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APPENDICES

APPENDICES

Appendix A

Calculation of %Deacetylation, Calibration Curve and Calculation of Surface Area of Core Tablet

Method of Calculation The % Deacetylation of Chitosan

This determination of %deacetylation was performed using colloidal titration technique as described by Hayes (1978). Chitosan 4 g was dissolved in 10% v/v acetic acid solution 300 ml for half hour and then filtered through polyester cloth. Hydrochloric acid 100 ml was mixed in the filtrate for fifteen minutes to obtain the precipitate of chitosan hydrochloride and then filtered through polyester cloth (upon filter paper) by vacuum and washed with methanol 1000 ml. The precipitate was then dried at 60°C for 2 hours. The dried solid was weighed about 1 g and then dissolved in deionized water to 250 ml. The 50 ml of solution was pipetted to volumetric flask and was titrated with NaOH solution (0.0516 M) using phenolphthalein TS as indicator.

M.W. of glucosamine chloride = 197.61672 dalton/unit

M.W. of glucosamine = 161.16372 dalton/unit

M.W. of acetamido glucosamine = 203.19296 dalton/unit

Ex. of the calculation ,sample A

Dried solid	1.0074 g
0.0516 M NaOH solution	17.04 ml
Mole of glucosamine	$(17.04 \times 0.0516 \times 250) / 50$ mole = 0.004396 mole
Amount of glucosamine	= 0.8688 g
Amount of acetamido glucosamine	= 1.0074 - 0.8688 g = 0.1386 g
Acetamido glucosamine (mole)	= 0.000682 mole
Acetamido glucosamine + glucosamine	= 0.005078 mole
% deacetylation	= $(0.004396 / 0.005078) \times 100$ = 86.57

Table 83 The %deacetylation of chitosan determined by colloidal tetration method.

	Sample		
	A	B	C
Dried solid (g)	1.0074	0.9975	0.9981
Volume of NaOH solution (ml)	17.04	16.58	16.78
% Deacetylation	86.57	85.10	86.05
	Average \pm SD		85.91 \pm 0.75

Table 84 The UV absorbance of propranolol HCl in different solvent and dissolution fluids and linear regression of calibration curves

Absorbance in deionized water at 290 nm.

CONC.(mcg/ml)	ABSORBANCE			AVG	SD
	A	B	C		
10.00	0.184	0.182	0.184	0.183	0.001
15.00	0.283	0.284	0.288	0.285	0.002
20.00	0.386	0.385	0.385	0.385	0.000
25.00	0.483	0.487	0.491	0.487	0.003
30.00	0.583	0.583	0.591	0.586	0.004
35.00	0.674	0.675	0.676	0.675	0.001
40.00	0.774	0.773	0.774	0.774	0.000

Y=0.0197X-0.0092 R Squared=0.9997

Absorbance in phosphate buffer pH 6.8 at 290 nm.

CONC.(mcg/ml)	ABSORBANCE			AVG	SD
	A	B	C		
10.00	0.199	0.205	0.211	0.205	0.005
15.00	0.302	0.308	0.312	0.307	0.004
20.00	0.411	0.409	0.408	0.409	0.001
25.00	0.504	0.502	0.508	0.505	0.002
30.00	0.602	0.610	0.605	0.606	0.003
35.00	0.710	0.700	0.699	0.703	0.005
40.00	0.794	0.794	0.794	0.794	0.000

Y=0.0197X+0.0122 R Squared=0.9997

Absorbance in 1.22m glucose solution at 292 nm.

CONC.(mcg/ml)	ABSORBANCE			AVG	SD
	A	B	C		
10.00	0.166	0.182	0.170	0.173	0.007
15.00	0.266	0.283	0.273	0.274	0.007
20.00	0.262	0.364	0.361	0.329	0.047
25.00	0.458	0.474	0.466	0.466	0.007
30.00	0.550	0.560	0.547	0.552	0.006
35.00	0.634	0.629	0.639	0.634	0.004
40.00	0.730	0.719	0.723	0.724	0.005

Y=0.0186X-0.0135 R Squared=0.9948

Absorbance in HCl buffer pH 1.2 at 290 nm.

CONC.(mcg/ml)	ABSORBANCE			AVG	SD
	A	B	C		
10.00	0.197	0.194	0.192	0.194	0.002
15.00	0.290	0.292	0.293	0.292	0.001
20.00	0.385	0.383	0.381	0.383	0.002
25.00	0.475	0.479	0.482	0.479	0.003
30.00	0.573	0.575	0.590	0.579	0.008
35.00	0.670	0.670	0.667	0.669	0.001
40.00	0.769	0.765	0.765	0.766	0.002

Y=0.0191X+0.0041 R Squared=0.9999

Absorbance in methanol at 290 nm.

CONC.(mcg/ml)	ABSORBANCE			AVG	SD
	A	B	C		
10.00	0.203	0.200	0.207	0.203	0.003
15.00	0.282	0.295	0.292	0.290	0.006
20.00	0.392	0.391	0.390	0.391	0.001
25.00	0.495	0.482	0.492	0.490	0.006
30.00	0.595	0.615	0.599	0.603	0.009
35.00	0.714	0.677	0.699	0.697	0.015
40.00	0.809	0.798	0.798	0.802	0.005

Y=0.0202X-0.0073 R Squared=0.9992

Absorbance in 2.06m glucose solution at 292 nm.

CONC.(mcg/ml)	ABSORBANCE			AVG	SD
	A	B	C		
10.00	0.179	0.203	0.206	0.196	0.012
15.00	0.285	0.293	0.275	0.284	0.007
20.00	0.385	0.380	0.385	0.383	0.002
25.00	0.457	0.439	0.458	0.451	0.009
30.00	0.564	0.569	0.569	0.567	0.002
35.00	0.657	0.663	0.659	0.660	0.002
40.00	0.764	0.750	0.754	0.756	0.006

Y=0.0187X+0.0042 R Squared=0.9980

Absorbance in dilute HCl 1 in 100 at 290 nm.

CONC.(mcg/ml)	ABSORBANCE			AVG	SD
	A	B	C		
10.00	0.161	0.163	0.172	0.165	0.005
15.00	0.264	0.266	0.272	0.267	0.003
20.00	0.370	0.374	0.375	0.373	0.002
25.00	0.469	0.474	0.475	0.473	0.003
30.00	0.571	0.567	0.575	0.571	0.003
35.00	0.670	0.667	0.666	0.668	0.002
40.00	0.761	0.763	0.761	0.762	0.001

Y=0.0199X-0.0294 R Squared=0.9997

Absorbance in pH change system(base) at 292 nm.

CONC.(mcg/ml)	ABSORBANCE			AVG	SD
	A	B	C		
10.00	0.215	0.215	0.218	0.216	0.001
15.00	0.308	0.309	0.306	0.308	0.001
20.00	0.402	0.401	0.402	0.402	0.000
25.00	0.498	0.499	0.503	0.500	0.002
30.00	0.598	0.601	0.603	0.601	0.002
35.00	0.684	0.686	0.686	0.685	0.001
40.00	0.797	0.794	0.793	0.795	0.002

Y=0.0192X+0.020643 R Squared=0.9995

Absorbance in 3.13m glucose solution at 292 nm.

CONC.(mcg/ml)	ABSORBANCE			AVG	SD
	A	B	C		
10.00	0.220	0.231	0.222	0.224	0.005
15.00	0.326	0.331	0.330	0.329	0.002
20.00	0.372	0.419	0.449	0.413	0.032
25.00	0.470	0.486	0.483	0.480	0.007
30.00	0.578	0.575	0.583	0.579	0.003
35.00	0.656	0.631	0.657	0.648	0.012
40.00	0.757	0.761	0.756	0.758	0.002

Y=0.0172X+0.0608 R Squared=0.9967

The Construction of Calibration Curve from HPLC Analysis

The concentration versus ratio between peak ratio of propranolol HCl and internal standard (pindolol) from HPLC analysis at 220 nm were presented in Table 85 and showed the linear relationship with the correlation coefficient in Figure 247.

Table 85 Ratio between peak area of propranolol HCl and pindolol from HPLC analysis at 220 nm.

(A)						(B)					
Conc.(mcg/ml)	Peak Area Ratio					Conc.(mcg/ml)	Peak Area Ratio				
	A	B	C	AVG	S.D		A	B	C	AVG	S.D
5	0.731	0.713	0.742	0.729	0.015	5	0.678	0.687	0.698	0.688	0.010
10	1.377	1.486	1.530	1.464	0.079	10	1.464	1.439	1.512	1.472	0.037
15	2.339	2.230	2.164	2.244	0.088	15	2.365	2.210	2.247	2.274	0.081
20	3.015	2.825	3.004	2.948	0.107	20	3.154	3.156	2.994	3.101	0.093
25	3.731	3.578	3.814	3.708	0.120	25	3.958	3.959	3.854	3.924	0.060
30	4.572	4.600	4.533	4.568	0.034	30	4.614	4.578	4.673	4.622	0.048

(C)						(D)					
Conc.(mcg/ml)	Peak Area Ratio					Conc.(mcg/ml)	Peak Area Ratio				
	A	B	C	AVG	S.D		A	B	C	AVG	S.D
5	0.730	0.690	0.756	0.725	0.033	5	0.624	0.583	0.663	0.623	0.040
10	1.438	1.538	1.722	1.566	0.144	10	1.359	1.284	1.314	1.319	0.038
15	2.476	2.510	2.468	2.485	0.022	15	1.964	1.895	1.826	1.895	0.069
20	3.256	3.130	3.119	3.168	0.076	20	2.578	2.610	2.459	2.549	0.079
25	4.141	4.000	4.017	4.053	0.077	25	3.181	2.922	3.111	3.071	0.134
30	5.218	4.864	4.712	4.931	0.260	30	3.801	3.877	3.777	3.818	0.052

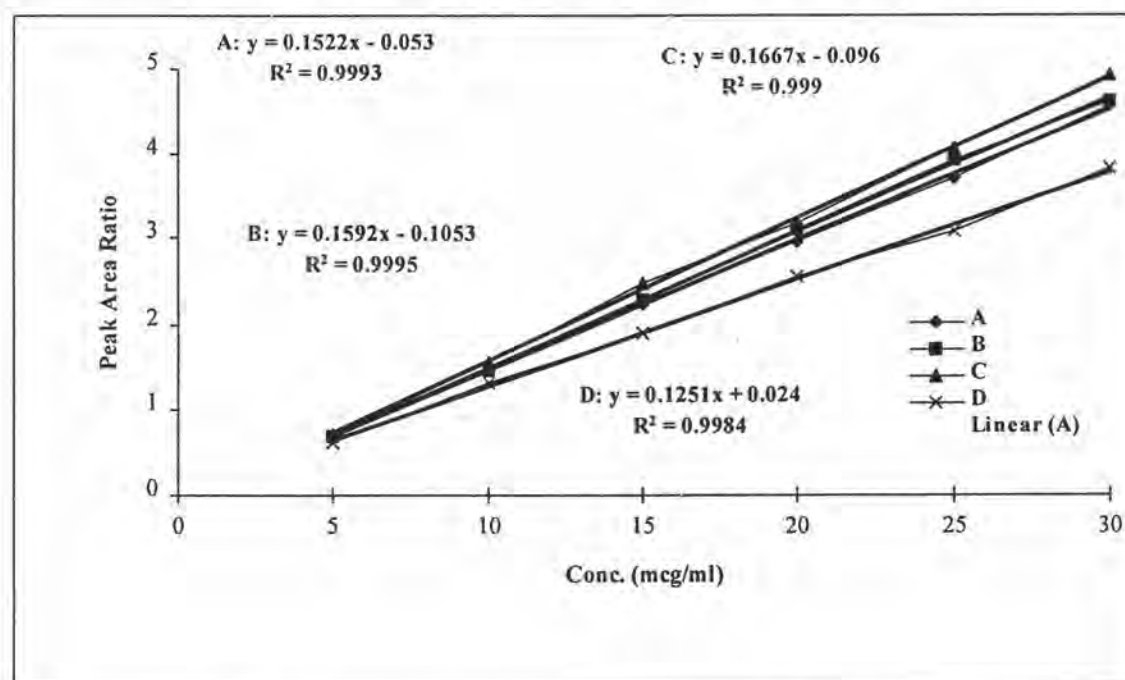


Figure 247 Calibration curve of propranolol HCl in diluting medium

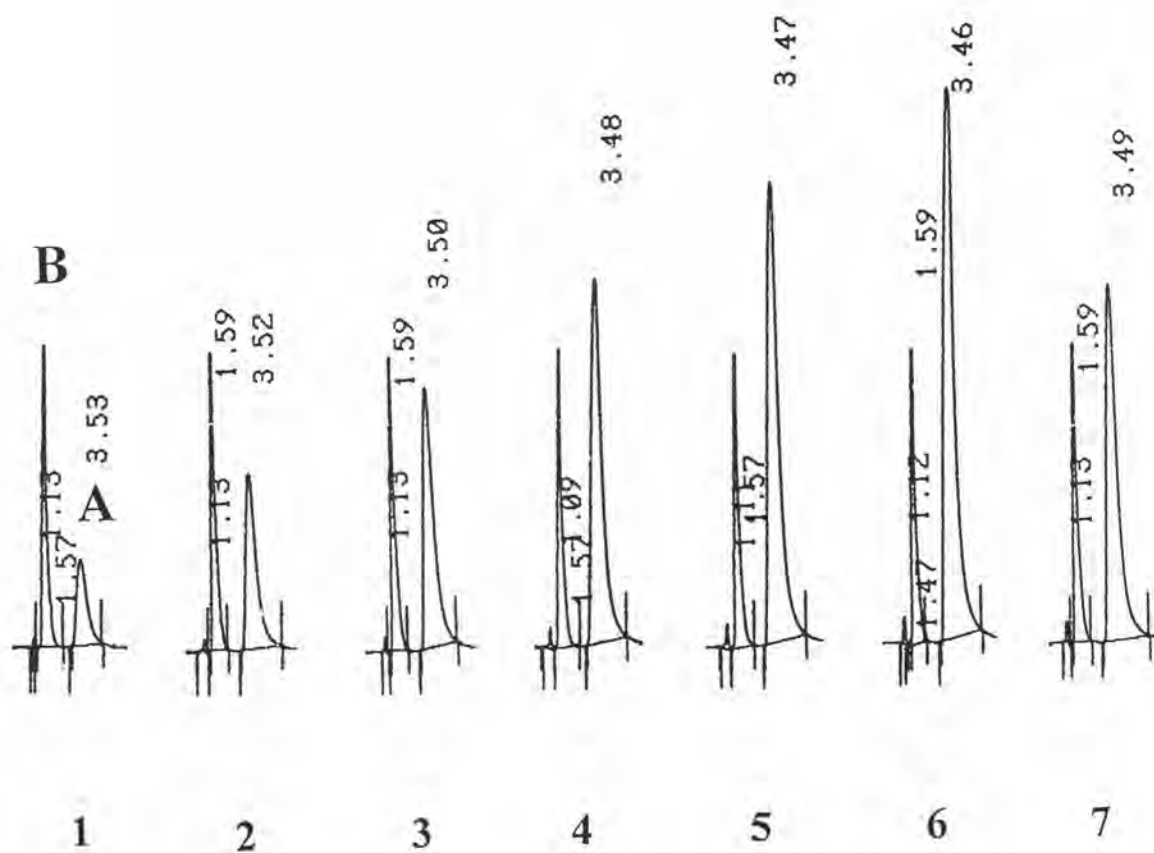


Figure 248 Typical chromatograms of propranolol HCl (A) and pindolol (B) as internal standard in preparation of calibration curve (1-6) and sample (7).

The Calculation of Biconvex Tablet Surface Area for Adhesion Test

Test

A biconvex tablet can be considered as a right circular cylinder with a segment of a sphere, cut by a single plane, attached at each end. The half surface area on a segment of sphere was used for adhesion test. The half surface area on the convex surface of a segment of sphere was calculated by

$$\text{surface area} = 0.5\pi \left((0.5A)^2 + (0.5(B-C))^2 \right)$$

where: A= diameter; B= thickness of the tablet and C = the thickness of cylinder part of tablet

$$\begin{aligned} \text{surface area} &= 0.5\pi \left((0.5 \times 9.530\text{mm})^2 + (3.921 - 2.509\text{mm})^2 \right) \\ &= 38.797 \text{ mm}^2 \end{aligned}$$

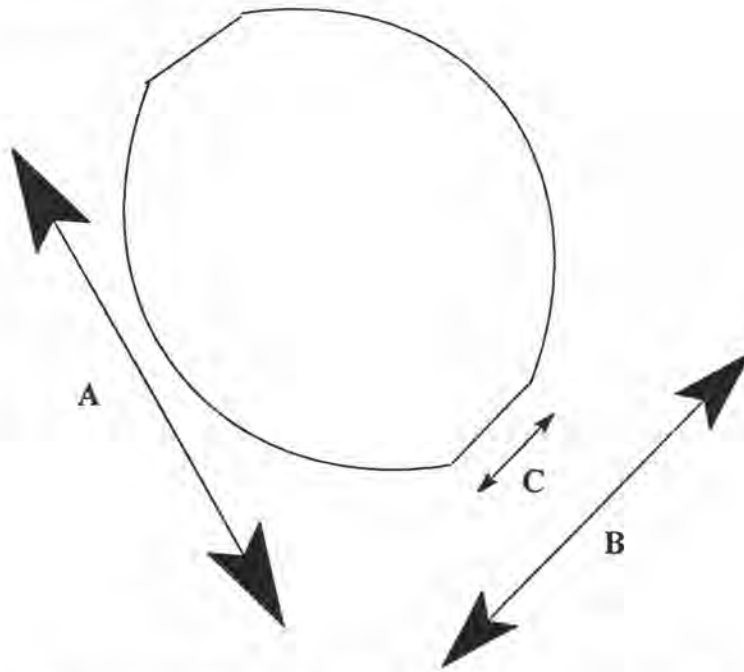


Figure 249 Dimension of tablet for calculation of surface area for adhesion test

Appendix B

Evaluation of Chitosan Solutions and Cast Films

Table 86 The viscosity of 5% w/w chitosan in different acid solutions during 24 hrs (n=3).

Time(hr)	Acid Solution						
	ACETIC	CITRIC	FORMIC	GLYCOLIC	LACTIC	MALIC	PROPIONIC
1	138.12±1.92	126.07±2.95	108.08±5.49	123.62±8.85	116.90±2.65	11.00±7.1	113.95±7.25
2	137.54±0.51	133.04±0.93	109.69±7.44	119.60±3.78	114.77±2.34	20.59±7.3	109.41±2.64
3	134.35±5.69	129.04±0.99	108.63±5.87	117.72±8.15	113.29±2.66	17.39±5.5	104.28±7.12
4	132.64±4.93	128.11±0.58	106.91±4.18	119.19±17.79	112.39±4.23	13.38±4.9	108.71±8.90
6	132.33±3.78	127.44±1.21	105.11±0.14	120.75±12.34	106.25±6.37	15.26±4.7	110.75±11.32
9	130.64±6.28	127.25±1.62	111.58±1.72	122.06±11.56	109.77±5.28	20.09±2.2	115.26±9.41
12	126.38±4.49	125.83±1.25	109.28±1.22	124.11±10.87	111.58±6.41	13.54±4.3	121.41±9.75
16	122.88±6.04	125.34±2.37	111.50±2.34	118.46±7.62	116.98±5.08	21.00±4.1	124.27±5.11
20	131.65±9.94	125.91±6.64	115.18±3.77	126.48±8.52	119.28±5.44	19.19±1.2	127.63±5.05
24	130.66±5.58	119.87±2.76	125.78±4.19	126.98±12.29	124.93±3.73	16.49±2.7	132.47±8.61

Table 87 The pH of 5% w/w chitosan in different acid solutions at 24 hrs.

Acid Solution	SAMPLE			AVG	SD
	A	B	C		
Acetic	4.59	4.65	4.69	4.64	0.05
Citric	2.99	2.94	2.96	2.96	0.03
Formic	3.75	3.75	3.71	3.74	0.02
Glycolic	3.68	3.72	3.74	3.71	0.03
Lactic	4.53	4.47	4.50	4.50	0.03
Malic	3.15	3.12	3.17	3.15	0.03
Propionic	4.82	4.90	4.82	4.85	0.05

Table 88. Water sorption of chitosan salt films after exposed to moist heat at different time interval (n=6) (A). in deionized water (B). in HCl buffer pH 1.2 (C). in phosphate buffer pH 6.8

Time(hr)	Water Sorption(%)					
	Chitosan Salt Film					
	Acetate	Citrate	Formate	Glycolate	Lactate	Malate
12	154.29±16.31	*	2282.61±606.29	*	549.36±77.09	20.37±3.75
24	74.97±7.00	*	313.12±34.20	1357.46±162.43	254.19±97.72	15.97±4.59
36	43.76±7.41	*	138.58±47.17	567.23±74.70	252.89±35.56	20.66±4.42
48	33.98±11.73	*	120.20±15.92	377.61±43.53	112.71±28.29	15.18±2.06
72	29.61±7.95	187.52±34.10	30.89±3.49	172.31±36.07	70.43±7.89	12.44±1.38
120	31.19±7.29	154.25±49.35	11.74±2.49	85.33±12.18	54.80±3.76	17.14±1.65
168	35.89±8.40	104.84±46.12	9.34±1.29	75.72±18.17	34.78±5.92	302.30±28.09
360	30.38±4.01	73.02±38.80	11.41±1.23	42.83±11.86	17.64±4.99	110.65±53.62

Time(hr)	Chitosan Salt Film					
	Acetate	Citrate	Formate	Glycolate	Lactate	Malate
12	464.47±42.97	*	2737.91±680.78	*	695.07±51.53	191.37±40.09
24	297.82±33.90	*	527.94±57.14	1234.02±152.06	267.70±184.07	78.46±19.29
36	154.17±12.85	*	228.12±29.50	585.81±87.97	239.86±75.08	70.64±16.11
48	121.88±10.98	*	174.03±28.26	338.14±40.70	110.87±30.53	68.90±10.45
72	151.77±24.23	1160.67±587.2	87.55±25.19	155.80±28.71	92.88±7.61	1966.59±302.46
120	128.34±8.50	430.63±117.98	30.11±2.36	87.70±19.47	45.78±9.60	18.03±3.94
168	94.66±18.92	273.34±71.81	12.26±2.72	53.50±14.74	40.63±6.73	20.57±7.08
360	57.95±5.53	150.79±42.15	16.47±2.25	30.97±4.83	39.39±7.73	12.70±2.86

Time(hr)	Chitosan Salt Film					
	Acetate	Citrate	Formate	Glycolate	Lactate	Malate
0	87.77±13.62	***	48.56±5.33	127.40±25.84	***	136.27±66.93
12	67.81±3.38	***	18.61±3.68	68.99±19.60	38.91±6.23	95.06±9.64
24	32.68±4.55	362.90±32.29	10.97±1.94	35.41±3.38	51.64±7.12	30.86±4.97
36	20.18±4.06	313.39±88.68	11.07±2.44	37.04±7.85	48.47±11.63	21.98±2.93
48	31.09±4.58	232.54±22.31	14.03±1.34	40.99±25.49	37.47±2.91	14.12±3.72
72	13.87±3.17	104.40±18.09	16.04±1.61	29.49±2.82	23.88±5.20	12.88±2.83
120	41.22±3.34	90.21±45.82	8.87±4.03	24.13±3.25	22.47±17.87	14.28±1.46
168	28.95±4.95	92.71±11.27	-5.27±3.55	25.68±3.24	33.49±13.92	14.83±2.28
360	25.39±2.66	82.39±5.95	8.40±4.27	17.85±4.05	12.67±2.25	7.86±1.53

* Film completely dissolved

** Film disintegrated

***Film changed to be gel like

Table 89 Dissolution of chitosan salt films after exposed to moist heat at different time interval (n=6) (A). in deionized water (B). in HCl buffer pH 1.2 (C). in phosphate buffer pH 6.8

Time(hr)	Dissolution(%)					
	Chitosan Salt Film					
	Acetate	Citrate	Formate	Glycolate	Lactate	Malate
12	18.75±2.01	*	66.29±9.36	*	47.71±9.08	*
24	15.2±0.91	*	33.67±2.68	56.13±4.41	42.32±6.13	*
36	8.06±1.32	*	22.35±9.01	43.78±2.51	43.16±5.59	*
48	8.16±1.10	*	25.46±0.86	40.31±2.39	30.16±4.75	*
72	8.70±1.70	63.14±3.89	21.82±1.94	33.23±3.90	28.60±2.12	58.62±11.05
120	7.86±1.25	62.04±8.00	13.53±0.36	29.97±2.07	25.37±2.06	49.95±12.20
168	9.60±0.77	49.49±11.89	-7.29±0.86	30.99±8.60	23.57±2.42	44.24±1.71
360	8.13±0.66	48.48±7.45	4.06±0.70	24.81±7.00	19.43±3.16	40.92±9.36

Time(hr)	Chitosan Salt Film					
	Acetate	Citrate	Formate	Glycolate	Lactate	Malate
12	26.30±0.87	*	81.95±5.78	*	53.71±4.56	*
24	19.83±3.99	*	44.92±2.83	59.63±3.46	23.99±23.30	*
36	5.72±1.74	*	28.67±2.75	48.41±3.49	37.17±10.83	*
48	2.92±1.16	*	25.81±1.17	41.27±1.34	28.39±2.50	*
72	7.74±3.10	72.28±11.06	20.11±2.04	27.30±1.46	27.47±2.01	64.42±4.15
120	9.95±1.61	76.86±4.10	9.46±1.88	22.67±3.82	24.08±4.25	58.87±5.92
168	2.87±3.85	61.71±5.48	4.04±1.83	21.48±3.48	19.05±3.62	49.12±5.27
360	-1.48±2.41	48.92±7.69	2.90±0.71	16.13±1.91	15.88±3.92	**

Time(hr)	Chitosan Salt Film					
	Acetate	Citrate	Formate	Glycolate	Lactate	Malate
0	-4.77±0.77	***	5.28±1.75	15.98±6.39	***	34.71±12.12
12	1.34±0.43	***	4.31±1.03	12.84±0.64	19.70±0.93	29.84±0.93
24	-8.41±1.03	44.13±1.71	-2.93±1.55	14.92±0.32	21.66±1.04	24.37±5.08
36	-7.65±1.11	58.09±9.63	-2.82±1.06	15.80±0.86	19.71±2.67	31.69±0.41
48	-7.17±1.84	47.03±3.20	-1.27±1.10	17.35±9.02	18.40±0.38	30.63±2.71
72	-5.62±1.08	46.33±3.95	0.85±1.67	14.00±1.64	20.40±1.90	30.25±2.47
120	-1.33±1.32	56.15±9.17	-3.33±1.45	13.25±1.17	20.21±9.47	35.22±5.55
168	-3.15±0.96	46.50±2.61	-3.64±1.04	14.50±1.28	19.82±7.73	33.04±1.06
360	-6.67±0.63	42.51±2.19	-5.95±2.83	9.92±1.57	11.72±2.43	36.28±4.95

* Film completely dissolved

** Film disintegrated

***Film changed to be gel like

Table 90 Water sorption of chitosan film in various salt forms after exposure to dry heat at 130°C at different time intervals (n=6) (A) in deionized water; (B) in HCl buffer pH 1.2 and (C) in phosphate buffer pH 6.8

Time(hr)	Chitosan Salt Film			
	Acetate	Citrate	Formate	Propionate
1	1528.38±408.38	13.44±1.82	557.95±136.3	668.80±88.52
2	648.65±64.35	10.89±5.81	419.32±65.90	229.75±48.42
3	405.67±125.06	9.06±1.68	214.69±40.50	79.02±31.03
5	230.36±90.47	16.99±9.94	170.49±61.82	56.34±16.53
7	199.93±55.28	18.45±14.01	84.54±16.36	45.45±17.57
9	117.62±26.57	10.08±2.08	59.39±13.13	40.43±11.26
12	52.19±4.58	10.61±0.68	28.84±10.27	38.13±11.02

Time(hr)	Chitosan Salt Film			
	Acetate	Citrate	Formate	Propionate
1	5314.12±1461.92	13.44±1.82	947.41±168.99	*
2	1443.04±309.94	12.25±7.27	318.12±52.34	998.65±78.08
3	1033.95±237.66	17.39±3.52	218.54±63.07	419.35±98.27
5	679.57±84.58	12.67±3.01	138.88±25.30	265.69±59.56
7	633.48±119.18	13.01±5.18	88.63±24.78	144.92±41.47
9	327.52±135.26	13.69±5.42	53.15±18.23	99.79±28.37
12	341.02±124.52	10.82±2.64	26.86±8.24	77.93±33.31

Time(hr)	Chitosan Salt Film			
	Acetate	Formate	Propionate	Formate
1	52.16±14.67	208.26±65.59	76.39±23.40	
2	51.49±15.15	88.98±23.38	84.20±30.45	
3	74.87±36.27	69.50±25.30	46.40±5.59	
5	72.46±21.57	72.93±21.05	52.16±18.66	
7	60.02±20.51	82.71±36.34	51.42±11.64	
9	53.98±39.20	27.90±3.89	40.61±12.39	
12	30.23±8.18	26.66±13.41	32.75±9.53	

*Film changed to be gel like

Table 91 Dissolution of chitosan film in various salt forms after exposure to dry heat at 130°C at different time intervals (n=6) (A) in deionized water; (B) in HCl buffer pH 1.2 and (C) in phosphate buffer pH 6.8

Time(hr)	Chitosan Salt Film			
	Acetate	Citrate	Formate	Propionate
1	28.22±6.31	16.17±1.26	32.98±5.78	26.29±4.56
2	18.86±2.15	13.45±4.23	9.88±1.24	20.40±2.97
3	12.66±10.57	10.44±0.98	8.32±1.81	14.55±0.98
5	10.24±4.18	14.45±6.30	7.60±1.24	13.9±1.829
7	11.12±1.77	13.85±7.41	4.97±2.26	10.6±1.10
9	2.01±2.01	4.00±1.73	4.71±1.11	7.39±2.83
12	13.50±1.39	2.36±1.58	5.45±1.73	8.64±0.60

Time(hr)	Chitosan Salt Film			
	Acetate	Citrate	Formate	Propionate
1	47.91±13.43	16.17±1.26	22.62±3.66	*
2	24.53±10.67	6.91±5.43	8.52±3.52	34.26±2.53
3	28.82±11.25	12.02±2.98	5.82±2.02	26.77±2.35
5	21.33±4.56	10.61±6.02	2.88±2.33	21.20±2.65
7	23.50±9.418	7.86±2.41	-3.89±7.11	11.17±2.09
9	17.50±5.872	6.84±2.94	2.17±3.30	10.57±1.05
12	16.30±4.99	1.99±0.79	2.80±0.74	9.61±2.55

Time(hr)	Chitosan Salt Film			
	Acetate	Citrate	Formate	Formate
1	0.67±3.00	7.60±4.05	9.59±0.98	
2	-1.29±1.13	1.66±0.99	4.85±1.29	
3	-6.07±1.17	-2.92±1.53	2.35±0.94	
5	-3.71±5.97	-1.52±1.81	-1.09±0.75	
7	-6.73±12.62	-1.24±5.78	-1.35±4.96	
9	-8.15±2.88	-3.35±2.36	-3.63±0.86	
12	-10.08±5.91	-1.65±5.70	-2.7±1.38	

*Film changed to be gel like

Table 92 Wavelength from UV-VISIBLE absorption at absorbance of 1.5 of chitosan salt films after moist heat treatment at 60°C at different time interval

Time(hr)	Wavelength (nm)						
	Acetate	Citrate	Formate	Glycolate	Lactate	Malate	Propionate
0	258	239	248	246	250	243	233
24	367	378	360	362	360	357	413
72	448	383	400	444	400	370	440
168	466	477	423	513	527	372	450
360	484	580	476	617	580	567	489

Table 93 Wavelength from UV-VISIBLE absorption at absorbance of 1.5 of chitosan salt films after dry heat treatment at 130°C at different time interval

Time(hr)	Wavelength (nm)			
	Acetate	Citrate	Formate	Propionate
0	255	239	230	233
5	339	397	243	392
9	392	409	249	399
12	403	428	273	438

Table 94 Moisture sorption of chitosan salt films after moist heat treatment at 60°C 75%RH for different time intervals (n=6)

Time of Treatment (hr)	Moisture Sorption (%)						
	Acetate	Citrate	Formate	Glycolate	Lactate	Malate	Propionate
0	9.36±1.19	12.85±0.62	20.42±0.86	20.75±1.14	18.18±0.59	12.30±0.67	4.54±0.35
12	13.37±0.76	11.90±0.94	18.00±1.35	19.13±1.36	19.96±3.09	13.65±0.94	9.00±0.66
24	12.20±0.75	11.10±0.54	19.20±1.41	17.53±0.83	15.52±2.40	12.59±0.95	10.53±0.66
36	12.19±2.42	13.51±0.48	22.62±2.28	19.55±0.74	16.93±1.10	12.67±1.00	11.36±0.49
48	13.36±0.62	13.46±0.63	20.48±0.75	19.89±1.45	19.48±1.02	12.43±0.78	13.50±0.34
72	13.50±0.47	12.91±0.47	20.97±1.24	21.41±1.21	16.49±2.63	11.99±0.55	13.34±0.49
120	13.31±0.91	11.74±0.70	20.34±0.42	20.64±0.71	17.13±0.68	12.20±0.67	12.91±0.34
168	14.38±2.63	14.39±0.53	20.33±1.00	19.60±0.87	16.91±0.60	12.31±1.22	12.76±0.35
360	15.85±0.71	13.65±2.22	17.23±1.06	21.09±0.81	16.50±0.30	11.43±1.05	8.88±0.80

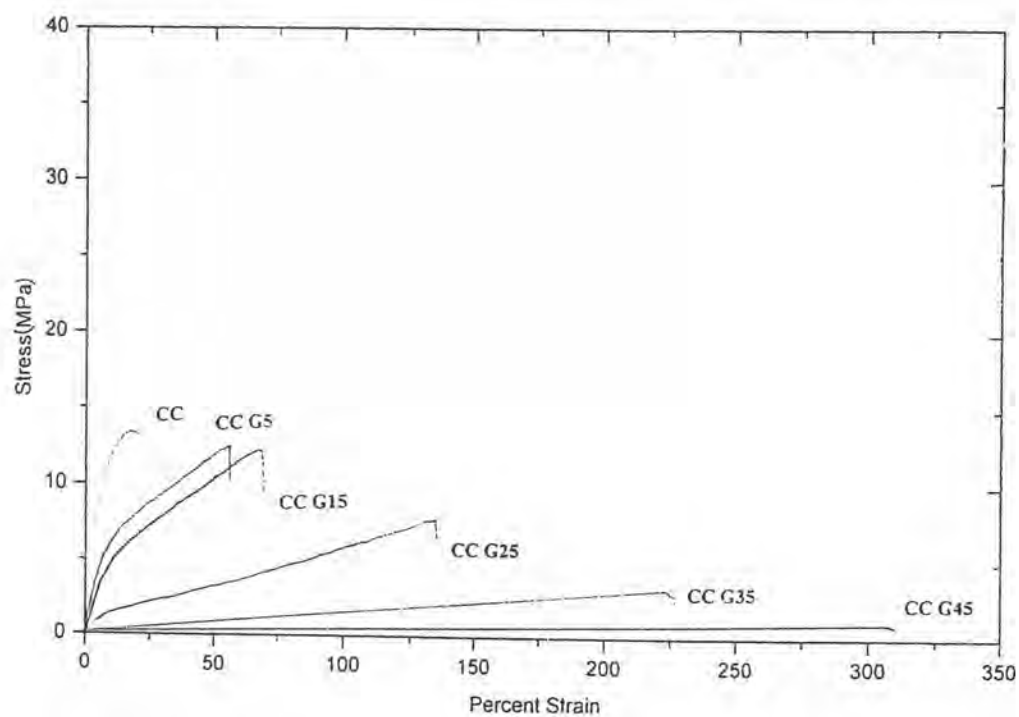


Figure 250 Stress-strain curves of chitosan citrate films plasticized with different levels of glycerin: 0% (CC); 5% (CC G5); 15% (CC G15); 25% (CC G25); 35% (CC G35) and 45% (CC G45).

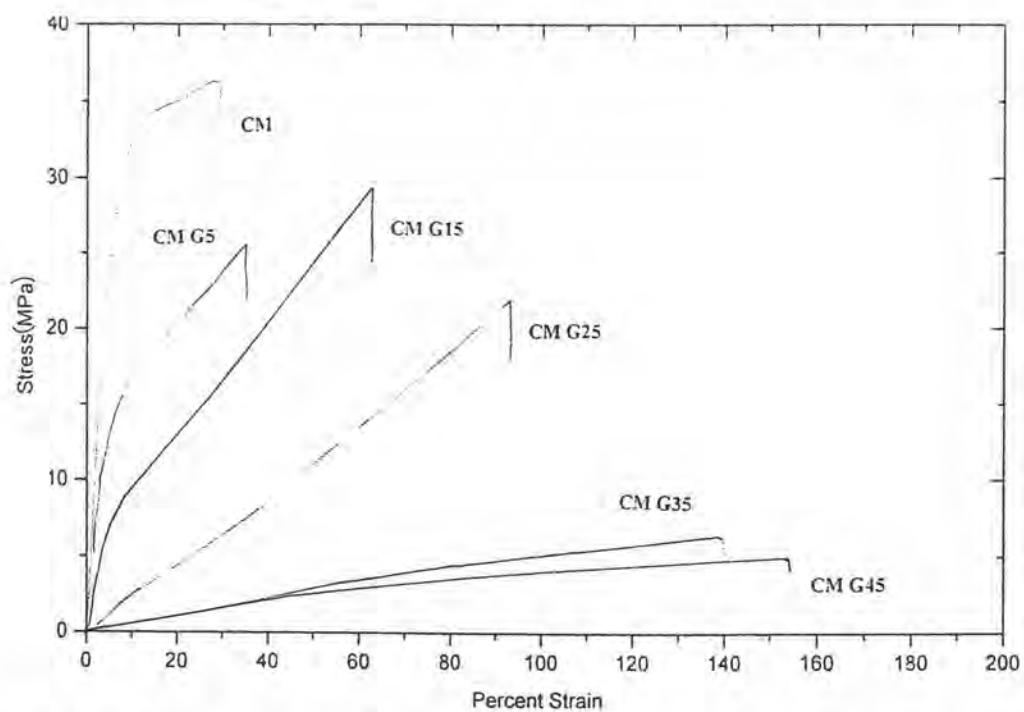


Figure 251 Stress-strain curves of chitosan malate films plasticized with different levels of glycerin: 0% (CM); 5% (CM G5); 15% (CM G15); 25% (CM G25); 35% (CM G35) and 45% (CM G45).

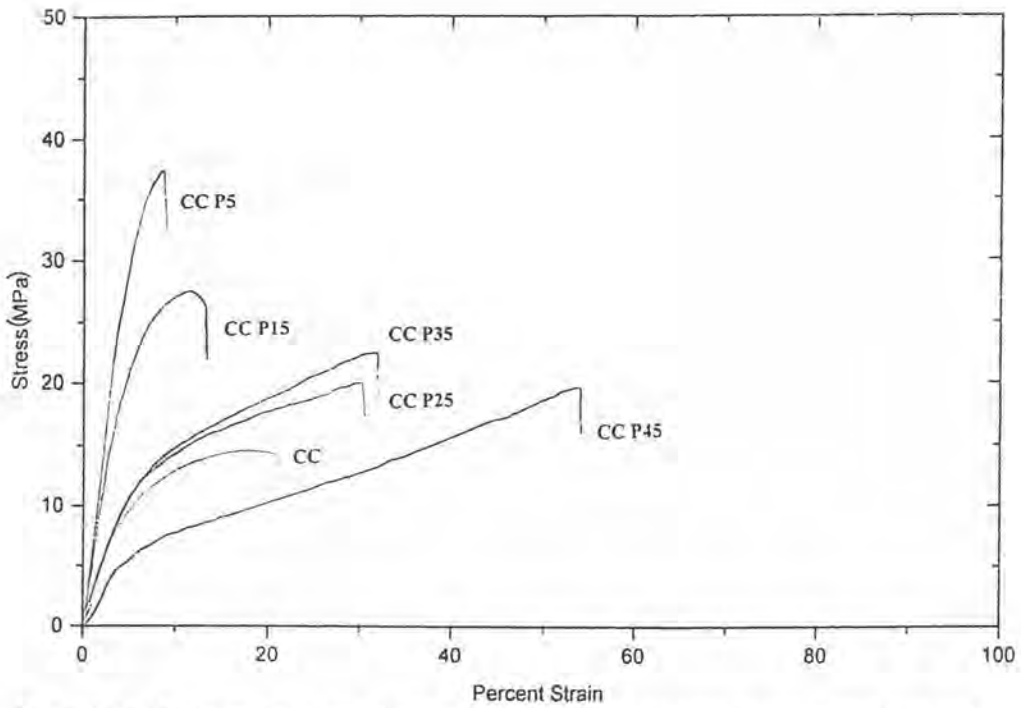


Figure 252 Stress-strain curves of chitosan citrate films plasticized with different levels of propylene glycol: 0% (CC); 5% (CC P5); 15% (CC P15); 25% (CC P25); 35% (CC P35) and 45% (CC P45).

