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APPENDICES

Appendix A Releasing Profiles of Fully Dissolved Curcumin (Low Dosage) from Chitin Sheets

Table A1 Release of curcumin (%) from 0.04 wt% curcumin-loaded chitin sheets into acetate buffer, pH5.5, as a function of incubation times (n=3)

Time	Release of curcumin (%)			Average	S.D
Minute	No.1	No.2	No.3		
0	0.00	0.00	0.00	0	0
5	9.60	4.45	2.70	5.58	3.58
10	22.50	4.19	2.70	9.80	11.02
20	22.50	17.43	6.39	15.44	8.24
30	30.42	20.68	28.35	26.48	5.12
60	30.75	25.94	28.35	28.34	2.40
180	35.79	40.99	42.87	39.88	3.67
300	35.79	40.99	42.87	39.88	3.67
420	60.76	47.28	42.87	50.30	9.32
600	60.76	49.14	53.92	54.61	5.84
720	64.73	80.31	56.43	67.16	12.12
960	89.29	80.31	56.43	75.34	16.98
1440	89.29	80.31	58.65	76.08	15.75
2880	89.29	80.31	65.82	78.47	11.84
4320	93.68	84.77	72.22	83.56	10.78
5760	95.29	99.21	77.46	90.65	11.59
7200	99.97	99.90	78.55	99.93	10.78

Appendix B Releasing Profiles of Curcumin from Chitin Sheets in case of High-Dosed Loading, in a range of 1, 5, 10, and 20 wt%, of Curcumin

Table B1 Release of curcumin (%) from 1 wt% curcumin-loaded chitin sheets into acetate buffer, pH5.5, as a function of incubation times (n=3)

Time (minutes)	Release of curcumin (%)			Average	S.D
	No.1	No.2	No.3		
0	0.00	0.00	0.00	0.00	0.00
5	1.37	5.14	3.99	3.50	1.93
10	31.55	12.84	23.91	22.77	9.41
20	31.55	17.55	23.91	24.34	7.01
30	46.09	17.55	40.63	34.76	15.15
60	49.43	27.54	45.25	40.74	11.62
180	50.97	27.54	59.16	45.89	16.41
300	50.97	35.92	59.16	48.68	11.79
420	54.89	35.92	63.91	51.57	14.29
600	54.89	35.92	63.91	51.57	14.29
720	54.89	35.92	63.91	51.57	14.29
960	54.89	35.92	65.15	51.99	14.83
1440	54.89	35.92	65.15	51.99	14.83
2880	55.27	36.43	66.72	52.81	15.29

Table B2 Release of curcumin (%) from 5 wt% curcumin-loaded chitin sheets into acetate buffer, pH5.5, as a function of incubation times (n=3)

Time (minutes)	Release of curcumin (%)			Average	S.D
	No.1	No.2	No.3		
0	0.00	0.00	0.00	0.00	0.00
5	13.32	10.04	10.02	11.12	1.90
10	15.98	12.66	24.22	17.62	5.96
20	19.21	26.71	45.59	30.51	13.60
30	19.21	41.72	52.23	37.72	16.87
60	36.22	56.52	70.72	54.49	17.34
180	45.92	67.46	70.74	61.37	13.48
300	45.92	67.46	73.85	62.41	14.63
420	47.17	67.46	74.36	63.00	14.14
600	47.17	67.46	74.36	63.00	14.14
720	47.17	68.05	74.36	63.19	14.23
960	47.17	68.53	74.71	63.47	14.45
1440	47.71	68.53	74.71	63.65	14.15
2880	48.29	69.92	77.13	65.12	15.01

Table B3 Release of curcumin (%) from 10 wt% curcumin-loaded chitin sheets into acetate buffer, pH5.5, as a function of incubation times (n=3)

Time (minutes)	Release of curcumin (%)			Average	S.D
	No.1	No.2	No.3		
0	0.00	0.00	0.00	0.00	0.00
5	3.72	6.60	6.24	5.52	1.57
10	6.31	14.34	13.09	11.25	4.32
20	12.40	18.66	13.09	14.71	3.43
30	18.10	51.24	16.48	28.61	19.62
60	72.67	57.57	62.27	64.17	7.72
180	72.67	57.57	62.27	64.17	7.72
300	94.66	63.21	88.46	82.11	16.66
420	94.66	88.77	88.46	90.63	3.49
600	94.66	88.77	88.46	90.63	3.49
720	95.43	88.77	88.46	90.88	3.94
960	96.91	88.77	88.46	91.38	4.79
1440	96.91	91.60	88.46	92.32	4.27
2880	99.10	95.78	88.88	94.59	5.22

Table B4 Release of curcumin (%) from 20 wt% curcumin-loaded chitin sheets into acetate buffer, pH5.5, as a function of incubation times (n=3)

Time (minutes)	Release of curcumin (%)			Average	S.D
	No.1	No.2	No.3		
0	0.00	0.00	0.00	0.00	0.00
5	4.78	10.57	6.14	7.16	3.03
10	9.42	16.09	13.62	13.04	3.37
20	17.15	16.09	14.74	15.99	1.21
30	18.29	16.09	42.09	25.49	14.42
60	21.44	16.09	42.09	26.54	13.73
180	22.96	43.98	54.34	40.43	15.99
300	28.77	46.07	62.40	45.75	16.82
420	70.05	71.81	62.40	68.09	5.00
600	70.05	71.81	62.40	68.09	5.00
720	70.05	71.81	62.40	68.09	5.00
960	70.05	72.99	62.40	68.48	5.47
1440	72.71	72.99	65.29	70.33	4.37
2880	74.41	77.40	66.09	72.63	5.86

Appendix C Releasing Profiles of Curcumin from Chitin Sheets: Effect of the Added Tween 20 to the Releasing Buffer Solution

Table C1 Release of curcumin (%) from 20 wt% curcumin-loaded chitin sheets into acetate buffer, pH5.5, with 20 % (v/v) of Tween 20 as a function of incubation times (n=3)

Time (minutes)	Release of curcumin (%)			Average	S.D
	No.1	No.2	No.3		
0	0.00	0.00	0.00	0.00	0.00
5	12.01	23.85	15.26	17.04	6.12
10	15.83	32.44	17.94	22.07	9.04
20	23.57	48.65	28.34	33.52	13.32
30	30.39	62.17	38.05	43.54	16.59
60	44.29	83.40	51.99	59.89	20.72
180	71.85	100.00	51.99	74.61	24.13
300	100.00	100.00	70.05	90.02	17.29
420	100.00	100.00	100.00	100.00	0.00

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Presentations:

1. Pootawang, P., Rujiravanit, R., and Seiichi, T. (2007, July 29-31) Chitin Whisker-Reinforced Chitin Nanocomposite Films as Potential Wound Dressing. Poster presented at International Symposium in Science and technology at Kansai University 2007, Kansai, Japan.
2. Ratanajiajaroen, P., Rujiravanit, R., and Seiichi, T. (2008, April 23) Preparation of Chitin Sheets Incorporated with curcumin. Poster presented at the 14th PPC Symposium on Petroleum, Petrochemicals, and Polymers 2008, Bangkok, Thailand.