM	0.5 mM	0.25 mM
1	100	92.52	94.09	99.21	97.24	88.98	91.14
2	100	87.05	78.77	79.48	78.87	75.35	76.36
3	100	80.26	76.42	77.80	77.31	75.34	75.64
4	100	46.43	67.05	87.62	81.62	84.71	84.19
5	100	48.33	61.79	71.47	73.95	72.66	69.54
6	100	48.39	61.16	72.53	73.82	72.53	68.45
Mean	100	67.16	73.21	81.35	80.47	78.26	77.55
S.E.M.	0	8.84	5.13	4.28	3.57	2.81	3.56

Group	Control	3 mM	2 mM	1.5 mM	1 mM	0.5 mM	0.25 mM
1	100	56.83	69.22	71.58	70.49	75.59	74.68
2	100	48.29	60.17	58.61	62.16	63.30	74.75
3	100	48.87	59.32	58.55	61.58	63.91	74.08
4	100	30.10	52.64	74.31	95.09	105.67	99.81
5	100	12.04	33.99	46.69	60.78	60.69	80.77
6	100	11.43	33.64	44.06	60.24	59.05	79.91
Mean	100	34.59	51.50	58.96	68.39	71.37	80.63
S.E.M.	0	8.07	5.99	5.06	5.56	7.26	4.00

Group	Control	3mM	2mM	1.5mM	1mM	0.5mM	0.25mM
1	100	10.00	20.94	49.06	47.53	52.47	58.47
2	100	22.19	43.79	51.30	54.62	67.44	77.34
3	100	21.47	43.32	50.32	52.79	64.98	75.75
4	100	20.51	66.35	88.00	92.72	98.49	95.65
5	100	3.48	9.82	17.50	40.89	58.30	74.38
6	100	3.62	10.85	18.77	46.24	62.95	82.80
Mean	100	13.54	32.51	45.82	55.80	67.44	77.40
S.E.M.	0	3.64	9.14	10.60	7.65	6.58	4.99

Table 4. Effects of co-treatment with *C. asiatica* extract in SNAP-exposed N1E-115

Table 4.1 : MTT reduction assay								
Group	Control	SNAP 1 mM + <i>C. asiatica</i> extract						
		O µg/ml	1 µg/ml	10 µg/ml	25 µg/ml	50 µg/ml	75 µg/ml	100 µg/ml
1	100	57.99	55.37	50.66	63.76	76.59	82.27	81.92
2	100	51.23	54.06	50.79	59.52	85.36	84.83	84.74
3	100	53.57	51.74	59.13	64.26	72.70	87.65	77.39
4	100	48.05	49.24	49.92	62.86	68.02	75.80	81.22
5	100	49.64	53.04	59.53	62.62	69.41	75.70	84.96
6	100	52.54	55.97	57.53	64.17	68.12	78.19	82.45
Mean	100	52.17	53.24	54.59	62.87	73.37	80.74	82.11
S.E.M.	0	1.42	1.01	1.87	0.72	2.75	2.03	1.13

Table 4.2 : LDH release assay								
Group	Control	SNAP 1 mM + <i>C. asiatica</i> extract						
		O µg/ml	1 µg/ml	10 µg/ml	25 µg/ml	50 µg/ml	75 µg/ml	100 µg/ml
1	100	353.88	360.22	319.60	333.10	254.35	209.97	191.11
2	100	361.51	361.83	324.17	324.80	252.16	231.45	172.08
3	100	363.67	318.06	326.73	292.83	246.80	205.95	177.71
4	100	421.64	506.28	488.83	444.45	337.86	265.94	279.36
5	100	449.77	416.94	427.48	363.98	318.01	239.03	235.42
6	100	403.95	410.93	521.27	360.11	268.56	251.11	217.20
Mean	100	392.40	395.71	401.35	353.21	279.62	233.91	212.15
S.E.M.	0	15.86	16.32	36.93	21.09	15.77	9.50	16.65

Table 5 . Effects of co-treatment with Asiaticoside in SNAP-exposed N1E-115 on
MTT reduction assay

Table 5 : MTT reduction assay								
Group	Control	SNAP 1 mM + Asiaticoside						
		0 μ M	1 μ M	10 μ M	25 μ M	50 μ M	75 μ M	100 μ M
1	100	45.23	41.93	40.11	44.55	39.09	42.16	36.02
2	100	35.68	32.07	32.43	34.87	32.79	30.17	31.71
3	100	40.49	37.61	41.13	40.28	40.17	36.00	35.79
4	100	32.16	39.12	32.94	34.90	33.33	33.82	33.33
5	100	44.34	43.27	47.44	42.67	38.86	39.45	39.33
6	100	49.06	50.13	46.51	48.39	52.02	47.04	46.51
Mean	100	41.16	40.69	40.09	40.94	39.38	38.11	37.12
S.E.M.	0	2.59	2.47	2.62	2.20	2.83	2.48	2.16

Table 6. Effects of pre-treatment with Asiaticoside in SNAP-exposed N1E-115

Group	Control	SNAP 1 mM + Asiaticoside						
		0 μ M	1 μ M	10 μ M	25 μ M	50 μ M	75 μ M	100 μ M
1	100	30.90	29.20	31.07	39.22	34.63	40.58	39.73
2	100	25.33	29.58	29.58	30.07	26.47	32.35	31.54
3	100	25.98	29.91	31.62	33.50	28.38	38.46	32.31
4	100	72.76	81.38	58.62	81.38	81.72	78.28	79.66
5	100	75.00	82.14	75.00	78.21	93.57	87.14	76.79
6	100	70.34	92.76	67.24	73.10	81.03	78.62	76.21
Mean	100	50.05	57.50	48.86	55.91	57.64	59.24	56.04
S.E.M.	0	10.18	12.60	8.37	9.81	12.62	10.03	9.70