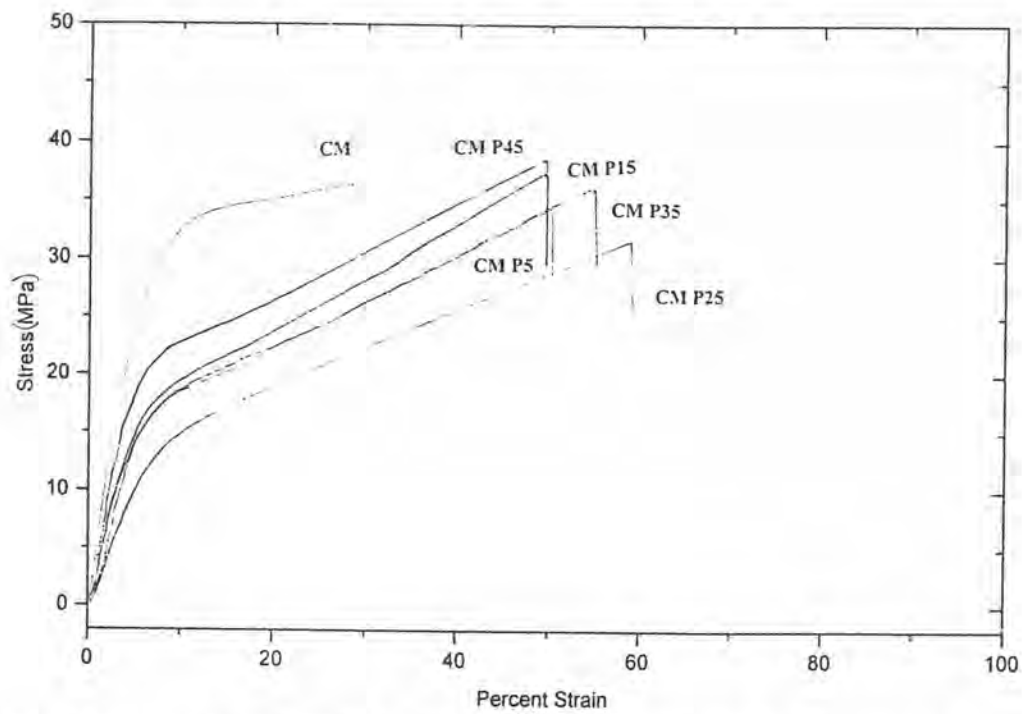


Figure 253 Stress-strain curves of chitosan malate films plasticized with different levels of propylene glycol: 0% (CM); 5% (CM P5); 15% (CM P15); 25% (CM P25); 35% (CM P35) and 45% (CM P45).

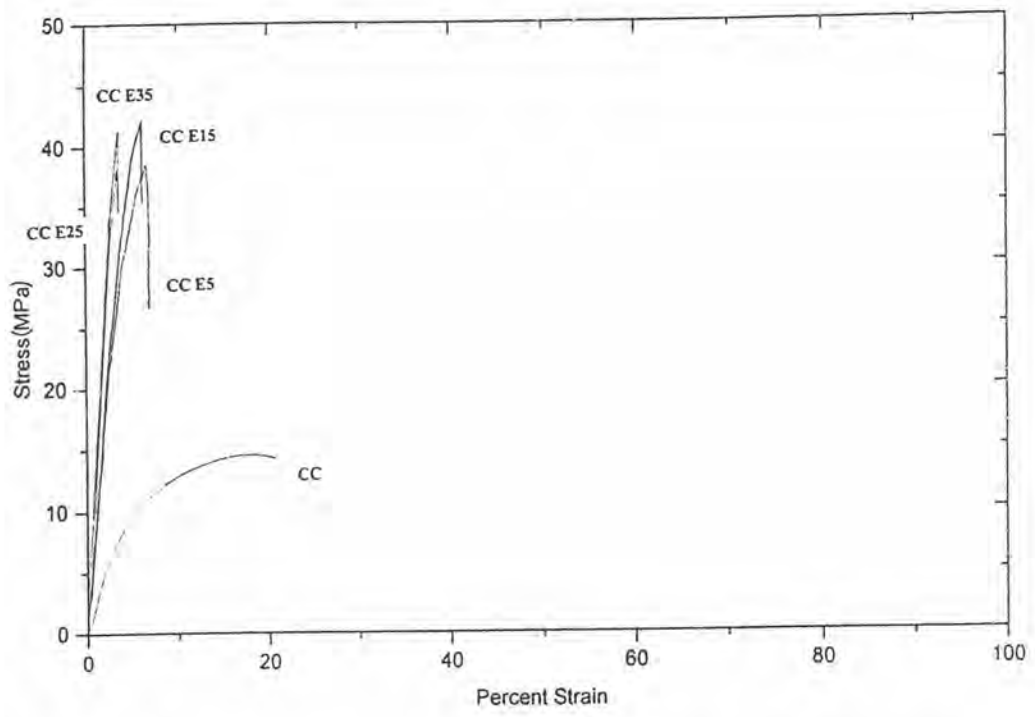


Figure 254 Stress-strain curves of chitosan citrate films plasticized with different levels of PEG6000: 0% (CC); 5% (CC E5); 15% (CC E15); 25% (CC E25); 35% (CC E35).

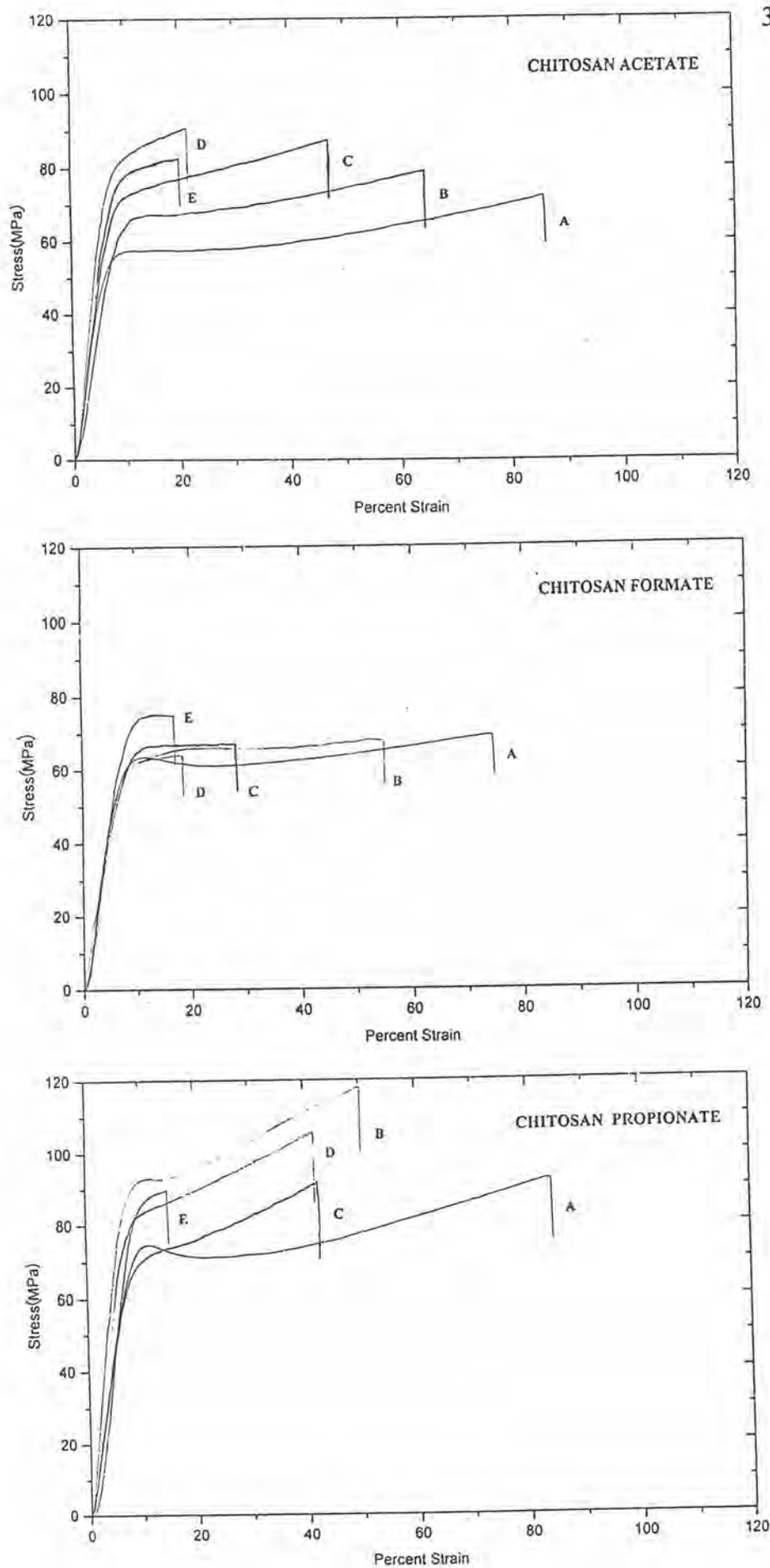


Figure 255 Stress-strain curves of chitosan acetate, formate and propionate films (A) untreated and after moist heat treatment for (B) 12 hrs.; (C) 36 hrs.; (D) 72 hrs. and (E) 168 hrs.

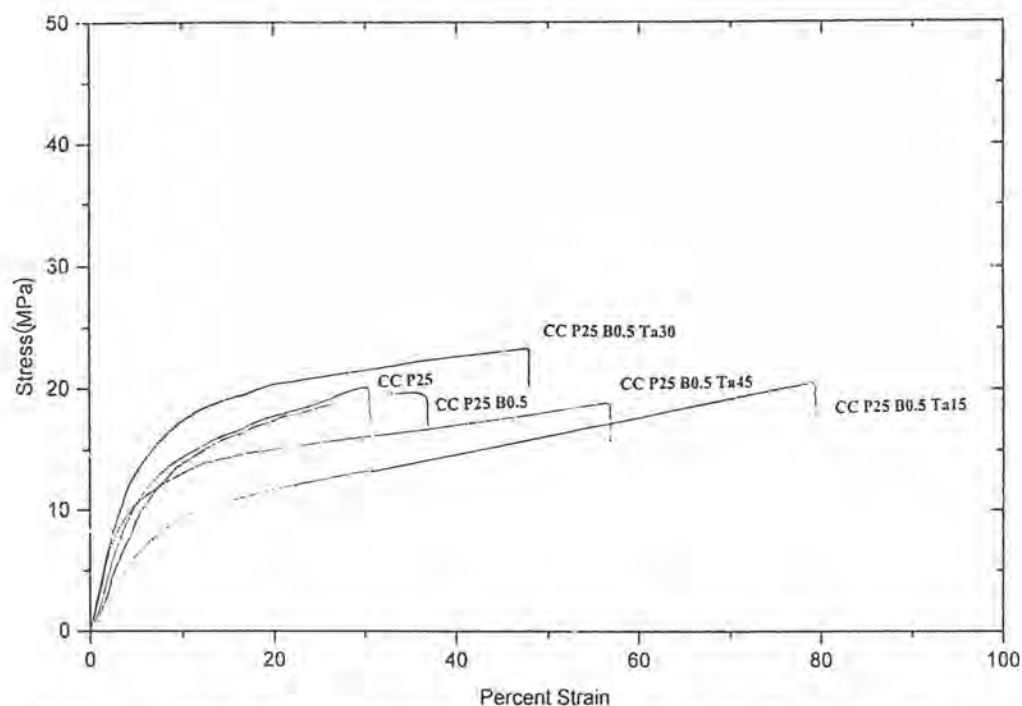


Figure 256 Stress-strain curves of chitosan citrate films plasticized with propylene glycol 25% (CC P25); plasticized with propylene glycol 25% and colored with brilliant blue 0.5% (CC P25 B0.5); plasticized with propylene glycol 25%, colored with brilliant blue 0.5% and pigmented with talcum 15% (CCP25 B0.5 Ta15), 30% (CC P25 B0.5 Ta30), 45% (CC P25 B0.5 Ta45).

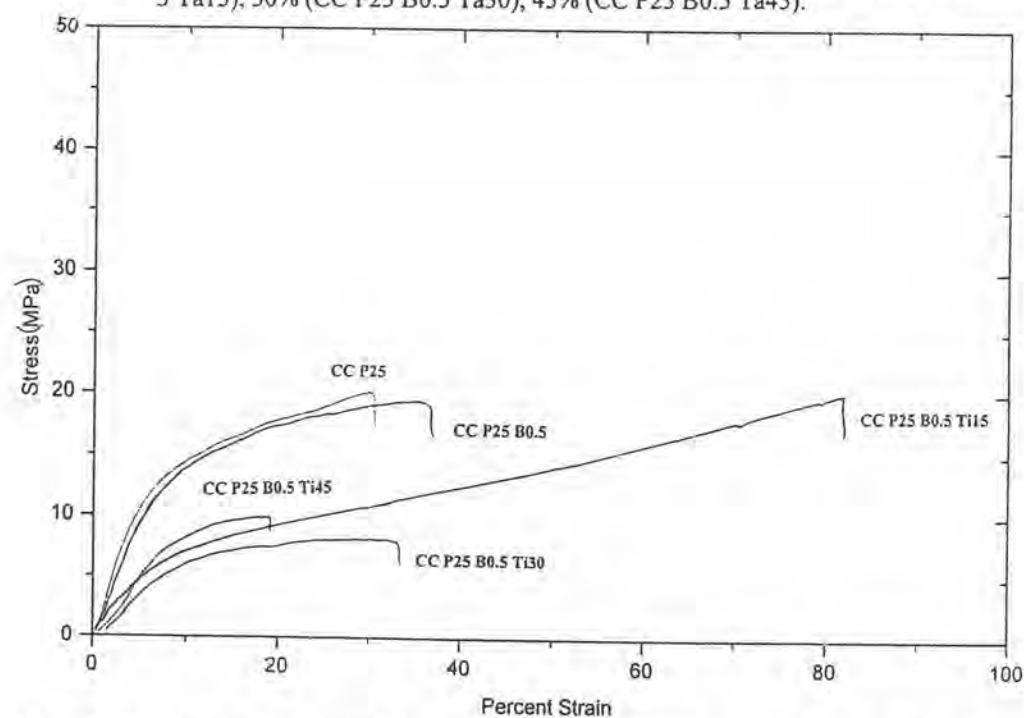


Figure 257 Stress-strain curves of chitosan citrate films plasticized with propylene glycol 25% (CC P25); plasticized with propylene glycol 25% and colored with brilliant blue 0.5% (CC P25 B0.5); plasticized with propylene glycol 25%, colored with brilliant blue 0.5% and pigmented with titanium dioxide 15% (CC P25 B0.5 Ti15), 30% (CC P25 B0.5 Ti30), 45% (CC P25 B0.5 Ti45).

Table 95 Stress at break of chitosan citrate and malate film plasticized with different amount of plasticizer

Cast Film	Stress at Break (MPa)						AVG	SD
	1	2	3	4	5	6		
CC	17.271	12.527	8.699	16.982	11.262	19.416	14.360	4.145
CC G5	12.161	16.472	13.843	13.958	14.360	15.132	14.321	1.436
CC G15	14.680	7.057	13.303	15.307	9.458	13.020	12.138	3.214
CC G25	4.805	8.903	4.783	9.147	11.197	7.100	7.656	2.569
CC G35	2.508	5.415	6.070	3.992	2.607	4.647	4.207	1.457
CC G45	1.264	1.318	1.683	1.795	1.409	1.259	1.455	0.230
CC P5	41.059	32.504	40.431	35.766	44.926	35.285	38.329	4.586
CCP 15	30.732	25.311	26.826	28.585	29.610	25.138	27.700	2.309
CC P25	22.666	26.108	21.905	25.646	28.364	17.387	23.679	3.885
CC P35	25.527	26.470	26.121	24.258	25.207	24.921	25.417	0.806
CC P45	18.645	20.553	20.462	18.537	23.029	24.095	20.887	2.268
CC E5	42.336	30.117	41.192	45.340	38.227	38.814	39.338	5.196
CC E15	44.569	36.672	41.893	48.355	45.285	47.710	44.081	4.308
CC E25	46.202	47.396	46.317	44.483	46.019	48.953	46.562	1.498
CC E35	43.304	45.900	51.825	37.437	42.467	51.040	45.329	5.472
CM	39.130	36.867	39.144	38.889	32.527	33.456	36.669	2.988
CM G5	30.076	31.379	28.487	26.096	26.137	33.589	29.294	2.975
CM G15	28.981	32.175	30.427	31.679	32.915	32.838	31.503	1.535
CM G25	24.222	20.658	23.335	21.367	27.448	27.342	24.062	2.885
CM G35	13.006	11.967	14.233	14.403	15.509	12.680	13.633	1.308
CM G45	4.641	5.829	5.111	5.142	5.281	4.387	5.065	0.506
CM P5	31.697	41.390	36.084	43.087	35.052	29.250	36.093	5.370
CM P15	36.761	39.947	39.241	46.314	48.566	37.512	41.390	4.877
CM P25	33.643	33.592	39.625	29.033	27.163	39.015	33.679	5.057
CM P35	37.050	39.568	38.507	39.006	38.138	32.082	37.392	2.737
CM P45	41.562	40.652	38.515	40.006	39.285	37.444	39.577	1.486

Table 96 Stress at break of chitosan citrate films plasticized with propylene glycol 25% and colored with brilliant blue 0.5% and unpigmented or pigmented with different amount of talcum or titanium dioxide

Cast Film	Stress at Break (MPa)						AVG	SD
	1	2	3	4	5	6		
CC P25 B0.5	21.323	20.471	21.990	24.320	16.787	18.122	20.502	2.718
CC P25 B0.5 Ta15	20.744	23.109	18.210	21.857	22.960	23.557	21.740	2.007
CC P25 B0.5 Ta30	23.443	21.947	23.952	24.448	22.970	25.929	23.782	1.358
CC P25 B0.5 Ta45	18.123	20.743	20.612	20.620	18.023	18.182	19.384	1.398
CC P25 B0.5 Ti15	21.292	19.357	21.508	22.958	22.987	20.958	21.510	1.361
CC P25 B0.5 Ti 30	6.943	7.671	7.849	8.377	8.270	8.901	8.002	0.675
CC P25 B0.5 Ti45	9.460	10.340	8.384	8.645	11.000	11.655	9.914	1.308

Table 97 Maximum percent strain of chitosan citrate and chitosan malate films plasticized with different amount of plasticizer

Cast Film	Maximum Percent Strain (%)						AVG	SD
	1	2	3	4	5	6		
CC	37.441	23.893	21.179	28.391	29.198	24.055	27.360	5.783
CC G5	83.526	72.717	89.114	70.952	55.579	59.416	71.884	13.079
CC G15	68.531	77.979	81.155	86.986	69.594	71.724	75.995	7.298
CC G25	163.124	169.107	145.488	134.939	149.013	172.361	155.672	14.782
CC G35	219.643	418.019	326.796	241.780	258.705	186.221	275.194	84.205
CC G45	519.922	397.206	593.169	310.638	491.438	565.695	479.678	107.157
CC P5	11.294	9.568	12.258	11.988	11.442	9.024	10.929	1.324
CC P15	13.386	13.533	17.383	15.215	19.597	15.257	15.729	2.387
CC P25	45.597	51.076	42.938	51.251	37.551	30.575	43.165	8.049
CC P35	45.179	32.976	32.020	33.862	38.250	50.228	38.753	7.428
CC P45	57.016	71.818	54.891	60.971	55.040	54.103	58.973	6.763
CC E5	7.525	7.149	7.813	7.006	6.992	7.779	7.377	0.377
CC E15	7.111	7.980	6.294	8.017	7.232	7.272	7.318	0.637
CC E25	5.055	6.235	5.192	3.601	5.243	4.791	5.020	0.851
CC E35	3.895	3.807	5.714	4.346	3.935	4.989	4.448	0.760
CM	29.650	31.078	33.424	34.775	31.480	29.456	31.644	2.102
CM G5	49.286	38.883	42.383	46.254	35.035	51.271	43.852	6.244
CM G15	66.346	72.975	66.046	62.651	73.154	67.813	68.164	4.156
CM G25	84.133	104.049	99.252	89.476	89.796	94.499	93.534	7.253
CM G35	173.090	159.194	170.327	145.605	155.209	139.063	157.081	13.387
CM G45	173.334	154.257	171.318	169.764	165.307	174.458	168.073	7.488
CM P5	57.671	50.669	50.213	52.379	64.703	52.216	54.642	5.600
CM P15	61.517	61.008	56.720	49.591	57.408	61.641	57.981	4.634
CM P25	66.685	68.245	68.230	72.382	70.716	59.128	67.564	4.604
CM P35	62.760	62.214	56.869	55.011	57.144	61.958	59.326	3.361
CM P45	52.374	50.144	51.979	53.736	55.176	49.523	52.155	2.130

Table 98 Maximum percent strain of chitosan citrate films plasticized with propylene glycol 25% and colored with brilliant blue 0.5% and unpigmented or pigmented with different amount of talcum or titanium dioxide

Cast Film	Maximum Percent Strain (%)						AVG	SD
	1	2	3	4	5	6		
CC P25 B0.5	39.151	42.934	48.141	48.964	39.377	36.248	42.469	5.174
CC P25 B0.5 Ta15	88.028	84.296	83.664	86.746	84.537	78.667	84.323	3.227
CC P25 B0.5 Ta30	63.948	54.354	51.472	50.774	47.423	58.912	54.481	6.031
CC P25 B0.5 Ta45	58.149	56.346	65.684	59.064	64.830	56.707	60.130	4.100
CC P25 B0.5 Ti15	84.692	81.426	88.030	92.129	100.082	98.712	90.845	7.528
CC P25 B0.5 Ti 30	31.039	33.029	34.204	31.609	30.072	32.447	32.067	1.475
CC P25 B0.5 Ti45	29.022	26.297	18.753	24.302	20.100	20.640	23.186	4.016

Table 99 Modulus of chitosan citrate and chitosan malate films plasticized with different amount of plasticizer

Cast Film	Young's Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
CC	147.175	280.531	263.585	276.873	304.271	378.488	275.154	74.927
CC G5	48.046	125.228	38.867	124.086	117.349	123.650	96.204	41.053
CC G15	52.181	33.207	56.165	76.775	49.097	79.877	57.884	17.676
CC G25	8.975	10.398	13.401	6.821	7.600	10.536	9.622	2.369
CC G35	1.183	2.291	6.637	2.576	1.081	2.673	2.740	2.030
CC G45	.628	1.395	1.022	.602	.511	.489	.775	.360
CC P5	781.039	710.010	757.772	717.799	829.021	768.470	760.685	43.727
CC P15	623.505	515.486	546.560	576.722	543.147	582.151	564.595	37.743
CC P25	217.554	180.587	185.678	227.813	418.140	272.535	250.385	88.632
CC P35	173.992	332.214	335.114	305.561	257.891	175.431	263.367	74.052
CC P45	103.612	102.201	117.405	110.294	117.742	158.206	118.243	20.652
CC E5	948.280	716.358	837.607	1099.398	1013.580	896.555	918.630	134.564
CC E15	1054.112	843.656	1042.417	1020.132	1000.454	1069.965	1005.123	82.842
CC E25	1264.978	1045.271	1307.635	1513.190	1294.092	1326.642	1291.968	149.652
CC E35	1439.396	1531.815	1238.610	1146.917	1297.458	1320.521	1329.120	138.356
CM	602.974	626.583	629.914	548.585	541.494	521.252	578.467	47.108
CM G5	200.778	401.448	304.051	229.241	331.777	385.395	308.782	81.240
CM G15	155.648	138.152	157.254	175.220	192.213	199.919	169.734	23.656
CM G25	29.284	20.303	23.646	23.923	30.366	29.365	26.148	4.083
CM G35	8.922	9.212	10.435	10.856	10.858	10.271	10.092	.832
CM G45	4.974	6.642	5.034	5.094	5.211	4.443	5.233	.740
CM 5	215.108	384.175	332.952	377.815	338.099	390.862	339.835	65.756
CM P15	348.867	260.040	292.402	400.513	474.818	292.359	344.833	80.876
CM P25	264.567	146.960	342.407	174.851	159.196	251.417	223.233	76.111
CM P35	184.192	287.038	397.325	369.901	350.352	291.786	313.432	76.757
CM P45	455.269	593.935	426.876	427.296	425.035	542.692	478.517	72.292

Table 100 Modulus of chitosan citrate films plasticized with propylene glycol 25% and colored with brilliant blue 0.5% and unpigmented or pigmented with different amount of talcum or titanium dioxide

Cast Film	Young's Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
CC P25 B0.5	253.438	248.418	215.353	243.212	193.685	303.737	242.974	37.480
CC P25 B0.5 Ta15	172.208	137.997	145.175	164.008	145.576	154.402	153.228	12.909
CC P25 B0.5 Ta30	298.124	342.428	383.289	315.981	382.650	411.540	355.669	43.987
CC P25 B0.5 Ta45	311.618	327.293	432.588	311.918	290.511	396.856	345.131	56.306
CC P25 B0.5 Ti15	126.990	112.927	118.573	60.662	115.098	111.926	107.696	23.676
CC P25 B0.5 Ti 30	112.984	108.794	120.450	116.152	101.457	128.908	114.791	9.489
CC P25 B0.5 Ti45	148.544	178.973	165.133	139.688	190.331	161.725	164.066	18.729

Table 101 Toughness of chitosan citrate and chitosan malate films plasticized with different amount of plasticizer

Cast Film	Toughness (MPa)						AVG	SD
	1	2	3	4	5	6		
CC	2.876	2.294	1.811	3.565	4.107	3.597	3.042	0.874
CC G5	6.545	7.803	6.512	6.548	5.592	6.334	6.556	0.712
CC G15	6.133	4.985	6.993	8.135	5.073	6.012	6.222	1.196
CC G25	7.446	8.310	4.585	7.250	9.459	8.044	7.516	1.634
CC G35	3.593	11.897	9.066	9.659	4.077	5.425	7.286	3.390
CC G45	3.168	2.567	5.083	3.767	3.305	3.406	3.549	0.847
CC P5	2.863	1.883	3.398	2.756	3.034	1.847	2.630	0.632
CC P15	2.574	2.297	3.410	3.009	4.263	2.501	3.009	0.733
CC P25	7.134	8.744	6.302	9.112	8.270	4.203	7.294	1.840
CC P35	7.395	6.205	5.913	5.807	6.550	7.707	6.596	0.790
CC P45	6.266	8.417	6.321	6.564	7.658	8.230	7.243	0.979
CC E5	1.990	1.366	1.942	1.999	1.615	1.868	1.797	0.254
CC E15	1.999	1.864	1.623	2.475	2.026	2.164	2.025	0.286
CC E25	1.332	1.699	1.417	0.875	1.429	1.319	1.345	0.268
CC E35	0.924	0.973	1.710	0.931	0.903	1.404	1.141	0.337
CM	9.137	9.230	10.629	10.586	8.159	8.030	9.295	1.128
CM G5	9.348	8.641	8.447	8.222	6.483	11.385	8.754	1.601
CM G15	10.999	12.926	11.368	11.579	14.183	13.180	12.373	1.246
CM G25	10.856	11.050	12.028	10.080	13.049	13.926	11.832	1.452
CM G35	12.162	10.461	13.163	10.931	12.514	9.360	11.432	1.427
CM G45	5.040	5.524	5.279	5.291	5.231	4.688	5.176	0.284
CM P5	11.570	14.009	12.235	15.582	15.328	10.797	13.254	2.010
CM P15	14.461	15.773	15.024	17.241	16.462	14.370	15.555	1.149
CM P25	15.114	14.712	18.814	13.859	12.984	15.259	15.124	1.999
CM P35	12.996	15.411	15.448	14.780	15.365	15.815	14.969	1.022
CM P45	15.057	14.652	14.070	15.233	15.332	13.581	14.654	0.700

Table 102 Toughness of chitosan citrate films plasticized with propylene glycol 25% and colored with brilliant blue 0.5% and unpigmented or pigmented with different amount of talcum or titanium dioxide

Cast Film	Toughness (MPa)						AVG	SD
	1	2	3	4	5	6		
CC P25 B0.5	6.286	6.116	7.945	8.977	4.867	5.090	6.647	1.603
CC P25 B0.5 Ta15	12.052	13.445	10.275	13.252	13.477	11.916	12.403	1.253
CC P25 B0.5 Ta30	12.144	9.881	9.737	10.086	8.881	12.056	10.464	1.332
CC P25 B0.5 Ta45	8.554	9.214	10.463	9.563	9.180	8.086	9.182	0.823
CC P25 B0.5 Ti15	11.063	9.591	11.390	12.468	14.293	12.897	11.950	1.632
CC P25 B0.5 Ti 30	1.948	2.293	2.223	2.044	1.764	2.191	2.062	0.181
CC P25 B0.5 Ti45	2.218	2.182	1.335	1.520	1.648	1.804	1.785	0.357

Table 103 Stress at break of chitosan acetate film after exposure to moist heat at 60°C for different time

Time(hr)	Stress at Break (MPa)						AVG	SD
	1	2	3	4	5	6		
0	63.292	82.057	67.609	80.878	70.926	80.510	74.212	7.991
12	91.472	77.025	91.693	78.685	86.066	82.497	84.573	6.268
36	90.391	84.254	95.540	90.442	98.886	85.734	90.875	5.597
72	102.279	83.152	89.108	104.367	92.940	84.680	92.754	8.903
168	87.859	86.271	80.907	89.559	81.041	80.008	84.274	4.117

Table 104 Stress at break of chitosan formate film after exposure to moist heat at 60°C for different time

Time(hr)	Stress at Break (MPa)						AVG	SD
	1	2	3	4	5	6		
0	75.172	73.531	65.043	60.987	73.660	73.932	70.388	5.882
12	69.549	65.585	73.973	77.024	56.229	74.118	69.413	7.607
36	59.247	59.680	71.691	77.752	72.545	70.742	68.610	7.490
72	67.775	52.324	71.317	70.845	58.092	59.185	64.923	7.560
168	82.864	69.711	66.961	72.075	81.373	76.108	74.849	6.398

Table 105 Stress at break of chitosan propionate film after exposure to moist heat at 60°C for different time

Time(hr)	Stress at Break (MPa)						AVG	SD
	1	2	3	4	5	6		
0	102.629	105.264	109.724	103.244	90.588	82.949	99.066	10.137
12	134.837	125.305	112.060	147.632	135.098	117.461	128.732	13.052
36	109.132	92.231	109.775	103.814	109.417	107.994	105.394	6.810
72	92.247	122.235	116.081	96.893	116.829	110.923	109.201	11.977
168	90.026	93.455	87.029	106.353	90.025	82.542	91.572	8.112

Table 106 Maximum percent strain of chitosan acetate film after exposure to moist heat at 60°C for different time

Time(hr)	Maximum Percent Strain (%)						AVG	SD
	1	2	3	4	5	6		
0	91.291	89.278	88.227	104.103	96.392	84.729	92.337	6.930
12	79.177	82.606	63.077	78.521	78.070	83.146	77.433	7.350
36	51.267	59.912	46.450	55.948	55.838	57.189	54.434	4.809
72	27.666	30.295	29.630	25.078	20.666	26.999	26.722	3.509
168	27.753	24.073	20.712	25.148	25.115	19.982	23.797	2.945

Table 107 Maximum percent strain of chitosan formate film after exposure to moist heat at 60°C for different time

Time(hr)	Maximum Percent Strain (%)						AVG	SD
	1	2	3	4	5	6		
0	82.961	88.829	74.453	73.494	85.295	81.471	81.084	6.049
12	70.972	56.508	73.053	54.641	54.489	56.670	61.056	8.561
36	38.900	43.022	36.038	28.193	55.900	46.935	41.498	9.517
72	32.234	26.423	27.845	22.221	18.170	21.734	24.771	5.043
168	17.428	25.541	30.024	30.402	15.662	18.069	22.854	6.628

Table 108 Maximum percent strain of chitosan propionate film after exposure to moist heat at 60°C for different time

Time(hr)	Maximum Percent Strain (%)						AVG	SD
	1	2	3	4	5	6		
0	84.542	86.729	93.532	110.533	113.676	109.641	99.776	13.019
12	54.623	62.139	49.594	64.186	77.844	66.896	62.547	9.862
36	63.164	66.277	44.189	54.517	42.081	62.108	55.389	10.271
72	52.217	40.798	42.428	48.940	51.767	42.999	46.525	5.054
168	17.380	15.553	22.288	18.096	14.454	12.564	16.723	3.379

Table 109 Modulus of chitosan acetate film after exposure moist heat at 60°C for different time

Time(hr)	Young's Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
0	932.624	1406.211	999.045	1196.748	1193.759	1258.438	1164.471	173.370
12	1221.844	1052.014	1259.615	1069.932	1222.413	1088.992	1152.468	91.780
36	1242.374	1152.796	1393.687	1248.952	1295.734	1144.024	1246.261	93.158
72	1653.612	1296.210	1433.975	1748.625	1788.470	1463.465	1564.060	195.565
168	1273.631	1499.309	1370.666	1474.047	1279.276	1478.231	1395.860	102.729

Table 110 Modulus of chitosan formate film after exposure moist heat at 60°C for different time

Time(hr)	Young's Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
0	1300.000	1155.580	1205.616	1135.522	1148.338	1196.446	1190.250	60.454
12	1163.575	1210.140	1326.544	1365.520	973.986	1126.457	1194.370	142.226
36	995.039	778.455	1130.780	1117.771	1154.075	864.004	1006.687	156.234
72	1084.720	874.310	1184.086	1198.293	1164.293	937.231	1073.822	137.417
168	1313.201	1093.075	858.445	1080.488	1464.398	1280.925	1181.755	214.312

Table 111 Modulus of chitosan propionate film after exposure moist heat at 60°C for different time

Time(hr)	Young's Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
0	1448.617	1449.917	1296.267	1222.345	983.621	1182.223	1263.832	177.045
12	1949.953	1767.560	1724.178	1764.902	1510.290	1547.846	1710.788	161.419
36	1357.196	1311.427	1598.562	1369.437	1747.971	1362.576	1457.862	174.605
72	1228.098	1809.567	1735.681	1377.310	1642.214	1754.605	1591.246	234.715
168	1538.271	1596.167	1472.342	1809.515	1507.884	1676.659	1600.140	125.204

Table 112 Toughness of chitosan acetate film after exposure to moist heat at 60°C for different time

Time (hr)	Toughness (MPa)						AVG	SD
	1	2	3	4	5	6		
0	58.470	62.390	52.290	67.230	59.440	58.600	59.737	4.932
12	57.560	53.662	45.480	56.000	58.420	54.260	54.230	4.662
36	38.393	41.678	37.102	41.570	45.293	39.728	40.627	2.898
72	23.055	21.267	21.321	20.690	15.258	19.119	20.118	2.696
168	19.710	17.136	13.350	18.352	16.632	12.933	16.352	2.708

Table 113 Toughness of chitosan formate film after exposure to moist heat at 60°C for different time

Time (hr)	Toughness (MPa)						AVG	SD
	1	2	3	4	5	6		
0	53.175	56.099	42.293	38.644	54.825	52.715	49.625	7.286
12	43.010	33.054	47.668	37.125	26.623	36.464	37.324	7.387
36	19.647	21.706	22.357	17.690	35.890	28.532	24.304	6.754
72	18.384	11.173	16.894	12.325	9.312	9.815	12.984	3.787
168	10.535	14.420	16.197	18.471	9.469	10.919	13.335	3.588

Table 114 Toughness of chitosan propionate film after exposure to moist heat at 60°C for different time

Time (hr)	Toughness (MPa)						AVG	SD
	1	2	3	4	5	6		
0	68.388	72.851	77.526	81.695	73.374	88.359	77.032	7.154
12	57.535	59.571	44.707	71.928	81.531	60.698	62.662	12.681
36	51.984	46.560	38.406	42.930	36.192	50.248	44.387	6.354
72	37.044	40.434	39.173	37.956	49.184	38.145	40.323	4.493
168	11.571	10.736	15.638	15.256	9.488	7.464	11.692	3.223

Table 115 Moisture sorption of chitosan citrate films unplasticized and plasticized with propylene glycol 25% and colored with brilliant blue 0.5% w/w of polymer and pigmented with talcum and titanium dioxide at different concentrations (n=6).

Cast Film	Moisture Sorption (%)
CC P25 B0.5	10.84±0.63
CC P25 B0.5 Ta15	9.34±0.21
CC P25 B0.5 Ta30	8.48±0.39
CC P25 B0.5 Ta45	6.44±0.39
CC P25 B0.5 Ti15	9.92±0.69
CC P25 B0.5 Ti30	8.33±0.27
CC P25 B0.5 Ti45	7.96±0.32

Appendix C

Evaluation of Coated Tablets

Table 116 Weight and weight variation of core tablet and tablets coated with chitosan citrate film with different coating level % w/w of polymeric salt (A) freshly prepared and (B) after direct exposure accelerated condition for 7 days

No.	Weight(mg)											
	CORE(A)	1%(A)	3%(A)	6%(A)	9%(A)	12%(A)	CORE (B)	1%(B)	3%(B)	6%(B)	9%(B)	12%(B)
1	309.9	310.8	309.1	309.3	320.8	321.2	296.8	301.8	297.5	307.2	335.4	327.6
2	304.2	306.7	303.4	308.2	322.6	332.1	305.6	309.4	294.3	316.6	327.1	331.7
3	297.7	306.4	306.1	318.5	327.1	329.3	309.5	301.8	309.2	299.0	325.6	320.1
4	303.9	302.1	320.8	306.4	322.0	327.9	296.3	302.6	310.1	301.9	324.2	317.7
5	306.0	304.9	311.3	314.5	317.7	335.4	301.5	305.6	319.3	316.7	301.9	323.6
6	307.7	305.3	311.5	304.9	318.8	330.9	298.0	301.8	309.7	309.0	325.4	340.1
7	295.0	302.0	305.3	315.9	319.4	337.0	312.3	296.6	306.4	318.2	320.9	325.6
8	297.9	305.5	309.5	323.6	318.6	331.4	298.0	300.0	320.2	305.3	319.0	321.9
9	302.8	308.1	312.3	310.2	322.3	325.8	303.1	310.0	313.7	310.4	318.5	309.3
10	306.8	308.2	302.2	323.9	308.3	308.9	295.9	300.0	310.1	321.3	319.3	348.8
11	300.7	311.9	303.8	325.7	315.7	328.5	296.6	311.2	297.4	316.5	316.5	324.6
12	310.3	298.6	300.5	315.2	321.9	335.8	307.2	298.7	309.6	312.2	324.7	343.8
13	293.2	318.3	309.3	311.6	316.7	330.8	296.1	306.6	307.1	324.6	321.6	300.0
14	299.9	297.8	321.8	327.5	323.7	335.0	305.8	300.1	312.5	307.1	309.8	335.4
15	301.7	306.9	306.2	324.2	324.6	346.1	298.3	294.3	318.0	321.8	319.8	324.0
16	300.9	305.2	316.9	318.3	319.8	329.9	310.0	314.8	298.8	309.6	324.5	315.8
17	297.1	303.9	316.0	306.9	321.1	329.7	290.8	310.5	308.7	317.8	320.0	328.8
18	306.4	302.4	310.5	325.2	327.8	332.2	304.8	279.5	301.3	320.8	317.0	322.8
19	308.3	308.7	307.2	311.4	327.3	332.6	305.7	304.9	303.2	309.8	312.3	327.5
20	305.7	309.0	311.5	310.8	324.7	343.5	293.5	301.8	303.1	311.9	327.5	331.7
AVG	302.8	306.1	309.8	315.6	321.0	331.2	301.3	302.6	307.5	312.9	320.6	326.0
SD	4.9	4.6	5.8	7.3	4.6	7.7	6.1	7.6	7.4	7.0	7.2	11.2
%CV	1.6	1.5	1.9	2.3	1.4	2.3	2.0	2.5	2.4	2.2	2.2	3.4

Table 117 Weight and weight variation of tablets coated with chitosan malate film with different coating level % w/w of polymeric salt (A) freshly prepared and (B) after direct exposure accelerated condition for 7 days

No.	Weight(mg)									
	1%(A)	3%(A)	6%(A)	9%(A)	12%(A)	1%(B)	3%(B)	6%(B)	9%(B)	12%(B)
1	305.6	310.0	317.2	314.5	348.0	302.5	307.5	315.0	330.5	335.1
2	307.1	310.9	333.8	311.0	334.0	303.6	298.7	311.8	322.6	319.1
3	304.1	310.2	309.9	320.5	349.5	315.6	298.6	311.5	348.3	315.0
4	298.8	318.9	329.6	325.5	326.5	306.0	307.8	315.3	327.7	340.0
5	295.1	311.7	305.9	337.0	327.0	313.6	305.5	336.0	309.3	315.5
6	299.5	304.1	322.2	312.7	332.5	295.9	307.8	322.1	321.2	322.6
7	299.8	317.0	311.7	322.2	349.7	320.7	308.2	332.4	333.6	326.7
8	307.4	306.1	328.0	343.5	326.4	300.5	301.6	320.5	329.4	328.6
9	329.1	304.1	308.7	331.1	331.0	310.3	298.4	320.1	304.4	331.3
10	304.0	300.0	304.5	332.5	327.5	297.8	299.9	323.0	321.2	348.9
11	309.2	304.9	314.0	316.1	311.9	317.2	312.7	314.2	341.8	325.7
12	304.6	321.5	328.2	321.7	327.6	306.2	301.4	327.3	306.2	327.2
13	310.7	305.0	317.9	325.2	326.3	315.2	328.0	317.2	318.5	321.2
14	321.4	315.2	315.5	315.4	353.3	309.8	297.7	319.1	322.2	332.8
15	293.4	325.4	320.8	318.0	349.5	318.1	304.9	301.2	322.4	328.3
16	319.2	322.0	310.0	349.8	334.7	311.2	322.6	318.0	320.3	327.4
17	304.5	305.1	325.3	331.9	322.4	297.8	304.0	328.3	323.5	326.9
18	301.6	312.3	325.7	324.3	327.4	287.6	302.8	311.3	320.2	344.4
19	288.8	303.3	320.3	326.5	339.6	310.1	305.2	310.9	324.1	338.5
20	313.5	310.9	312.7	315.2	342.8	314.6	316.3	307.8	326.8	336.1
AVG	305.9	310.9	318.1	324.7	334.4	307.7	306.5	318.2	323.7	329.6
SD	9.7	7.1	8.5	10.4	11.2	8.7	8.1	8.5	10.5	9.0
%CV	3.2	2.3	2.7	3.2	3.4	2.8	2.6	2.7	3.2	2.7

Table 118 Weight and weight variation of tablets coated with chitosan citrate and chitosan malate film plasticized with glycerin and propylene glycol at concentration of 25% w/w of polymer at coating level of 6% w/w of polymeric salt :freshly prepared (A) and after direct exposure accelerated condition for 7 days (B)

No.	Weight(mg)							
	CC G25 (A)	CC P25 (A)	CM G25 (A)	CM P25 (A)	CC G25 (B)	CC 25 (B)	CM G25 (B)	CM P25 (B)
1	316.8	317.0	324.3	324.8	310.4	316.7	314.5	321.7
2	324.0	320.1	310.6	314.8	322.6	318.9	306.7	308.5
3	303.8	306.7	318.0	313.7	324.5	320.2	322.6	324.3
4	311.4	315.8	307.5	312.7	307.7	310.5	316.2	323.8
5	308.1	318.2	324.8	313.9	305.3	308.5	312.7	311.4
6	308.6	320.2	316.8	308.9	317.1	323.2	314.0	319.8
7	322.8	323.2	307.8	325.7	328.6	314.2	314.9	320.3
8	317.6	314.3	311.0	316.1	316.3	316.1	324.8	307.2
9	317.6	311.7	321.9	324.3	316.6	309.7	313.8	317.7
10	309.6	321.6	329.6	314.0	315.9	308.3	323.4	311.1
11	321.7	300.8	316.7	327.6	308.5	321.6	319.5	314.8
12	307.1	322.1	315.8	317.9	312.3	324.5	326.8	321.7
13	326.6	314.2	324.2	321.0	324.3	312.5	313.8	315.5
14	309.9	322.1	311.8	326.1	320.3	315.7	309.5	322.6
15	316.2	326.9	313.2	307.3	313.3	323.7	317.7	323.2
16	321.0	314.6	333.2	321.2	310.5	315.0	313.9	318.7
17	315.6	312.2	304.6	321.0	313.3	312.3	317.3	310.8
18	313.1	325.1	322.9	313.2	322.3	323.3	305.1	313.6
19	309.3	315.4	306.4	320.1	315.0	323.9	319.1	314.2
20	317.4	316.6	309.9	312.7	312.0	312.1	321.8	319.2
AVG	314.9	316.9	316.6	317.9	315.8	316.5	316.4	317.0
SD	6.3	6.2	8.1	6.0	6.3	5.5	5.8	5.3
%CV	2.0	2.0	2.6	1.9	2.0	1.7	1.8	1.7

Table 119 Weight and weight variation of tablets coated with chitosan citrate and chitosan malate film plasticized with propylene glycol and glycerin at concentration of 25 % w/w with coating level 3% w/w of polymer

No.	Weight(mg)									
	CC	CC G25	CC P5	CC P15	CC P25	CC P35	CC P45	CM	CM G25	CM P25
1	311.2	316.4	314.4	312.5	326.7	321.4	327.8	325.2	319.3	326.4
2	324.0	329.1	312.6	315.5	318.0	318.2	322.4	322.8	315.2	318.2
3	318.7	315.4	316.7	311.5	312.8	319.2	323.5	323.1	315.2	310.3
4	329.4	312.3	315.3	321.2	319.4	320.3	318.2	315.7	324.6	323.0
5	311.8	326.2	311.6	312.4	314.4	315.4	317.0	319.3	329.3	327.4
6	315.8	316.2	315.0	313.4	317.0	317.8	319.4	310.8	325.6	317.2
7	312.9	315.8	310.0	317.2	324.2	316.4	317.8	311.3	311.5	326.9
8	317.5	324.9	314.8	311.9	318.2	319.7	320.4	318.4	314.8	311.2
9	334.0	323.6	310.2	311.2	312.4	320.3	322.0	311.6	314.2	326.3
10	320.4	323.3	311.5	320.6	310.0	320.3	321.6	324.6	310.0	330.2
11	308.3	320.3	309.5	314.6	317.0	311.9	317.8	319.4	323.8	325.4
12	317.2	316.3	311.5	316.3	318.0	322.3	318.9	320.6	327.1	315.4
13	310.6	316.5	315.6	314.7	311.3	325.4	321.0	312.5	313.2	301.2
14	320.6	320.5	316.7	311.2	316.1	318.6	325.2	307.6	301.9	318.7
15	314.4	325.1	318.2	309.2	306.4	319.0	318.9	323.8	327.3	312.0
16	308.1	319.8	312.5	317.4	313.4	319.5	319.0	307.4	315.8	303.4
17	312.8	325.1	316.7	319.0	331.9	318.5	321.0	311.4	304.1	317.8
18	325.2	329.8	311.0	312.6	326.0	318.0	320.8	322.9	309.0	319.6
19	318.8	308.5	314.2	312.7	323.2	319.4	319.0	316.3	328.5	326.0
20	315.7	324.0	309.2	308.9	308.3	322.0	324.0	314.2	313.2	312.1
AVG	317.4	320.5	313.4	314.2	317.2	319.2	320.8	316.9	317.2	318.4
SD	6.8	5.7	2.7	3.5	6.6	2.8	2.8	5.8	8.1	8.2
%CV	2.2	1.8	0.9	1.1	2.1	0.9	0.9	1.8	2.6	2.6

Table 120 Weight and weight variation of tablets coated with colored plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer

No.	Weight(mg)							
	CC P25 B0.5	CC P25 G0.5	CC P25 B0.5 Ta15	CC P25 B0.5 Ta30	CC P25 B0.5 Ta45	CC P25 B0.5 Ti15	CC P25 B0.5 Ti30	CC P25 B0.5 Ti45
1	320.4	319.5	311.6	307.8	308.9	332.8	321.2	316.9
2	320.9	308.9	306.8	314.8	308.8	304.8	326.3	316.2
3	320.5	323.6	313.8	314.1	314.6	324.8	314.9	309.4
4	314.4	324.7	309.6	319.5	316.2	304.5	325.7	309.5
5	311.4	321.6	330.2	324.2	314.4	307.4	326.4	319.9
6	326.2	316.5	328.9	315.7	312.9	307.9	319.8	315.7
7	326.0	325.6	311.8	313.9	302.9	307.7	313.7	323.5
8	315.5	325.4	316.5	315.6	312.2	313.3	313.5	312.3
9	318.8	325.1	320.3	306.8	313.0	321.2	314.5	319.0
10	322.2	328.0	315.0	317.1	316.5	310.6	316.6	320.6
11	305.1	318.1	310.6	316.3	323.1	309.9	322.7	323.8
12	331.8	321.7	317.1	319.0	316.6	313.6	323.0	316.3
13	317.3	313.2	310.8	309.1	319.3	319.9	320.2	314.7
14	318.5	321.9	309.0	303.1	322.4	307.9	311.8	319.8
15	326.7	314.6	309.5	319.0	312.1	321.3	310.7	314.8
16	330.3	320.6	312.7	317.7	315.2	313.4	316.9	315.8
17	318.7	321.1	312.8	311.4	306.9	325.0	320.8	330.9
18	319.1	330.0	313.3	308.1	309.8	313.8	326.8	327.8
19	310.5	317.1	314.8	317.3	319.1	316.3	323.6	311.1
20	327.0	317.3	314.5	317.5	306.7	311.1	324.4	314.0
AVG	320.1	320.7	314.5	314.4	313.6	314.4	319.7	317.6
SD	6.8	5.2	6.0	5.2	5.3	7.6	5.2	5.7
%CV	2.1	1.6	1.9	1.7	1.7	2.4	1.6	1.8

Table 121 Weight and weight variation of core tablet and tablets coated with colored plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after kept in bottle and kept in accelerated condition for one month

No.	Weight(mg)								
	CC P25	CC P25 B0.5	CC P25 G0.5	CC P25 B0.5 Ta15	CC P25 B0.5 Ta30	CC P25 B0.5 Ta45	CC P25 B0.5 Ti15	CC P25 B0.5 Ti30	CC P25 B0.5 Ti45
1	311.1	321.5	315.1	312.7	310.9	317.1	316.9	315.1	317.0
2	307.7	328.3	326.2	312.7	318.4	316.8	313.5	322.4	322.2
3	315.6	312.4	312.0	315.7	309.5	330.6	325.1	325.3	318.1
4	329.4	332.0	324.2	318.6	313.9	311.1	315.2	323.1	314.2
5	308.5	313.1	312.2	316.7	313.4	317.1	310.7	318.8	326.7
6	320.5	309.9	325.2	318.5	326.0	326.7	315.0	323.9	317.8
7	310.9	323.6	318.1	318.1	324.3	315.1	325.1	314.7	318.5
8	316.3	334.0	317.8	318.5	317.0	315.3	317.9	323.8	317.3
9	315.6	315.6	324.5	318.6	314.5	313.8	321.7	323.2	318.1
10	308.2	316.7	318.2	322.6	316.9	318.6	317.6	323.1	320.8
11	312.2	328.7	311.2	313.3	315.3	318.0	320.0	323.8	324.0
12	316.6	309.1	322.2	314.0	324.3	314.0	316.7	313.6	320.9
13	319.6	331.0	313.4	316.2	317.4	315.3	320.8	319.9	316.0
14	314.0	315.6	316.7	320.4	320.8	317.5	321.6	314.9	318.4
15	314.2	312.6	329.1	318.4	316.4	318.6	319.1	321.4	324.2
16	322.2	316.0	312.7	319.9	321.2	315.4	318.6	314.4	319.8
17	320.5	323.7	317.2	314.7	326.3	327.7	318.7	319.7	317.4
18	310.6	327.0	312.1	321.0	322.6	325.1	317.3	319.2	320.2
19	324.2	322.1	321.0	315.1	320.3	317.3	320.1	323.9	319.2
20	313.2	323.9	320.8	317.3	320.0	324.5	315.7	320.7	323.0
AVG	315.6	320.8	318.5	317.2	318.5	318.8	318.4	320.2	319.7
SD	5.8	7.7	5.4	2.8	4.8	5.3	3.6	3.8	3.1
%CV	1.8	2.4	1.7	0.9	1.5	1.6	1.1	1.2	1.0

Table 122 Weight and weight variation of tablets coated with chitosan citrate and chitosan malate film plasticized with propylene glycol and glycerin at concentration of 25 % w/w with coating level 3% w/w of polymer after direct exposure accelerated condition for 7 days

No.	Weight(mg)					
	CC	CC G25	CC P25	CM	CM G25	CM P25
1	318.3	318.4	325.9	312.1	315.9	315.3
2	320.8	326.3	324.7	309.1	308.4	318.0
3	318.6	324.7	309.4	310.3	325.6	318.3
4	316.4	324.5	312.4	317.1	311.4	322.8
5	326.4	325.7	310.4	316.9	310.1	318.1
6	314.9	325.4	325.4	310.3	322.3	308.9
7	324.2	330.7	322.4	328.4	317.8	318.6
8	316.9	318.8	321.2	315.4	335.1	308.6
9	318.0	312.6	318.4	318.4	318.4	318.5
10	321.4	316.7	319.3	314.0	326.0	318.0
11	316.9	328.8	319.0	324.0	322.0	326.4
12	325.0	318.5	319.4	305.9	314.8	313.1
13	319.6	311.3	319.0	313.5	311.9	327.3
14	312.3	317.1	315.3	318.7	323.1	313.2
15	310.6	315.1	312.3	320.2	317.7	320.1
16	324.1	313.6	330.0	321.2	317.6	323.6
17	315.7	308.2	319.1	321.6	318.2	318.3
18	316.2	311.4	323.4	316.7	320.1	316.3
19	321.6	306.1	323.3	321.0	324.2	324.4
20	314.6	329.7	313.0	314.9	324.7	316.7
AVG	318.6	319.2	319.2	316.5	319.3	318.2
SD	4.3	7.4	5.6	5.5	6.4	5.1
%CV	1.3	2.3	1.8	1.7	2.0	1.6

Table 123 Weight and weight variation of core tablet and tablets coated with chitosan citrate and chitosan malate film plasticized with propylene glycol and glycerin at concentration of 25 % w/w with coating level 3% w/w after kept at room temperature for one year

No.	Weight(mg)					
	CC	CC G25	CC P25	CM	CM G25	CM P25
1	314.6	317.2	323.1	308.1	316.5	322.1
2	321.9	311.1	311.1	325.8	313.9	306.7
3	315.4	319.2	314.5	308.6	323.3	313.5
4	317.1	309.3	308.8	325.0	330.2	315.8
5	310.6	319.6	328.9	327.0	319.8	324.1
6	313.6	318.2	314.2	316.1	312.4	307.3
7	314.2	329.8	309.7	323.2	314.2	327.9
8	318.2	314.5	308.9	308.2	316.6	313.8
9	318.1	308.9	311.8	319.4	324.5	311.1
10	311.1	329.6	308.4	324.7	317.0	320.3
11	311.7	322.6	317.7	323.2	322.2	326.5
12	317.3	311.2	310.0	313.1	322.2	312.2
13	316.3	314.3	321.2	312.1	319.7	321.7
14	314.6	322.0	313.4	309.5	310.8	310.9
15	308.4	313.9	310.3	316.1	317.9	311.4
16	317.7	327.5	317.1	314.2	317.1	325.9
17	311.0	325.0	312.1	321.3	324.8	316.2
18	315.4	313.3	313.8	322.0	324.3	312.2
19	306.8	323.2	314.7	317.4	312.4	313.3
20	314.6	320.6	314.6	328.9	312.2	316.1
AVG	314.4	318.6	314.2	318.2	318.6	316.5
SD	3.7	6.5	5.3	6.8	5.3	6.4
%CV	1.2	2.0	1.7	2.1	1.6	2.0

Table 124 Weight and weight variation of core tablet and tablets coated with colored plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after kept at room temperature for one year

No.	Weight(mg)							
	CC P25 B0.5	CC P25 G0.5	CC P25 B0.5 Ta15	CC P25 B0.5 Ta30	CC P25 B0.5 Ta45	CC P25 B0.5 Ti15	CC P25 B0.5 Ti30	CC P25 B0.5 Ti45
1	320.3	314.6	319.4	320.6	316.8	317.6	318.5	326.4
2	321.2	318.3	315.0	316.7	321.0	317.8	321.6	321.5
3	318.4	319.4	316.3	317.5	320.5	318.9	324.8	318.6
4	319.6	318.5	320.5	320.4	320.0	320.2	321.6	321.5
5	314.0	319.2	322.5	312.6	316.4	317.4	322.0	322.5
6	319.2	315.4	320.4	320.6	314.6	318.3	314.7	314.5
7	312.6	312.7	320.4	317.0	318.5	322.4	318.6	320.5
8	317.5	320.0	320.3	318.6	317.5	318.4	317.8	316.5
9	319.0	320.5	315.0	313.5	318.9	320.6	319.2	316.0
10	318.4	322.0	316.4	318.0	319.5	320.3	319.0	322.4
11	324.2	316.5	316.4	319.4	317.8	326.0	325.0	326.5
12	315.0	317.0	317.0	319.0	323.5	321.0	321.0	325.6
13	320.7	318.6	318.5	318.6	318.4	321.0	317.5	321.0
14	315.0	318.3	321.0	318.5	322.9	316.0	325.9	316.5
15	318.4	315.0	312.0	319.5	322.4	316.8	319.0	326.7
16	322.0	316.8	312.6	324.9	326.9	317.0	315.6	317.5
17	319.5	313.2	312.0	322.0	322.6	316.7	312.6	316.5
18	312.6	321.0	322.0	321.0	322.7	320.5	321.4	315.4
19	317.4	320.4	318.5	320.4	320.3	321.6	316.4	317.7
20	320.6	324.5	316.9	326.5	317.2	318.0	324.6	316.4
AVG	318.3	318.1	317.7	319.3	319.9	319.3	319.8	320.0
SD	3.1	3.0	3.2	3.2	3.0	2.4	3.6	4.0
%CV	1.0	0.9	1.0	1.0	0.9	0.8	1.1	1.3

Table 125 Weight and weight variation of core and tablets coated with chitosan acetate film at different coating level % w/w of polymer

No.	Weight(mg)						
	CORE	1%	3%	6%	9%	12%	15%
1	300.6	294.5	298.1	315.1	330.9	317.9	332.2
2	297.5	304.1	310.2	323.2	317.7	338.1	328.4
3	293.4	294.8	314.7	305.4	318.0	336.6	344.3
4	310.8	306.5	312.2	311.4	323.2	314.1	346.4
5	302.3	295.0	299.3	320.9	323.9	318.0	330.1
6	293.8	297.6	293.1	315.1	334.8	333.1	340.7
7	308.4	298.4	301.9	298.1	321.8	333.7	321.8
8	303.8	311.2	310.2	304.6	337.9	338.7	340.3
9	293.9	294.8	302.8	319.1	330.1	348.3	329.2
10	297.7	296.3	309.7	310.5	329.9	333.4	334.9
11	299.1	293.7	320.0	307.5	320.7	323.8	342.3
12	296.1	295.8	318.0	314.3	328.7	326.4	351.6
13	292.7	300.6	303.7	306.6	310.7	331.6	336.1
14	298.4	299.1	307.3	314.5	341.7	332.6	326.5
15	291.3	302.2	307.3	301.5	336.7	336.8	347.5
16	299.6	291.6	301.2	317.5	321.9	332.8	351.9
17	302.4	313.6	299.8	316.8	342.5	319.1	333.2
18	292.8	301.4	300.0	313.6	359.4	328.0	349.0
19	293.4	301.9	304.6	307.2	315.8	323.4	350.3
20	307.5	301.5	301.2	306.5	306.7	328.4	346.2
AVG	298.8	299.7	305.8	311.5	327.7	329.7	339.1
SD	5.7	5.8	7.0	6.7	12.3	8.5	9.2
%CV	1.9	1.9	2.3	2.1	3.8	2.6	2.7

Table 126 Weight and weight variation of tablets coated with chitosan acetate film incorporated with different amount of additives at coating level 15 % w/w

No.	Weight(mg)						
	CA Cas15	CA M45	CA M45 Cas15	CA Ta45	CA Ti45	CA M60	CA M75
1	337.5	366.2	384.5	367.6	365.7	361.2	377.9
2	334.4	362.3	362.6	368.2	370.2	364.8	379.9
3	340.0	369.5	360.8	358.4	359.1	372.3	369.5
4	359.0	348.2	359.6	358.2	375.2	378.6	370.4
5	329.4	343.3	365.7	366.6	372.1	378.2	370.4
6	341.7	360.7	359.9	358.2	365.8	372.4	377.0
7	347.9	359.7	367.8	359.6	365.3	374.2	363.2
8	333.0	357.0	367.3	354.1	377.2	378.2	372.6
9	331.8	361.8	367.7	369.3	366.7	368.2	384.2
10	343.6	366.0	366.8	356.9	372.1	375.1	374.2
11	348.0	372.1	365.4	368.2	350.2	366.2	365.7
12	356.2	360.1	359.3	352.8	362.1	372.2	369.2
13	340.2	350.1	362.7	352.6	360.1	372.4	376.8
14	342.6	362.1	367.3	365.8	359.0	369.1	378.2
15	346.5	366.7	366.8	356.2	354.2	370.1	383.2
16	344.4	348.9	374.5	359.3	350.5	371.2	381.4
17	345.7	358.0	366.6	359.8	358.6	366.2	378.1
18	338.0	359.2	361.7	367.2	354.5	366.7	376.7
19	347.1	364.2	362.8	357.2	366.3	370.1	375.8
20	339.4	363.1	369.2	356.5	352.7	369.3	375.1
AVG	342.3	360.0	366.0	360.6	362.9	370.8	375.0
SD	7.5	7.4	5.8	5.6	8.1	4.6	5.6
%CV	2.2	2.1	1.6	1.6	2.2	1.3	1.5

Table 127 Weight and weight variation of tablets coated with chitosan acetate film incorporated with different amount of additives at coating level 15 % w/w

No.	Weight(mg)					
	CA M45 Tr15	CA M45 Tr30	CA M45 Tr45	CA M45 Pg30	CA M45 Dp15	CA M45 Cm15 HPMC45
1	350.2	372.8	375.5	374.7	364.2	384.2
2	368.5	379.2	382.2	372.2	362.3	381.1
3	357.3	392.4	390.1	367.5	366.4	380.1
4	354.4	376.9	385.4	376.2	364.0	377.2
5	353.6	352.6	375.4	364.3	361.8	378.1
6	359.8	360.6	382.0	372.8	374.2	391.1
7	352.4	368.8	384.2	368.8	354.6	398.2
8	366.8	368.8	380.5	359.2	353.2	390.2
9	372.1	362.7	375.0	366.8	373.2	390.3
10	369.6	359.2	379.5	357.8	364.8	389.4
11	367.1	364.9	385.3	378.3	364.3	374.2
12	354.2	369.7	370.6	364.8	363.2	381.1
13	372.1	355.8	369.4	373.5	364.3	381.0
14	371.1	364.8	390.0	373.8	360.8	382.3
15	370.2	365.6	381.5	378.6	372.5	384.2
16	352.6	362.8	374.2	372.1	369.3	381.1
17	356.1	365.6	374.7	378.2	370.6	374.0
18	357.3	376.6	386.6	368.2	372.3	380.0
19	368.2	370.2	378.2	362.9	380.2	381.4
20	366.1	371.4	364.8	370.1	372.6	382.1
AVG	362.0	368.1	379.3	370.0	366.4	383.1
SD	7.8	9.0	6.8	6.1	6.7	6.1
%CV	2.2	2.4	1.8	1.7	1.8	1.6

Table 128 Weight and weight variation of tablets coated with chitosan acetate film incorporated with different amount of additives

No.	Weight(mg)				
	Coating level(%)				
	CA M45 Cas15			CA M45 Cas15 U5	
	9%	12%	18%	9%	12%
1	350.2	345.1	390.2	348.4	358.9
2	337.8	357.2	392.2	338.6	362.2
3	346.2	374.9	376.8	343.7	358.1
4	343.6	349.1	378.3	343.5	361.1
5	377.1	345.5	377.7	342.6	362.4
6	358.2	340.3	384.3	345.2	354.6
7	348.3	362.1	372.2	341.6	360.4
8	366.3	367.1	384.9	337.4	365.2
9	351.9	363.7	383.7	343.5	351.0
10	351.0	360.9	369.4	344.2	360.9
11	351.8	361.1	376.1	345.6	360.5
12	368.7	355.3	385.4	341.4	356.3
13	347.6	350.2	377.7	348.5	355.8
14	347.6	345.8	375.4	345.0	358.8
15	349.6	353.2	372.9	334.1	360.2
16	350.9	348.8	366.6	345.6	359.4
17	343.4	343.6	369.6	346.1	360.2
18	341.3	361.4	369.9	343.8	357.0
19	344.2	353.8	373.0	336.9	360.6
20	359.2	354.7	386.3	345.6	361.0
AVG	351.7	354.7	378.1	343.1	359.2
SD	9.8	8.9	7.4	3.8	3.1
%CV	2.8	2.5	1.9	1.1	0.9

Table 129 Weight and weight variation of tablets coated with chitosan acetate film incorporated with magnesium stearate 45%, castor oil 15% and different amount of urea at coating level 15%w/w of polymer

	Weight(mg)			
	5%	15%	30%	45%
1	372.1	361.5	372.0	367.8
2	376.1	364.3	371.1	392.2
3	366.2	369.8	358.1	369.6
4	364.8	373.0	367.7	385.4
5	353.8	368.1	371.5	368.6
6	359.0	367.7	372.3	376.2
7	364.0	371.3	370.1	382.3
8	363.2	378.2	362.7	370.8
9	372.0	362.8	370.1	384.2
10	364.8	367.6	364.9	389.5
11	359.0	377.5	364.7	380.9
12	362.0	367.6	365.1	384.5
13	364.0	371.3	376.9	391.1
14	361.1	374.8	372.6	392.1
15	360.2	371.2	375.9	381.2
16	370.1	374.6	370.0	385.8
17	360.2	366.5	364.3	370.4
18	368.2	367.8	371.4	386.2
19	365.0	367.8	374.0	372.7
20	361.0	371.2	368.2	381.1
AVG	364.3	369.7	369.2	380.6
SD	5.3	4.5	4.7	8.2
%CV	1.5	1.2	1.3	2.2

Table 130 Weight and weight variation of tablets coated with chitosan acetate film incorporated with different amount of additives at coating level 15%w/w of polymer after moist heat treatment at 60°C for 24 hrs

No.	Weight(mg)	
	CA M45 Cas15	CA M45 Cas15 U5
1	361.5	378.6
2	368.2	370.2
3	375.0	364.6
4	379.0	364.6
5	370.0	369.8
6	363.3	362.8
7	365.5	364.9
8	365.3	366.2
9	362.5	376.7
10	360.2	364.0
11	364.0	362.0
12	375.2	362.0
13	365.5	378.2
14	364.6	369.4
15	369.9	364.8
16	369.8	365.9
17	365.8	377.6
18	374.2	375.6
19	375.2	377.6
20	374.2	364.7
AVG	368.4	369.0
SD	5.5	6.1
%CV	1.5	1.6

Table 131 Weight and weight variation of tablets coated with CA M45 Cas and CA M45 Cas15 U5 films at coating level of 15% based on chitosan after kept in bottle and kept in accelerated condition for one month (A) and at room temperature for one year (B)

No.	Weight(mg)						
	(A)			(B)			
	CA M45 Cas15	CA M45 Cas15 ^a	CA M45 Cas15 U5 ^a	CA M45 Cas15	CA M45 ^b	CA M45 Cas15 ^a	CA M45 Cas15 U5 ^a
1	359.0	372.4	372.4	376.2	357.5	369.2	367.4
2	367.0	365.3	372.3	376.5	360.4	357.8	372.0
3	358.9	370.0	367.8	367.8	360.4	365.0	367.9
4	360.2	380.2	370.3	372.4	356.7	367.0	368.0
5	364.7	368.5	373.4	368.9	360.4	367.3	370.0
6	374.2	362.6	370.3	367.5	367.8	363.0	367.0
7	365.2	364.0	368.8	370.3	360.3	365.0	360.5
8	369.2	361.3	369.7	373.3	367.4	368.3	367.0
9	367.4	367.0	370.0	370.2	367.5	367.2	367.8
10	362.5	367.0	362.2	368.3	367.2	368.3	363.5
11	365.9	365.9	370.2	368.5	360.3	370.3	360.2
12	372.3	370.2	363.4	367.8	360.4	364.8	370.3
13	363.4	364.6	370.2	362.2	359.2	367.2	376.4
14	362.5	368.0	372.5	367.2	367.3	367.2	368.4
15	369.2	369.2	362.8	361.4	260.4	370.0	368.2
16	372.0	372.0	365.0	367.8	356.7	367.3	367.9
17	368.9	372.7	365.8	368.2	358.0	370.3	367.8
18	361.9	373.0	368.9	367.9	360.2	364.3	379.0
19	365.2	370.3	370.4	362.3	364.4	360.3	367.9
20	365.9	372.3	370.2	362.2	359.6	360.2	367.4
AVG	365.8	368.8	368.8	368.3	356.6	366.0	368.2
SD	4.3	4.4	3.3	4.2	23.0	3.5	4.3
%CV	1.2	1.2	0.9	1.1	6.4	1.0	1.2

After moist heat at 60°C 75%RH for ^a24 hrs and ^b48 hrs.

Table 132 Friability of core tablet and tablets coated with chitosan citrate or chitosan malate films at coating level of 6% of polymeric salt

Tablet	Weight(g)		%Friability
	Before	After	
CORE	6.0567	6.0255	0.5151
CC	6.3202	6.2913	0.4573
CM	6.3636	6.3673	-0.0581
CC G25	6.2663	6.2746	-0.1325
CC P25	6.3638	6.3728	-0.1414
CM G25	6.3736	6.3867	-0.2055
CM P25	6.3792	6.3865	-0.1144

Table 133 Friability of core tablet and tablets coated with chitosan citrate or chitosan malate films containing different amount of additives at coating level of 3% of polymer

Coated Tablet	Weight(g)		%Friability
	Before	After	
CC	6.3823	6.3573	0.3917
CC G25	6.4198	6.4200	-0.0031
CC P5	6.3305	6.3309	-0.0063
CC P15	6.3407	6.3419	-0.0189
CC P25	6.3656	6.3675	-0.0298
CC P35	6.3697	6.3700	-0.0050
CC P45	6.3715	6.3722	-0.0110
CM	6.2875	6.2903	-0.0445
CM G25	6.3506	6.3615	-0.1716
CM P25	6.3960	6.3974	-0.0219
CC P25 G0.5	6.3834	6.3889	-0.0862
CC P25 B0.5	6.2727	6.2857	-0.2072
CC P25 B0.5 Ta15	6.2709	6.2711	-0.0032
CC P25 B0.5 Ta30	6.2774	6.2771	0.0048
CC P25 B0.5 Ta45	6.2797	6.2809	-0.0191
CC P25 B0.5 Ti15	6.3141	6.3110	0.0491
CC P25 B0.5 Ti30	6.3561	6.3941	-0.5979
CC P25 B0.5 Ti45	6.3486	6.3476	0.0158

Table 134 Friability of core tablet and tablets coated with chitosan citrate film containing different amount of additives at coating level of 3% of polymer after kept in bottle and accelerated condition for one month

Coated Tablet	Weight(g)		%Friability
	Before	After	
CC	6.3742	6.3590	0.2385
CC P25	6.3577	6.3574	0.0047
CC P25 G0.5	6.3415	6.3410	0.0079
CC P25 B0.5	6.3323	6.3307	0.0253
CC P25 B0.5 Ta15	6.3378	6.3373	0.0079
CC P25 B0.5 Ta30	6.3301	6.3296	0.0079
CC P25 B0.5 Ta45	6.3406	6.3404	0.0032
CC P25 B0.5 Ti15	6.3805	6.3796	0.0141
CC P25 B0.5 Ti30	6.4024	6.4018	0.0094
CC P25 B0.5 Ti45	6.3741	6.3736	0.0078

Table 135 Friability of core tablet and tablets coated with unplasticized and plasticized chitosan citrate and chitosan malate films at coating level of 3% based on chitosan after kept at room temperature for one year

Coated Tablet	Weight(g)		%Friability
	Before	After	
CC	6.2198	6.2126	0.1158
CC G25	6.3929	6.3937	-0.0125
CC P25	6.3730	6.3700	0.0471
CM	6.3788	6.3788	0.0000
CM G25	6.4593	6.4593	0.0000
CM P25	6.3799	6.3799	0.0000
CC P25 G0.5	6.3478	6.3473	0.0079
CC P25 B0.5	6.3360	6.3349	0.0174
CC P25 B0.5 Ta15	6.3364	6.3358	0.0095
CC P25 B0.5 Ta30	6.3301	6.3289	0.0190
CC P25 B0.5 Ta45	6.3446	6.3427	0.0299
CC P25 B0.5 Ti15	6.3694	6.3690	0.0063
CC P25 B0.5 Ti30	6.3406	6.3402	0.0063
CC P25 B0.5 Ti45	6.3724	6.3715	0.0141

Table 136 Friability of core tablet and tablets coated with chitosan acetate film containing different additives at coating level of 15% based on chitosan

Tablet	Weight(g)		%Friability
	Before	After	
CORE	5.9849	5.9777	0.1203
CA	6.7680	6.7716	-0.0532
CA M45	7.2260	7.2260	0.0000
CA M60	7.4356	7.4350	0.0081
CA M75	7.6252	7.6246	0.0079
CA Ta45	7.3046	7.3046	0.0000
CA Ti45	7.2403	7.2403	0.0000
CA Cas15	6.9021	6.9022	-0.0014
CA M45 Cas15 U5	7.3796	7.3796	0.0000

Table 137 Friability of tablets coated with CA M45 Cas15 film at coating level of 15% based on chitosan after moist heat at 60°C for different time intervals

Time(hrs)	Weight(g)		%Friability
	Before	After	
0	7.3778	7.3778	0.0000
48	7.3956	7.3954	0.0027
72	7.3865	7.3865	0.0000
120	7.3864	7.3862	0.0027
168	7.3940	7.3937	0.0041

Table 138 Friability of tablets coated with CA M45 Cas15 U5 film at coating level of 15% based on chitosan after moist heat at 60°C at different %RH for 24 hrs.

%RH	Weight(g)		%Friability
	Before	After	
0	7.3782	7.3782	0.0000
75	7.3799	7.3792	0.0095
85	7.3794	7.3791	0.0041
96	7.3796	7.3794	0.0027

Table 139 Friability of tablets coated with CA M45 Cas and CA M45 Cas15 U5 films at coating level of 15% based on chitosan after kept in bottle and kept in accelerated condition for one month

Formula	Weight(g)		%Friability
	Before	After	
CA M45 Cas15	7.3774	7.3772	0.0027
CA M45 Cas15 ^a	7.3780	7.3780	0.0000
CA M45 Cas15 U5 ^a	7.3793	7.3793	0.0000

After moist heat at 60°C 75%RH for 24 hrs

Table 140 Friability of tablets coated with chitosan acetate films containing different additives at coating level of 15% based on chitosan after kept at room temperature for one year

Formula	Weight(g)		%Friability
	Before	After	
CA M45 Cas15	7.3768	7.3768	0.0000
CA M45 ^b	7.2189	7.2184	0.0069
CA M45 Cas15 ^a	7.7368	7.7368	0.0000
CA M45 Cas15 U5 ^a	7.7390	7.7390	0.0000

After moist heat at 60°C 75%RH for 24 hrs and 348hrs

Table 141 Diameter and film thickness of core tablet and tablets coated with chitosan citrate film with different coating level %w/w of polymeric salt

Coating level (%)	Diameter(mm)											AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
0	9.530	9.520	9.530	9.540	9.530	9.540	9.530	9.530	9.530	9.530	9.531	0.006	0.000	
1	9.540	9.540	9.550	9.540	9.540	9.530	9.540	9.530	9.540	9.540	9.539	0.006	4.000	
3	9.570	9.550	9.570	9.550	9.570	9.550	9.580	9.560	9.550	9.570	9.562	0.011	15.500	
6	9.640	9.610	9.580	9.580	9.600	9.640	9.620	9.610	9.640	9.610	9.613	0.023	41.000	
9	9.630	9.650	9.640	9.660	9.630	9.640	9.660	9.650	9.670	9.650	9.648	0.013	58.500	
12	9.670	9.690	9.680	9.690	9.640	9.660	9.670	9.690	9.690	9.670	9.675	0.016	72.000	

Table 142 Diameter and film thickness of tablets coated with chitosan malate film with different coating level %w/w of polymeric salt

Coating level (%)	Diameter(mm)											AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
1	9.540	9.540	9.540	9.550	9.540	9.540	9.540	9.540	9.540	9.540	9.541	0.003	5.000	
3	9.550	9.570	9.560	9.560	9.580	9.570	9.560	9.580	9.560	9.560	9.565	0.010	17.000	
6	9.600	9.610	9.600	9.570	9.590	9.610	9.610	9.640	9.590	9.590	9.601	0.019	35.000	
9	9.630	9.630	9.640	9.640	9.630	9.630	9.620	9.620	9.640	9.640	9.632	0.008	50.500	
12	9.690	9.670	9.660	9.660	9.670	9.660	9.640	9.660	9.690	9.680	9.668	0.015	68.500	

Table 143 Diameter and film thickness of core tablet and tablets coated with chitosan citrate film with different coating level % w/w of polymeric salt after direct exposure accelerated condition for 7 days

Coating level (%)	Diameter(mm)											AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
0	9.550	9.550	9.560	9.550	9.550	9.560	9.560	9.560	9.560	9.550	9.555	0.005	12.000	
1	9.560	9.580	9.580	9.580	9.560	9.560	9.570	9.570	9.570	9.560	9.569	0.009	19.000	
3	9.580	9.580	9.590	9.590	9.600	9.580	9.580	9.580	9.590	9.570	9.584	0.008	26.500	
6	9.600	9.620	9.620	9.660	9.630	9.620	9.610	9.630	9.630	9.610	9.623	0.016	46.000	
9	9.700	9.660	9.650	9.640	9.710	9.640	9.660	9.640	9.650	9.640	9.659	0.026	64.000	
12	9.680	9.680	9.640	9.690	9.740	9.650	9.630	9.680	9.700	9.680	9.677	0.032	73.000	

Table 144 Diameter and film thickness of core tablet and tablets coated with chitosan malate film with different coating level % w/w of polymeric salt after direct exposure accelerated condition for 7 days

Coating level (%)	Diameter(mm)											AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
1	9.570	9.580	9.580	9.580	9.580	9.580	9.570	9.590	9.580	9.570	9.578	0.006	23.500	
3	9.610	9.590	9.600	9.670	9.620	9.660	9.640	9.650	9.730	9.650	9.642	0.041	55.500	
6	9.620	9.620	9.650	9.630	9.670	9.620	9.630	9.620	9.610	9.670	9.634	0.022	51.500	
9	9.660	9.660	9.710	9.650	9.660	9.680	9.680	9.650	9.680	9.660	9.669	0.019	69.000	
12	9.670	9.690	9.660	9.670	9.640	9.660	9.660	9.680	9.670	9.700	9.670	0.017	69.500	

Table 145 Diameter and film thickness of tablets coated with chitosan citrate and chitosan malate film plasticized with glycerin and propylene glycol at concentration of 25% w/w of polymer with coating level 6% w/w of polymeric salt ; freshly prepared (A) and after direct exposure accelerated condition for 7 days (B)

Coated Tablet	Diameter(mm)											AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
CC G25 (A)	9.610	9.610	9.610	9.600	9.620	9.600	9.610	9.600	9.600	9.610	9.607	0.007	38.000	
CC P25 (A)	9.600	9.600	9.610	9.600	9.600	9.630	9.400	9.610	9.600	9.600	9.585	0.066	27.000	
CM G25 (A)	9.620	9.610	9.600	9.620	9.600	9.610	9.620	9.600	9.620	9.610	9.611	0.009	40.000	
CM P25 (A)	9.610	9.620	9.610	9.630	9.610	9.610	9.590	9.600	9.620	9.550	9.605	0.022	37.000	
CC G25 (B)	9.640	9.640	9.640	9.640	9.620	9.630	9.640	9.620	9.620	9.650	9.634	0.011	51.500	
CC P25 (B)	9.630	9.640	9.640	9.630	9.620	9.640	9.620	9.620	9.640	9.570	9.625	0.021	47.000	
CM G25 (B)	9.620	9.650	9.630	9.640	9.630	9.660	9.650	9.630	9.630	9.630	9.637	0.013	53.000	
CM P25 (B)	9.640	9.620	9.640	9.650	9.640	9.650	9.650	9.660	9.650	9.620	9.642	0.013	55.500	

Table 146 Diameter and film thickness of tablets coated with chitosan citrate and chitosan malate film plasticized with glycerin and propylene glycol at concentration of 25% w/w of polymer with coating level 3% w/w of poly

Coated Tablet	Diameter(mm)											AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
CC	9.590	9.590	9.610	9.590	9.590	9.610	9.610	9.610	9.600	9.600	9.600	0.009	34.500	
CC G25	9.610	9.640	9.640	9.650	9.640	9.620	9.620	9.600	9.630	9.630	9.628	0.015	48.500	
CC P25	9.590	9.600	9.610	9.620	9.630	9.620	9.620	9.580	9.590	9.620	9.608	0.017	38.500	
CM	9.620	9.600	9.600	9.590	9.600	9.570	9.620	9.600	9.610	9.610	9.602	0.015	35.500	
CM G25	9.630	9.610	9.610	9.610	9.590	9.610	9.610	9.600	9.630	9.610	9.611	0.012	40.000	
CM P25	9.600	9.620	9.610	9.600	9.600	9.600	9.610	9.600	9.630	9.590	9.606	0.012	37.500	

Table 147 Diameter and film thickness of tablets coated with chitosan citrate and chitosan malate film plasticized with glycerin and propylene glycol at concentration of 25% w/w of polymer with coating level 3% w/w of polymer after direct exposure accelerated condition for 7 days

Coated Tablet	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
CC	9.620	9.660	9.660	9.660	9.650	9.650	9.640	9.660	9.630	9.630	9.646	0.015	37.500
CC G25	9.620	9.650	9.660	9.620	9.650	9.620	9.690	9.660	9.640	9.660	9.647	0.023	58.000
CC P25	9.620	9.610	9.640	9.610	9.630	9.630	9.620	9.620	9.610	9.630	9.622	0.010	45.500
CM	9.620	9.620	9.610	9.630	9.610	9.620	9.640	9.620	9.620	9.620	9.621	0.009	45.000
CM G25	9.650	9.650	9.640	9.650	9.630	9.650	9.650	9.610	9.650	9.630	9.641	0.014	55.000
CM P25	9.610	9.600	9.590	9.620	9.660	9.620	9.620	9.650	9.650	9.610	9.623	0.023	46.000

Table 148 Diameter and film thickness of tablets coated with chitosan citrate plasticized with different amount of propylene glycol at coating level 3% w/w of polymer

Coated Tablet	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
CC P5	9.590	9.590	9.600	9.600	9.590	9.610	9.610	9.620	9.610	9.610	9.603	0.011	36.000
CC P15	9.580	9.600	9.600	9.610	9.620	9.610	9.610	9.600	9.620	9.610	9.606	0.012	37.500
CC P25	9.590	9.600	9.610	9.620	9.630	9.620	9.620	9.580	9.590	9.620	9.608	0.017	38.500
CC P35	9.610	9.610	9.610	9.610	9.590	9.610	9.610	9.600	9.620	9.620	9.609	0.009	39.000
CC P45	9.620	9.600	9.610	9.620	9.610	9.620	9.610	9.600	9.620	9.590	9.610	0.011	39.500

Table 149 Diameter and film thickness of tablets coated with colored plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer

Tablet	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
CORE	9.570	9.570	9.570	9.580	9.580	9.570	9.570	9.570	9.580	9.570	9.573	0.005	0.000
CC P25 B0.5	9.670	9.650	9.650	9.650	9.660	9.660	9.650	9.650	9.670	9.660	9.657	0.008	42.000
CC P25 G0.5	9.650	9.660	9.670	9.670	9.670	9.670	9.670	9.660	9.670	9.670	9.666	0.007	46.500
CC P25 B0.5 Ta15	9.650	9.640	9.650	9.640	9.640	9.650	9.640	9.660	9.630	9.640	9.644	0.008	35.500
CC P25 B0.5 Ta30	9.650	9.640	9.640	9.640	9.640	9.640	9.650	9.640	9.640	9.640	9.642	0.004	34.500
CC P25 B0.5 Ta45	9.670	9.670	9.670	9.660	9.660	9.670	9.670	9.670	9.670	9.670	9.668	0.004	47.500
CC P25 B0.5 Ti15	9.670	9.670	9.670	9.660	9.660	9.670	9.670	9.670	9.670	9.660	9.667	0.005	47.000
CC P25 B0.5 Ti30	9.690	9.670	9.680	9.680	9.680	9.680	9.680	9.670	9.690	9.670	9.679	0.007	53.000
CC P25 B0.5 Ti45	9.680	9.680	9.670	9.690	9.680	9.660	9.670	9.680	9.670	9.680	9.676	0.008	51.500

Table 150 Diameter and film thickness of tablets coated with colored plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after kept in bottle and kept in accelerated condition for 7 days