Group	Control	SNAP 1 mM + Asiaticoside						
		0 μ M	1 μ M	10 μ M	25 μ M	50 μ M	75 μ M	100 μ M
1	100	59.38	43.30	59.59	47.01	58.56	53.81	59.18
2	100	43.88	39.81	43.88	57.79	56.59	60.43	43.88
3	100	52.42	37.89	39.87	43.17	39.87	55.07	50.66
4	100	43.20	36.49	49.51	59.57	37.87	41.03	41.81
5	100	31.29	34.46	41.58	47.52	34.06	43.37	34.06
6	100	35.41	37.98	44.40	45.69	36.15	51.56	46.42
Mean	100	44.26	38.82	46.47	50.13	43.85	50.88	46.00
S.E.M.	0	4.25	1.23	2.94	2.78	4.42	3.00	3.46

Table 7. Effects of pre-treatment with *C. asiatica* extract in SNAP-exposed N1E-115

Table 7.1 : MTT reduction assay (24 hr incubation)								
Group	Control	SNAP 1 mM + <i>C. asiatica</i> extract						
		0 µg/ml	1 µg/ml	10 µg/ml	25 µg/ml	50 µg/ml	75 µg/ml	100 µg/ml
1	100	36.22	32.95	38.99	40.62	43.88	44.21	29.36
2	100	46.82	42.86	41.14	42.51	42.51	39.59	39.93
3	100	48.16	47.07	61.17	60.09	59.87	60.95	46.20
4	100	68.46	76.34	84.59	100.36	98.57	83.87	88.53
5	100	55.40	92.81	112.59	81.29	109.71	95.32	109.71
6	100	93.68	103.35	95.91	64.31	115.99	100.74	97.40
Mean	100	58.12	65.90	72.40	64.86	78.42	70.78	68.52
S.E.M.	0	8.34	11.84	12.30	9.38	13.69	10.72	13.88

Table 7.2 : MTT reduction assay (48 hr incubation)								
Group	Control	SNAP 1 mM + Asiaticoside						
		0 µg/ml	1 µg/ml	10 µg/ml	25 µg/ml	50 µg/ml	75 µg/ml	100 µg/ml
1	100	60.14	53.30	87.50	71.93	80.42	93.16	120.28
2	100	66.34	69.29	75.43	67.08	80.59	102.46	94.84
3	100	57.26	53.68	62.82	71.37	69.38	73.76	103.78
4	100	34.66	28.98	44.89	42.23	55.49	30.49	38.07
5	100	31.88	42.66	46.33	55.73	55.96	32.34	39.91
6	100	33.95	35.98	47.97	42.07	62.36	39.11	34.69
Mean	100	47.37	47.31	60.82	58.40	67.37	61.89	71.93
S.E.M.	0	6.33	5.90	7.21	5.66	4.64	13.09	15.74

Table 8. Effects of co-treatment with *C. asiatica* extract on the release of nitrite from SNAP-exposed N1E-115

Table 8. Griess reagent assay							
	SNAP 1 mM + <i>C. asiatica</i> extract						
Group	0µg/ml	1µg/ml	10µg/ml	25µg/ml	50µg/ml	75µg/ml	100µg/ml
1	100	106.74	104.22	99.43	107.19	108.45	94.18
2	100	113.04	114.48	105.50	113.16	116.99	114.36
3	100	110.43	114.10	114.46	110.43	101.30	103.44
4	100	99.26	104.43	97.34	102.51	103.39	99.85
5	100	106.82	105.91	107.73	103.18	105.61	108.18
6	100	101.75	97.96	93.88	102.33	95.63	102.77
Mean	100	106.34	106.85	103.06	106.47	105.23	103.80
S.E.M.	0	2.11	2.60	3.10	1.87	2.94	2.83

Table 9. Effects of co-treatment with *C. asiatica* extract on the malondialdehyde formation from SNAP-exposed N1E-115

Group	Control	SNAP 1 mM	SNAP 1 mM+ <i>C. asiatica</i> extract 100µg/ml
1	100	1.06	61.48
2	100	8.02	52.78
3	100	23.10	56.08
4	100	14.66	39.92
5	100	5.40	21.43
6	100	7.12	21.53
Mean	100	9.89	42.20
S.E.M.	0	3.20	7.17

Table 10. Effects of co-treatment with *C. asiatica* extract on the glutathione level in SNAP-exposed N1E-115

Group	Control	SNAP 1 mM	SNAP 1 mM+ <i>C. asiatica</i> extract 100 µg/ml
1	100	28.57	42.86
2	100	42.86	28.57
3	100	18.18	36.36
4	100	18.18	36.36
5	100	18.18	45.45
6	100	18.18	36.36
Mean	100	24.03	37.66
S.E.M.	0	4.13	2.42

VITAE

Miss Pitiporn Chevintulak was born on December 17, 1976, in Bangkok, Thailand. She had graduated the bachelor degree in Pharmacy from Silpakorn University since 1999. She started to work as a pharmacist in Srithep Hospital, Petchaboon for a year. Consequently, she moved to Singburi Hospital, Singburi. She has enrolled for the Master's Degree in Pharmacology at the Department of Pharmacology, Faculty of Pharmaceutical Sciences, Chulalongkorn University since June 2002.