Coated Tablet	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
CC P25	9.607	9.607	9.605	9.605	9.606	9.606	9.610	9.609	9.607	9.609	9.607	0.002	38.025
CC P25 B0.5	9.650	9.660	9.660	9.680	9.660	9.680	9.660	9.630	9.670	9.650	9.660	0.015	43.500
CC P25 G0.5	9.670	9.640	9.640	9.660	9.660	9.660	9.660	9.640	9.650	9.650	9.653	0.011	40.000
CC P25 B0.5 Ta15	9.650	9.640	9.650	9.640	9.640	9.650	9.640	9.650	9.660	9.630	9.645	0.008	36.000
CC P25 B0.5 Ta30	9.640	9.640	9.640	9.640	9.690	9.660	9.630	9.650	9.640	9.640	9.647	0.017	37.000
CC P25 B0.5 Ta45	9.640	9.640	9.640	9.650	9.640	9.640	9.650	9.640	9.640	9.640	9.642	0.004	34.500
CC P25 B0.5 Ti15	9.670	9.660	9.670	9.660	9.670	9.680	9.670	9.680	9.670	9.660	9.669	0.007	48.000
CC P25 B0.5 Ti30	9.690	9.670	9.680	9.670	9.690	9.670	9.680	9.680	9.670	9.670	9.677	0.008	52.000
CC P25 B0.5 Ti45	9.660	9.690	9.670	9.670	9.680	9.690	9.680	9.670	9.680	9.670	9.676	0.010	51.500

Table 151 Diameter and film thickness of tablets coated with colored plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after kept in bottle and kept in accelerated condition for one month

Coated Tablet	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
CC P25	9.607	9.608	9.604	9.607	9.611	9.606	9.612	9.615	9.604	9.609	9.608	0.004	38.650
CC P25 B0.5	9.670	9.670	9.680	9.670	9.660	9.670	9.650	9.650	9.680	9.650	9.665	0.012	46.000
CC P25 G0.5	9.680	9.660	9.650	9.660	9.650	9.640	9.650	9.650	9.670	9.670	9.658	0.012	42.500
CC P25 B0.5 Ta15	9.650	9.660	9.660	9.660	9.650	9.650	9.650	9.650	9.650	9.650	9.653	0.005	40.000
CC P25 B0.5 Ta30	9.650	9.640	9.650	9.650	9.640	9.650	9.650	9.660	9.650	9.650	9.649	0.006	38.000
CC P25 B0.5 Ta45	9.650	9.630	9.650	9.660	9.630	9.650	9.650	9.650	9.660	9.650	9.648	0.010	37.500
CC P25 B0.5 Ti15	9.670	9.680	9.670	9.670	9.670	9.670	9.670	9.670	9.670	9.680	9.672	0.004	49.500
CC P25 B0.5 Ti30	9.680	9.680	9.700	9.700	9.680	9.680	9.680	9.680	9.680	9.680	9.684	0.008	55.500
CC P25 B0.5 Ti45	9.690	9.690	9.680	9.680	9.700	9.680	9.680	9.700	9.690	9.680	9.687	0.008	57.000

Table 152 Diameter and film thickness of tablets coated with colored plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after direct exposure accelerated condition for 7 days

Coated Tablet	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
CC P25 B0.5	9.710	9.640	9.640	9.690	9.680	9.650	9.690	9.720	9.670	9.640	9.673	0.030	50.000
CC P25 G0.5	9.670	9.700	9.680	9.680	9.680	9.660	9.680	9.660	9.660	9.670	9.674	0.013	50.500
CC P25 B0.5 Ta15	9.690	9.690	9.700	9.690	9.590	9.590	9.700	9.720	9.710	9.700	9.698	0.010	62.500
CC P25 B0.5 Ta30	9.690	9.680	9.690	9.690	9.690	9.680	9.700	9.690	9.690	9.680	9.688	0.006	57.500
CC P25 B0.5 Ta45	9.690	9.700	9.670	9.690	9.680	9.690	9.690	9.680	9.690	9.690	9.687	0.008	57.000
CC P25 B0.5 Ti15	9.710	9.750	9.760	9.700	9.700	9.700	9.710	9.720	9.740	9.790	9.728	0.031	77.500
CC P25 B0.5 Ti30	9.720	9.710	9.720	9.720	9.710	9.710	9.760	9.700	9.670	9.740	9.716	0.024	71.500
CC P25 B0.5 Ti45	9.700	9.710	9.720	9.700	9.720	9.700	9.700	9.740	9.700	9.740	9.713	0.016	70.000

Table 153 Diameter and film thickness of tablets coated with colored plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after kept at room temperature for one year

Coated Tablet	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
CC P25 B0.5	9.640	9.640	9.630	9.630	9.660	9.660	9.650	9.650	9.650	9.660	9.647	0.012	37.000
CC P25 G0.5	9.650	9.660	9.670	9.670	9.670	9.670	9.670	9.660	9.670	9.670	9.666	0.007	46.500
CC P25 B0.5 Ta15	9.630	9.640	9.640	9.640	9.640	9.650	9.650	9.640	9.640	9.640	9.641	0.005	34.000
CC P25 B0.5 Ta30	9.650	9.650	9.650	9.640	9.650	9.640	9.650	9.640	9.640	9.640	9.645	0.005	36.000
CC P25 B0.5 Ta45	9.670	9.670	9.670	9.660	9.660	9.670	9.670	9.670	9.670	9.670	9.668	0.004	47.500
CC P25 B0.5 Ti15	9.650	9.660	9.670	9.650	9.670	9.650	9.660	9.650	9.650	9.670	9.658	0.009	42.500
CC P25 B0.5 Ti30	9.690	9.670	9.680	9.680	9.680	9.680	9.680	9.670	9.690	9.670	9.679	0.007	53.000
CC P25 B0.5 Ti45	9.680	9.680	9.670	9.690	9.680	9.660	9.670	9.680	9.670	9.680	9.676	0.008	51.500

Table 154 Diameter and film thickness of tablets coated with chitosan citrate and chitosan malate film plasticized with glycerin and propylene glycol at concentration of 25% w/w of polymer with coating level 3% w/w of polymer after kept at room temperature for one year

Coated Tablet	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
CC	9.620	9.580	9.600	9.580	9.630	9.570	9.600	9.620	9.600	9.610	9.601	0.020	35.000
CC G25	9.640	9.620	9.620	9.630	9.630	9.640	9.630	9.630	9.630	9.630	9.630	0.007	49.500
CC P25	9.620	9.640	9.620	9.640	9.610	9.620	9.640	9.610	9.630	9.640	9.627	0.013	48.000
CM	9.600	9.630	9.630	9.600	9.630	9.600	9.620	9.640	9.590	9.630	9.617	0.018	43.000
CM G25	9.640	9.640	9.630	9.630	9.620	9.640	9.610	9.630	9.630	9.630	9.630	0.009	49.500
CM P25	9.620	9.620	9.620	9.640	9.620	9.640	9.640	9.640	9.620	9.620	9.626	0.010	47.500

Table 155 Diameter and film thickness of core tablet and tablets coated with chitosan acetate film at different coating level % w/w of polymer

Coating level (%)	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
0	9.570	9.570	9.570	9.560	9.590	9.570	9.580	9.570	9.590	9.580	9.575	0.010	0.000
1	9.590	9.590	9.590	9.600	9.590	9.590	9.590	9.590	9.610	9.580	9.592	0.008	8.500
3	9.600	9.610	9.620	9.610	9.610	9.600	9.610	9.610	9.620	9.610	9.610	0.007	17.500
6	9.630	9.640	9.630	9.640	9.650	9.640	9.650	9.640	9.640	9.630	9.639	0.007	32.000
9	9.670	9.640	9.670	9.690	9.690	9.640	9.650	9.680	9.690	9.720	9.674	0.025	49.500
12	9.720	9.760	9.670	9.670	9.720	9.730	9.720	9.730	9.670	9.710	9.710	0.031	67.500
15	9.800	9.730	9.710	9.730	9.760	9.760	9.740	9.720	9.710	9.710	9.737	0.029	81.000

Table 156 Diameter and film thickness of core tablet and tablets coated with chitosan acetate film plasticized with glycerin at concentration of 25 % w/w of polymer at different coating level % w/w of polymer

Coating level (%)	Diameter(mm)										AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10			
0	9.580	9.570	9.580	9.570	9.580	9.580	9.580	9.590	9.580	9.580	9.579	0.006	0.000
9	9.710	9.720	9.700	9.740	9.720	9.710	9.710	9.730	9.720	9.720	9.718	0.011	69.500
12	9.780	9.780	9.760	9.800	9.790	9.770	9.750	9.760	9.760	9.750	9.770	0.017	95.500

Table 157 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with different amount of additives at coating level 15% w/w of polymer

Formula	Diameter(mm)												AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10					
CA M45	9.88	9.89	9.86	9.90	9.87	9.89	9.91	9.87	9.86	9.87	9.88	0.02	152.50		
CA M60	9.87	9.86	9.89	9.85	9.86	9.85	9.87	9.84	9.86	9.86	9.86	0.01	143.00		
CA M75	9.92	9.91	9.92	9.92	9.92	9.91	9.93	9.95	9.93	9.92	9.92	0.01	174.00		
CA Ta45	9.80	9.80	9.83	9.80	9.80	9.81	9.82	9.82	9.82	9.82	9.81	0.01	118.50		
CA Ti45	9.77	9.83	9.78	9.76	9.80	9.76	9.78	9.79	9.81	9.78	9.79	0.02	105.50		
CA Cas15	9.75	9.75	9.75	9.74	9.76	9.74	9.73	9.75	9.74	9.75	9.75	0.01	85.50		
CA M45 Cas15	9.91	9.90	9.91	9.91	9.90	9.90	9.91	9.91	9.91	9.90	9.91	0.01	165.50		
CA M45 Tri15	9.88	9.90	9.83	9.89	9.91	9.85	9.86	9.92	9.85	9.87	9.88	0.03	150.50		
CA M45 Tri30	9.97	9.95	9.93	9.94	9.98	9.88	9.84	9.92	9.98	9.96	9.94	0.05	180.00		
CA M45 Tri45	9.90	9.91	9.92	9.92	9.94	9.91	9.94	9.94	9.89	9.88	9.96	0.02	192.50		
CA M45 Pg30	9.88	9.97	9.87	9.91	9.94	9.89	9.91	9.93	9.91	9.92	9.96	0.03	192.50		
CA M45 Dp15	9.84	9.82	9.84	9.89	9.83	9.82	9.90	9.85	9.82	9.84	9.96	0.03	192.50		

Table 158 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with different amount of additives at coating level 15% w/w of polymer after direct exposure dried heat at 60°C for 7 days

Formula	Diameter(mm)												AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10					
CA M45	9.82	9.85	9.85	9.84	9.85	9.83	9.84	9.86	9.85	9.83	9.84	0.01	133.50		
CA M60	9.82	9.80	9.82	9.83	9.80	9.81	9.80	9.83	9.81	9.82	9.81	0.01	119.50		
CA M75	9.87	9.89	9.86	9.92	9.87	9.82	9.89	9.88	9.88	9.88	9.88	0.03	150.50		
CA Ta45	9.78	9.79	9.78	9.78	9.78	9.75	9.78	9.77	9.80	9.78	9.78	0.01	102.00		
CA Ti45	9.74	9.75	9.76	9.76	9.77	9.78	9.74	9.78	9.75	9.75	9.76	0.01	91.50		
CA Cas15	9.74	9.73	9.69	9.74	9.76	9.76	9.74	9.74	9.73	9.74	9.74	0.02	81.00		
CA M45 Cas15	9.91	9.92	9.91	9.92	9.90	9.89	9.91	9.91	9.91	9.91	9.91	0.01	167.00		
CA M45 Tri15	9.83	9.82	9.82	9.80	9.82	9.84	9.79	9.81	9.81	9.80	9.81	0.02	119.50		
CA M45 Tri30	9.87	9.82	9.89	9.90	9.84	9.90	9.84	9.88	9.90	9.92	9.88	0.03	150.50		
CA M45 Tri45	9.82	9.87	9.82	9.89	9.92	9.85	9.84	9.84	9.80	9.88	9.85	0.04	139.00		
CA M45 Pg30	9.85	9.85	9.89	9.84	9.79	9.86	9.83	9.80	9.83	9.82	9.84	0.03	130.50		
CA M45 Dp15	9.83	9.79	9.78	9.79	9.80	9.79	9.81	9.78	9.77	9.81	9.80	0.02	110.00		

Table 159 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C (A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10					
24(A)	9.86	9.83	9.87	9.87	9.88	9.86	9.89	9.86	9.87	9.86	9.87	0.02	145.00		
48(A)	9.88	9.88	9.87	9.85	9.87	9.87	9.87	9.85	9.88	9.87	9.87	0.01	147.00		
72(A)	9.85	9.87	9.85	9.86	9.86	9.85	9.88	9.88	9.86	9.88	9.86	0.01	144.50		
120(A)	9.87	9.87	9.86	9.87	9.85	9.85	9.88	9.86	9.86	9.89	9.87	0.01	145.50		
168(A)	9.84	9.82	9.81	9.86	9.85	9.84	9.86	9.85	9.87	9.84	9.84	0.02	134.50		
24(B)	9.86	9.88	9.87	9.85	9.84	9.88	9.89	9.87	9.85	9.86	9.87	0.02	145.00		
48(B)	9.88	9.87	9.86	9.85	9.87	9.85	9.88	9.86	9.89	9.88	9.87	0.01	147.00		
72(B)	9.88	9.85	9.82	9.86	9.86	9.83	9.86	9.84	9.84	9.88	9.85	0.02	138.50		
120(B)	9.87	9.84	9.89	9.88	9.90	9.89	9.89	9.89	9.87	9.87	9.88	0.02	152.00		
168(B)	9.81	9.89	9.85	9.82	9.88	9.82	9.82	9.83	9.84	9.83	9.84	0.03	132.00		

Table 160 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 60 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C (A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												AVG	SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10					
24(A)	9.82	9.83	9.83	9.80	9.80	9.80	9.82	9.83	9.85	9.83	9.82	0.02	123.00		
72(A)	9.84	9.81	9.82	9.79	9.82	9.80	9.82	9.82	9.81	9.83	9.82	0.01	120.50		
120(A)	9.82	9.79	9.79	9.81	9.82	9.82	9.82	9.81	9.78	9.81	9.81	0.01	116.00		
24(B)	9.83	9.82	9.83	9.82	9.83	9.83	9.79	9.82	9.81	9.81	9.82	0.01	122.00		
72(B)	9.80	9.70	9.80	9.80	9.80	9.83	9.81	9.79	9.80	9.81	9.79	0.03	109.50		
120(B)	9.81	9.78	9.80	9.80	9.78	9.77	9.82	9.80	9.78	9.79	9.79	0.02	109.00		

Table 161 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 75 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C (A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
24(A)	9.89	9.87	9.89	9.87	9.89	9.89	9.91	9.91	9.89	9.90	9.89	0.01	158.00
72(A)	9.86	9.90	9.90	9.88	9.89	9.87	9.91	9.91	9.88	9.89	9.89	0.02	157.00
120(A)	9.87	9.88	9.87	9.91	9.92	9.88	9.88	9.90	9.93	9.87	9.89	0.02	158.00
24(B)	9.86	9.90	9.87	9.93	9.95	9.87	9.92	9.91	9.92	9.90	9.90	0.03	164.00
72(B)	9.80	9.87	9.93	9.88	9.86	9.87	9.89	9.89	9.90	9.87	9.88	0.03	150.50
120(B)	9.86	9.87	9.88	9.85	9.93	9.87	9.89	9.86	9.91	9.86	9.88	0.03	151.50

Table 162 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with talcum at concentration of 45 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C (A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
24(A)	9.81	9.80	9.82	9.82	9.80	9.80	9.81	9.82	9.81	9.81	9.81	0.01	117.50
48(A)	9.80	9.82	9.81	9.81	9.82	9.82	9.82	9.82	9.82	9.82	9.82	0.01	120.50
72(A)	9.80	9.76	9.79	9.78	9.79	9.78	9.77	9.77	9.79	9.78	9.78	0.01	103.00
120(A)	9.77	9.79	9.81	9.76	9.76	9.80	9.81	9.80	9.77	9.80	9.79	0.02	106.00
168(A)	9.80	9.80	9.78	9.77	9.80	9.80	9.79	9.78	9.79	9.78	9.79	0.01	107.00
24(B)	9.81	9.81	9.81	9.82	9.80	9.82	9.81	9.82	9.82	9.82	9.81	0.01	119.50
48(B)	9.81	9.84	9.86	9.83	9.83	9.82	9.82	9.83	9.83	9.81	9.83	0.01	126.50
72(B)	9.78	9.82	9.79	9.82	9.81	9.80	9.79	9.82	9.81	9.81	9.81	0.01	115.00
120(B)	9.84	9.82	9.80	9.84	9.77	9.82	9.82	9.81	9.81	9.79	9.81	0.02	118.50
168(B)	9.79	9.78	9.76	9.81	9.78	9.81	9.79	9.80	9.80	9.80	9.79	0.02	108.50

Table 163 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with titanium at concentration of 45 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C(A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
24(A)	9.76	9.73	9.85	9.78	9.78	9.81	9.76	9.77	9.77	9.78	9.78	0.03	102.00
72(A)	9.77	9.77	9.76	9.79	9.79	9.81	9.78	9.79	9.77	9.81	9.78	0.02	104.50
120(A)	9.78	9.75	9.75	9.78	9.79	9.76	9.77	9.75	9.81	9.79	9.77	0.02	99.00
24(B)	9.80	9.72	9.77	9.79	9.74	9.76	9.73	9.73	9.73	9.76	9.75	0.03	89.00
72(B)	9.65	9.74	9.74	9.77	9.71	9.83	9.76	9.73	9.74	9.79	9.75	0.05	85.50
120(B)	9.77	9.81	9.76	9.78	9.81	9.73	9.70	9.74	9.70	9.75	9.76	0.04	90.00

Table 164 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45 % w/w and castor oil at concentration of 15 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C (A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
24(A)	9.92	9.91	9.89	9.89	9.91	9.92	9.87	9.92	9.90	9.91	9.90	0.02	164.50
48(A)	9.91	9.90	9.90	9.89	9.90	9.91	9.91	9.92	9.91	9.91	9.91	0.01	165.50
72(A)	9.92	9.86	9.93	9.90	9.85	9.91	9.89	9.88	9.91	9.90	9.90	0.03	160.00
120(A)	9.91	9.92	9.89	9.90	9.90	9.92	9.89	9.90	9.90	9.91	9.90	0.01	164.50
168(A)	9.91	9.91	9.91	9.89	9.89	9.90	9.89	9.90	9.89	9.92	9.90	0.01	163.00
24(B)	9.89	9.92	9.93	9.93	9.91	9.93	9.92	9.92	9.91	9.92	9.92	0.01	171.50
48(B)	9.92	9.93	9.93	9.90	9.94	9.94	9.95	9.92	9.96	9.91	9.93	0.02	177.50
72(B)	9.92	9.95	9.93	9.93	9.90	9.92	9.93	9.91	9.92	9.95	9.93	0.02	175.50
120(B)	9.90	9.98	9.96	9.94	9.92	9.93	9.90	9.94	9.92	9.91	9.93	0.03	177.50
168(B)	9.95	9.87	9.94	9.92	9.90	9.91	9.91	9.89	9.91	9.87	9.91	0.03	166.00

Table 165 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45 % w/w and triacetin at concentration of 15 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C (A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
24(A)	9.83	9.83	9.84	9.87	9.85	9.84	9.84	9.79	9.84	9.84	9.84	0.02	131.00
72(A)	9.84	9.85	9.92	9.88	9.84	9.85	9.78	9.82	9.81	9.85	9.84	0.04	134.50
24(B)	9.89	9.79	9.82	9.78	9.83	9.80	9.83	9.77	9.82	9.83	9.82	0.03	120.50
72(B)	9.81	9.84	9.75	9.74	9.86	9.79	9.74	9.76	9.83	9.81	9.79	0.04	109.00

Table 166 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45 % w/w and triacetin at concentration of 30 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C (A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
24(A)	9.91	9.80	9.89	9.87	9.87	9.92	9.86	9.90	9.86	9.83	9.87	0.04	148.00
72(A)	9.91	9.87	9.87	9.91	9.86	9.90	9.82	9.88	9.83	9.93	9.88	0.04	151.50
24(B)	9.82	9.86	9.93	9.86	9.89	9.80	9.87	9.90	9.86	9.91	9.87	0.04	147.50
72(B)	9.92	9.84	9.84	9.86	9.84	9.97	9.83	9.81	9.87	9.90	9.87	0.05	146.50

Table 167 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45 % w/w and triacetin at concentration of 45 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C (A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
24(A)	9.80	9.90	9.81	9.81	9.92	9.88	9.83	9.90	9.92	9.95	9.87	0.05	148.50
72(A)	9.82	9.89	9.90	9.86	9.88	9.86	9.86	9.91	9.84	9.87	9.87	0.03	147.00
24(B)	9.90	9.82	9.88	9.92	9.96	9.86	9.85	9.82	9.89	9.87	9.88	0.04	151.00
72(B)	9.88	9.81	9.84	9.90	9.78	9.82	9.79	9.83	9.88	9.79	9.83	0.04	128.50

Table 168 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45 % w/w and propylene glycol at concentration of 30 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C (A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
24(A)	9.91	9.87	9.90	9.90	9.85	9.93	9.92	9.92	9.87	9.88	9.90	0.03	160.00
72(A)	9.88	9.89	9.86	9.86	9.91	9.89	9.88	9.87	9.85	9.85	9.87	0.02	149.50
24(B)	9.86	9.84	9.88	9.83	9.90	9.89	9.82	9.88	9.87	9.91	9.87	0.03	146.50
72(B)	9.90	9.75	9.77	9.86	9.82	9.79	9.86	9.82	9.81	9.82	9.82	0.04	122.50

Table 169 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45 % w/w and diethyl phthalate at concentration of 30 % w/w of polymer at coating level 15% w/w of polymer after direct exposure to moist heat at 45°C(A) and 60°C (B) for different time

Time(hrs)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
24(A)	9.89	9.86	9.83	9.86	9.89	9.92	9.85	9.84	9.86	9.84	9.86	0.03	144.50
72(A)	9.85	9.84	9.81	9.82	9.89	9.85	9.85	9.80	9.82	9.84	9.84	0.03	131.00
24(B)	9.86	9.85	9.84	9.86	9.81	9.81	9.81	9.85	9.82	9.79	9.83	0.02	127.50
72(B)	9.81	9.86	9.83	9.76	9.84	9.89	9.81	9.85	9.85	9.83	9.83	0.03	129.00

Table 170 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45 % w/w and castor oil at concentration of 15 % w/w of polymer at different coating level

Coating level(%)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
9	9.80	9.79	9.81	9.82	9.78	9.83	9.81	9.80	9.84	9.85	9.81	0.02	119.00
12	9.88	9.91	9.89	9.90	9.90	9.90	9.92	9.90	9.86	9.84	9.89	0.02	157.50
15	9.91	9.92	9.91	9.92	9.90	9.89	9.91	9.91	9.91	9.91	9.91	0.01	167.00
18	10.40	9.99	9.99	10.03	9.99	10.05	9.99	10.04	10.04	10.06	10.06	0.12	241.50

Table 171 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45 % w/w and castor oil at concentration of 15 % w/w of polymer at different coating level after moist heat treatment at 60°C for 24 hrs

Coating level(%)	Diameter(mm)												Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10	AVG	SD	
9	9.78	9.83	9.82	9.84	9.79	9.77	9.84	9.82	9.79	9.75	9.80	0.03	114.00
12	9.92	9.93	9.86	9.92	9.88	9.84	9.85	9.89	9.89	9.92	9.89	0.03	157.50
15	9.90	9.96	9.92	9.92	9.91	9.94	9.95	9.93	9.95	9.94	9.93	0.02	178.50
18	9.94	9.94	9.98	9.94	9.99	9.99	10.01	9.98	9.99	9.99	9.98	0.03	200.00

Table 172 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate and castor oil at concentration of 45 and 15 % w/w and different amount of urea of polymer at coating level 15 % w/w of polymer

Urea(% w/w)	Diameter(mm)										AVG		SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
5	9.88	9.95	9.86	9.88	9.87	9.84	9.86	9.88	9.88	9.85	9.88	0.03	150.00	
15	9.93	9.98	9.96	9.98	9.97	9.93	9.95	9.97	9.93	9.96	9.96	0.02	190.50	
30	10.05	10.05	9.95	9.93	10.10	10.04	10.09	10.08	9.94	10.04	10.03	0.06	226.00	
45	10.06	10.04	10.07	9.95	9.99	9.98	9.94	10.02	9.95	10.05	10.01	0.05	215.00	

Table 173 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate and castor oil at concentration of 45 and 15 % w/w of polymer at coating level 15 % w/w of polymer

Urea(% w/w)	Diameter(mm)										AVG		SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
5	9.95	9.92	9.91	9.90	9.89	9.92	9.87	9.91	9.92	9.89	9.91	0.02	166.50	
15	9.94	9.98	9.95	9.95	9.98	10.02	9.97	10.02	10.02	9.98	9.98	0.03	203.00	
30	9.94	9.95	9.95	9.98	9.96	9.96	10.02	9.98	9.92	9.95	9.96	0.03	193.00	
45	10.02	9.98	9.95	10.03	9.96	9.97	9.98	10.02	9.96	9.94	9.98	0.03	203.00	

Table 174 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate, castor oil and HPMC at concentration of 45, 15 and 45% w/w at coating level 15 % w/w of polymer

Formula	Diameter(mm)										AVG		SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
CA M45 Cas15 HPMC45 ^a	9.97	9.96	9.97	9.95	9.95	9.95	9.96	9.98	9.97	9.96	9.96	0.01	193.50	
CA M45 Cas15 HPMC45 ^b	9.89	9.93	9.92	9.91	9.92	9.92	9.94	9.95	9.92	9.90	9.92	0.02	172.50	

^aFreshly prepared and ^bafter moist heat treatment at 60°C for 24 hrs

Table 175 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate, castor oil and urea at concentration of 45, 15 and 5% w/w of polymer at different coating level % w/w of polymer

Coating level(%)	Diameter(mm)										AVG		SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
9	9.78	9.76	9.76	9.77	9.76	9.83	9.78	9.75	9.75	9.79	9.77	0.02	99.00	
12	9.83	9.89	9.87	9.89	9.86	9.88	9.83	9.82	9.83	9.87	9.86	0.03	141.00	
15	9.88	9.95	9.86	9.88	9.87	9.84	9.86	9.88	9.88	9.85	9.88	0.03	150.00	

Table 176 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate, castor oil and urea at concentration of 45, 15 and 5% w/w of polymer at different coating level % w/w of polymer after moist heat treatment at 60°C for 24 hrs

Coating level(%)	Diameter(mm)										AVG		SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
9	9.71	9.73	9.73	9.76	9.77	9.77	9.78	9.74	9.76	9.73	9.73	0.02	87.50	
12	9.84	9.86	9.84	9.87	9.91	9.90	9.84	9.85	9.83	9.81	9.86	0.03	140.00	
15	9.95	9.92	9.91	9.90	9.89	9.92	9.87	9.91	9.92	9.89	9.91	0.02	166.50	

Table 177 Diameter and film thickness of tablets coated with chitosan acetate film incorporated with magnesium stearate, castor oil and urea at concentration of 45, 15 and 5% w/w of polymer at coating level 15 % w/w of polymer after moist heat treatment having different % relative humidity at 60°C for 24 hrs

% RH	Diameter(mm)										AVG		SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
0	9.86	9.82	9.83	9.83	9.88	9.93	9.84	9.84	9.85	9.84	9.86	0.03	140.50	
75	9.95	9.92	9.91	9.90	9.89	9.92	9.87	9.91	9.92	9.89	9.91	0.02	166.50	
85	9.96	9.91	9.94	9.92	9.94	9.90	9.91	9.90	9.87	9.93	9.92	0.03	171.50	
96	9.95	10.00	10.01	9.88	9.94	9.90	9.89	9.99	9.96	9.99	9.95	0.05	188.00	

Table 178 Diameter of tablets coated with CA M45 Cas and CA M45 Cas15 U5 films at coating level of 15% based on chitosan after kept in bottle and kept in accelerated condition for one month

Formula	Diameter(mm)										AVG		SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
CA M45 Cas15	9.91	9.89	9.91	9.90	9.89	9.89	9.90	9.90	9.90	9.92	9.90	0.01	163.00	
CA M45 Cas15 ^a	9.90	9.90	9.91	9.92	9.92	9.92	9.93	9.93	9.92	9.93	9.92	0.01	171.50	
CA M45 Cas15 U5 ^a	9.92	9.93	9.94	9.94	9.91	9.92	9.90	9.91	9.90	9.90	9.92	0.02	171.00	

After moist heat at 60°C 75%RH for 24 hrs

Table 179 Diameter of tablets coated with CA M45, CA M45 Cas and CA M45 Cas15 U5 films at coating level of 15% based on chitosan after kept in bottle and kept at room temperature for one year

Formula	Diameter(mm)										AVG		SD	Film thickness(mcm)
	1	2	3	4	5	6	7	8	9	10				
CA M45 Cas15	9.92	9.94	9.91	9.90	9.90	9.92	9.91	9.90	9.89	9.87	9.91	0.02	165.50	
CA M45 ^b	9.94	9.94	9.84	9.83	9.86	9.84	9.83	9.85	9.90	9.90	9.87	0.04	149.00	
CA M45 Cas15 ^a	9.94	9.90	9.93	9.92	9.93	9.92	9.93	9.91	9.84	9.92	9.91	0.03	169.50	
CA M45 Cas15 U5 ^a	9.92	9.91	9.93	9.90	9.92	9.91	9.90	9.94	9.93	9.92	9.92	0.01	171.50	

Table 180 Hardness of core tablet and tablets coated with chitosan citrate films with different coating level %w/w of polymeric salt

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
0	8.04	8.18	8.56	8.99	8.03	8.00	8.49	9.78	8.60	8.32	8.50	0.55	
1	10.60	12.60	16.00	9.70	10.60	9.40	11.30	8.90	10.80	8.50	10.84	2.18	
3	12.60	13.00	12.70	14.40	16.40	12.00	12.30	11.00	15.20	11.20	13.08	1.74	
6	17.00	14.20	15.70	17.80	16.90	16.20	16.60	15.70	14.40	15.80	16.03	1.13	
9	17.90	15.80	19.20	16.30	20.30	17.30	21.90	16.60	20.50	16.10	18.19	2.15	
12	19.90	23.30	18.70	28.60	24.30	25.70	20.60	23.80	25.50	22.50	23.29	2.99	

Table 181 Hardness of core tablet and tablets coated with chitosan malate films with different coating level %w/w of polymeric salt

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
1	12.90	11.90	11.20	12.50	11.10	11.20	13.00	9.00	11.60	10.50	11.49	1.20	
3	13.50	15.80	17.70	17.60	16.90	14.90	14.90	11.30	17.70	17.60	15.79	2.16	
6	19.50	22.40	21.80	20.20	20.70	21.50	24.20	24.70	18.90	22.00	21.59	1.88	
9	27.20	22.40	26.50	27.00	26.00	21.00	29.00	22.40	31.00	28.40	26.09	3.22	
12	31.00	30.40	32.70	30.10	29.60	32.30	35.70	29.80	34.30	30.60	31.65	2.06	

Table 182 Hardness of core tablet and tablets coated with chitosan citrate film with different coating level %w/w of polymeric salt after direct exposure accelerated condition for 7 days

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
0	16.40	12.30	15.90	16.00	14.50	17.10	18.10	19.40	16.20	15.60	16.15	1.92	
1	17.90	18.30	20.60	16.60	14.10	17.50	19.20	17.60	16.70	18.10	17.66	1.71	
3	19.00	19.10	21.30	20.70	24.10	16.70	18.20	18.80	24.10	20.00	20.20	2.42	
6	17.90	16.50	16.40	24.40	16.60	19.70	20.40	21.70	18.30	20.70	19.26	2.62	
9	20.20	18.00	19.60	25.90	17.40	21.50	17.30	16.50	18.70	17.60	19.27	2.78	
12	21.00	18.80	28.10	18.80	21.90	21.30	25.40	20.70	19.00	20.40	21.54	3.02	

Table 183 Hardness of core tablet and tablets coated with chitosan malate film with different coating level %w/w of polymeric salt after direct exposure accelerated condition for 7 days

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
1	18.90	20.90	15.70	17.60	16.80	19.30	13.10	14.20	14.60	17.00	16.81	2.46	
3	17.00	17.50	18.60	14.80	15.80	14.60	14.70	16.60	15.80	18.10	16.35	1.44	
6	14.50	19.90	16.50	17.20	15.20	24.30	20.90	15.30	19.80	17.80	18.14	3.07	
9	15.70	17.90	28.10	24.90	20.60	19.00	25.60	18.80	23.60	17.40	21.26	3.99	
12	24.10	25.20	25.30	21.20	22.80	24.40	23.40	19.80	25.80	17.50	22.95	2.69	

Table 184 Hardness of tablets coated with chitosan citrate and chitosan malate film plasticized with glycerin and propylene glycol at concentration of 25% w/w of polymer at coating level 6%w/w of polymeric salt: (A) freshly prepared and (B) after direct exposure to accelerated condition

Coated Tablet	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
CC G25 (A)	19.70	16.70	15.40	16.50	16.90	16.50	19.20	18.60	17.90	18.90	17.63	1.43	
CC P25 (A)	17.40	15.30	17.90	17.70	14.20	14.70	16.20	19.90	14.70	15.70	16.37	1.81	
CM G25 (A)	22.10	20.10	22.30	22.40	23.90	20.30	29.10	22.20	21.40	20.80	22.46	2.59	
CM P25 (A)	23.20	22.30	21.00	24.70	21.20	22.10	19.70	21.20	21.00	22.50	21.89	1.40	
CC G25 (B)	14.30	26.70	21.50	23.00	24.30	23.80	26.60	24.20	22.70	24.70	23.18	3.51	
CC P25 (B)	24.30	23.10	24.40	22.30	22.10	21.60	24.20	25.20	24.20	22.00	23.34	1.27	
CM G25 (B)	22.20	27.10	26.00	26.30	25.90	24.40	23.00	27.10	23.30	25.40	25.07	1.75	
CM P25 (B)	27.90	26.40	24.40	29.20	27.80	27.90	30.50	29.50	25.40	26.00	27.50	1.94	

Table 185 Hardness of tablets coated with chitosan citrate and chitosan malate film unplasticized and plasticized with glycerin and propylene glycol at concentration of 25% w/w of polymer at coating level 3% w/w of polymer

Coated Tablet	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
CC	22.10	21.40	20.50	19.90	21.10	18.00	23.80	18.60	19.40	21.10	20.59	1.71	
CC G25	18.30	24.70	22.10	23.40	23.80	21.20	23.10	20.30	21.20	18.10	21.62	2.24	
CC P25	21.80	22.70	20.80	17.30	20.00	18.80	23.30	19.00	20.40	17.80	20.19	2.01	
CM	22.80	21.90	22.90	21.40	22.20	19.10	21.00	22.60	20.90	24.70	21.95	1.49	
CM G25	23.20	21.10	21.90	19.40	20.10	21.10	21.70	21.40	26.70	22.70	21.93	2.01	
CM P25	27.30	28.80	27.90	29.10	26.70	28.10	24.70	25.00	24.90	29.20	27.17	1.77	

Table 186 Hardness of tablets coated with chitosan citrate and chitosan malate film unplasticized and plasticized with glycerin and propylene glycol at concentration of 25%w/w of polymer at coating level 3% w/w of polymer after direct exposure to accelerated condition for 7 days.

Coated Tablet	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
CC	18.60	21.00	21.50	23.40	21.70	22.90	19.70	21.60	20.10	21.20	21.17	1.43	
CC G25	22.10	22.60	20.10	24.80	24.20	25.20	22.60	24.00	21.30	23.60	23.05	1.61	
CC P25	20.70	24.10	18.60	21.30	20.00	17.40	22.10	23.50	22.90	23.10	21.37	2.20	
CM	24.30	22.20	23.30	24.30	23.40	23.50	24.90	24.50	23.50	26.90	24.08	1.26	
CM G25	25.10	28.30	22.90	22.60	25.80	25.00	22.40	23.10	27.40	23.40	24.60	2.08	
CM P25 3	25.30	23.90	23.60	23.20	27.50	25.10	27.40	27.60	25.20	25.10	25.39	1.63	

Table 187 Hardness of tablets coated with chitosan citrate film plasticized with different concentration of propylene glycol at coating level 3% w/w of polymer

Coated Tablet	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
CC P5	16.10	23.20	21.80	24.00	25.70	23.20	20.40	24.20	17.40	14.90	21.09	3.74	
CC P15	11.90	25.50	15.00	25.80	16.10	20.80	21.40	17.80	22.70	15.40	19.24	4.71	
CC P25	20.70	24.10	18.60	21.30	20.00	17.40	22.10	23.50	22.90	23.10	21.37	2.20	
CC P35	18.80	19.10	14.00	20.70	23.50	23.00	21.50	22.40	14.50	14.30	19.18	3.71	
CC P45	18.80	14.20	21.60	15.60	22.00	25.40	21.30	17.90	21.50	21.40	19.97	3.34	

Table 188 Hardness of tablets coated with colored and plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer

Coated Tablet	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
CC P25 B0.5	21.00	22.60	15.80	15.90	16.80	21.70	20.10	15.10	15.60	20.00	18.46	2.89	
CC P25 G0.5	18.70	14.80	14.60	19.70	17.50	16.70	13.60	19.90	20.70	22.00	17.82	2.85	
CC P25 B0.5 Ta15	15.10	14.60	14.60	14.40	13.00	15.10	14.10	14.50	15.90	14.50	14.58	0.75	
CC P25 B0.5 Ta30	12.60	16.10	14.40	12.40	12.60	15.30	13.60	16.30	14.30	15.80	14.34	1.50	
CC P25 B0.5 Ta45	14.20	13.90	13.00	14.70	13.90	16.50	14.80	12.90	15.20	15.00	14.41	1.08	
CC P25 B0.5 Ti15	13.80	14.80	15.60	12.40	15.50	14.80	14.20	15.50	19.80	14.60	15.10	1.91	
CC P25 B0.5 Ti30	16.40	13.60	19.70	17.30	17.30	15.20	22.50	17.90	20.90	20.50	18.13	2.76	
CC P25 B0.5 Ti45	17.10	17.10	17.60	16.20	17.10	14.30	17.50	14.30	15.90	15.80	16.29	1.22	

Table 189 Hardness of tablets coated with colored and plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after direct exposure to accelerated condition

Coated Tablet	Hardness (Kp)										AVG	SD
	1	2	3	4	5	6	7	8	9	10		
CC P25	20.70	24.10	18.60	21.30	20.00	17.40	22.10	23.50	22.90	23.10	21.37	2.20
CC P25 B0.5	20.30	19.00	20.50	21.90	20.60	20.60	24.00	20.30	19.20	20.70	20.71	1.41
CC P25 G0.5	20.10	22.10	20.90	18.30	18.90	18.70	15.60	16.00	17.20	16.10	18.39	2.20
CC P25 B0.5 Ta15	21.10	21.30	23.50	17.40	19.10	18.20	19.40	21.40	21.40	20.30	20.31	1.81
CC P25 B0.5 Ta30	18.10	17.30	20.40	18.80	22.10	16.80	18.00	18.80	16.80	17.90	18.50	1.66
CC P25 B0.5 Ta45	19.80	17.60	17.90	21.00	17.00	18.30	17.80	18.20	19.40	20.30	18.73	1.31
CC P25 B0.5 Ti15	19.30	19.50	20.90	21.90	18.70	20.40	20.90	21.10	21.20	15.50	19.94	1.85
CC P25 B0.5 Ti30	18.90	20.30	18.30	20.70	23.10	21.10	20.20	21.70	17.90	17.80	17.60	1.75
CC P25 B0.5 Ti45	21.10	23.50	23.10	19.10	20.00	21.20	22.00	18.20	21.50	19.70	20.94	1.70

Table 190 Hardness of tablets coated with colore and plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after kept in bottle and kept in accelerated condition for 7 days

Coated Tablet	Hardness (Kp)										AVG	SD
	1	2	3	4	5	6	7	8	9	10		
CC P25	17.30	23.00	23.50	23.10	22.10	18.50	16.30	20.20	22.60	24.90	21.15	2.91
CC P25 B0.5	13.40	19.40	17.40	19.70	17.40	22.70	17.00	14.20	22.60	16.00	17.98	3.15
CC P25 G0.5	18.60	18.80	14.70	14.00	18.50	17.80	17.90	22.50	18.00	17.80	17.86	2.32
CC P25 B0.5 Ta15	10.80	18.30	13.70	19.70	15.70	14.30	14.20	12.80	16.20	17.00	15.27	2.66
CC P25 B0.5 Ta30	15.40	14.10	17.80	15.10	16.40	16.00	14.80	16.40	15.90	14.40	15.63	1.10
CC P25 B0.5 Ta45	14.20	15.50	15.10	13.40	14.40	14.70	14.50	12.70	13.80	14.70	14.30	0.82
CC P25 B0.5 Ti15	13.00	11.80	12.90	13.90	13.70	17.40	15.80	14.00	17.70	13.60	14.38	1.95
CC P25 B0.5 Ti30	17.20	17.70	22.30	14.50	23.60	19.60	21.10	21.20	15.50	17.60	17.60	3.00
CC P25 B0.5 Ti45	14.60	14.10	17.40	13.50	16.00	15.00	16.60	21.40	15.30	16.80	16.07	2.25

Table 191 Hardness of tablets coated with colored and plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after kept in bottle and kept in accelerated condition for one month

Coated Tablet	Hardness (Kp)										AVG	SD
	1	2	3	4	5	6	7	8	9	10		
CC P25	20.30	19.80	14.80	17.80	12.40	22.10	23.90	18.60	17.60	15.50	18.28	3.46
CC P25 B0.5	23.10	17.10	21.00	22.10	21.10	23.30	18.90	19.60	17.50	16.30	20.00	2.51
CC P25 G0.5	18.20	15.50	15.80	16.00	20.10	21.50	15.60	15.30	14.30	21.40	17.37	2.71
CC P25 B0.5 Ta15	13.60	15.30	12.80	12.40	13.20	11.50	12.40	13.50	14.20	13.10	13.20	1.05
CC P25 B0.5 Ta30	12.80	16.40	14.50	12.60	14.50	13.40	12.90	12.20	12.50	16.00	13.78	1.50
CC P25 B0.5 Ta45	14.50	15.20	16.60	17.80	14.90	14.30	14.90	17.60	16.20	18.10	16.01	1.45
CC P25 B0.5 Ti15	15.20	16.30	13.50	16.30	15.70	15.50	15.00	13.50	16.90	13.30	15.12	1.29
CC P25 B0.5 Ti30	18.00	16.20	16.10	17.90	17.30	16.10	19.40	21.50	19.00	17.70	17.60	1.71
CC P25 B0.5 Ti45	14.40	16.10	17.30	18.10	15.60	14.70	16.90	16.10	15.80	15.40	16.04	1.14

Table 192 Hardness of tablets coated with chitosan citrate and chitosan malate film unplasticized and plasticized with glycerin and propylene glycol at concentration of 25%w/w of polymer at coating level 3% w/w of polymer after kept at room temperature for one year

Coated Tablet	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
CORE	11.90	8.90	12.30	12.40	12.60	11.80	11.30	11.60	12.80	12.10	11.77	1.11	
CC	16.60	12.70	12.50	11.70	13.60	16.10	14.60	13.80	12.90	15.30	13.98	1.63	
CC G25	21.20	22.90	17.30	14.00	15.30	15.80	18.80	18.10	15.30	14.00	17.27	3.01	
CC P25	20.60	17.00	15.80	21.50	15.00	15.70	17.20	18.40	18.20	17.80	17.72	2.09	
CM	21.60	22.10	22.40	20.70	17.40	19.20	16.90	22.30	16.70	17.60	19.69	2.39	
CM G25	21.90	19.10	20.10	23.90	23.80	22.80	20.50	20.50	21.10	20.70	21.44	1.61	
CM P25	21.60	22.20	21.00	19.40	18.90	23.70	22.80	23.20	23.10	19.20	21.51	1.80	

Table 193 Hardness of tablets coated with colore and plasticized chitosan citrate film pigmented with different amount of talcum and titanium dioxide at coating level 3% w/w of polymer after kept at room temperature for one year

Coated Tablet	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
CC P25 B0.5	23.20	17.20	14.50	12.20	13.70	12.70	12.20	19.60	19.00	13.40	15.77	3.78	
CC P25 G0.5	11.90	16.00	10.20	12.21	14.80	12.70	16.90	16.40	11.70	15.00	13.78	2.32	
CC P25 B0.5 Ta15	12.20	11.60	16.30	15.00	17.10	14.70	15.50	15.90	14.20	14.00	14.65	1.73	
CC P25 B0.5 Ta30	18.00	15.90	18.00	14.10	14.50	13.30	12.90	11.80	15.70	12.60	14.68	2.18	
CC P25 B0.5 Ta45	14.40	11.10	14.70	12.10	13.70	20.30	14.40	13.50	13.90	15.00	14.31	2.42	
CC P25 B0.5 Ti15	13.40	16.90	14.70	14.60	14.50	17.20	17.22	16.50	15.90	14.80	15.57	1.34	
CC P25 B0.5 Ti30	19.50	15.80	15.60	15.80	16.40	15.70	14.80	16.00	13.10	12.60	15.53	1.88	
CC P25 B0.5 Ti45	18.20	12.40	16.70	16.20	12.60	14.10	12.80	15.60	14.20	13.90	14.67	1.94	

Table 194 Hardness of core tablet and tablets coated with chitosan acetate film at different coating level % w/w of polymer

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
0	11.70	11.80	9.90	10.30	11.90	9.70	11.00	10.70	12.80	10.20	11.00	1.02	
1	13.80	15.90	10.80	15.30	17.20	15.70	14.80	13.40	13.10	11.40	14.14	2.03	
3	14.20	16.00	13.40	14.20	12.10	15.30	15.80	12.50	15.90	13.00	14.24	1.46	
6	23.20	32.50	31.70	37.80	35.10	34.10	33.50	35.50	33.70	33.20	33.03	3.85	
9	44.40	41.00	44.50	49.80	39.40	35.70	40.60	46.40	41.40	38.80	42.20	4.11	
12	50.50	50.50	40.10	46.80	45.90	50.50	50.50	45.00	42.50	46.50	46.88	3.69	
15	47.30	50.50	46.90	45.10	50.50	50.80	50.50	50.10	50.50	48.20	49.04	2.02	

Table 195 Hardness of core tablet and tablets coated with different coating level of chitosan acetate film plasticized with glycerin at concentration of 25% w/w of polymer

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
0	10.80	8.30	14.10	12.40	14.20	14.70	14.10	11.60	11.70	14.20	12.61	2.04	
9	37.10	35.30	30.10	33.30	38.10	30.40	36.50	39.10	30.60	37.30	34.78	3.42	
12	42.10	41.50	40.60	38.10	42.30	38.70	39.70	38.70	39.80	39.80	40.13	1.46	

Table 196 Hardness of tablets coated with different coating level of chitosan acetate film after peeling their films

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
1	16.20	17.40	11.30	12.10	14.80	16.60	16.90	13.70	11.80	11.40	14.22	2.46	
3	15.50	13.30	12.10	14.20	15.60	13.60	14.50	12.20	12.20	15.70	13.89	1.44	
6	16.70	15.60	15.80	14.20	14.20	18.80	16.80	14.30	19.60	17.00	16.30	1.87	
9	19.70	14.70	19.00	15.00	15.30	16.70	13.40	19.90	20.80	20.90	17.54	2.82	
12	20.20	19.10	17.90	21.50	21.10	22.40	16.60	19.10	20.00	18.20	19.61	1.78	
15	18.20	21.60	17.30	19.90	23.00	17.50	18.80	19.70	17.80	18.60	19.24	1.85	

Table 197 Hardness of tablets coated with different coating level of chitosan acetate film plasticized with glycerin at concentration of 25% w/w of polymer after peeling their films

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
9	12.30	8.00	8.70	14.10	16.70	10.40	14.20	14.10	10.80	12.40	12.17	2.72	
12	14.90	14.50	14.70	9.80	10.00	13.40	13.20	12.50	14.20	13.00	13.02	1.82	

Table 198 Hardness of tablets coated with chitosan acetate film incorporated with different amount of additives

Coated Tablet	Hardness (Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
CA M45	44.00	38.70	45.10	39.30	44.30	43.40	41.40	43.90	38.90	42.40	42.14	2.42
CA M60	32.80	30.20	28.80	28.40	32.10	29.70	32.50	28.30	29.40	30.30	30.25	1.68
CA M75	32.60	34.30	33.90	36.30	34.80	33.20	35.70	38.60	37.60	34.70	35.17	1.90
CA Ta45	41.10	45.60	50.30	43.10	47.40	45.50	46.90	45.80	45.40	43.50	45.46	2.53
CA Ti45	50.20	48.20	46.40	49.20	44.10	45.70	42.10	43.20	48.30	44.80	46.22	2.71
CA Cas15	43.50	38.70	40.50	44.50	43.00	43.00	36.90	37.00	46.80	42.60	41.65	3.28
CA M45 Cas15	33.40	29.00	31.10	29.20	29.30	29.20	30.40	31.20	29.40	31.10	30.33	1.40
CA M45 Tri15	39.00	38.60	35.00	39.00	39.20	37.70	38.20	35.90	37.80	34.00	37.44	1.83
CA M45 Tri30	22.10	23.40	24.10	29.30	21.90	23.40	26.70	27.00	29.30	24.20	25.14	2.75
CA M45 Tri45	27.20	27.50	25.50	27.10	26.70	24.40	29.40	27.90	27.70	29.50	27.29	1.56
CA M45 Pg30	20.80	20.70	20.30	24.20	19.80	22.80	22.10	20.40	23.00	19.10	21.32	1.62
CA M45 Dp15	35.90	31.20	30.10	34.10	32.40	34.70	36.90	31.30	31.80	31.40	32.98	2.28

Table 199 Hardness of tablets coated with chitosan acetate film incorporated with different amount of additives after peeling the film

Coated Tablet	Hardness (Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
CA M45	18.80	13.60	17.30	18.50	17.60	17.30	18.80	20.70	17.60	18.40	17.86	1.81
CA M60	19.90	19.10	16.80	14.60	17.90	19.20	20.50	17.40	18.80	16.90	18.11	1.75
CA M75	21.40	16.00	21.60	21.00	18.50	15.30	20.00	17.90	15.70	21.70	18.91	2.58
CA Ta45	18.70	17.00	15.40	15.00	18.60	17.20	16.40	17.40	17.00	18.70	17.14	1.30
CA Ti45	15.00	17.90	16.90	23.60	18.90	18.60	18.70	17.20	22.70	19.40	18.89	2.58
CA Cas15	17.00	16.70	18.00	19.00	16.70	16.40	17.70	14.80	18.50	17.00	17.18	1.19
CA M45 Cas15	17.40	17.60	18.80	17.60	17.50	18.50	17.20	16.70	16.80	17.20	17.53	0.67
CA M45 Tri15	21.30	22.50	23.40	21.80	25.10	18.50	22.00	18.70	20.10	18.90	21.23	2.18
CA M45 Tri30	18.80	21.40	19.50	21.00	22.60	20.10	18.40	17.60	22.20	20.11	20.17	1.64
CA M45 Tri45	17.50	18.60	18.80	16.10	15.20	16.30	14.40	19.30	18.50	15.70	17.04	1.72
CA M45 Pg30	15.50	22.70	18.50	15.60	15.00	19.80	18.50	16.50	17.50	15.30	17.49	2.45
CA M45 Dp15	18.70	19.40	16.40	20.20	21.20	22.10	22.40	21.60	20.20	19.60	20.18	1.80

Table 200 Hardness of tablets coated with chitosan acetate film incorporated with different amount of additives after exposure to dry heat at 60°C for 7 days

Coated Tablet	Hardness (Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
CA M45	32.10	35.70	35.80	36.50	35.70	39.20	41.40	36.00	37.20	35.40	36.50	2.46
CA M60	31.60	31.40	30.20	32.10	31.10	32.00	28.60	33.00	32.20	39.40	32.16	2.82
CA M75	36.90	35.20	31.70	37.90	31.20	31.90	33.30	35.60	34.40	31.60	33.97	2.39
CA Ta45	48.80	50.70	50.20	50.70	50.60	44.10	48.80	43.00	50.70	50.20	48.78	2.86
CA Ti45	44.50	50.70	50.70	49.60	42.10	50.80	46.60	47.70	50.80	50.70	48.42	3.12
CA Cas15	38.20	37.70	28.60	38.70	39.90	37.50	32.70	33.80	37.20	39.20	36.35	3.55
CA M45 Cas15	29.10	32.10	26.70	27.80	30.10	29.80	30.23	32.10	31.10	30.23	29.93	1.72
CA M45 Tri15	34.00	34.00	36.70	32.20	32.30	35.70	33.50	34.60	37.30	32.00	34.23	1.86
CA M45 Tri30	29.00	27.10	27.00	26.70	24.10	28.30	24.80	26.70	26.20	26.90	26.68	1.44
CA M45 Tri45	22.90	25.30	26.10	23.00	27.40	24.70	26.60	21.00	25.50	25.40	24.79	1.95
CA M45 Pg30	36.00	33.00	35.60	34.00	31.20	36.40	40.60	35.20	33.20	35.70	35.09	2.53
CA M45 Dp15	35.90	31.80	32.60	36.40	31.90	31.50	35.70	33.10	31.90	33.40	33.42	1.88

Table 201 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
24 hrs(A)	43.90	45.10	41.70	44.60	39.60	45.00	42.90	45.70	40.10	44.20	43.28	2.14	
48 hrs(A)	45.00	43.40	41.00	43.50	44.40	44.30	44.10	44.60	45.30	43.20	43.88	1.22	
72 hrs(A)	42.80	43.70	40.50	43.70	42.20	43.40	42.10	43.30	42.30	43.50	42.75	1.00	
120 hrs(A)	45.00	35.20	38.10	37.90	39.40	41.80	43.40	41.50	41.70	42.50	40.65	2.95	
168 hrs(A)	42.40	40.80	39.30	40.50	37.50	40.80	41.60	35.80	41.00	43.20	40.29	2.23	
24 hrs(B)	45.40	44.00	44.80	43.80	38.70	45.50	43.10	43.70	42.10	44.90	43.60	2.02	
48 hrs(B)	43.40	38.30	41.60	41.60	40.80	40.50	37.30	38.80	41.90	41.40	40.56	1.87	
72 hrs(B)	42.90	43.90	36.60	36.70	41.60	40.30	38.60	39.40	38.10	40.20	39.83	2.46	
120 hrs(B)	39.40	37.90	44.10	38.10	43.90	42.60	43.00	42.40	42.30	39.70	41.34	2.34	
168 hrs(B)	37.00	42.90	42.20	39.40	46.20	39.00	38.20	36.90	34.90	37.00	39.37	3.43	

Table 202 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 60% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
24 hrs(A)	32.10	35.60	34.00	34.70	33.90	34.00	31.40	38.70	35.40	31.70	34.15	2.17	
72 hrs(A)	36.20	33.80	37.10	30.50	33.20	34.00	31.90	30.00	35.60	31.60	33.39	2.41	
120 hrs(A)	38.30	32.50	32.60	32.30	36.40	36.90	36.00	37.50	33.20	36.60	35.23	2.32	
24 hrs(B)	33.90	34.10	38.50	35.30	35.40	35.80	30.40	35.30	34.00	31.40	34.41	2.28	
72 hrs(B)	35.80	31.90	34.70	33.70	39.00	36.60	37.20	37.20	37.00	34.50	35.76	2.07	
120 hrs(B)	34.90	29.80	32.00	33.70	26.90	27.70	33.40	31.60	29.60	32.20	31.18	2.62	

Table 203 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 75% w/w time of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
24 hrs(A)	34.90	32.60	29.70	30.40	32.30	36.50	35.80	33.20	34.00	35.90	33.53	2.32	
72 hrs(A)	32.00	37.60	30.50	30.90	30.50	37.90	38.70	30.00	32.50	30.40	33.10	3.52	
120 hrs(A)	35.30	31.60	31.20	39.30	36.00	33.60	39.20	39.30	36.70	35.00	35.72	3.01	
24 hrs(B)	33.10	39.70	30.50	40.70	39.70	30.60	39.60	41.50	41.40	32.50	36.93	4.63	
72 hrs(B)	36.60	41.20	33.70	35.20	34.70	35.00	37.80	37.00	36.10	35.70	36.30	2.09	
120 hrs(B)	31.60	36.00	35.50	35.30	39.80	34.90	37.90	34.10	40.00	36.50	36.16	2.56	

Table 204 Hardness of tablet coated with chitosan acetate film incorporated with talcum at concentration of 45% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
24 hrs(A)	49.80	42.60	49.10	48.50	46.10	41.60	42.80	44.60	40.90	43.70	44.97	3.23	
48 hrs(A)	45.00	47.10	49.60	46.40	45.60	46.20	43.10	48.70	43.10	44.90	45.97	2.13	
72 hrs(A)	47.80	50.80	48.80	47.50	50.80	50.80	47.60	48.60	49.00	50.10	49.18	1.35	
120 hrs(A)	48.90	46.10	50.60	47.60	50.60	50.60	50.60	42.20	50.60	50.60	48.84	2.82	
168 hrs(A)	50.60	50.60	49.10	46.30	50.60	50.70	49.90	50.60	48.60	45.50	49.25	1.92	
24 hrs(B)	44.80	43.60	45.30	47.50	40.50	42.20	47.10	44.30	43.00	43.60	44.19	2.13	
48 hrs(B)	44.60	45.70	45.00	45.90	45.40	45.60	46.50	47.60	46.20	45.20	45.77	0.85	
72 hrs(B)	50.60	47.70	50.60	50.10	48.70	48.80	48.70	49.60	46.70	48.70	49.02	1.25	
120 hrs(B)	47.80	50.20	49.70	48.00	47.20	46.30	47.80	49.90	50.00	48.21	48.51	1.35	
168 hrs(B)	49.20	49.20	49.40	50.80	50.50	44.20	46.70	49.10	50.10	49.80	48.90	1.99	

Table 205 Hardness of tablet coated with chitosan acetate film incorporated with titanium dioxide at concentration of 45% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)										AVG	SD
	1	2	3	4	5	6	7	8	9	10		
24 hrs(A)	48.30	49.20	49.90	50.10	49.20	48.20	48.30	49.90	50.80	50.20	49.41	0.91
72 hrs(A)	50.10	50.80	48.20	50.80	50.20	50.20	48.20	49.40	47.60	49.20	49.47	1.15
120 hrs(A)	49.90	44.80	48.80	46.20	48.20	47.40	48.80	40.60	48.50	49.90	47.31	2.84
24 hrs(B)	49.80	50.80	49.20	50.10	50.20	48.60	49.60	50.60	50.80	49.20	49.89	0.75
72 hrs(B)	40.00	41.00	43.30	46.50	43.80	45.80	49.10	48.70	42.40	45.30	44.59	3.05
120 hrs(B)	50.30	47.20	48.80	47.40	50.20	42.80	49.10	48.20	47.80	47.50	47.93	2.12

Table 206 Hardness of tablet coated with chitosan acetate film incorporated with magnesium dioxide at concentration of 45% w/w and castor oil at concentration of 15% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)										AVG	SD
	1	2	3	4	5	6	7	8	9	10		
24 hrs(A)	38.30	34.00	35.50	32.40	34.70	33.60	32.70	34.30	34.10	32.90	34.25	1.71
48 hrs(A)	35.00	34.90	32.80	30.50	33.60	35.90	34.60	38.50	35.80	33.80	34.54	2.11
72 hrs(A)	41.60	32.30	36.70	33.30	38.10	32.80	32.40	36.40	35.10	40.50	35.92	3.36
120 hrs(A)	38.00	36.20	31.80	36.10	34.60	39.80	35.50	34.50	40.20	34.70	36.14	2.58
168 hrs(A)	35.80	36.00	34.80	30.50	35.40	36.20	35.60	36.50	33.80	38.50	35.31	2.08
24 hrs(B)	34.40	36.50	37.40	38.00	33.60	36.10	33.60	37.00	35.20	36.40	35.82	1.56
48 hrs(B)	35.70	32.90	37.10	33.90	39.30	42.20	39.40	38.10	38.80	37.70	37.51	2.76
72 hrs(B)	37.90	37.80	31.70	37.60	37.60	36.80	38.10	35.50	33.30	35.30	36.16	2.19
120 hrs(B)	35.70	38.50	37.20	36.10	39.00	34.40	40.50	38.90	36.30	36.00	37.26	1.89
168 hrs(B)	32.40	34.60	39.20	39.80	37.80	34.00	36.60	35.40	35.50	33.60	35.89	2.44

Table 207 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w of polymer and triacetin at concentration of 15% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)										AVG	SD
	1	2	3	4	5	6	7	8	9	10		
24 hrs(A)	34.70	38.70	37.00	37.50	37.20	37.20	39.60	36.00	37.60	34.30	36.98	1.63
72 hrs(A)	36.10	38.20	35.70	36.00	39.20	31.80	33.20	35.70	29.80	35.90	35.16	2.83
24 hrs(B)	34.60	33.30	36.90	35.40	34.50	36.80	33.00	37.00	38.00	33.50	35.30	1.78
72 hrs(B)	27.60	23.10	25.20	25.20	24.70	26.30	24.80	24.00	23.30	26.30	25.05	1.41

Table 208 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w of polymer and triacetin at concentration of 30% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)										AVG	SD
	1	2	3	4	5	6	7	8	9	10		
24 hrs(A)	33.10	27.10	25.30	29.10	30.10	28.40	30.80	28.20	28.60	33.10	29.38	2.47
72 hrs(A)	30.70	25.00	22.50	29.40	24.90	27.00	20.20	27.80	24.60	27.80	25.99	3.18
24 hrs(B)	25.50	28.40	29.10	21.70	27.00	27.10	27.50	29.90	21.10	24.30	26.16	2.99
72 hrs(B)	24.70	22.60	23.10	20.60	27.40	19.90	19.50	27.70	20.50	21.90	22.79	2.97

Table 209 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w of polymer and triacetin at concentration of 45% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)										AVG	SD
	1	2	3	4	5	6	7	8	9	10		
24 hrs(A)	22.80	27.90	20.40	21.80	25.80	28.00	22.50	28.40	22.50	22.40	24.25	2.97
72 hrs(A)	21.20	21.20	20.30	20.20	20.40	18.90	18.10	21.70	21.90	18.90	20.28	1.29
24 hrs(B)	24.40	21.00	21.60	22.10	28.00	21.20	22.50	22.30	21.40	21.40	22.59	2.14
72 hrs(B)	18.90	19.30	19.20	17.90	17.10	17.50	17.30	20.20	21.90	18.70	18.80	1.48

Table 210 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w of polymer and propylene glycol at concentration of 30% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
24 hrs(A)	23.30	19.50	22.80	18.30	18.20	25.40	21.20	18.50	18.90	18.00	20.41	2.61	
72 hrs(A)	24.40	25.30	22.70	25.70	25.20	26.50	25.80	24.80	22.40	24.90	24.77	1.31	
24 hrs(B)	13.60	12.80	14.30	13.60	13.80	14.90	14.40	13.50	13.40	15.20	13.95	0.74	
72 hrs(B)	19.80	17.40	18.30	17.80	18.00	17.90	17.70	19.90	18.50	17.70	18.30	0.87	

Table 211 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w of polymer and diethyl phthalate at concentration of 15% w/w of polymer at coating level 15% w/w of polymer after moist heat treatment at 45°C (A) and 60°C (B) for different time

Time	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
24 hrs(A)	33.00	36.60	35.90	39.20	32.60	38.00	32.00	33.10	34.20	36.30	35.09	2.46	
72 hrs(A)	34.70	34.50	35.60	31.20	33.80	36.20	31.50	34.10	35.90	31.40	33.89	1.90	
24 hrs(B)	33.90	30.20	32.60	33.50	29.40	29.00	28.40	28.10	32.30	31.90	30.93	2.16	
72 hrs(B)	19.20	18.30	23.40	18.00	18.20	20.90	19.50	21.80	21.90	22.20	20.34	1.94	

Table 212 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w and castor oil at concentration of 15% w/w of polymer at different coating level

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
9	26.20	28.50	27.20	27.40	28.80	28.20	30.30	29.90	28.70	29.30	28.45	1.26	
12	26.70	27.30	26.60	25.90	24.60	25.60	26.90	25.20	27.70	27.20	26.37	1.00	
15	31.20	29.20	31.40	28.10	29.10	29.10	31.40	28.00	29.80	28.10	29.54	1.36	
18	36.40	34.50	35.70	35.30	32.20	37.20	36.70	36.20	32.70	35.70	35.26	1.66	

Table 213 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w and castor oil at concentration of 15% w/w of polymer at different coating level after moist heat treatment at 60°C for 24 hrs

Coating level (%)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
9	24.50	26.70	23.80	25.60	28.00	26.40	22.00	23.00	23.60	25.70	24.93	1.86	
12	26.70	32.10	27.80	29.60	29.50	28.60	28.90	31.20	28.90	29.80	29.31	1.55	
15	34.40	36.50	37.40	38.00	33.60	36.10	33.60	37.00	35.20	36.40	35.82	1.56	
18	36.40	32.40	36.90	36.70	33.10	36.70	36.70	37.80	35.60	38.50	36.08	1.93	

Table 214 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w, castor oil at concentration of 15% w/w of polymer and urea at different concentration at coating level 15% w/w of polymer

Urea (%w/w)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
5	35.50	29.70	31.20	32.50	33.40	35.50	32.40	33.20	32.60	34.20	33.02	1.80	
15	29.40	28.10	28.50	29.20	26.20	25.90	29.00	28.10	25.40	25.90	27.57	1.55	
30	23.00	22.40	23.40	23.00	20.10	20.50	20.90	21.40	19.40	22.04	21.61	1.37	
45	21.10	22.10	19.50	20.50	22.40	22.70	22.30	20.90	20.90	20.70	21.31	1.02	

Table 215 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w, castor oil at concentration of 15% w/w of polymer and different amount of urea at coating level of 15% w/w of polymer after moist heat treatment at 60°C for 24 hrs

Urea (%w/w)	Hardness (Kp)											AVG	SD
	1	2	3	4	5	6	7	8	9	10			
5	26.63	26.30	30.50	30.80	26.70	29.90	29.40	26.80	26.60	33.70	28.73	2.51	
15	31.80	29.90	30.90	30.90	30.30	34.60	34.50	32.20	27.50	32.30	31.49	2.12	
30	28.40	29.70	27.60	28.70	29.30	29.30	27.40	28.80	27.20	26.30	28.27	1.10	
45	26.30	28.80	26.40	28.70	29.00	28.10	27.90	26.70	26.60	27.20	27.57	1.06	

Table 216 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w, castor oil at concentration of 15% w/w of polymer and different amount of urea at coating level 15% w/w of polymer after peeling the film

Urea (%w/w)	Hardness (Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
5	22.00	21.30	18.70	19.50	19.20	23.50	19.10	18.50	19.10	19.20	20.01	1.67
15	19.20	19.40	22.10	21.80	23.00	24.80	23.50	21.40	22.80	23.30	22.13	1.77
30	18.40	16.80	19.70	19.00	17.30	18.10	19.10	18.10	19.30	19.10	18.49	0.93
45	17.80	16.80	17.80	18.60	18.30	18.90	17.50	18.70	18.30	19.20	18.19	0.72

Table 217 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate at concentration of 45% w/w, castor oil at concentration of 15% w/w of polymer and HPMC at concentration of 45% w/w of 15% w/w of polymer after moist heat treatment at 60°C for 24 hrs (B) and freshly prepared (A) polymer at coating level

Formula	Hardness(Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
(A)	32.10	33.00	33.00	33.80	35.00	33.90	32.90	31.10	33.20	32.70	33.07	1.05
(B)	39.10	38.40	34.30	40.10	39.10	39.90	38.60	40.90	39.10	35.80	38.53	2.01

Table 218 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate, castor oil and urea at concentration of 45, 15 and 5% w/w of polymer respectively at different coating level

Coating level (%)	Hardness (Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
9	23.80	24.70	25.30	29.00	25.70	25.00	25.00	24.40	23.10	23.50	24.95	1.64
12	29.20	29.50	26.10	31.90	30.00	29.10	28.10	28.50	31.00	29.60	29.30	1.59
15	35.50	29.70	31.20	32.50	33.40	35.50	32.40	33.20	32.60	34.20	33.02	1.80

Table 219 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate, castor oil and urea at concentration of 45, 15 and 5% w/w of polymer respectively at different coating level %w/w of polymer after moist heat treatment at 60°C for 24 hrs

Coating level (%)	Hardness (Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
9	27.20	30.10	27.10	28.00	29.80	29.20	30.90	29.90	30.60	28.40	29.12	1.37
12	31.40	32.30	29.30	31.50	31.60	30.50	30.20	31.40	28.80	29.70	30.67	1.15
15	26.63	26.30	30.50	30.80	26.70	29.90	29.40	26.80	26.60	33.70	28.73	2.51

Table 220 Hardness of tablet coated with chitosan acetate film incorporated with magnesium stearate, castor oil and urea at concentration of 45, 15 and 5% w/w of polymer respectively at different coating level % w/w of polymer after moist heat treatment at different % relative humidity at 60°C for 24 hrs

% R.H.	Hardness (Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
0	34.20	35.80	32.90	37.10	36.70	34.00	32.20	36.60	36.40	34.80	35.07	1.71
75	26.63	26.30	30.50	30.80	26.70	29.90	29.40	26.80	26.60	33.70	28.73	2.51
80	26.40	28.70	30.11	30.20	28.20	31.11	31.02	32.06	29.01	30.20	29.70	1.65
95	20.50	20.80	22.90	23.30	20.10	22.00	21.60	21.20	23.60	24.80	22.08	1.53

Table 221 Hardness of tablets coated with CA M45 Cas and CA M45 Cas15 U5 films at coating level of 15% based on chitosan after kept in bottle and kept in accelerated condition for one month

Formula	Hardness (Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
CA M45 Cas15	27.60	28.10	25.80	27.80	29.20	27.70	25.40	30.20	28.60	30.50	28.09	1.66
CA M45 Cas15 ^a	32.10	32.50	34.20	34.50	32.40	32.10	32.10	36.70	35.60	35.10	33.73	1.71
CA M45 Cas15 U5 ^a	26.80	28.50	28.30	25.70	30.20	26.00	25.80	26.80	26.20	28.20	27.25	1.48

After moist heat at 60°C 75%RH for ^a24 hrs

Table 222 Hardness of tablets coated with CA M45, CA M45 Cas and CA M45 Cas15 U5 films at coating level of 15% based on chitosan after kept in bottle and kept at room temperature for one year

Formula	Hardness (Kp)											
	1	2	3	4	5	6	7	8	9	10	AVG	SD
CA M45 Cas15	28.50	29.50	30.20	33.50	34.10	33.20	29.40	29.30	32.10	32.70	31.25	2.08
CA M45 ^b	38.40	40.40	41.40	40.60	37.50	44.20	42.40	37.40	38.80	37.90	39.90	2.29
CA M45 Cas15 ^a	33.60	31.00	34.70	34.00	34.70	32.90	31.90	29.30	28.60	29.30	32.00	2.34
CA M45 Cas15 U5 ^a	26.80	27.80	26.90	28.50	29.60	30.30	28.50	27.20	30.20	30.50	28.63	1.45

After moist heat at 60°C 75%RH for ^a24 hrs and ^b48hrs

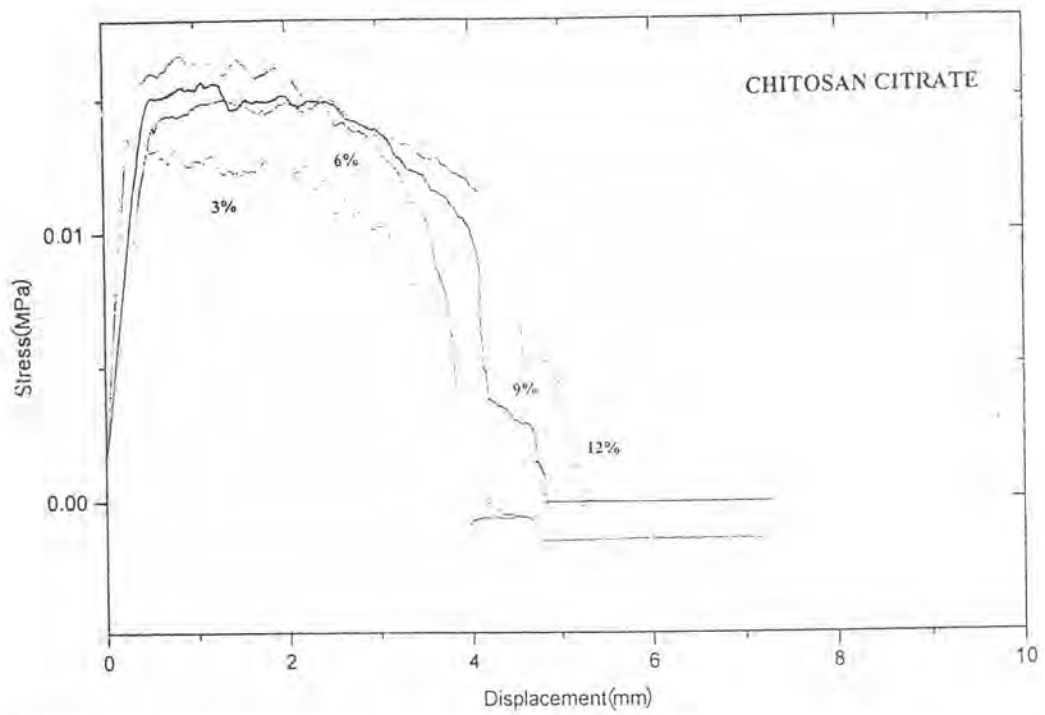


Figure 258 Stress-displacement curves from adhesion test of tablets coated with chitosan citrate film at different coating levels: 3, 6, 9 and 12% w/w of polymeric salt.

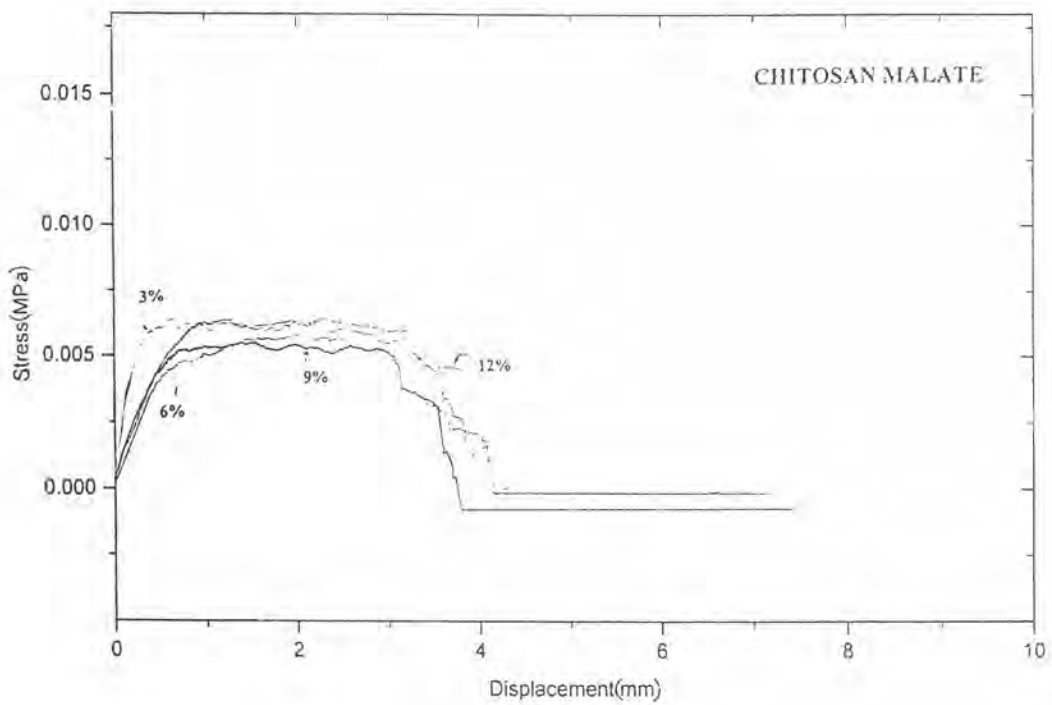


Figure 259 Stress-displacement curves from adhesion test of tablets coated with chitosan malate film at different coating levels: 3, 6, 9 and 12% w/w of polymeric salt.

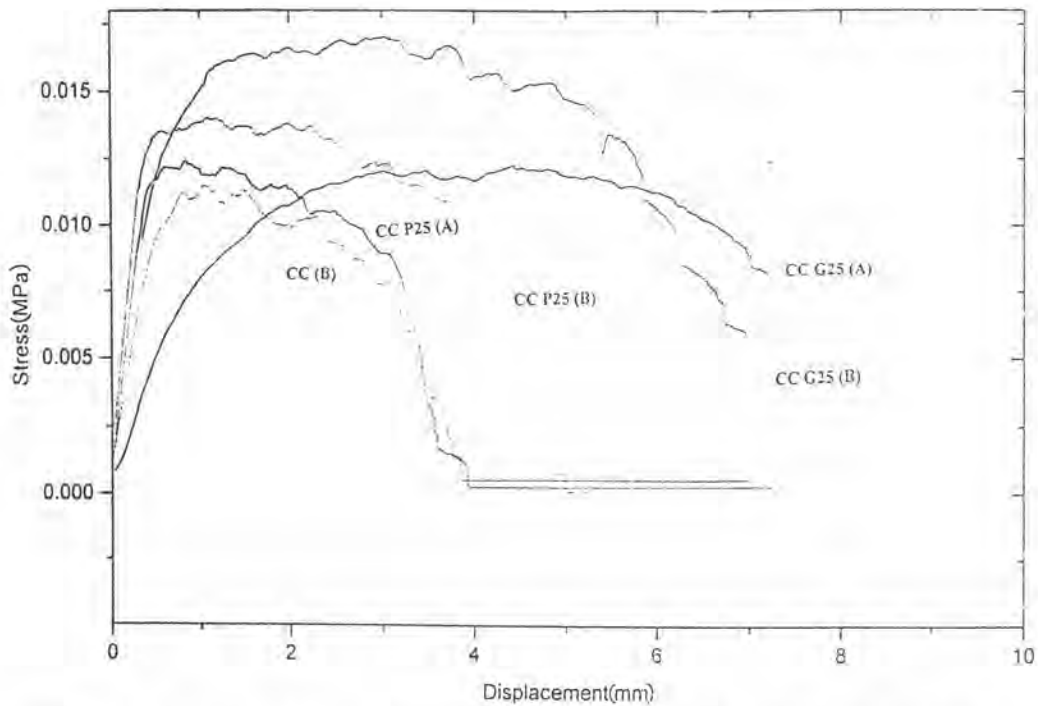


Figure 260 Stress-displacement curves from adhesion test of tablets coated with unplasticized chitosan citrate film (CC); tablets coated with chitosan citrate film plasticized with glycerin (CC G25) and propylene glycol 25% (CC P25) ((A) at coating level of 6% w/w of polymeric salt and (B) at coating level of 3% w/w of polymer)

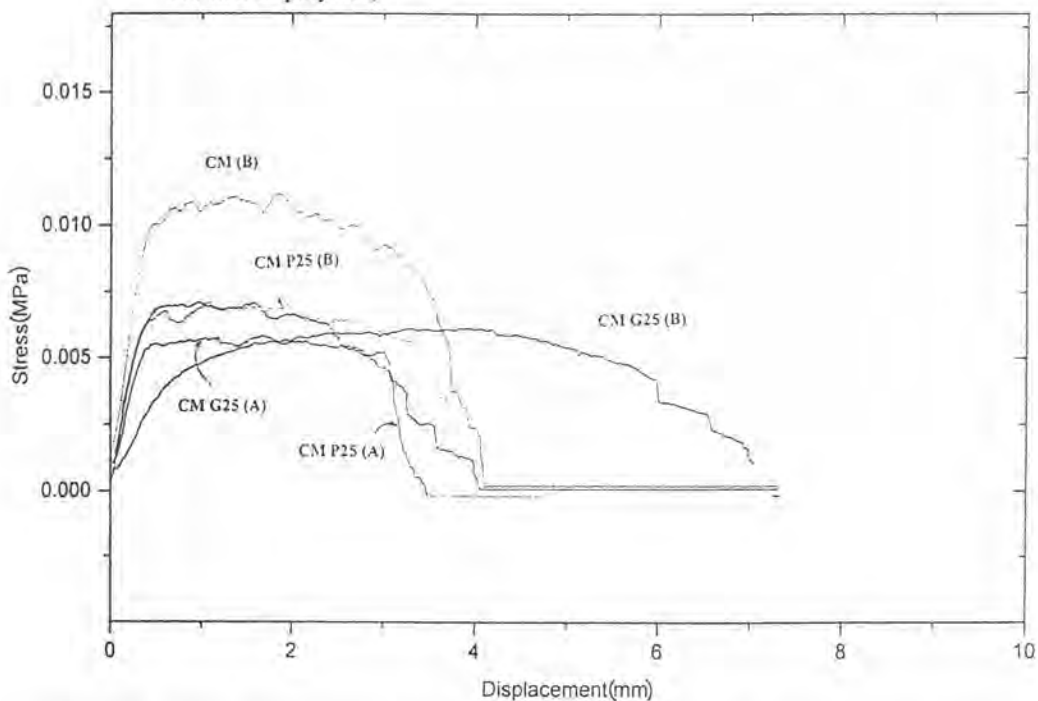


Figure 261 Stress-displacement curves from adhesion test of tablets coated with unplasticized chitosan malate film (CM); tablets coated with chitosan malate film plasticized with glycerin (CM G25) and propylene glycol 25% (CM P25) ((A) at coating level of 6% w/w of polymeric salt and (B) at coating level of 3% w/w of polymer)

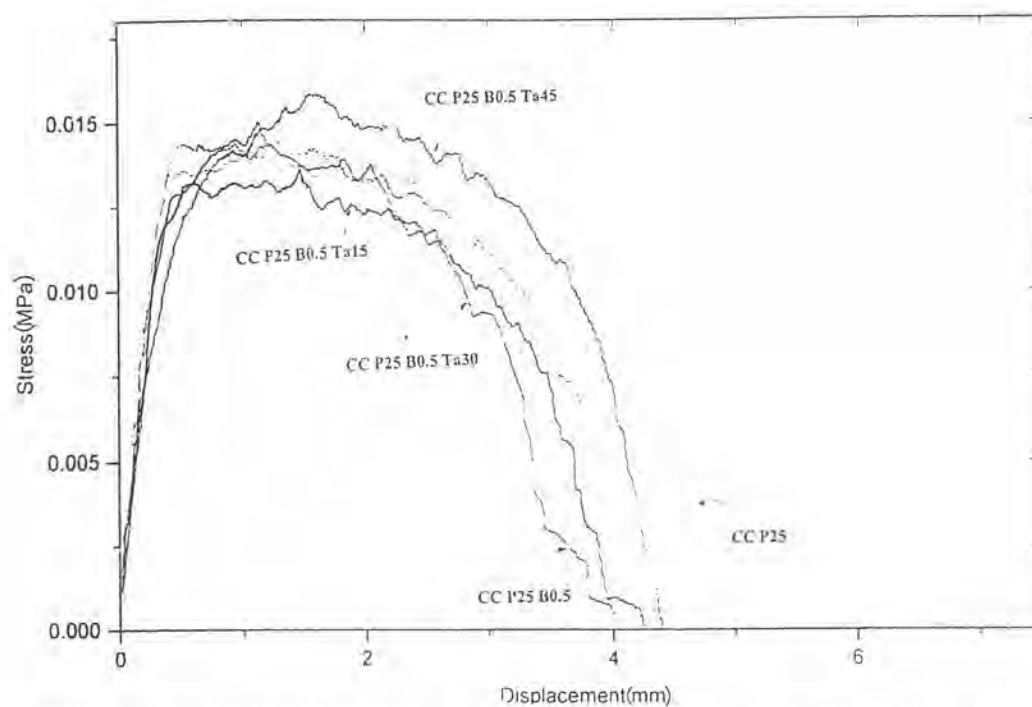


Figure 262 Stress-displacement curves from adhesion test of tablets coated with chitosan citrate films plasticized with propylene glycol 25% (CC P25), chitosan citrate film plasticized with propylene glycol 25% and colored with brilliant blue 0.5% (CC P25 B0.5), chitosan citrate film plasticized with propylene glycol 25% and colored with brilliant blue 0.5% and pigmented with talcum 15% (CC P25 B0.5 Ta15); 30% (CC P25 B0.5 Ta30) and 45% (CC P25 B0.5 Ta45) at coating level of 3% w/w of polymer.

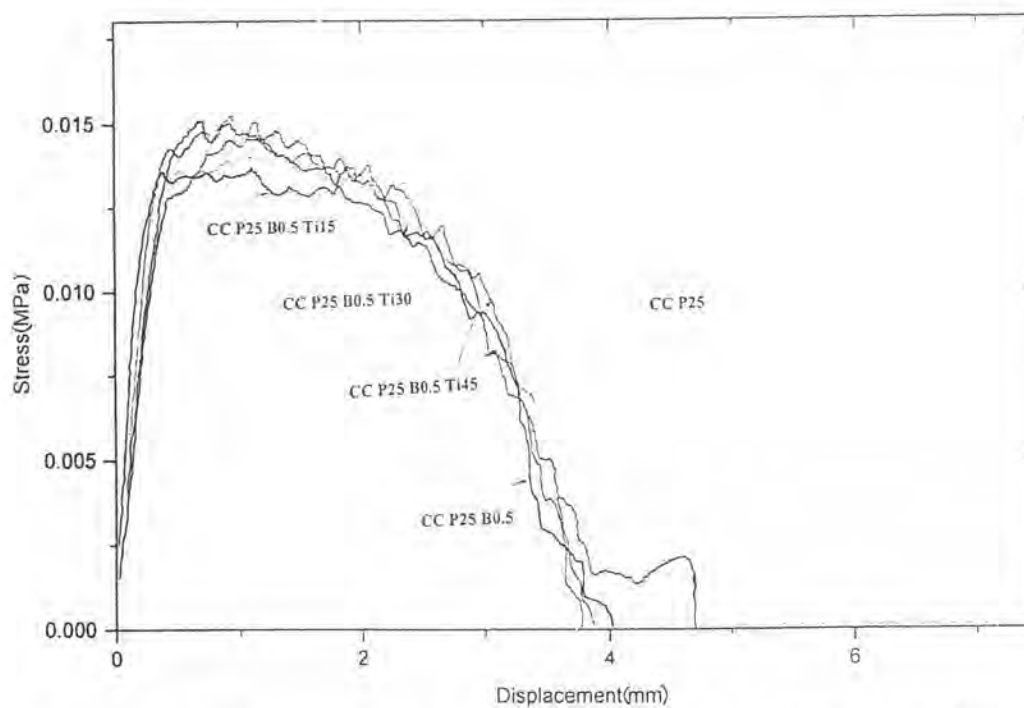


Figure 263 Stress-displacement curves from adhesion test of tablets coated with chitosan citrate films plasticized with propylene glycol 25% (CC P25), chitosan citrate film plasticized with propylene glycol 25% and colored with brilliant blue 0.5% (CC P25 B0.5), chitosan citrate film plasticized with propylene glycol 25% and colored with brilliant blue 0.5% and pigmented with titanium dioxide 15% (CC P25 B0.5 Ti15); 30% (CC P25 B0.5 Ti30) and 45% (CC P25 B0.5 Ti45) at coating level of 3% w/w of polymer.

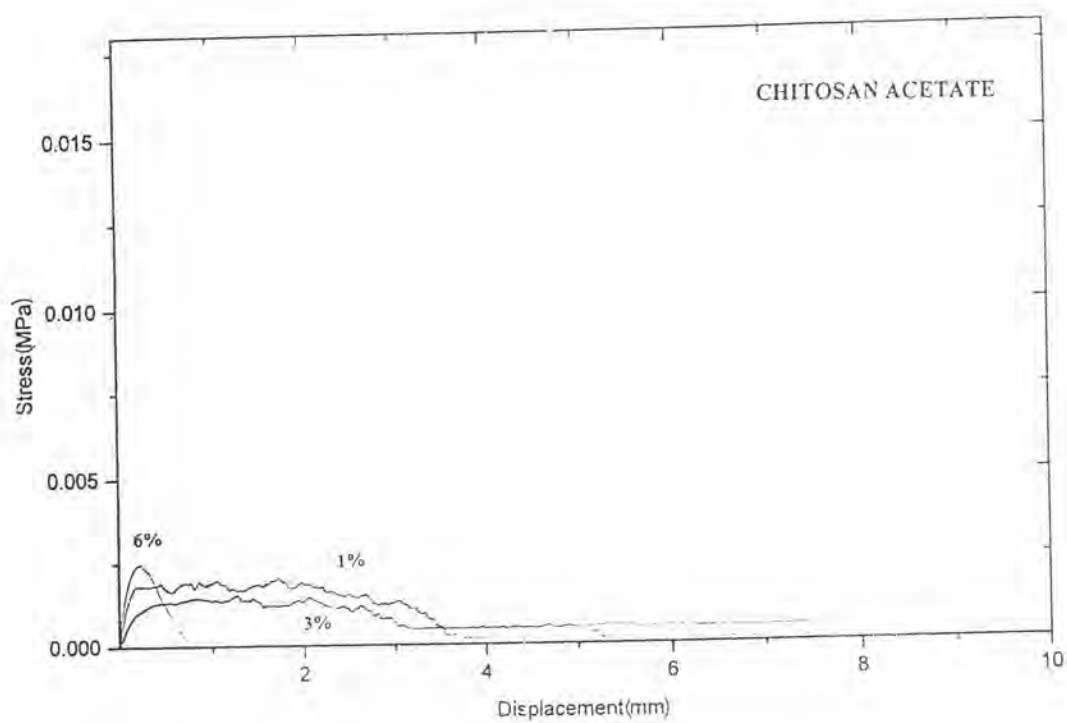


Figure 264 Stress-displacement curves from adhesion test of tablets coated with chitosan acetate films at different coating levels: 1, 3 and 6% w/w of polymer.

Table 223 Average peeling strength from adhesion test of tablets coated with chitosan citrate and malate films at different coating levels (%w/w of polymeric salt)

Coating level	Average Peeling Strength (N/mm)						AVG	SD
	1	2	3	4	5	6		
3	0.212	0.134	0.119	0.117	0.127	0.065	0.129	0.047
6	0.175	0.181	0.141	0.187	0.119	0.178	0.164	0.027
9	0.263	0.215	0.196	0.141	0.203	0.272	0.215	0.048
12	0.314	0.229	0.264	0.231	0.232	0.281	0.259	0.034

Table 223 Average peeling strength from adhesion test of tablets coated with chitosan malate and malate films at different coating levels (%w/w of polymeric salt)(continue)

Coating level	Average Peeling Strength (N/mm)						AVG	SD
	1	2	3	4	5	6		
3	0.066	0.070	0.070	0.074	0.085	0.051	0.069	0.011
6	0.062	0.036	0.086	0.085	0.064	0.060	0.066	0.019
9	0.070	0.022	0.046	0.014	0.054	0.054	0.043	0.021
12	0.108	0.068	0.083	0.060	0.083	0.099	0.084	0.018

Table 224 Average peeling strength from adhesion test of tablets coated with chitosan citrate and chitosan malate films plasticized with glycerin or propylene glycol at coating level of 6% w/w of polymeric salt

Coated Tablet	Average Peeling Strength (N/mm)						AVG	SD
	1	2	3	4	5	6		
CC G25	0.299	0.299	0.293	0.293	0.357	0.260	0.300	0.031
CC P25	0.156	0.098	0.095	0.099	0.099	0.117	0.111	0.024
CM G25	0.076	0.056	0.050	0.043	0.071	0.084	0.063	0.016
CM P25	0.044	0.052	0.059	0.068	0.048	0.033	0.051	0.012

Table 225 Average peeling strength from adhesion test of tablets coated with chitosan citrate and chitosan malate films unplasticized or plasticized with glycerin or propylene glycol at coating level of 3% w/w of polymer

Coated Tablet	Average Peeling Strength (N/mm)						AVG	SD
	1	2	3	4	5	6		
CC	0.103	0.152	0.072	0.092	0.104	0.097	0.103	0.027
CC G25	0.383	0.415	0.344	0.432	0.410	0.418	0.400	0.032
CC P25	0.221	0.253	0.217	0.157	0.195	0.215	0.210	0.032
CM	0.122	0.120	0.136	0.140	0.118	0.103	0.123	0.013
CM G25	0.121	0.149	0.143	0.140	0.177	0.159	0.148	0.019
CM P25	0.100	0.090	0.079	0.069	0.059	0.079	0.079	0.015

Table 226 Average peeling strength from adhesion test of tablets coated with chitosan citrate films plasticized with propylene glycol 25% and colored with brilliant blue 0.5% and pigmented with different amount of talcum or titanium dioxide at coating level of 3% w/w of polymer

Coated Tablet	Average Peeling Strength (N/mm)						AVG	SD
	1	2	3	4	5	6		
CC P25 B0.5	0.251	0.240	0.229	0.245	0.269	0.304	0.256	0.027
CC P25 B0.5 Ta15	0.309	0.272	0.275	0.249	0.252	0.231	0.265	0.027
CC P25 B0.5 Ta30	0.245	0.237	0.299	0.332	0.314	0.352	0.297	0.047
CC P25 B0.5 Ta45	0.331	0.372	0.345	0.367	0.356	0.293	0.344	0.029
CC P25 B0.5 Ti15	0.253	0.162	0.330	0.280	0.256	0.199	0.247	0.059
CC P25 B0.5 Ti30	0.307	0.256	0.284	0.191	0.292	0.226	0.259	0.044
CC P25 B0.5 Ti45	0.257	0.267	0.253	0.283	0.323	0.201	0.264	0.040

Table 227 Average peeling strength from adhesion test of tablets coated with chitosan acetate films at different coating levels (%w/w of polymer)

Coating level (%)	Average Peeling Strength (N/mm)						AVG	SD
	1	2	3	4	5	6		
1	0.038	0.025	0.024	0.014	0.044	0.036	0.030	0.011
3	0.019	0.017	0.030	0.018	0.027	0.024	0.023	0.005
6	0.005	0.028	0.020	0.014	0.016	0.010	0.016	0.008

Table 228 Modulus from adhesion test of tablets coated with chitosan citrate and malate films at different coating levels (%w/w of polymeric salt)

Coating level (%)	Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
3	0.368	0.412	0.291	0.339	0.424	0.278	0.352	0.061
6	0.241	0.172	0.210	0.378	0.426	0.256	0.281	0.100
9	0.198	0.268	0.167	0.137	0.222	0.108	0.183	0.058
12	0.172	0.167	0.164	0.185	0.119	0.095	0.150	0.035

Table 228 Modulus from adhesion test of tablets coated with chitosan citrate and malate films at different coating levels (%w/w of polymeric salt)(continue)

Coating level (%)	Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
3	0.162	0.189	0.096	0.143	0.142	0.069	0.134	0.044
6	0.059	0.052	0.042	0.057	0.046	0.073	0.055	0.011
9	0.046	0.063	0.155	0.085	0.085	0.072	0.084	0.038
12	0.122	0.107	0.047	0.101	0.045	0.042	0.077	0.036

Table 229 Modulus from adhesion test of tablets coated with chitosan citrate and chitosan malate films plasticized with glycerin or propylene glycol at coating level of 6% w/w of polymeric salt

Coated Tablet	Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
CC G25	0.059	0.045	0.048	0.040	0.100	0.051	0.057	0.022
CC P25	0.135	0.161	0.230	0.119	0.142	0.171	0.160	0.039
CM G25	0.062	0.078	0.119	0.089	0.066	0.040	0.076	0.027
CM P25	0.113	0.083	0.074	0.091	0.146	0.140	0.108	0.030

Table 230 Modulus from adhesion test of tablets coated with chitosan citrate and chitosan malate films unplasticized or plasticized with glycerin or propylene glycol at coating level of 3% w/w of polymer

Coated Tablet	Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
CC	0.059	0.130	0.088	0.104	0.286	0.152	0.137	0.080
CC G25	0.122	0.059	0.164	0.120	0.277	0.155	0.150	0.073
CC P25	0.219	0.182	0.174	0.194	0.213	0.199	0.197	0.017
CM	0.160	0.130	0.151	0.160	0.117	0.093	0.135	0.027
CM G25	0.033	0.028	0.040	0.046	0.024	0.039	0.035	0.008
CM P25	0.115	0.120	0.087	0.118	0.085	0.089	0.102	0.017

Table 231 Modulus from adhesion test of tablets coated with chitosan citrate films plasticized with propylene glycol 25% and colored with brilliant blue 0.5% and pigmented with different amount of talcum or titanium dioxide at coating level of 3% w/w of polymer

Coated Tablet	Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
CC P25 B0.5	0.215	0.277	0.244	0.156	0.289	0.169	0.225	0.055
CC P25 B0.5 Ta15	0.222	0.192	0.251	0.722	0.323	0.266	0.329	0.197
CC P25 B0.5 Ta30	0.560	0.813	0.312	0.466	0.479	0.194	0.471	0.213
CC P25 B0.5 Ta45	1.739	0.320	1.103	0.242	0.126	0.511	0.674	0.626
CC P25 B0.5 Ti15	1.257	1.257	1.991	1.331	1.157	1.194	1.365	0.313
CC P25 B0.5 Ti30	0.199	0.300	0.193	0.252	0.205	0.245	0.232	0.041
CC P25 B0.5 Ti45	0.222	0.167	0.312	0.261	0.186	0.561	0.285	0.145

Table 232 Modulus from adhesion test of tablets coated with chitosan acetate films at different coating levels (%w/w of polymer)

Coating level (%)	Modulus (MPa)						AVG	SD
	1	2	3	4	5	6		
1	0.058	0.049	0.232	0.116	0.059	0.161	0.113	0.073
3	0.048	0.025	0.043	0.020	0.050	0.037	0.037	0.012
6	0.058	0.070	0.103	0.116	0.220	0.190	0.126	0.065

Table 233 Energy to break point from adhesion test of tablets coated with chitosan citrate and malate films at different coating levels (%w/w of polymeric salt)

Coating level (%)	Energy to Break Point (mJ)						AVG	SD
	1	2	3	4	5	6		
3	1.691	1.597	1.625	1.548	1.261	1.203	1.488	0.204
6	2.125	1.942	2.052	1.945	2.083	1.811	1.993	0.116
9	1.980	2.265	1.942	1.524	2.007	2.214	1.989	0.263
12	2.465	2.182	2.400	2.146	2.038	2.166	2.233	0.164

Table 233 Energy to break point from adhesion test of tablets coated with chitosan citrate and malate films at different coating levels (%w/w of polymeric salt)(continue)

Coating level (%)	Energy to Break Point (mJ)						AVG	SD
	1	2	3	4	5	6		
3	0.772	0.555	0.700	0.663	0.672	0.526	0.648	0.092
6	0.647	0.448	0.848	0.779	0.722	0.581	0.671	0.144
9	0.667	0.513	0.618	0.461	0.457	0.482	0.533	0.088
12	0.877	0.654	0.693	0.659	0.571	0.788	0.707	0.109

Table 234 Energy to break point from adhesion test of tablets coated with chitosan citrate and chitosan malate films plasticized with glycerin or propylene glycol at coating level of 6% w/w of polymeric salt

Coated Tablet	Energy to Break Point (mJ)						AVG	SD
	1	2	3	4	5	6		
CC G25	2.842	2.433	2.780	2.940	3.365	2.248	2.768	0.394
CC P25	1.499	1.107	1.363	0.887	1.137	1.178	1.195	0.213
CM G25	0.724	0.583	0.663	0.675	0.553	0.628	0.638	0.063
CM P25	0.681	0.692	0.645	0.511	0.785	0.629	0.657	0.090

Table 235 Energy to break point from adhesion test of tablets coated with chitosan citrate and chitosan malate films unplasticized or plasticized with glycerin or propylene glycol at coating level of 3% w/w of polymer

Coated Tablet	Energy to Break Point (mJ)						AVG	SD
	1	2	3	4	5	6		
CC	0.840	1.588	0.862	0.975	1.192	1.161	1.103	0.279
CC G25	3.799	3.977	2.880	4.136	3.508	3.556	3.643	0.444
CC P25	1.924	2.080	1.760	1.690	1.845	2.009	1.885	0.148
CM	1.391	1.186	1.077	1.163	1.062	1.094	1.162	0.122
CM G25	1.041	1.247	1.100	1.077	1.512	1.217	1.199	0.173
CM P25	0.725	0.645	0.857	0.953	0.613	0.882	0.779	0.138

Table 236 Energy to break point from adhesion test of tablets coated with chitosan citrate films plasticized with propylene glycol 25% and colored with brilliant blue 0.5% and pigmented with different amount of talcum or titanium dioxide at coating level of 3% w/w of polymer

Coated Tablet	Energy to Break Point (mJ)						AVG	SD
	1	2	3	4	5	6		
CC P25 B0.5	1.457	1.488	1.144	1.193	1.689	1.811	1.464	0.264
CC P25 B0.5 Ta15	1.512	1.357	1.460	1.587	1.095	1.347	1.393	0.172
CC P25 B0.5 Ta30	1.250	1.129	1.701	1.706	1.643	1.896	1.554	0.298
CC P25 B0.5 Ta45	1.980	1.902	2.088	2.040	1.910	1.416	1.889	0.243
CC P25 B0.5 Ti15	1.296	1.257	1.404	1.331	1.157	1.194	1.273	0.091
CC P25 B0.5 Ti30	1.408	1.298	1.243	1.226	1.607	1.118	1.317	0.171
CC P25 B0.5 Ti45	1.108	1.555	1.376	1.521	1.693	1.377	1.438	0.201

Table 237 Energy to break point from adhesion test of tablets coated with chitosan acetate films at different coating levels (%w/w of polymer)

Coating level (%)	Energy to Break Point (mJ)						AVG	SD
	1	2	3	4	5	6		
1	0.188	0.166	0.146	0.325	0.214	0.362	0.234	0.089
3	0.210	0.092	0.266	0.172	0.239	0.245	0.204	0.064
6	0.085	0.290	0.141	0.073	0.064	0.012	0.111	0.097

Table 238 Percent label amount of drug in core tablet and tablets coated with unplasticized and plasticized chitosan citrate and chitosan malate films at coating level of 6% of polymeric salt

No.	%Label amount						
	CORE	CC	CC G25	CC P25	CM	CM G25	CM P25
1	99.42	102.02	99.67	101.15	103.87	102.51	100.53
2	96.45	101.52	102.64	102.02	98.43	101.40	100.90
3	98.30	99.67	102.02	102.39	104.99	100.78	101.77
4	96.70	101.89	101.40	99.79	104.12	101.03	103.38
5	104.86	105.48	101.65	102.39	98.68	101.40	102.02
6	101.89	99.67	102.39	102.14	98.92	100.04	101.03
7	100.53	101.40	101.40	100.78	102.76	102.02	100.78
8	100.16	101.15	100.78	101.40	102.76	102.39	101.89
9	104.37	101.27	99.91	101.27	101.27	102.64	103.25
10	100.53	101.03	101.27	102.02	100.78	100.04	101.77
AVG	100.32	101.51	101.31	101.53	101.66	101.42	101.73
SD	2.84	1.61	0.97	0.83	2.41	0.96	0.98
%CV	2.83	1.59	0.96	0.81	2.37	0.95	0.96

Table 239 Percent label amount of drug in core tablet and tablets coated with unplasticized and plasticized chitosan citrate and chitosan malate films at coating level of 3% of chitosan

No.	%Label amount						
	CORE	CC	CC G25	CC P25	CM	CM G25	CM P25
1	100.16	98.55	104.37	102.64	101.03	101.89	99.91
2	101.77	100.41	101.27	103.87	103.01	100.04	99.05
3	97.69	101.40	101.40	101.03	102.39	100.41	99.05
4	102.88	102.88	104.37	101.15	103.25	102.14	101.15
5	101.15	101.15	101.27	101.65	102.39	102.02	98.92
6	102.88	100.16	102.39	102.64	102.51	102.64	98.43
7	102.02	100.16	100.78	102.26	103.63	100.16	100.16
8	101.65	101.40	102.76	102.02	102.14	101.89	103.50
9	99.91	98.43	101.15	102.76	101.03	100.16	103.50
10	101.77	96.45	101.40	103.75	103.13	102.76	102.14
AVG	101.19	100.10	102.12	102.38	102.45	101.41	100.58
SD	1.57	1.85	1.33	0.97	0.88	1.09	1.90
%CV	1.55	1.85	1.30	0.94	0.86	1.08	1.89

Table 240 Percent label amount of drug in tablets coated with chitosan citrate film containing different additives at coating level of 3% of chitosan

No.	%Label amount							
	CC P25 B0.5	CC P25 G0.5	CC P25 B0.5 Ta15	CC P25 B0.5 Ta30	CC P25 B0.5 Ta45	CC P25 B0.5 Ti15	CC P25 B0.5 Ti30	CC P25 B0.5 Ti45
1	102.39	104.62	101.89	104.25	103.63	107.59	104.37	101.40
2	104.12	102.51	101.77	102.51	105.24	100.66	102.51	101.27
3	106.35	103.75	99.29	102.76	105.98	101.52	98.43	101.40
4	104.00	104.25	99.05	107.34	105.98	101.65	100.16	96.57
5	105.48	104.25	98.92	103.87	107.13	100.66	100.28	104.12
6	102.26	104.74	101.89	103.75	104.86	101.27	100.04	96.82
7	102.39	104.25	101.52	102.14	104.99	103.38	102.14	97.69
8	103.75	102.64	99.67	102.02	105.11	102.88	100.66	104.00
9	103.25	102.64	100.78	106.35	105.48	102.14	104.99	101.40
10	103.01	101.89	102.02	103.75	105.11	100.78	102.26	100.53
AVG	103.70	103.55	100.68	103.87	104.95	102.25	101.58	100.52
SD	1.36	1.03	1.31	1.76	0.92	2.09	2.05	2.69
%CV	1.31	0.99	1.30	1.69	0.88	2.04	2.02	2.68

Table 241 Percent label amount of drug in core tablet and tablets coated with unplasticized and plasticized chitosan citrate film at coating level of 3% of chitosan after kept at room temperature for one year

No.	%Label amount						
	CORE	CC	CC G25	CC P25	CM	CM G25	CM P25
1	96.43	99.22	102.09	102.34	101.44	100.33	97.45
2	98.22	100.23	101.32	103.45	104.22	94.20	98.98
3	94.21	101.43	96.89	102.22	100.99	98.33	96.54
4	100.21	100.21	97.08	102.45	101.22	97.33	96.60
5	100.34	98.56	99.21	101.34	103.43	99.21	95.67
6	101.21	98.10	98.45	100.34	100.21	100.44	96.04
7	97.34	98.21	99.02	104.34	100.34	102.33	98.01
8	97.21	99.21	99.01	104.87	99.34	101.09	97.33
9	98.21	96.32	99.34	100.21	99.45	92.11	97.22
10	99.11	100.02	100.06	101.22	97.55	103.22	98.11
AVG	98.25	99.15	99.25	101.99	100.82	98.86	97.20
SD	2.09	1.44	1.63	1.37	1.95	3.51	1.01
%CV	2.13	1.45	1.65	1.34	1.94	3.55	1.04

Table 242 Percent label amount of drug in tablets coated with chitosan citrate film containing different additives at coating level of 3% of chitosan after kept at temperature for one year

No.	%Label amount							
	CC P25 B0.5	CC P25 G0.5	CC P25 B0.5 Ta15	CC P25 B0.5 Ta30	CC P25 B0.5 Ta45	CC P25 B0.5 Ti15	CC P25 B0.5 Ti30	CC P25 B0.5 Ti45
1	102.23	101.01	102.04	96.32	100.07	100.23	97.00	95.23
2	103.67	102.10	103.02	93.23	103.02	96.32	100.03	97.34
3	102.11	104.09	104.56	93.76	103.67	98.37	102.28	97.00
4	104.56	103.00	102.21	94.86	105.79	100.32	98.00	98.22
5	105.11	102.07	101.03	98.22	104.71	99.00	97.07	96.34
6	102.79	101.09	103.23	98.40	103.02	100.23	98.29	94.56
7	102.62	103.22	100.22	98.03	104.03	101.34	100.34	99.02
8	104.22	101.08	104.85	98.33	101.18	100.47	103.22	99.94
9	103.22	102.28	104.76	96.42	101.34	98.45	103.23	94.32
10	105.01	104.01	102.06	95.01	103.23	97.22	99.00	95.50
AVG	103.55	102.40	102.80	96.26	103.01	99.20	99.85	96.75
SD	1.13	1.16	1.39	1.97	1.73	1.60	2.39	1.90
%CV	1.09	1.13	1.54	2.04	1.68	1.61	2.39	1.97

Table 243 Percent label amount of drug in core tablet and tablets coated with chitosan acetate film containing different additives at coating level of 15% of chitosan

No.	%Label amount							
	CORE	CA	CA G25	CA Cas15	CA M45	CA M60	CA M75	CA Ta45
1	99.67	98.18	101.65	93.11	104.12	100.90	99.05	99.91
2	102.14	97.31	100.90	102.39	103.75	101.15	99.79	101.15
3	100.41	101.89	100.41	102.39	97.69	98.55	97.81	101.03
4	104.25	99.54	102.76	101.27	95.83	98.68	98.06	103.38
5	100.28	99.67	98.18	102.14	102.39	95.71	94.84	103.01
6	100.04	99.79	97.31	101.27	97.31	98.68	98.30	99.91
7	99.67	100.16	101.89	102.02	97.56	98.68	98.06	99.67
8	98.43	100.04	99.54	101.89	97.44	100.28	99.42	100.66
9	100.28	99.67	99.67	102.26	102.14	100.28	99.79	103.01
10	102.51	98.55	102.14	94.84	102.26	101.89	98.30	103.01
AVG	100.77	99.48	100.45	100.36	100.05	99.48	98.34	101.47
SD	1.70	1.25	1.77	3.41	3.14	1.79	1.44	1.48
%CV	1.69	1.25	1.77	3.40	3.14	1.80	1.46	1.46

Table 244 Percent label amount of drug in core tablet and tablets coated with chitosan acetate film containing different additives at coating level of 15% of chitosan (continued)

No.	%Label amount							
	CA Tri45	CA M45 Cas15	CA M45 Tri15	CA M45 Tri30	CA M45 Tri45	CA M45 Pg30	CA M45 Dp15	CA M45 Cas15 U5
1	108.21	99.54	104.12	94.10	102.76	96.45	93.35	99.67
2	108.58	98.92	99.79	99.67	102.88	87.91	96.94	100.28
3	108.70	100.53	99.29	99.67	102.51	99.79	103.50	101.03
4	108.58	100.41	103.13	91.75	101.40	99.79	95.95	97.19
5	108.82	99.29	104.37	95.95	101.32	95.21	103.25	101.27
6	109.07	100.41	99.67	95.95	102.76	96.08	100.41	100.66
7	108.95	99.67	99.79	95.46	102.64	98.18	99.29	100.41
8	108.58	99.79	99.54	99.91	102.14	97.44	98.06	97.44
9	108.95	98.92	99.54	99.54	101.89	100.16	103.75	98.06
10	103.13	100.66	105.24	94.34	101.52	98.18	101.15	94.34
AVG	108.16	99.81	101.45	96.63	102.20	96.92	99.57	99.03
SD	1.78	0.66	2.44	2.90	0.58	3.58	3.51	2.22
%CV	1.65	0.66	2.40	3.00	0.57	3.70	3.52	2.24

Table 245 Percent label amount of drug in tablets coated with chitosan acetate film containing different additives at coating level of 15% of chitosan

No.	%Label amount			
	CA M45 Cas15 U45 ^a	CA M45 ^b	CA M45 Cas15 ^c	CA M45 Cas15 U5 ^d
1	91.99	102.34	96.82	100.04
2	97.31	100.08	100.16	100.41
3	95.21	104.12	99.91	98.55
4	95.58	104.06	100.66	97.19
5	97.69	102.00	99.67	98.68
6	97.56	102.22	98.30	98.06
7	96.82	103.77	100.78	100.16
8	95.33	100.02	96.94	100.41
9	95.21	104.22	98.68	95.95
10	97.44	104.09	100.04	100.16
AVG	96.01	102.69	99.20	98.96
SD	1.75	1.64	1.45	1.54
%CV	1.83	1.60	1.46	1.56

^a freshly prepared and after kept at 60°C 75%RH for ^b 24 hrs and ^c 48 hrs

Table 246 Percent label amount of drug in tablets coated with chitosan acetate film containing different additives at coating level of 15% of chitosan after kept at room temperature for one year

No.	%Label amount			
	CA M45 Cas15 ^a	CA M45 ^b	CA M45 Cas15 ^c	CA M45 Cas15 U5 ^d
1	102.48	100.89	95.08	98.48
2	101.72	97.62	99.03	97.25
3	104.68	98.48	100.48	98.48
4	103.26	99.20	102.60	102.28
5	100.92	96.45	102.70	102.80
6	104.76	94.36	103.52	103.49
7	100.03	98.50	100.48	99.50
8	97.62	96.42	101.50	96.42
9	96.48	97.66	102.46	98.43
10	102.68	98.20	103.62	100.43
AVG	101.46	97.78	101.15	99.76
SD	2.77	1.77	2.59	2.42
%CV	2.73	1.81	2.56	2.42

^a freshly prepared and after kept at 60°C 75%RH for ^b 24 hrs and ^c 48 hrs.

Table 247 Drug content of core and tablets coated with chitosan citrate and chitosan malate film unplasticized and plasticized with glycerin and propylene glycol at concentration of 25% w/w of polymer at coating level of 6%w/w of polymeric salt

Tablet	Drug Content(%)				
	1	2	3	AVG	SD
CORE	97.69	102.02	99.87	99.86	2.17
CC	100.39	99.96	96.80	99.05	1.96
CC G25	99.11	103.99	101.82	101.64	2.44
CC P25	102.95	101.05	100.89	101.63	1.15
CM	103.98	100.27	100.54	101.60	2.07
CM G25	104.69	101.25	104.41	103.45	1.91
CM P25	100.81	101.43	101.20	101.15	0.31

Table 248 Drug content of tablets coated with chitosan citrate and chitosan malate films containing different additives at coating level of 3% of polymer

Coated Tablet	Drug Content(%)				
	1	2	3	AVG	SD
CC	100.17	99.50	100.68	100.12	0.59
CC G25	92.44	98.33	98.58	96.45	3.48
CC P25	99.00	97.87	93.33	96.73	3.00
CM	97.46	102.92	98.98	99.79	2.82
CM G25	100.06	97.54	99.59	99.06	1.34
CM P25	98.71	98.99	98.50	98.73	0.25
CC P25 G05	103.06	102.31	106.11	103.83	2.01
CC P25 B0.5	104.84	104.13	104.76	104.58	0.39
CC P25 B0.5 Ta15	97.57	103.27	99.35	100.06	2.92
CC P25 B0.5 Ta30	103.10	99.27	100.90	101.09	1.92
CC P25 B0.5 Ta45	101.54	98.79	102.31	100.88	1.85
CC P25 B0.5 Ti15	106.41	103.94	102.27	104.21	2.08
CC P25 B0.5 Ti30	100.56	101.22	100.85	100.88	0.33
CC P25 B0.5 Ti45	103.06	102.19	101.19	102.15	0.94

Table 249 Drug content of tablets coated with chitosan citrate film containing different additives at coating level of 3% of polymer after kept in bottle and accelerated condition for one month

Coated Tablet	Drug Content(%)				
	1	2	3	AVG	SD
CC	99.14	102.11	101.57	100.94	1.58
CC P25	101.00	101.60	99.81	100.80	0.91
CC P25 G05	101.27	102.18	101.11	101.52	0.58
CC P25 B0.5	104.39	103.13	102.51	103.34	0.96
CC P25 B0.5 Ta15	99.93	101.80	102.94	101.56	1.52
CC P25 B0.5 Ta30	103.26	102.93	103.24	103.14	0.19
CC P25 B0.5 Ta45	104.08	104.87	104.28	104.41	0.41
CC P25 B0.5 Ti15	100.31	100.90	102.47	101.23	1.12
CC P25 B0.5 Ti30	102.07	100.64	101.17	101.29	0.72
CC P25 B0.5 Ti45	103.53	100.74	100.10	101.46	1.82

Table 250 Drug content of tablets coated with chitosan citrate film containing different additives at coating level of 3% of polymer after kept at room temperature for one year

Coated Tablet	Drug Content(%)				
	1	2	3	AVG	SD
CC	100.46	101.70	103.68	101.95	1.62
CC G25	97.04	107.52	102.26	102.27	5.24
CC P25	96.80	95.93	95.47	96.07	0.68
CM	103.65	102.89	103.72	103.42	0.46
CM G25	97.08	100.25	99.36	98.90	1.64
CM P25	97.78	95.43	100.61	97.94	2.59
CC P25 G05	103.06	102.31	106.11	103.83	2.01
CC P25 B0.5	104.84	104.13	104.76	104.58	0.39
CC P25 B0.5 Ta15	97.57	103.27	99.35	100.06	2.92
CC P25 B0.5 Ta30	103.10	99.27	100.90	101.09	1.92
CC P25 B0.5 Ta45	101.54	98.79	102.31	100.88	1.85
CC P25 B0.5 Ti15	106.41	103.94	102.27	104.21	2.08
CC P25 B0.5 Ti30	100.56	101.22	100.85	100.88	0.33
CC P25 B0.5 Ti45	103.06	102.19	101.19	102.15	0.94

Table 251 Drug content of core and tablets coated with chitosan acetate film containing different additives at coating level of 15% of polymer

Tablet	Drug Content(%)				
	1	2	3	AVG	SD
CORE	102.38	100.42	102.73	101.84	1.25
CA	93.28	92.26	93.46	93.00	0.65
CA M45	105.47	101.42	104.51	103.80	2.12
CA M60	105.68	108.61	106.07	106.79	1.59
CA M75	105.26	105.74	104.84	105.28	0.45
CA Ta 45	101.77	109.79	107.59	106.38	4.14
CA Ti45	102.03	98.22	97.01	99.09	2.62
CA M45 Cas15 U5	101.79	95.29	98.15	98.41	3.26

Table 252 Drug content of tablets coated with chitosan acetate film containing different additives at coating level of 15% of polymer after moist heat treatment

Coated Tablet	Drug Content(%)				
	1	2	3	AVG	SD
CA M45 ^a	109.52	102.75	98.09	103.45	5.75
CA M60 ^a	107.67	104.17	106.67	106.17	1.80
CA M75 ^c	107.46	99.71	105.97	104.38	4.11
CA M45 CAS15 ^a	108.49	100.73	105.40	104.87	3.91

After moist heat treatment at 60°C 75%RH for ^a 24 hrs and ^b 48 hrs

Table 253 Drug content of tablets coated with CA M45 Cas15 film at coating level of 15% of polymer after moist heat treatment at 60°C for different time intervals

Time(hrs)	Drug Content(%)				
	1	2	3	AVG	SD
0	101.23	101.23	102.1	101.52	0.50
48	105.38	107.72	106.73	106.61	1.17
72	104.10	105.31	108.31	105.91	2.17
120	100.36	100.91	103.97	101.75	1.95
168	104.94	107.55	101.42	104.64	3.08

Table 254 Drug content of tablets coated with CA M45 Cas15 U5 film at coating level of 15% of polymer after moist heat treatment at 60°C for 24 hrs at different %RH

%RH	Drug Content(%)				
	1	2	3	AVG	SD
0	98.25	102.38	101.34	100.66	2.15
75	102.33	97.83	96.44	98.87	3.08
85	104.17	103.35	103.26	103.59	0.50
96	98.30	98.66	97.66	98.21	0.51

Table 255 Drug content of tablets coated with chitosan acetate film containing different additives at coating level of 15% of polymer after kept in bottle and accelerated condition for one month

Coated Tablet	Drug Content(%)				
	1	2	3	AVG	SD
CA M45 Cas15	99.84	99.72	98.90	99.49	0.51
CA M45 Cas15 ^a	105.25	103.22	104.88	104.45	1.08
CA M45 Cas15 U5 ^a	97.61	98.37	102.23	99.40	2.48

After moist heat treatment at 60°C 75%RH for ^a 24 hrs and ^b 48 hrs

Table 256 Drug content of tablets coated with chitosan acetate film containing different additives at coating level of 15% of polymer after kept at room temperature for one year

Coated Tablet	Drug Content(%)				
	1	2	3	AVG	SD
CORE	98.46	100.56	98.42	99.15	1.22
CA M45 Cas15	99.25	98.80	96.83	98.29	1.29
CA M45 ^b	93.98	94.47	94.02	94.16	0.27
CA M45 Cas15 ^a	98.22	97.21	98.01	97.81	0.53
CA M45 Cas15 U5 ^a	99.40	98.87	96.07	98.11	1.79

After moist heat treatment at 60°C 75%RH for ^a 24 hrs and ^b 48 hrs.

Table 257 Disintegration time of core and tablets coated with chitosan citrate and malate films at different coating level % w/w of polymeric salt

Coating level (%)	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
0	3.73	3.95	4.08	4.27	4.35	4.35	4.12	0.25	
1	4.46	5.26	5.40	5.05	5.42	4.56	5.03	0.42	
3	5.25	5.34	5.39	5.42	5.47	5.48	5.39	0.09	
6	5.24	5.32	5.43	5.54	5.59	6.20	5.55	0.34	
9	6.25	6.35	6.50	7.07	7.22	7.21	6.77	0.45	
12	6.44	6.47	7.02	7.06	7.28	7.42	6.95	0.41	

Table 257 Disintegration time of core and tablets coated with chitosan citrate and malate films at different coating level % w/w of polymeric salt (continue)

Coating level (%)	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
1	4.81	5.43	5.08	5.48	4.06	4.86	4.95	0.52	
3	4.53	4.67	5.43	5.37	5.93	5.07	5.17	0.52	
6	6.70	7.04	7.06	7.83	7.85	8.08	7.43	0.56	
9	6.50	6.48	6.72	6.82	6.28	6.48	6.55	0.19	
12	6.91	7.25	7.50	7.54	7.62	7.94	7.46	0.35	

Table 258 Disintegration time of core and tablets coated with chitosan citrate and malate films at different coating level % w/w of polymeric salt after direct exposure to accelerated condition

Coating level (%)	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
0	3.91	4.33	4.63	5.07	3.58	4.03	4.26	0.54	
1	>30	>30	>30	>30	>30	>30	>30	-	
3	>30	>30	>30	>30	>30	>30	>30	-	
6	4.83	4.37	5.25	4.43	4.97	5.75	4.93	0.52	
9	4.03	4.18	4.20	4.67	4.32	4.75	4.36	0.29	
12	4.28	4.43	4.01	4.65	5.28	5.50	4.69	0.58	

Table 258 Disintegration time of core and tablets coated with chitosan citrate and malate films at different coating level % w/w of polymeric salt after direct exposure to accelerated condition (continue)

Coating level (%)	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
1	>30	>30	>30	>30	>30	>30	>30	-	
3	13.38	15.00	15.00	14.38	12.63	16.70	14.52	1.42	
6	5.83	6.08	6.20	7.37	7.47	7.75	6.78	0.84	
9	5.10	5.12	5.60	6.03	6.40	6.52	5.80	0.62	
12	4.50	4.48	5.03	5.33	4.92	5.08	4.89	0.34	

Table 259 Disintegration time of tablets coated with chitosan citrate film and chitosan malate film plasticized with glycerin or propylene glycol 25%w/w of polymer at coating level of 6% w/w of polymeric salt: (A) freshly prepared and (B) after direct exposure accelerated condition

Coated Tablet	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
CC G25 (A)	7.33	7.04	8.10	7.10	7.43	8.02	7.50	0.46	
CC P25 (A)	7.87	7.87	8.52	7.18	7.22	7.77	7.74	0.50	
CM G25 (A)	8.42	8.57	8.72	9.27	8.07	8.32	8.56	0.41	
CM P25 (A)	9.33	9.75	10.18	10.20	10.75	10.82	10.17	0.57	
CC G25 (B)	7.25	7.5	7.98	8.17	8.35	8.07	7.89	0.42	
CC P25 (B)	10.42	10.57	10.73	10.75	11.1	11.18	10.79	0.30	
CM G25 (B)	>30	>30	>30	>30	>30	>30	>30	-	
CM P25 (B)	9.92	8.67	8.75	8.75	8.83	9.17	9.02	0.48	

Table 260 Disintegration time of tablets coated with chitosan citrate film and chitosan malate film unplasticized and plasticized with glycerin or propylene glycol 25%w/w of polymer at coating level of 3% w/w of polymer

Coated Tablet	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
CC	8.15	7.83	8.67	7.83	7.70	7.33	7.92	0.45	
CC G25	7.33	8.08	8.48	8.70	9.17	8.93	8.45	0.66	
CC P25	8.00	7.78	7.93	8.33	8.57	8.98	8.27	0.45	
CM	8.10	8.25	8.33	8.83	8.33	8.18	8.34	0.26	
CM G25	8.10	8.33	8.73	8.33	8.93	8.43	8.48	0.30	
CM P25	7.93	8.03	8.33	8.48	8.95	8.87	8.43	0.42	

Table 261 Disintegration time of tablets coated with chitosan citrate film and chitosan malate film unplasticized and plasticized with glycerin or propylene glycol 25%w/w of polymer at coating level of 3% w/w of polymer after kept in bottle and kept in accelerated condition for 7 days

Coated Tablet	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
CC	7.42	6.58	6.67	6.33	6.73	7.23	6.83	0.41	
CC G25	10.83	10.98	11.25	11.33	12.08	12.12	11.43	0.55	
CC P25	9.27	9.42	9.42	9.33	9.83	10.25	9.59	0.38	
CM	12.00	12.10	11.00	12.56	12.47	13.40	12.26	0.79	
CM G25	12.75	13.77	13.42	13.4	13.62	14.03	13.50	0.44	
CM P25	8.42	8.27	8.68	10.25	11.83	11.18	9.77	1.53	

Table 262 Disintegration time of tablets coated with chitosan citrate film and chitosan malate film unplasticized and plasticized with glycerin or propylene glycol 25%w/w of polymer at coating level of 3% w/w of polymer after kept in bottle and kept in accelerated condition for 30 days

Coated Tablet	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
CORE	4.30	4.13	4.20	4.33	3.55	4.60	4.19	0.35	
CC	7.77	7.70	7.33	7.50	7.17	7.33	7.47	0.23	
CC G25	18.00	18.35	18.33	18.35	19.75	18.93	18.62	0.63	
CC P25	8.14	8.40	7.33	7.87	7.33	7.18	7.71	0.50	
CM	>30	>30	>30	>30	>30	>30	>30	-	
CM G25	7.67	7.93	7.33	7.37	7.93	8.04	7.71	0.31	
CM P25	7.62	7.58	7.93	8.18	7.75	7.70	7.79	0.23	

Table 263 Disintegration time of tablets coated with chitosan citrate film plasticized with different amount of propylene glycol at coating level 3%w/w of chitosan

Coated Tablet	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
CC P5	6.25	6.37	7.02	7.23	7.43	7.93	7.04	0.64	
CC P15	7.75	7.08	7.83	6.67	6.73	7.07	7.19	0.50	
CC P25	7.93	8.03	8.33	8.48	8.87	8.95	8.43	0.42	
CC P35	7.25	7.53	7.75	8.52	9.33	9.35	8.29	0.92	
CC P45	8.58	9.72	9.93	10.18	10.23	10.42	9.84	0.67	

Table 264 Disintegration time of tablets coated with chitosan citrate film plasticized with propylene glycol 25% w/w and colored with brilliant blue or green FS at cocentration of 0.50 % w/w and pigmented with talcum or titanium dioxide at different concentration % w/w 25%w/w at coating level 3%w/w of polymer

Coated Tablet	Disintegration time(min)							AVG	SD
	1	2	3	4	5	6			
CC P25 B0.5	8.60	8.63	9.68	10.60	10.83	10.96	9.88	1.08	
CC P25 G0.5	7.25	7.32	7.60	7.98	8.10	8.57	7.80	0.51	
CC P25 B0.5 Ta15	4.67	6.83	6.58	5.67	5.92	6.75	6.07	0.83	
CC P25 B0.5 Ta30	6.92	6.95	7.25	7.53	6.17	5.83	6.78	0.65	
CC P25 B0.5 Ta45	5.83	6.17	6.42	6.67	7.20	7.03	6.55	0.52	
CC P25 B0.5 Ti15	6.42	6.55	7.08	5.75	6.10	6.28	6.36	0.45	
CC P25 B0.5 Ti30	6.38	5.93	6.37	6.78	6.87	6.90	6.54	0.38	
CC P25 B0.5 Ti45	5.92	5.95	6.15	6.18	7.43	8.17	6.63	0.94	

Table 265 Disintegration time of tablets coated with chitosan citrate film plasticized with propylene glycol 25% w/w and colored with brilliant blue or green FS at concentration of 0.50 % w/w and pigmented with talcum or titanium dioxide at different concentration % w/w 25%w/w at coating level 3%w/w of polymer after kept in bottle in accelerated condition for 7 days

Coated Tablet	Disintegration time(min)						AVG	SD
	1	2	3	4	5	6		
CC P25	5.23	5.42	5.07	5.92	6.25	6.33	5.70	0.54
CC P25 B0.5	4.50	4.87	5.25	5.67	6.02	6.23	5.42	0.67
CC P25 G0.5	5.02	5.48	6.92	6.98	7.02	7.33	6.46	0.96
CC P25 B0.5 Ta15	5.82	6.08	6.15	6.25	6.28	6.33	6.15	0.19
CC P25 B0.5 Ta30	5.43	5.40	5.58	5.75	6.28	6.47	5.81	0.44
CC P25 B0.5 Ta45	4.00	4.10	4.25	4.83	5.08	5.25	4.59	0.54
CC P25 B0.5 Ti15	5.12	5.03	5.08	6.18	6.47	6.85	5.79	0.81
CC P25 B0.5 Ti30	4.83	4.98	5.08	6.10	6.33	6.70	5.67	0.80
CC P25 B0.5 Ti45	5.08	5.27	5.28	6.03	6.12	6.25	5.67	0.52

Table 266 Disintegration time of tablets coated with chitosan citrate film plasticized with propylene glycol 25% w/w and colored with brilliant blue or green FS at concentration of 0.50 % w/w and pigmented with talcum or titanium dioxide at different concentration % w/w 25%w/w at coating level 3%w/w of polymer after kept in bottle in accelerated condition for 30 days

Coated Tablet	Disintegration time(min)						AVG	SD
	1	2	3	4	5	6		
CC P25	8.67	8.85	8.98	9.42	9.58	9.85	9.23	0.46
CC P25 B0.5	8.33	8.58	9.07	9.27	9.47	9.68	9.07	0.52
CC P25 G0.5	8.08	8.53	8.67	8.78	9.15	9.42	8.77	0.47
CC P25 B0.5 Ta15	6.58	6.63	6.77	6.92	6.93	6.97	6.80	0.17
CC P25 B0.5 Ta30	6.60	6.67	6.95	7.10	7.93	7.97	7.20	0.61
CC P25 B0.5 Ta45	6.42	6.57	6.78	7.50	7.83	7.98	7.18	0.67
CC P25 B0.5 Ti15	7.83	7.92	7.98	8.03	8.58	8.77	8.19	0.39
CC P25 B0.5 Ti30	6.03	6.07	6.50	6.83	7.08	7.60	6.69	0.61
CC P25 B0.5 Ti45	6.33	6.40	7.25	6.50	6.70	8.03	6.87	0.66

Table 267 Disintegration time of tablets coated with chitosan citrate film and chitosan malate film non-plasticized and plasticized with glycerin or propylene glycol 25%w/w of polymer at coating level of 3% w/w of polymer after kept at room temperature for one year

Coated Tablet	Disintegration time(min)						AVG	SD
	1	2	3	4	5	6		
CC	5.48	5.67	5.70	5.75	5.87	5.98	5.74	0.17
CC G25	8.17	7.70	8.03	8.33	8.87	9.32	8.40	0.59
CC P25	7.20	7.33	7.40	8.67	8.35	8.70	7.94	0.71
CM	8.27	8.48	8.85	9.35	9.68	9.90	9.09	0.66
CM G25	8.15	8.40	8.50	8.57	9.35	9.53	8.75	0.56
CM P25	8.42	8.85	9.92	9.85	9.97	10.17	9.53	0.71

Table 268 Disintegration time of tablets coated with chitosan citrate film plasticized with propylene glycol 25% w/w and colored with brilliant blue or green FS at concentration of 0.50 % w/w and pigmented with talcum or titanium dioxide at different concentration % w/w 25%w/w at coating level 3%w/w of polymer after kept in bottle at room temperature for one year

Coated Tablet	Disintegration time(min)						AVG	SD
	1	2	3	4	5	6		
CC P25 B0.5	7.23	7.42	7.67	7.92	8.07	8.27	7.76	0.40
CC P25 G0.5	6.92	7.33	7.40	7.60	7.70	8.07	7.50	0.39
CC P25 B0.5 Ta15	5.82	6.03	6.42	6.70	6.92	7.07	6.49	0.50
CC P25 B0.5 Ta30	4.25	4.93	4.15	4.23	5.48	5.60	4.77	0.66
CC P25 B0.5 Ta45	5.17	5.33	5.58	6.03	6.33	6.48	5.82	0.54
CC P25 B0.5 Ti15	4.65	4.85	5.07	5.27	5.47	5.87	5.20	0.44
CC P25 B0.5 Ti30	4.20	4.65	5.10	5.33	5.58	5.77	5.11	0.59
CC P25 B0.5 Ti45	4.80	5.07	5.50	5.80	6.25	6.48	5.65	0.66

Table 269 Disintegration time of core tablet and tablets coated with chitosan acetate film at different coating level (% w/w of polymer)

Coating level (%)	Disintegration Time(min)							AVG	SD
	1	2	3	4	5	6			
0	10.14	9.20	10.40	10.55	9.04	10.55	9.98	0.68	
1	10.40	10.48	10.53	11.09	11.40	11.56	10.91	0.51	
3	10.55	11.09	11.35	11.42	11.45	11.59	11.24	0.38	
6	12.51	13.14	13.28	14.20	14.30	14.35	13.63	0.76	
9	16.35	17.05	17.45	16.22	16.20	18.06	16.89	0.76	
12	17.40	17.45	18.10	18.27	19.09	19.15	18.24	0.76	
15	22.00	22.10	22.15	23.42	23.45	24.00	22.85	0.87	

Table 270 Disintegration time of tablets coated with chitosan acetate film at different coating level % w/w of polymer after moist heat treatment at 60°C for 12 hrs

Coating level (%)	Disintegration Time(min)							AVG	SD
	1	2	3	4	5	6			
3	22.00	23.00	24.15	27.00	27.00	26.40	24.93	2.17	
6	8.10	9.35	10.05	11.00	11.05	11.36	10.15	1.25	
9	8.50	9.25	10.00	11.20	11.22	11.55	10.29	1.24	
12	8.50	8.56	12.11	12.25	12.40	12.47	11.05	1.95	
15	11.00	13.35	13.40	13.50	13.56	11.00	12.64	1.27	

CA1% film was crack

Table 271 Disintegration time of tablets coated with chitosan acetate film at different coating level % w/w of polymer after moist heat treatment at 60°C for 24 hrs

Coating level (%)	Disintegration Time(min)							AVG	SD
	1	2	3	4	5	6			
3	>30	>30	>30	>30	>30	>30	>30	-	
6	10.12	10.42	10.48	10.54	11.14	10.35	10.51	0.34	
9	11.08	11.20	11.35	11.40	11.56	11.54	11.36	0.19	
12	>30	>30	>30	>30	>30	>30	>30	-	
15	>30	>30	>30	>30	>30	>30	>30	-	

CA1% film was crack

Table 272 Disintegration time of tablets coated with chitosan acetate film at different coating level % w/w of polymer after moist heat treatment at 60°C for 72 hrs

Coating level (%)	Disintegration Time(min)							AVG	SD
	1	2	3	4	5	6			
3	>30	>30	>30	>30	>30	>30	>30	-	
6	>30	>30	>30	>30	>30	>30	>30	-	
9	>30	>30	>30	>30	>30	>30	>30	-	
12	>30	>30	>30	>30	>30	>30	>30	-	
15	>30	>30	>30	>30	>30	>30	>30	-	

CA1% film was crack

Table 273 Disintegration time of tablets coated with chitosan acetate film at different coating level % w/w of polymer after moist heat treatment at 60°C for 120 hrs

Coating level (%)	Disintegration Time(min)							AVG	SD
	1	2	3	4	5	6			
6	22.46	22.55	23.05	23.21	23.32	24.54	23.19	0.75	
9	>30	>30	>30	>30	>30	>30	>30	-	
12	>30	>30	>30	>30	>30	>30	>30	-	
15	>30	>30	>30	>30	>30	>30	>30	-	

CA1, 3% films were crack

Table 279 Cumulative % drug release of core and tablets coated with chitosan citrate or chitosan malate films at different coating level in dilute HCl solution

CORE									CC 1%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	16.21	18.14	16.89	19.94	24.24	21.87	19.55	3.09	1	9.88	13.05	12.03	13.95	12.60	13.27	12.46	1.42
3	36.66	49.33	41.29	40.86	50.38	47.77	44.38	5.54	3	25.65	23.38	34.37	34.83	34.15	26.92	29.88	5.13
5	58.34	77.53	66.17	61.55	79.72	75.39	69.78	8.97	5	43.66	62.72	69.61	57.75	58.53	47.19	56.58	9.67
7	75.85	98.65	81.12	98.64	98.81	92.66	90.96	10.08	7	62.44	87.26	92.04	83.63	86.56	67.24	79.86	12.04
10	97.64	102.25	99.32	99.97	101.74	99.61	100.09	1.69	10	80.77	102.44	97.19	98.11	99.70	85.59	93.97	8.68
12	101.11	102.47	101.79	102.44	102.40	100.84	101.84	0.77	12	95.46	104.93	98.85	101.70	101.60	93.29	99.31	4.33
15	101.21	102.35	102.01	102.55	102.28	101.39	101.97	0.55	15	99.82	104.26	99.28	105.05	101.59	98.67	101.11	2.23
20	101.54	102.56	101.99	102.66	102.27	101.37	102.07	0.53	20	100.14	104.83	99.71	103.38	101.69	99.32	101.51	2.21
25	101.52	102.44	101.75	102.76	102.48	101.35	102.05	0.58	25	100.12	104.94	99.90	103.26	101.79	99.86	101.65	2.10
30	101.62	101.97	102.41	102.74	102.58	101.33	102.11	0.56	30	100.66	105.16	99.99	103.70	102.57	100.17	102.04	2.12

CC 3%									CC 6%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	5.25	5.47	5.13	7.39	6.60	8.07	6.32	1.23	1	4.57	4.45	4.68	4.23	4.12	6.36	4.74	0.83
3	21.44	27.66	28.68	26.66	30.04	31.41	27.65	3.48	3	20.31	20.53	13.64	14.43	10.92	14.78	15.77	3.85
5	58.65	67.16	60.27	47.95	52.94	52.84	56.64	6.80	5	42.24	43.26	34.52	53.06	39.59	41.88	42.43	6.08
7	89.50	91.96	81.30	71.17	84.21	79.59	82.96	7.46	7	73.46	72.79	57.10	82.64	74.29	56.81	69.52	10.36
10	100.62	99.02	94.41	96.43	98.47	100.38	98.22	2.40	10	96.25	94.90	88.17	94.52	98.11	81.89	92.31	6.11
12	102.53	99.12	96.46	102.28	100.03	102.85	100.55	2.50	12	99.72	99.04	98.04	97.07	101.59	88.22	97.28	4.70
15	101.85	104.18	97.49	101.26	103.85	101.84	101.75	2.40	15	100.72	99.69	99.37	97.72	101.58	95.83	99.15	2.09
20	101.95	104.75	96.66	101.13	103.74	101.94	101.70	2.80	20	100.70	100.12	99.91	97.91	101.80	98.27	99.79	1.47
25	102.05	104.86	96.62	101.22	103.63	102.04	101.74	2.83	25	100.80	99.88	99.10	98.10	101.78	99.03	99.78	1.33
30	104.19	105.09	97.14	100.98	104.18	104.17	102.63	3.04	30	101.23	100.07	100.08	98.86	102.33	99.23	100.30	1.29

CC 9%									CC 12%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	5.13	4.34	4.45	4.57	4.12	4.00	4.44	0.40	1	4.12	3.89	3.66	3.78	3.78	3.89	3.85	0.16
3	10.59	6.51	12.17	8.10	8.55	13.52	9.91	2.66	3	5.61	4.93	4.70	6.85	11.71	9.45	7.21	2.81
5	33.49	28.82	30.21	29.51	46.25	36.66	34.16	6.61	5	19.55	17.05	22.37	33.35	31.11	27.37	25.13	6.52
7	61.83	57.82	62.38	48.90	81.33	65.25	62.92	10.66	7	38.20	42.02	46.12	75.03	57.40	45.38	50.69	13.55
10	90.77	88.55	96.98	92.92	76.80	93.76	89.96	7.05	10	70.29	79.79	86.29	94.21	85.99	68.59	80.86	9.97
12	93.99	96.84	97.86	93.44	96.67	100.83	96.61	2.70	12	93.75	95.84	97.28	97.67	95.28	84.12	93.99	5.04
15	103.10	98.50	98.28	97.91	96.52	101.50	99.30	2.47	15	99.46	100.21	99.17	98.09	97.39	98.60	98.82	1.01
20	101.62	97.80	97.69	98.22	96.60	101.60	98.92	2.15	20	99.44	100.53	99.71	98.40	97.13	100.16	99.23	1.26
25	101.73	98.90	98.10	99.32	96.78	102.15	99.50	2.09	25	99.20	99.72	99.27	97.47	96.41	100.48	98.76	1.52
30	101.94	98.86	98.97	101.44	97.98	102.59	100.30	1.92	30	99.06	99.93	99.55	97.65	96.71	100.34	98.87	1.41

CM 1%									CM 3%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	7.39	12.48	9.20	9.43	10.11	11.46	10.01	1.79	1	4.23	4.91	5.47	5.02	5.59	6.15	5.23	0.66
3	23.38	33.36	27.35	32.32	31.42	31.43	29.88	3.78	3	10.81	20.31	20.88	15.79	15.57	13.19	16.09	3.93
5	45.78	59.88	50.45	60.20	55.23	55.23	54.46	5.57	5	25.12	42.13	39.76	38.83	44.82	36.79	37.91	6.85
7	65.26	87.35	74.36	96.94	83.34	76.23	80.58	11.08	7	52.96	64.19	59.09	61.20	73.23	59.15	61.64	6.77
10	94.45	98.91	92.27	103.70	97.71	96.21	97.21	3.96	10	88.64	90.89	81.24	85.63	95.90	89.67	88.66	4.95
12	101.41	100.59	103.01	103.02	101.75	103.75	102.26	1.19	12	102.02	101.22	93.56	96.39	101.07	101.81	99.35	3.52
15	102.76	101.59	103.91	104.94	101.63	104.32	103.19	1.42	15	103.94	102.34	100.74	100.31	102.07	103.72	102.19	1.49
20	102.76	101.58	104.02	104.83	101.96	104.66	103.30	1.40	20	103.71	102.68	101.63	100.63	101.84	103.84	102.39	1.26
25	103.43	101.90	103.34	104.72	101.72	103.98	103.18	1.17	25	103.94	103.01	101.62	100.72	101.83	103.84	102.49	1.31
30	102.74	101.66	103.79	104.83	102.27	104.66	103.33	1.30	30	104.73	103.68	102.28	101.27	102.60	104.40	103.16	1.34

Table 279 Cumulative % drug release of core and tablets coated with chitosan citrate or chitosan malate films at different coating level in dilute HCl solution(continue)

CM 6%									CM 9%									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4.12	4.00	4.12	4.00	4.23	4.34	4.14	0.13	1	4.45	4.57	4.12	4.57	4.68	4.91	4.55	0.26	
3	5.50	6.06	6.74	6.96	5.72	8.10	6.51	0.96	3	4.71	4.48	4.82	5.16	4.48	4.71	4.73	0.25	
5	11.41	23.73	19.21	17.41	12.99	26.12	18.48	5.79	5	9.59	10.72	12.64	13.10	14.57	14.23	12.48	1.96	
7	31.48	49.98	37.75	31.75	42.23	48.76	40.33	8.08	7	31.58	37.58	35.44	29.91	32.63	27.31	32.41	3.71	
10	64.90	81.80	63.06	54.42	88.71	76.28	71.53	12.90	10	53.92	72.27	66.96	59.02	67.40	60.48	63.34	6.71	
12	89.79	98.76	79.80	70.67	102.09	91.63	88.79	11.79	12	74.57	93.59	88.24	75.96	87.22	77.89	82.91	7.80	
15	99.10	101.91	96.86	90.50	103.11	100.95	98.74	4.60	15	97.03	100.32	99.47	97.30	104.89	98.33	99.56	2.90	
20	101.57	102.01	102.03	99.71	103.67	104.33	102.22	1.63	20	103.89	101.33	102.39	102.36	104.00	102.71	102.78	1.02	
25	101.67	102.68	103.15	101.95	101.41	104.45	102.55	1.13	25	104.46	102.11	102.73	104.27	103.66	102.48	103.29	0.98	
30	102.34	103.24	103.15	102.28	104.67	104.67	103.39	1.07	30	104.01	101.64	102.83	104.05	104.22	102.81	103.26	1.01	

CM 12%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4.34	4.12	5.25	4.12	4.12	4.57	4.42	0.44
3	4.59	4.25	5.05	5.04	5.04	5.16	4.86	0.36
5	6.20	5.41	6.32	6.65	8.01	7.11	6.62	0.88
7	9.63	7.24	11.56	7.82	18.80	9.41	10.74	4.23
10	23.13	16.89	35.48	21.66	44.68	40.44	30.38	11.33
12	52.21	41.86	61.34	39.30	63.58	60.34	53.11	10.47
15	74.88	71.26	90.96	62.17	85.19	82.04	77.80	10.32
20	97.91	99.59	101.53	86.67	101.15	100.92	97.96	5.69
25	101.05	101.49	103.10	98.80	103.06	103.96	101.91	1.87
30	101.26	104.39	103.33	101.03	103.07	104.08	102.86	1.41

Table 280 Cumulative % drug release of core and tablets coated with chitosan citrate or chitosan malate films at different coating level after direct exposure accelerated condition in dilute HCl solution(continue)

CM 6%									CM 9%									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	9.66	9.09	11.24	12.26	13.73	14.18	11.69	2.09	1	7.85	8.64	11.01	11.46	13.73	14.07	11.13	2.55	
3	29.16	33.22	22.38	26.91	26.13	26.36	27.36	3.61	3	25.87	29.38	24.75	27.47	26.80	26.13	26.73	1.59	
5	41.98	56.13	31.78	45.94	48.88	50.58	45.88	8.37	5	40.26	53.51	41.17	46.05	45.16	48.43	45.76	4.88	
7	53.63	78.38	38.51	67.45	74.48	70.88	63.89	15.05	7	54.61	70.65	62.09	63.83	65.31	73.35	64.97	6.63	
10	71.34	99.28	68.91	91.79	96.71	96.37	87.40	13.62	10	83.52	93.43	90.81	86.91	89.64	100.21	90.75	5.74	
12	88.47	102.65	91.79	99.99	101.09	101.76	97.63	5.96	12	94.04	97.22	101.26	96.43	99.51	106.53	99.17	4.39	
15	98.00	102.76	99.30	101.21	101.53	102.09	100.82	1.81	15	98.74	97.30	102.50	100.92	100.85	105.98	101.05	3.03	
20	99.78	102.75	100.19	101.31	101.86	102.08	101.33	1.15	20	99.73	97.38	102.49	101.24	101.06	106.45	101.39	3.03	
25	99.75	103.31	100.05	101.41	102.07	102.30	101.48	1.37	25	99.94	97.79	102.48	101.12	101.16	106.23	101.45	2.82	
30	100.07	103.07	100.03	101.39	102.17	102.06	101.47	1.22	30	99.91	97.42	102.70	100.98	101.02	106.01	101.34	2.87	

CM 12%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	9.66	7.51	8.19	10.33	11.13	12.48	9.88	1.85
3	23.96	22.47	23.93	26.45	24.76	24.76	24.39	1.31
5	45.23	46.12	44.43	42.65	39.36	38.13	42.65	3.26
7	57.81	67.06	60.62	59.05	56.88	55.41	59.47	4.12
10	87.41	94.33	87.41	85.50	81.62	71.43	84.62	7.66
12	98.52	99.05	98.30	98.97	96.65	87.77	96.54	4.39
15	103.69	99.36	100.19	102.90	101.82	99.22	101.20	1.89
20	103.24	99.45	99.61	103.58	102.04	101.68	101.60	1.75
25	103.46	99.54	99.70	103.80	102.14	102.01	101.78	1.81
30	103.34	99.85	99.56	103.91	102.12	102.56	101.89	1.80

Table 281 Cumulative % drug release of core and tablets coated with chitosan citrate or chitosan malate films at different coating level in phosphate buffer pH 6.8

CORE									CC 1%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	13.57	14.37	14.37	14.94	19.74	19.85	16.14	2.86	1	2.83	2.03	5.80	6.26	3.18	8.66	4.79	2.54
3	39.34	40.03	43.91	45.63	54.79	57.31	46.84	7.56	3	30.72	26.03	25.14	22.74	22.95	27.66	25.87	3.02
5	71.54	65.72	75.80	74.09	80.91	86.07	75.69	7.13	5	56.81	47.65	40.81	49.36	56.09	65.39	52.69	8.57
7	89.87	88.59	93.58	92.55	93.12	95.45	92.19	2.53	7	79.74	71.55	59.99	75.11	84.61	85.86	76.14	9.61
10	95.16	97.53	97.63	96.49	97.52	97.23	96.93	0.96	10	89.66	91.13	80.20	87.86	95.13	92.96	89.49	5.21
12	96.71	98.63	97.48	97.24	97.25	97.31	97.44	0.64	12	91.75	96.09	88.86	90.05	96.22	93.35	92.72	3.07
15	96.67	98.83	97.56	99.03	98.12	98.86	98.18	0.92	15	92.14	97.65	90.61	91.46	95.95	93.41	93.54	2.74
20	97.19	99.25	98.09	98.08	98.54	99.29	98.41	0.80	20	92.19	93.49	91.79	94.13	93.73	93.91	93.21	0.97
25	98.97	100.13	98.04	98.38	98.05	97.99	98.59	0.84	25	92.57	98.06	95.94	91.67	96.18	94.31	94.79	2.40
30	97.79	100.33	98.91	98.68	98.46	98.40	98.76	0.85	30	92.38	97.84	95.66	90.33	96.01	93.67	94.32	2.73

CC 3%									CC 6%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.21	0.78	0.55	0.26	0.33	1	0.66	0.55	1.01	0.09	0.00	0.00	0.40	0.40
3	7.29	0.43	9.23	4.20	0.55	4.89	4.43	3.54	3	0.00	0.00	0.67	0.00	0.00	0.09	0.13	0.27
5	28.57	28.53	28.82	23.64	18.94	31.53	26.67	4.57	5	2.38	2.72	4.44	3.40	1.00	1.72	2.61	1.22
7	60.48	53.36	58.55	43.53	46.12	60.94	53.83	7.52	7	15.64	20.89	23.54	18.38	9.80	8.66	16.15	5.98
10	82.29	68.05	80.69	67.76	71.96	89.04	76.63	9.36	10	40.85	47.96	50.17	39.05	26.76	25.27	38.34	10.43
12	92.68	85.55	87.42	80.70	85.49	92.38	87.37	4.57	12	55.81	64.45	65.29	50.45	39.36	41.18	52.76	11.15
15	93.76	86.82	88.81	89.44	93.04	93.46	90.89	2.91	15	72.80	84.33	76.50	61.01	50.88	54.42	66.66	13.25
20	94.38	89.93	89.19	91.45	94.01	93.97	92.16	2.28	20	85.76	94.05	87.89	72.08	83.83	71.06	82.45	9.10
25	95.01	91.67	89.44	93.78	95.09	95.28	93.38	2.36	25	89.31	96.28	92.25	78.87	93.88	78.07	88.11	7.81
30	94.96	91.14	89.36	92.12	94.24	93.97	92.63	2.14	30	90.83	96.23	93.90	88.21	94.40	86.49	91.68	3.81

CC 9%									CC 12%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.01	0.43	0.00	0.00	1.80	0.00	0.54	0.73	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	1.46	0.00	0.00	0.00	0.00	0.24	0.60
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	1.79	2.59	0.53	0.76	1.35	0.07	1.18	0.92	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	6.14	11.51	9.44	11.73	11.30	14.69	10.80	2.84	10	6.46	1.79	5.89	2.80	0.00	0.52	2.91	2.72
12	15.32	34.19	26.05	23.44	24.72	23.34	24.51	6.05	12	15.41	6.71	20.65	14.24	1.78	3.84	10.44	7.43
15	34.02	45.12	45.16	40.48	44.27	61.04	45.02	8.93	15	24.06	18.40	33.44	38.87	8.75	16.31	23.31	11.23
20	51.34	75.41	66.08	77.93	69.76	86.39	71.15	11.97	20	49.78	53.34	59.67	59.08	43.40	40.50	50.96	7.94
25	68.18	90.44	75.01	91.39	88.65	92.01	84.28	10.12	25	84.20	73.16	73.48	80.42	73.80	59.68	74.12	8.38
30	76.90	93.45	79.88	93.60	93.82	94.23	88.65	8.00	30	90.83	82.25	80.51	90.00	84.03	70.54	83.03	7.39

CM 1%									CM 3%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.66	0.00	0.43	0.43	0.55	8.66	1.79	3.37	1	0.00	0.00	0.55	0.00	0.21	2.03	0.47	0.80
3	16.43	11.40	16.20	16.31	9.80	27.66	16.30	6.25	3	0.20	0.09	0.67	0.66	0.55	2.27	0.74	0.79
5	25.43	25.05	31.14	37.87	22.65	65.39	34.59	16.05	5	0.89	2.15	1.13	0.89	1.69	1.14	1.32	0.50
7	35.50	35.47	46.84	54.87	31.90	85.86	48.41	20.27	7	2.27	2.73	1.82	2.27	2.50	2.63	2.37	0.33
10	44.95	48.46	63.77	69.80	45.79	92.96	60.96	18.72	10	3.42	6.17	3.54	4.45	4.34	4.02	4.32	0.99
12	66.21	57.52	80.92	81.72	51.30	93.35	71.84	16.13	12	4.24	8.72	6.64	5.85	6.08	6.21	6.29	1.45
15	79.37	73.25	91.07	85.25	58.38	93.41	80.12	12.99	15	5.75	9.56	11.48	6.56	9.08	6.93	8.23	2.18
20	90.31	92.16	94.65	94.85	86.45	93.91	92.06	3.24	20	9.09	12.13	19.42	9.23	15.76	9.94	12.60	4.18
25	93.32	96.54	96.77	97.20	95.84	94.31	95.66	1.53	25	12.22	19.28	27.41	13.27	23.96	12.73	18.15	6.47
30	93.26	97.18	96.26	98.06	96.36	93.67	95.80	1.92	30	25.43	25.09	35.90	15.86	28.31	15.89	24.41	7.67
									45	62.46	82.91	82.58	61.86	61.59	62.12	68.92	10.71
									60	94.33	94.56	93.31	94.30	74.38	86.66	89.59	8.04

Table 281 Cumulative % drug release of core and tablets coated with chitosan citrate or chitosan malate films at different coating level in phosphate buffer pH 6.8(continue)

CM 6%									CM 9%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.09	2.38	0.43	0.09	1.23	0.21	0.74	0.91	5	0.00	0.09	0.00	0.00	0.32	0.00	0.07	0.13
10	2.95	4.22	1.81	2.38	2.50	2.15	2.67	0.85	10	0.55	1.12	0.66	0.66	0.89	0.54	0.74	0.23
15	9.93	3.78	4.22	4.45	3.77	3.07	4.87	2.52	15	2.26	1.81	1.92	2.04	2.50	1.58	2.02	0.33
20	13.98	6.77	7.67	5.61	4.02	3.78	6.97	3.75	20	4.79	3.88	3.07	3.53	6.28	3.18	4.12	1.23
25	17.60	9.44	10.11	6.90	7.46	4.94	9.41	4.42	25	7.21	6.07	4.92	4.69	4.37	4.34	5.27	1.14
30	21.47	11.32	12.45	8.42	9.45	6.34	11.58	5.30	30	10.34	7.59	6.43	7.35	7.94	5.85	7.58	1.56
45	25.70	17.43	19.66	13.95	15.32	10.60	17.11	5.21	45	17.02	12.54	12.63	11.27	12.44	10.00	12.65	2.37
60	35.77	23.70	28.73	21.11	20.89	15.34	24.26	7.12	60	26.13	19.46	17.73	15.44	19.24	15.08	18.85	4.02
75	41.34	32.28	42.48	27.13	24.32	20.22	31.30	9.12	75	33.59	25.39	23.08	20.78	22.89	19.96	24.28	4.94
90	44.99	39.08	47.39	32.91	32.56	24.56	36.92	8.57	90	39.60	30.22	27.32	24.55	27.24	24.18	28.85	5.70
120	47.86	40.21	56.61	38.46	37.42	35.77	42.72	8.00	105	46.10	36.43	33.29	29.14	32.19	29.68	34.47	6.28
150	53.37	54.00	77.24	52.83	51.55	55.15	57.36	9.81	120	50.00	39.95	32.33	38.55	35.22	32.59	38.11	6.59
180	68.72	72.32	78.78	73.32	70.89	76.57	73.43	3.70	150	56.67	46.90	44.16	36.47	40.66	37.90	43.79	7.40
210	74.29	78.75	81.10	79.76	75.14	80.17	78.20	2.82	180	63.82	55.14	50.90	42.83	47.49	44.38	50.76	7.80
240	80.67	83.62	93.90	80.89	79.53	86.76	84.23	5.41	210	69.28	60.32	57.55	49.55	52.39	51.68	56.80	7.31
									240	73.72	65.07	61.72	52.31	56.08	54.45	60.56	8.00
									270	77.26	68.81	65.90	56.66	59.53	59.17	64.56	7.72
									300	80.09	72.19	69.73	60.10	62.87	63.66	68.11	7.41
									360	84.60	77.04	75.37	65.82	68.13	69.06	73.34	7.02
									420	88.64	81.88	81.82	71.88	73.05	75.49	78.79	6.44

CM 12%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	2.60	2.15	2.15	3.18	2.15	2.38	2.44	0.41
30	5.70	5.81	5.47	8.10	5.13	5.36	5.93	1.09
60	13.39	13.16	14.52	15.80	14.64	11.78	13.88	1.40
90	21.34	21.11	24.66	24.91	23.85	22.81	23.11	1.64
120	29.23	28.65	33.81	33.16	32.32	30.02	31.20	2.18
150	36.47	36.00	41.88	40.65	39.93	36.13	38.51	2.61
180	42.26	42.14	48.51	47.04	46.08	39.75	44.30	3.40
210	47.06	48.08	53.46	52.32	51.36	44.88	49.53	3.36
240	51.78	51.66	58.09	57.29	55.75	49.46	54.01	3.51
360	66.45	67.01	72.68	73.14	72.16	64.69	69.36	3.71
480	76.40	73.43	80.27	81.76	77.24	72.59	76.95	3.63
600	78.06	79.07	84.12	87.55	82.56	79.13	81.75	3.68
720	81.19	82.21	87.86	91.06	85.94	81.93	85.03	3.94

Table 282 Cumulative % drug release of core and tablets coated with chitosan citrate film at different coating level after direct exposure accelerated condition in phosphate buffer pH 6.8

CORE								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	13.80	9.57	17.45	16.31	16.54	18.82	15.42	3.30
3	43.34	32.47	44.85	44.04	35.36	35.49	39.26	5.41
5	71.22	52.29	71.02	72.84	62.63	67.21	66.20	7.74
7	86.01	71.31	89.00	90.71	82.62	88.59	84.71	7.14
10	91.62	89.98	96.57	94.30	91.30	96.96	93.46	2.93
12	92.58	93.10	97.45	93.67	93.40	99.55	94.96	2.85
15	93.43	94.18	98.55	97.04	94.70	99.75	96.28	2.56
20	93.70	94.35	98.51	94.14	95.45	100.98	96.19	2.92
25	93.64	95.43	98.36	96.70	94.71	99.93	96.46	2.36
30	99.85	96.40	98.32	97.68	94.19	100.40	97.81	2.29

CC 1%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	2.72	2.95	2.26	2.15	1.69	1.46	2.21	0.57
3	3.19	4.68	3.53	3.64	1.70	2.61	3.23	1.01
5	3.66	7.21	4.24	4.58	3.76	4.23	4.61	1.32
7	5.06	8.97	5.74	6.32	5.96	6.08	6.36	1.35
10	7.37	11.87	9.43	9.32	8.73	7.82	9.09	1.59
12	10.83	14.34	11.19	11.09	10.49	9.92	11.31	1.55
15	13.98	17.96	13.43	13.32	13.40	12.37	14.08	1.97
20	18.39	21.59	18.87	17.39	16.33	16.10	18.11	2.02
25	23.41	25.94	23.77	22.16	19.96	20.41	22.61	2.24
30	26.39	30.76	28.12	26.17	22.47	24.29	26.37	2.90
45	36.70	38.81	36.61	33.96	31.50	33.22	35.13	2.70
60	46.14	46.09	44.57	47.16	39.32	40.47	43.96	3.27
75	50.82	51.91	50.62	51.16	45.12	46.50	49.36	2.81
90	53.82	56.83	55.09	58.73	49.91	49.13	53.92	3.79
120	61.17	63.14	62.33	65.41	59.97	62.84	62.48	1.85
150	68.31	71.07	69.35	73.82	66.99	65.43	69.16	2.99

CC 3%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.12	1.46	2.15	1.01	0.78	1.80	1.39	0.52
3	0.90	1.58	2.39	0.55	1.92	1.47	1.47	0.67
5	2.84	3.42	1.37	1.70	2.28	1.71	2.22	0.78
7	3.77	3.44	2.41	4.22	3.66	4.46	3.66	0.72
10	6.19	4.60	7.10	5.73	5.16	6.43	5.87	0.90
12	7.83	6.00	7.14	7.82	6.22	7.72	7.12	0.83
15	10.04	8.08	8.67	9.69	8.77	10.96	9.37	1.06
20	17.29	10.98	10.54	13.85	10.64	15.47	13.13	2.86
25	23.55	14.47	13.80	20.21	14.70	21.72	18.08	4.25
30	28.36	18.43	18.21	26.15	23.12	29.38	23.94	4.86
45	35.94	26.99	25.39	35.77	28.61	40.28	32.16	5.97
60	44.70	37.29	33.40	44.18	38.24	48.60	41.07	5.67
75	50.53	46.17	41.57	50.82	46.32	57.42	48.81	5.42
90	55.93	50.97	47.61	54.74	57.71	63.78	55.12	5.59
120	63.07	69.73	72.30	66.43	66.16	73.58	68.55	4.02
150	72.17	90.99	83.96	74.76	73.57	83.43	79.81	7.46

CC 6%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	2.26	0.00	0.32	0.00	0.00	0.43	0.91
3	0.00	0.90	0.09	2.03	0.20	1.23	0.74	0.80
5	1.00	1.14	1.69	1.93	1.34	0.89	1.33	0.41
7	1.81	2.17	2.38	7.29	2.04	2.38	2.18	0.22
10	3.42	3.55	3.77	3.21	3.65	5.36	3.83	0.78
12	4.92	4.26	4.70	3.69	3.67	5.51	4.46	0.73
15	6.89	6.68	6.44	5.53	5.63	8.96	6.69	1.24
20	10.47	8.32	8.42	9.33	8.51	11.75	9.47	1.38
25	13.15	10.87	13.15	13.27	11.19	15.59	12.87	1.71
30	15.85	15.39	15.85	17.00	14.68	18.99	16.29	1.52
45	23.59	23.24	24.50	23.26	22.07	25.71	23.73	1.24
60	36.63	34.55	38.34	38.46	34.41	38.54	36.82	1.95
75	47.91	49.24	47.80	47.45	45.91	48.79	47.85	1.16
90	51.59	50.87	51.91	51.58	49.92	52.94	51.47	1.01
120	56.32	58.10	57.35	54.37	51.78	58.24	56.03	2.52
150	62.66	63.20	64.83	61.73	56.73	66.18	62.56	3.27

CC 9%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.32	0.09	0.00	0.32	0.55	0.55	0.31	0.23
3	0.21	0.43	0.55	0.32	1.01	1.46	0.66	0.48
5	2.49	2.04	1.24	0.55	2.16	1.59	1.68	0.71
7	3.08	1.82	1.01	1.01	2.97	2.40	2.05	0.92
10	3.78	2.29	1.82	1.93	3.90	3.21	2.82	0.93
12	3.91	2.98	2.40	2.28	4.60	3.68	3.31	0.91
15	7.48	4.37	2.41	2.75	5.89	4.96	4.64	1.92
20	9.35	6.56	1.97	4.25	8.20	7.27	6.27	2.72
25	12.25	9.11	4.49	6.22	11.45	8.57	8.68	2.97
30	15.97	9.39	9.31	8.42	14.82	11.35	11.54	3.15
45	24.97	17.55	20.44	16.01	24.15	18.95	20.35	3.59
60	32.53	26.44	28.44	22.38	29.54	28.19	27.92	3.38
75	38.42	33.44	37.62	44.31	34.26	32.79	36.81	4.32
90	45.35	46.17	45.92	48.66	45.29	46.10	46.25	1.24
120	51.64	52.70	52.68	53.72	56.68	52.73	53.36	1.76
150	64.69	64.51	67.01	65.77	62.79	64.43	64.87	1.42

CC 12%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	2.38	2.03	3.75	2.72	3.75	3.63	3.04	0.76
3	0.90	0.00	1.60	0.33	1.48	0.91	0.87	0.63
5	0.68	0.67	1.38	1.48	0.81	1.03	1.01	0.35
7	1.37	1.25	1.73	1.60	1.38	1.61	1.49	0.18
10	2.18	2.40	2.54	2.41	2.07	2.30	2.32	0.17
12	2.53	3.44	2.89	2.99	3.68	3.00	3.09	0.41
15	4.26	4.37	3.82	3.35	4.50	3.93	4.04	0.43
20	5.31	6.45	5.33	3.94	4.41	5.55	5.17	0.89
25	7.05	8.43	7.30	5.79	5.01	7.29	6.81	1.22
30	9.49	11.33	9.74	5.82	5.26	9.05	8.45	2.39
45	16.28	18.70	16.41	8.71	8.72	15.38	14.03	4.26
60	23.89	26.56	24.48	13.54	12.97	22.18	20.60	5.86
75	33.50	34.93	33.28	20.92	37.13	31.78	31.92	5.68
90	38.25	38.43	38.03	25.14	44.64	36.13	36.77	6.39
120	49.19	46.63	45.42	40.00	54.02	46.07	46.89	4.62
150	67.26	62.97	63.70	61.34	68.12	65.95	64.89	2.64

Table 283 Cumulative % drug release of core and tablets coated with chitosan malate film at different coating level after direct exposure accelerated condition in phosphate buffer pH 6.8

CM 1%									CM 3%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	2.72	0.89	0.32	2.72	2.49	1.52	1.26	15	5.12	4.55	4.43	5.00	5.46	4.55	4.85	0.41
30	5.80	8.22	7.29	7.97	7.30	7.19	7.30	0.84	30	10.06	10.51	9.25	11.31	15.20	10.17	11.08	2.12
60	19.08	19.11	19.67	20.01	17.51	19.79	19.20	0.91	60	22.10	22.22	20.95	22.45	25.10	21.19	22.34	1.48
90	29.70	27.10	29.83	31.43	26.06	30.06	29.03	2.02	90	31.02	33.31	32.72	34.46	32.10	32.96	32.76	1.16
120	40.14	34.67	38.44	41.88	34.42	40.74	38.38	3.17	120	38.96	40.68	40.44	41.84	40.15	39.76	40.31	0.96
150	47.33	41.37	46.19	46.62	40.78	47.59	44.98	3.07	150	45.45	48.56	47.88	49.61	47.46	47.18	47.69	1.40
180	53.53	48.00	50.22	54.26	47.29	50.82	50.69	2.82	180	51.07	53.17	55.43	53.88	51.26	52.57	52.90	1.65
210	59.53	50.43	55.29	60.26	49.60	55.55	55.11	4.44	210	56.61	58.02	59.96	59.20	57.13	56.97	57.98	1.34
240	63.28	54.81	60.16	65.85	54.44	60.54	59.85	4.54	240	60.80	63.71	64.74	64.09	61.78	62.08	62.87	1.54
300	68.77	60.82	66.65	69.06	60.67	67.37	65.56	3.83	300	66.84	68.51	70.00	66.84	67.71	66.87	67.80	1.27
360	73.14	64.81	70.44	74.12	64.77	71.74	69.84	4.10	360	71.88	73.34	75.18	73.94	68.65	72.60	72.60	2.24
420	78.33	67.77	73.56	78.85	67.05	73.37	73.16	5.01	420	76.01	77.82	79.44	78.07	76.53	76.74	77.44	1.26
480	78.72	70.14	76.31	80.49	69.88	76.46	75.33	4.40	480	80.25	81.95	81.64	82.77	81.54	80.98	81.52	0.86
540	81.32	72.01	74.10	82.07	71.19	75.28	76.00	4.65	540	80.67	81.01	82.65	84.12	82.98	82.89	82.39	1.31
720	90.61	80.47	79.35	88.50	75.08	81.68	82.02	5.86	720	85.38	84.45	86.65	86.89	85.87	85.44	85.78	0.90

CM 6%									CM 9%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	2.95	3.86	3.52	4.32	3.63	3.97	3.71	0.47	15	0.00	0.00	0.00	0.00	0.00	3.75	0.63	1.53
30	6.39	11.42	7.88	12.56	8.91	9.82	9.50	2.27	30	0.20	0.00	5.22	0.20	0.65	2.62	1.48	2.07
60	16.02	24.39	17.86	25.43	17.41	18.10	19.87	3.98	60	11.16	2.70	16.79	12.31	20.30	20.34	13.93	6.73
90	27.07	36.86	26.75	38.24	26.75	26.08	30.29	5.65	90	21.39	8.89	22.93	21.85	25.21	23.08	20.56	5.87
120	30.88	44.94	33.64	45.19	32.61	32.85	36.69	6.55	120	31.90	15.10	29.23	32.83	33.80	34.06	29.49	7.26
150	37.10	52.84	40.33	52.98	37.02	39.88	43.36	7.52	150	37.90	21.13	35.44	38.95	39.02	39.04	35.25	7.05
180	44.27	58.04	45.12	59.44	44.76	44.67	49.38	7.27	180	43.37	26.04	39.18	43.27	44.03	43.94	39.97	7.06
210	47.94	63.73	51.08	64.79	50.37	50.97	54.81	7.41	210	47.83	34.18	43.05	48.08	48.61	48.86	45.10	5.77
240	53.23	68.76	54.33	69.94	54.42	53.07	58.96	8.08	240	51.40	35.96	46.25	51.31	52.19	53.13	48.37	6.54
300	61.51	73.24	60.10	73.86	59.51	58.61	64.47	7.10	300	57.62	43.47	52.78	57.07	58.41	58.90	54.71	5.92
360	66.64	77.41	65.57	77.91	64.86	64.87	69.54	6.32	360	61.70	48.85	56.50	61.15	62.49	62.07	58.79	5.34
420	71.44	81.34	70.36	81.16	69.87	69.20	73.90	5.74	420	65.70	53.57	61.15	65.48	67.41	67.18	63.42	5.32
480	74.99	82.52	74.01	81.99	73.51	71.91	76.49	4.58	480	69.59	57.87	64.31	69.15	71.99	70.96	67.31	5.33
540	75.53	83.74	74.19	83.42	74.49	73.80	77.53	4.72	540	63.51	61.48	67.30	70.25	73.75	72.25	68.09	4.88
720	80.01	86.49	79.46	84.57	80.34	78.96	81.64	3.11	720	73.92	72.73	75.07	75.19	77.66	78.57	75.52	2.22

CM 12%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.66	4.20	1.46	0.21	0.09	5.57	2.03	2.30
30	0.55	7.54	2.50	0.44	1.58	10.06	3.78	4.04
60	5.24	14.89	6.40	3.75	8.44	21.08	9.97	6.69
90	13.49	24.57	14.20	14.74	17.74	37.64	20.40	9.38
120	19.16	31.44	20.79	20.30	23.89	44.25	26.64	9.71
150	25.89	38.92	26.15	26.35	30.87	50.20	33.06	9.77
180	31.52	45.65	31.10	33.58	37.10	55.04	39.00	9.52
210	37.17	49.55	36.63	38.33	42.32	61.17	44.20	9.61
240	42.06	54.62	41.63	42.65	47.35	64.47	48.80	9.12
300	50.40	60.07	50.42	48.82	54.12	68.71	55.42	7.66
360	56.61	65.07	53.67	55.26	60.01	73.19	60.64	7.37
420	61.37	68.14	59.32	61.72	68.67	76.41	65.94	6.39
480	66.61	72.46	64.42	64.80	70.18	82.01	70.08	6.63
540	69.68	75.46	67.13	71.29	75.08	84.05	73.78	5.95
720	73.86	78.97	72.33	75.36	79.95	84.98	77.58	4.66

Table 284 Cumulative % drug release of core and tablets coated with unplasticized and plasticized chitosan citrate or chitosan malate films at coating level of 6 % based on chitosan salt in dilute HCl solution

CORE									CC G25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	16.21	18.14	16.89	19.94	24.74	21.87	19.55	3.09	1	4.00	4.45	5.02	6.26	7.51	6.83	5.68	1.40
3	36.66	49.33	41.29	40.86	50.38	47.77	44.38	5.54	3	16.58	19.18	24.72	21.00	25.64	21.34	21.41	3.39
5	58.34	77.53	66.17	61.55	79.72	75.39	69.78	8.97	5	37.36	38.05	48.15	35.13	42.29	38.19	39.86	4.68
7	75.85	98.65	81.12	98.64	98.81	92.66	90.96	10.08	7	57.69	53.64	73.97	52.51	58.24	57.06	58.85	7.76
10	97.64	102.25	99.32	99.97	101.74	99.61	100.09	1.69	10	84.47	79.94	94.96	74.29	83.32	78.63	82.60	7.05
12	101.11	102.47	101.79	102.44	102.40	100.84	101.84	0.72	12	101.21	91.46	101.47	86.91	94.30	93.08	94.74	5.70
15	101.21	102.35	102.01	102.55	102.28	101.39	101.97	0.55	15	104.71	99.88	102.59	100.73	100.01	101.17	101.52	1.85
20	101.54	102.56	101.99	102.66	102.27	101.37	102.07	0.53	20	104.94	101.22	102.13	102.07	101.58	102.17	102.35	1.32
25	101.52	102.44	101.75	102.76	102.48	101.35	102.05	0.58	25	104.95	101.20	102.57	101.49	100.77	102.39	102.23	1.50
30	101.62	101.97	102.41	102.74	102.58	101.33	102.11	0.56	30	104.72	101.52	102.56	101.25	100.53	102.38	102.16	1.46

CC P25									CM G25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.32	4.23	3.66	5.13	4.91	5.36	4.44	0.83	1	4.68	4.34	5.02	5.36	4.34	4.00	4.62	0.50
3	13.52	14.21	15.89	18.50	18.16	22.58	17.14	3.34	3	10.59	7.64	11.94	9.23	12.39	12.17	10.66	1.90
5	33.38	33.39	36.11	39.18	33.19	49.38	37.44	6.30	5	26.13	27.02	26.26	23.30	31.80	29.76	27.38	2.99
7	59.00	53.25	53.83	62.01	48.75	77.13	59.00	10.03	7	47.76	52.05	45.06	44.80	52.10	49.82	48.60	3.27
10	87.26	76.04	82.28	91.30	70.61	97.34	84.14	9.87	10	70.30	78.79	64.64	72.86	77.26	71.69	72.59	5.09
12	99.27	87.99	96.65	99.95	82.42	102.74	94.84	7.91	12	86.06	97.32	80.83	90.57	93.18	89.50	89.58	5.71
15	101.97	96.50	100.79	101.06	95.31	103.53	99.86	3.23	15	97.96	100.90	95.07	97.02	100.70	99.72	98.56	2.29
20	102.18	100.54	101.01	100.48	100.47	103.53	101.37	1.24	20	99.85	101.12	101.24	98.50	102.49	100.71	100.65	1.36
25	102.29	97.92	100.76	100.91	100.79	103.64	101.05	1.91	25	100.28	101.78	101.68	98.81	102.60	101.38	101.09	1.34
30	102.27	98.34	101.31	100.67	101.22	104.54	101.39	2.03	30	100.71	102.56	102.46	99.34	103.04	101.70	101.64	1.39

CM P25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.66	4.45	4.79	6.15	5.25	5.81	5.02	0.91
3	4.48	4.37	7.42	8.90	8.33	12.18	7.61	2.95
5	19.31	19.77	26.57	24.32	21.72	23.66	22.56	2.81
7	35.36	47.35	44.69	42.32	45.47	47.20	43.73	4.50
10	67.78	71.70	73.10	68.68	72.18	66.23	69.95	2.76
12	86.70	93.35	91.82	83.98	92.18	88.64	89.45	3.64
15	96.33	101.44	97.86	95.07	100.11	98.97	98.30	2.37
20	97.99	101.54	98.96	102.83	101.67	99.06	100.34	1.92
25	98.30	101.60	98.82	103.16	101.66	98.69	100.37	2.02
30	98.38	101.74	99.02	103.04	101.99	98.66	100.47	2.01

Table 285 Cumulative % drug release of core and tablets coated with unplasticized and plasticized chitosan citrate or chitosan malate films at coating level of 6 % based on chitosan salt after direct exposure accelerated condition for 7 days in dilute HCl solution

CORE								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	16.21	18.14	16.89	19.94	24.24	21.87	19.55	3.09
3	36.66	49.33	41.29	40.86	50.38	47.77	44.38	5.54
5	58.34	77.53	66.17	61.55	79.72	75.39	69.78	8.97
7	75.85	98.65	81.12	98.64	98.81	92.66	90.96	10.08
10	97.64	102.25	99.32	99.97	101.74	99.61	100.09	1.69
12	101.11	102.47	101.79	102.44	102.40	100.84	101.84	0.72
15	101.21	102.35	102.01	102.55	102.28	101.39	101.97	0.55
20	101.54	102.56	101.99	102.66	102.27	101.37	102.07	0.53
25	101.52	102.44	101.75	102.76	102.48	101.35	102.05	0.58
30	101.62	101.97	102.41	102.74	102.58	101.33	102.11	0.56

CC G25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	8.19	3.66	8.98	8.41	9.77	7.39	7.73	2.15
3	15.92	14.88	16.26	15.69	17.40	13.43	15.60	1.34
5	24.26	21.40	24.38	22.11	24.96	20.06	22.86	1.96
7	26.20	26.84	31.30	28.12	32.22	25.94	28.44	2.70
10	56.98	32.98	37.60	33.70	40.42	32.41	35.70	3.17
12	41.25	37.12	42.42	36.93	46.97	36.43	40.04	3.87
15	46.79	42.86	48.31	41.55	52.88	41.38	45.65	4.55
20	66.61	50.33	57.39	48.78	61.05	49.86	55.77	7.32
25	75.79	57.27	64.71	58.21	68.88	57.37	63.71	7.56
30	84.57	64.71	74.22	71.41	86.33	80.86	77.02	8.36
45	92.49	82.02	92.37	92.04	97.20	87.18	90.55	5.25
60	101.77	98.84	100.74	102.78	102.87	98.47	100.91	1.92

CC P25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	10.11	13.61	9.43	14.63	14.63	14.74	12.86	2.44
3	20.11	23.86	21.13	28.73	29.18	25.79	24.80	3.79
5	38.09	46.27	38.20	53.88	50.15	41.54	44.69	6.52
7	56.13	65.75	50.17	67.80	66.48	59.97	61.05	6.94
10	80.90	89.18	67.19	82.45	91.50	79.98	81.87	8.56
12	94.80	98.15	90.85	100.49	92.34	95.11	95.29	3.58
15	98.71	98.91	99.26	100.93	99.06	100.72	99.60	0.97
20	99.03	99.45	100.48	101.25	99.04	101.73	100.16	1.17
25	99.11	99.31	100.24	101.12	98.90	101.60	100.05	1.13
30	99.08	99.39	100.21	101.67	99.32	101.70	100.23	1.19

CM G25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4.91	4.45	6.94	6.60	5.13	5.92	5.66	0.99
3	6.06	5.84	11.05	9.81	5.84	7.99	7.77	2.25
5	9.15	7.56	15.41	12.69	8.25	12.11	10.86	3.04
7	12.71	9.42	20.24	15.13	10.67	14.89	13.84	3.86
10	15.72	12.63	24.76	17.25	13.66	19.04	17.18	4.39
12	19.08	14.96	27.84	19.49	16.00	21.18	19.76	4.58
15	22.13	17.19	29.46	20.39	17.90	22.88	21.66	4.43
20	27.00	22.60	33.13	23.10	21.50	26.17	25.58	4.27
25	30.99	27.02	35.91	25.60	24.56	28.69	28.80	4.17
30	34.10	31.13	39.04	28.57	27.40	30.65	31.82	4.23
45	47.28	38.31	46.94	36.07	34.34	36.69	39.94	5.70
60	56.22	48.44	61.85	45.16	42.64	45.91	50.04	7.43
75	67.68	57.26	72.64	59.03	60.81	55.95	62.23	6.55
90	75.24	64.66	80.98	72.62	72.86	64.32	71.78	6.40
120	84.28	86.89	93.18	96.23	91.62	83.13	89.22	5.24

CMP25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	8.75	9.32	12.14	12.71	14.40	14.18	11.92	2.40
3	25.08	26.67	28.38	27.25	31.78	28.16	27.89	2.25
5	45.12	44.23	48.21	43.34	48.13	49.35	46.40	2.48
7	62.89	59.17	65.89	58.51	63.54	63.76	62.29	2.87
10	81.67	76.23	87.85	76.47	81.65	80.50	80.73	4.26
12	94.11	87.05	98.05	92.49	96.91	91.01	93.27	4.03
15	100.27	92.28	99.27	100.69	99.59	99.42	98.59	3.14
20	100.60	96.51	99.58	101.46	99.79	101.55	99.92	1.86
25	100.58	99.52	100.01	101.11	99.99	101.19	100.40	0.67
30	100.78	100.63	99.99	101.66	99.85	101.29	100.70	0.71

Table 286 Cumulative % drug release of core and tablets coated with unplasticized and plasticized chitosan citrate or chitosan malate films at coating level of 6 % based on chitosan salt in phosphate buffer pH 6.8

CORE									CC G25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	13.57	14.37	14.37	14.94	19.74	19.85	16.14	2.86	1	0.89	0.66	0.00	0.00	0.89	0.00	0.41	0.45
3	39.34	40.03	43.91	45.63	54.79	57.31	46.84	7.56	3	0.21	0.67	0.01	0.89	2.04	2.60	1.07	1.03
5	71.54	65.72	75.80	74.09	80.91	86.07	75.69	7.13	5	1.92	2.27	2.03	2.26	1.25	3.19	2.15	0.63
7	89.87	88.59	93.58	92.55	93.12	95.45	92.19	2.53	7	17.70	14.96	12.32	11.18	17.70	8.92	13.80	3.60
10	95.16	97.53	97.63	96.49	97.52	97.23	96.93	0.96	10	37.78	31.49	29.18	30.20	31.52	30.21	31.73	3.09
12	96.71	98.63	97.48	97.24	97.25	97.31	97.44	0.64	12	56.15	44.57	38.25	38.25	42.07	38.26	42.93	6.98
15	96.67	98.83	97.56	99.03	98.12	98.86	98.18	0.97	15	64.00	65.15	53.65	51.14	51.22	50.80	55.99	6.73
20	97.19	99.25	98.09	98.08	98.54	99.29	98.41	0.80	20	77.03	76.81	65.37	61.36	61.66	61.36	67.27	7.63
25	98.97	100.13	98.04	98.38	98.05	97.99	98.59	0.84	25	86.36	87.51	77.15	78.14	77.19	78.49	80.81	4.79
30	97.79	100.33	98.91	98.68	98.46	98.40	98.76	0.85	30	92.31	91.53	85.80	91.25	85.27	88.85	89.17	3.05
									45	92.70	92.37	91.75	90.72	88.24	91.74	91.25	1.62
									60	92.97	73.89	92.36	90.87	88.49	91.10	88.28	7.22

CC P25									CM G25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	2.03	1.12	0.00	3.18	0.00	4.32	1.78	1.75
3	0.00	0.00	0.00	1.46	1.23	0.00	0.45	0.70	3	2.39	2.27	5.57	2.74	2.37	5.83	3.53	1.69
5	0.77	0.20	0.78	2.73	2.50	0.88	1.31	1.04	5	0.23	0.00	3.89	3.89	5.01	4.03	2.84	2.15
7	3.51	3.40	5.12	8.80	8.79	5.00	5.77	2.45	7	0.69	0.00	3.68	3.57	4.47	3.14	2.59	1.81
10	11.64	6.16	10.52	19.47	21.52	13.71	13.84	5.75	10	3.55	0.57	4.50	5.53	2.44	3.84	3.41	1.73
12	16.96	8.36	30.33	24.48	23.24	20.41	20.63	7.48	12	4.37	1.14	4.64	6.36	2.91	4.32	3.96	1.76
15	24.59	13.89	38.27	32.61	33.99	26.23	28.26	8.67	15	6.36	2.06	5.58	7.88	3.49	5.37	5.12	2.07
20	34.55	23.79	52.41	45.70	46.05	35.63	39.69	10.34	20	8.65	4.24	7.55	7.93	5.00	6.43	6.63	1.73
25	49.36	36.49	76.80	58.51	58.00	51.24	55.07	13.30	25	10.55	5.98	8.85	6.83	6.74	7.26	7.70	1.69
30	64.36	46.85	94.01	57.97	68.78	64.55	66.09	15.67	30	13.90	8.41	9.92	10.29	8.49	9.24	10.04	2.03
45	87.68	75.32	91.75	84.56	84.80	89.57	85.61	5.75	45	16.14	13.60	15.57	14.41	14.02	14.66	14.73	0.96
60	94.90	92.19	92.36	92.33	92.46	95.09	93.22	1.38	60	23.75	18.80	20.23	20.68	18.09	18.14	19.95	2.15

CM P25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.23	0.00	0.00	0.00	0.00	0.00	0.21	0.50
3	0.00	0.00	0.00	0.00	0.09	0.00	0.02	0.04
5	0.00	0.20	0.00	0.43	0.55	0.43	0.27	0.24
7	0.21	1.00	0.54	0.66	1.35	0.66	0.74	0.39
10	0.90	1.92	1.23	1.47	2.04	1.46	1.50	0.43
12	2.27	2.39	1.58	3.07	2.74	3.07	2.52	0.57
15	2.28	3.66	2.39	2.75	4.12	2.63	2.97	0.74
20	3.44	5.16	3.89	4.48	5.75	4.82	4.59	0.84
25	5.06	6.33	5.28	5.98	8.40	6.10	6.19	1.19
30	7.03	8.08	7.02	7.84	12.79	8.87	8.61	2.17
45	12.78	13.38	11.63	13.14	17.66	11.55	13.36	2.24
60	17.86	18.71	16.04	18.24	21.87	17.90	18.44	1.91
75	22.07	23.84	19.78	23.60	26.78	25.42	23.58	2.47
90	26.20	28.31	24.11	27.83	33.21	29.33	28.17	3.07
120	33.19	36.00	29.95	35.98	38.75	38.28	35.36	3.31
150	40.22	42.58	36.05	44.66	42.72	45.10	41.89	3.35
180	46.71	48.62	46.40	50.10	54.13	48.99	49.16	2.81
210	51.40	54.01	51.90	55.61	57.26	54.26	54.07	2.21
240	57.26	59.52	55.13	61.60	60.05	61.16	59.12	2.48
270	60.86	63.01	58.82	65.44	65.35	65.11	63.10	2.75
300	65.03	66.73	62.41	68.94	67.92	66.78	66.30	2.31
330	67.82	70.10	65.54	76.56	74.81	72.22	71.18	4.18
360	70.49	73.34	73.00	75.47	75.68	72.51	73.42	1.94

Table 287 Cumulative % drug release of tablets coated with plasticized chitosan citrate or chitosan malate films at coating level of 6 % based on chitosan salt after direct exposure accelerated condition for 7 days in phosphate buffer pH6.8

CC G25									CC P25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.23	1.69	1.46	2.26	0.78	1.46	1.31	0.71	5	2.03	0.89	2.03	1.80	2.03	3.18	1.99	0.73
10	0.32	1.59	2.95	2.50	1.12	2.16	1.77	0.96	10	1.59	1.24	1.82	1.59	3.07	3.42	2.12	0.90
15	1.46	2.85	4.34	2.97	2.50	3.42	2.92	0.96	15	1.94	2.04	2.63	2.28	3.43	4.13	2.74	0.87
20	1.47	4.24	5.62	3.56	2.06	5.04	3.67	1.64	20	3.66	2.97	4.01	3.43	5.51	5.63	4.20	1.11
25	2.39	5.63	7.48	4.72	2.75	6.55	4.92	2.04	25	5.62	4.24	5.40	4.71	7.59	7.49	5.84	1.40
30	3.21	7.03	8.89	6.35	3.91	7.85	6.21	2.23	30	6.91	4.61	7.15	5.54	10.03	9.25	7.25	2.09
45	14.42	11.64	12.25	10.15	14.44	11.43	12.39	1.72	45	14.03	8.40	11.75	11.50	16.71	14.09	12.75	2.85
60	34.49	16.73	17.35	15.92	25.83	16.75	21.18	7.49	60	21.76	14.27	16.04	17.16	23.43	19.65	18.72	3.51
75	42.33	20.93	22.35	21.26	34.08	20.61	26.93	9.14	75	30.33	30.98	20.13	21.49	29.04	24.67	26.11	4.68
90	49.53	27.10	28.30	27.66	40.32	26.89	33.30	9.48	90	38.61	40.45	26.41	28.91	35.94	30.52	33.47	5.67
120	57.80	40.50	36.56	37.17	47.85	35.03	42.49	8.79	120	49.56	46.89	35.23	36.04	42.64	39.02	41.56	5.84
150	66.33	51.45	43.84	47.87	55.42	44.01	51.49	8.52	150	58.27	62.45	44.66	42.74	49.26	47.44	50.80	7.85
180	71.15	57.66	50.23	54.52	60.28	49.50	57.22	7.99	180	65.43	68.90	52.32	69.57	55.91	54.42	61.09	7.75
210	74.61	62.18	55.50	59.71	64.94	56.02	62.16	7.08	210	70.12	73.56	57.96	77.14	69.10	59.95	67.97	7.56
240	77.06	66.15	60.45	64.93	69.16	61.33	66.51	6.07	240	74.36	82.56	61.68	81.19	75.95	63.90	73.27	8.71
270	79.52	69.11	63.48	68.11	72.03	64.82	69.51	5.78	270	77.02	86.74	65.98	84.24	79.41	66.83	76.70	8.69
300	81.99	71.84	66.40	70.50	74.57	67.87	72.20	5.60	300	79.22	88.44	68.36	85.80	81.95	69.88	78.94	8.25
330	83.83	75.02	68.75	73.33	76.94	71.26	74.86	5.24	330	81.17	89.78	71.63	87.80	83.79	71.89	81.01	7.77
360	85.34	76.81	71.76	76.15	79.27	73.83	77.19	4.75	360	82.39	91.09	73.98	88.86	85.13	74.22	82.61	7.24

CM G25									CM P25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.38	2.95	2.60	1.01	4.09	1.92	2.49	1.03	5	0.32	0.00	0.00	0.00	0.00	0.00	0.05	0.13
10	2.96	2.28	2.62	1.01	4.23	3.41	2.75	1.09	10	0.89	0.00	0.00	0.00	0.00	0.00	0.15	0.36
15	3.89	6.29	4.92	1.70	5.96	4.92	4.61	1.66	15	4.90	1.11	1.68	4.77	2.22	1.80	2.75	1.66
20	5.62	12.03	8.00	2.97	7.14	7.34	7.18	2.98	20	6.64	2.60	2.49	5.94	4.32	4.09	4.35	1.69
25	6.68	14.50	12.07	3.90	8.43	9.90	9.25	3.79	25	9.64	6.38	3.53	7.11	6.40	7.77	6.81	2.01
30	8.55	18.35	16.71	4.38	10.42	13.72	12.02	5.25	30	11.52	9.05	4.35	7.84	10.09	10.90	8.96	2.61
45	12.14	23.36	26.28	8.74	15.39	18.14	17.34	6.66	45	16.61	15.03	11.11	11.19	14.03	19.75	14.62	3.31
60	14.94	26.91	35.45	10.96	19.24	21.43	21.49	8.75	60	20.81	19.69	16.88	14.57	17.65	24.31	18.99	3.40
75	18.22	31.06	34.67	14.10	23.57	24.98	24.43	7.68	75	25.72	23.11	20.29	18.19	23.11	28.67	23.18	3.74
90	21.18	35.11	38.98	19.23	28.27	28.77	28.59	7.66	90	30.32	26.09	23.60	22.97	26.09	35.23	27.38	4.63
120	26.09	41.81	42.34	22.50	34.82	34.06	33.60	8.06	120	36.42	31.71	28.52	29.38	31.72	42.39	33.36	5.21
150	30.90	48.30	47.86	29.12	40.24	39.38	39.30	8.12	150	43.02	37.94	39.42	36.05	37.95	48.10	40.41	4.43
180	35.16	53.01	52.03	33.62	45.35	44.03	43.87	8.16	180	49.98	43.30	44.55	39.45	45.24	52.25	45.80	4.64
210	39.33	55.43	58.45	39.62	50.36	48.24	48.57	7.92	210	55.94	47.98	48.56	42.95	47.99	56.64	50.01	5.28
240	43.17	61.66	61.11	45.64	54.82	52.00	53.07	7.69	240	61.12	52.22	53.26	45.66	52.22	59.66	54.02	5.64
270	45.88	63.69	66.18	48.04	57.24	54.85	55.98	8.14	270	66.42	56.01	56.61	49.18	56.61	62.91	57.96	6.01
300	48.82	66.10	68.84	50.78	59.43	57.35	58.55	8.00	300	69.57	58.66	58.15	51.91	58.65	66.40	60.56	6.37
330	51.41	68.95	71.01	53.98	61.84	60.07	61.21	7.82	330	71.57	60.38	60.35	53.73	61.52	68.10	62.61	6.33
360	54.69	70.55	73.02	57.18	64.12	61.99	63.59	7.22	360	73.44	62.42	64.23	55.88	62.67	70.94	64.93	6.36
420	59.23	73.61	74.77	61.18	67.07	65.04	66.82	6.36	420	77.00	66.17	66.52	60.65	64.70	73.06	68.02	5.95
480	61.37	75.18	76.51	63.93	69.45	68.09	69.09	5.99	480	78.73	68.89	72.68	62.79	69.13	77.22	71.57	5.91
600	67.15	75.24	80.41	69.74	74.08	72.72	73.22	4.60	600	82.72	73.77	76.80	68.67	74.61	80.45	76.17	5.02
720	72.82	83.16	83.06	75.10	78.82	76.06	78.17	4.28	720	84.07	77.84	93.33	73.53	80.14	85.43	82.39	6.87

Table 288 Cumulative % drug release of core and tablets coated with unplasticized and plasticized chitosan citrate or chitosan malate films at coating level of 3 % based on chitosan in dilute HCl solution

CORE									CC									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	16.21	18.14	16.89	19.94	24.24	16.07	18.58	3.13	1	5.92	5.59	6.60	6.26	6.60	5.70	6.11	0.44	
3	36.66	49.33	41.29	40.86	50.38	36.92	42.57	5.97	3	10.93	11.04	13.88	14.67	14.89	17.26	13.78	2.44	
5	58.34	77.53	66.17	61.55	79.72	58.05	66.89	9.57	5	28.74	28.52	29.33	31.82	37.70	39.52	32.61	4.83	
7	75.85	98.65	81.12	98.64	98.81	76.68	88.29	11.54	7	51.74	48.57	45.77	48.05	63.46	66.76	54.06	8.83	
10	97.64	102.25	99.32	99.97	101.74	85.15	97.68	6.36	10	79.50	69.19	65.70	68.67	92.42	94.49	78.33	12.63	
12	101.11	102.47	101.79	102.44	102.40	87.04	99.54	6.15	12	99.05	86.54	81.21	84.65	100.96	101.12	92.26	9.09	
15	101.21	102.35	102.01	102.55	102.28	87.57	99.66	5.94	15	101.97	99.34	95.57	99.02	101.51	102.24	99.94	2.54	
20	101.54	102.56	101.99	102.66	102.27	88.50	99.92	5.61	20	102.19	101.46	100.50	101.03	101.27	102.34	101.47	0.70	
25	101.52	102.44	101.75	102.76	102.48	89.33	100.05	5.27	25	102.41	101.34	100.93	101.58	101.82	102.00	101.68	0.52	
30	101.62	101.97	102.41	102.74	102.58	90.22	100.26	4.93	30	102.28	101.66	100.92	101.57	101.81	102.43	101.78	0.54	

CC G25									CC P25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.89	5.47	4.00	4.91	4.12	4.68	4.51	0.62	1	3.66	4.68	4.68	5.02	4.68	5.81	4.76	0.69
3	10.81	12.03	12.17	9.34	12.96	12.85	11.69	1.39	3	10.92	11.83	9.57	15.90	17.14	15.00	13.39	3.04
5	29.52	25.34	31.79	24.21	29.99	28.52	28.23	2.90	5	29.30	31.12	29.41	34.76	40.08	35.78	33.41	4.24
7	58.63	41.65	51.08	41.09	49.94	47.34	48.29	6.55	7	46.65	50.40	49.24	52.14	63.93	56.67	53.17	6.24
10	67.89	57.15	62.67	57.13	66.45	63.43	62.45	4.54	10	69.40	75.10	82.53	74.36	96.17	86.71	80.71	9.78
12	93.90	73.86	92.81	77.12	86.65	79.60	83.99	8.39	12	82.34	91.34	96.56	93.31	100.43	95.90	93.31	6.70
15	99.56	88.96	101.52	94.05	94.82	94.18	95.52	4.47	15	98.73	101.00	99.57	100.04	100.76	98.35	99.74	1.97
20	99.58	96.12	103.03	99.09	95.79	97.63	98.54	2.68	20	104.59	101.44	99.67	100.70	100.63	98.55	100.93	2.05
25	99.78	97.21	102.80	99.94	96.09	97.33	98.86	2.46	25	103.57	101.54	99.30	100.80	100.61	98.74	100.76	1.72
30	99.87	96.95	102.68	99.49	98.98	97.45	99.24	2.04	30	103.80	101.41	99.62	100.67	103.07	98.77	101.22	1.95

CM									CM G25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.89	4.23	4.12	4.00	5.13	4.39	4.29	0.45	1	4.91	5.70	5.29	5.81	4.68	6.60	5.50	0.69
3	8.32	13.07	11.26	10.47	13.73	12.85	11.62	2.02	3	13.75	11.95	12.06	13.42	17.26	12.86	13.55	1.95
5	26.57	30.22	31.68	32.24	31.13	47.97	33.30	7.46	5	30.34	28.52	27.28	28.76	26.17	26.16	27.87	1.64
7	55.55	50.40	52.43	59.78	50.75	52.49	53.57	3.55	7	51.87	49.37	47.33	44.86	51.98	40.32	47.62	4.50
10	91.36	72.78	79.85	94.37	71.83	90.12	83.39	9.88	10	76.81	74.29	70.09	64.33	65.61	58.30	68.24	6.85
12	101.14	84.87	97.71	101.67	89.68	101.25	96.05	7.11	12	95.10	92.00	86.76	78.70	86.21	71.17	84.99	8.79
15	101.47	96.75	102.65	101.89	100.53	101.57	100.81	2.10	15	101.73	102.68	101.82	92.59	99.24	85.47	97.26	6.85
20	101.70	101.47	103.22	101.77	101.87	101.68	101.95	0.64	20	102.17	104.49	104.64	101.46	101.70	96.11	101.76	3.10
25	101.50	102.13	103.33	101.87	102.09	101.89	102.14	0.63	25	102.16	104.61	105.10	102.92	101.92	97.65	102.39	2.66
30	101.43	102.12	103.55	102.19	102.08	101.65	102.17	0.74	30	101.24	104.72	104.99	102.80	102.02	97.84	102.27	2.62

CM P25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4.00	4.57	3.78	5.02	5.47	5.13	4.66	0.67
3	10.92	9.57	8.89	10.25	15.00	15.11	11.62	2.74
5	29.98	23.08	24.31	28.28	28.88	31.48	27.67	3.29
7	50.16	42.31	47.85	48.57	46.79	55.28	48.49	4.25
10	75.08	63.91	81.02	73.60	66.04	81.71	73.56	7.40
12	94.94	75.35	95.71	92.43	78.50	90.30	87.87	8.75
15	104.28	92.72	99.52	100.06	93.07	101.70	98.56	4.69
20	104.97	98.88	101.31	100.95	101.49	102.03	101.61	1.97
25	104.98	99.76	100.39	101.39	102.16	103.38	102.01	1.94
30	104.75	100.42	100.93	101.60	102.94	103.60	102.37	1.67

Table 289 Cumulative % drug release of core and tablets coated with unplasticized and plasticized chitosan citrate or chitosan malate films at coating level of 3 % based on chitosan after direct exposure accelerated condition for 7 days in dilute HCl solution

CORE									CC									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	16.21	18.14	16.89	19.94	24.24	21.87	19.55	3.09	1	11.35	10.33	12.82	9.66	11.01	9.66	10.81	1.20	
3	36.66	49.33	41.29	40.86	50.38	47.77	44.38	5.54	3	21.59	27.24	27.59	23.84	20.57	23.84	24.11	2.86	
5	58.34	77.53	66.17	61.55	79.72	75.39	69.78	8.97	5	45.00	49.40	51.60	42.52	43.75	47.49	46.63	3.49	
7	75.85	98.65	81.12	98.64	98.81	92.66	90.96	10.08	7	64.58	69.50	79.02	65.93	62.99	67.88	68.32	5.73	
10	97.64	102.25	99.32	99.97	101.74	99.61	100.09	1.69	10	91.96	96.56	96.08	92.36	90.70	89.62	92.88	2.84	
12	101.11	102.47	101.79	102.44	102.40	100.84	101.84	0.72	12	100.16	101.84	100.56	101.63	98.66	98.48	100.22	1.43	
15	101.21	102.35	102.01	102.55	102.28	101.39	101.97	0.55	15	101.61	102.74	102.25	103.09	100.78	99.14	101.60	1.46	
20	101.54	102.56	101.99	102.66	102.27	101.37	102.07	0.53	20	101.49	102.96	102.69	103.20	100.77	99.45	101.76	1.47	
25	101.52	102.44	101.75	102.76	102.48	101.35	102.05	0.88	25	101.81	103.18	102.57	105.42	101.20	99.65	101.97	1.41	
30	101.62	101.97	102.41	102.74	102.58	101.33	102.11	0.56	30	101.80	102.94	102.67	103.53	101.52	99.96	102.07	1.27	

CC G25									CC P25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	6.49	6.83	6.94	7.39	10.45	9.54	7.94	1.64	1	6.83	4.91	10.45	9.88	12.82	4.68	8.26	3.30
3	13.08	14.44	14.10	14.11	17.52	15.93	14.86	1.59	3	18.29	18.73	25.32	27.01	23.29	18.05	21.78	3.94
5	22.77	24.59	20.85	20.18	25.07	21.78	22.54	1.98	5	34.44	39.98	46.26	48.64	38.24	39.52	41.18	5.29
7	29.00	31.17	28.54	27.86	34.94	30.50	30.34	2.57	7	58.72	65.41	73.09	73.90	55.18	64.95	65.21	7.49
10	38.20	41.40	35.94	35.25	43.95	41.29	39.34	3.43	10	81.88	91.44	94.86	91.04	76.06	90.86	87.69	7.15
12	45.88	49.32	40.88	39.07	49.50	46.04	45.12	4.31	12	87.87	98.16	100.02	96.63	93.44	97.24	95.56	4.34
15	52.46	56.71	46.19	44.14	56.45	53.64	51.60	5.28	15	100.56	99.15	101.24	98.18	100.29	97.66	99.51	1.42
20	69.48	69.91	54.70	51.05	63.99	62.75	61.98	7.70	20	102.47	99.24	101.46	98.37	101.29	98.37	100.20	1.76
25	78.45	81.94	62.91	57.32	70.78	70.33	70.29	9.22	25	102.58	99.10	101.55	98.34	101.61	98.84	100.34	1.78
30	85.21	89.96	69.36	65.32	77.84	78.74	77.74	9.28	30	102.57	99.18	101.65	98.53	101.93	99.15	100.50	1.74
45	93.47	99.72	90.88	85.58	88.77	91.27	91.62	4.78									
60	100.05	102.59	97.21	100.25	97.56	98.72	99.40	2.00									

CM									CM G25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	9.66	8.98	12.37	13.73	14.74	16.10	12.60	2.83	1	5.25	5.70	6.38	5.92	5.59	5.36	5.70	0.41
3	22.26	20.56	24.88	23.53	27.38	32.92	25.26	4.41	3	8.10	8.10	8.56	8.33	8.44	9.69	8.54	0.59
5	39.46	34.13	40.28	37.00	44.26	48.71	40.64	5.20	5	11.20	11.88	11.10	11.32	10.86	12.45	11.47	0.59
7	61.27	52.97	58.36	53.60	61.69	71.14	59.84	6.66	7	13.41	17.94	14.44	13.64	13.30	17.04	14.96	2.02
10	93.15	70.90	90.34	71.64	82.61	87.47	82.69	9.51	10	16.08	19.96	17.79	16.88	16.54	18.27	17.59	1.41
12	100.34	81.36	100.34	82.78	97.08	96.77	93.11	8.70	12	18.21	21.20	19.76	19.24	19.23	20.74	19.73	1.09
15	101.11	99.67	101.46	98.16	102.03	99.23	100.28	1.49	15	19.78	22.67	22.07	22.85	21.71	23.12	22.03	1.22
20	100.99	104.17	101.78	102.09	102.36	99.43	101.80	1.57	20	22.60	25.51	23.89	25.46	22.62	26.64	24.45	1.67
25	100.97	103.27	101.54	102.53	102.69	99.96	101.83	1.23	25	25.21	28.14	26.39	27.63	25.34	29.15	26.98	1.59
30	100.84	102.81	101.41	102.52	102.45	99.49	101.59	1.27	30	27.72	30.55	28.57	35.81	27.51	31.46	30.27	3.14
									45	35.10	38.18	35.39	44.14	34.79	38.75	37.73	3.56
									60	43.63	48.19	44.25	61.20	43.42	49.22	48.32	6.77
									90	60.56	65.25	55.87	76.30	55.26	66.40	63.27	7.87
									120	75.75	86.23	76.01	88.07	75.06	86.59	81.29	6.26
									150	87.51	98.70	90.81	97.63	89.98	98.27	93.82	4.93
									180	96.94	101.95	95.96	98.75	94.45	99.55	97.93	2.70

CM P25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	8.64	9.32	13.05	12.48	13.73	12.93	11.69	2.15
3	23.72	23.50	24.09	27.48	28.39	30.08	26.21	2.81
5	40.14	42.06	41.52	44.48	45.73	44.83	43.13	2.20
7	57.32	58.01	55.88	61.00	63.40	58.42	59.01	2.73
10	74.03	73.93	72.02	76.60	79.57	71.18	74.56	3.09
12	92.30	87.00	89.26	93.42	93.24	87.85	90.51	2.83
15	99.37	99.24	98.68	104.24	101.55	96.36	99.91	2.69
20	100.70	101.36	100.58	104.28	103.01	102.54	102.08	1.46
25	100.91	101.46	100.79	104.64	102.89	102.19	102.15	1.46
30	101.23	102.01	100.54	104.66	102.88	102.52	102.31	1.43

Table 290 Cumulative % drug release of core and tablets coated with chitosan citrate plasticized with different amount of propylene glycol at coating level of 3 % based on chitosan in dilute HCl solution

CC P5									CC P15									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	2.15	1.46	1.80	2.49	2.03	2.15	2.01	0.35	1	4.43	5.35	4.55	3.40	6.37	3.18	4.55	1.20	
3	11.75	9.35	8.10	13.35	12.89	12.21	11.28	2.09	3	9.71	9.60	11.42	16.56	16.23	15.53	13.18	3.29	
5	26.32	25.16	22.53	29.65	28.96	30.67	27.22	3.09	5	27.92	28.61	26.45	38.58	32.20	37.43	31.87	5.13	
7	42.46	42.89	42.87	44.32	43.16	44.54	43.37	0.85	7	49.89	46.36	43.61	57.75	48.25	57.17	50.51	5.78	
10	65.76	67.80	71.09	67.97	67.62	68.89	68.19	1.75	10	78.84	72.89	67.84	80.57	71.82	89.35	76.89	7.70	
12	78.23	83.82	85.76	78.74	82.04	79.32	81.32	3.06	12	94.92	89.16	84.32	92.44	86.95	98.18	91.00	5.17	
15	91.91	94.68	94.25	95.62	94.94	95.74	94.52	1.40	15	98.52	96.05	93.92	98.65	96.50	99.06	97.12	1.99	
20	100.07	96.68	95.89	100.49	100.37	100.15	98.94	2.08	20	98.72	97.26	95.23	98.85	99.60	99.49	98.19	1.67	
25	100.04	95.84	95.27	100.46	99.77	100.35	98.62	2.39	25	99.14	97.22	95.64	99.16	99.69	99.46	98.39	1.61	
30	99.30	95.44	94.98	97.87	99.97	100.33	97.98	2.31	30	99.00	97.40	95.36	98.90	99.77	99.88	98.39	1.73	

CC P25									CC P35									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.66	4.68	4.68	5.02	4.68	5.81	4.76	0.69	1	5.23	3.86	5.18	2.95	4.77	3.52	3.92	0.90	
3	10.92	11.83	9.57	15.90	17.14	15.00	13.39	3.04	3	8.69	12.22	15.64	12.56	9.03	11.19	11.56	2.56	
5	29.30	31.12	29.41	34.76	40.08	35.78	33.41	4.24	5	32.72	30.33	37.66	31.36	32.95	30.10	32.52	2.78	
7	46.65	50.40	49.24	52.14	63.93	56.67	53.17	6.24	7	64.99	48.78	60.37	58.83	64.54	48.65	57.69	7.35	
10	69.40	75.10	82.53	74.36	96.17	86.71	80.71	9.78	10	84.77	77.71	92.45	86.68	83.63	76.56	83.63	5.89	
12	82.34	91.34	96.56	93.31	100.43	95.90	93.31	6.20	12	91.18	91.16	96.96	95.95	90.94	91.26	92.91	2.77	
15	98.73	101.00	99.57	100.04	100.76	98.35	99.74	1.07	15	96.13	97.26	97.26	97.96	95.44	96.33	96.73	0.92	
20	104.59	101.44	99.67	100.70	100.63	98.55	100.93	2.05	20	97.23	98.25	97.22	98.04	97.79	98.23	97.79	0.47	
25	103.57	101.54	99.30	100.80	100.61	98.74	100.76	1.72	25	97.41	98.55	97.18	98.23	100.60	100.02	98.67	1.38	
30	103.80	101.41	99.62	100.67	103.07	98.77	101.22	1.95	30	94.48	98.52	97.13	98.54	101.15	100.33	98.36	2.38	

CC P45								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.52	3.29	1.92	2.03	1.58	2.03	2.40	0.80
3	6.28	10.85	10.95	9.35	12.78	7.87	9.68	2.35
5	23.90	30.44	35.23	27.11	30.78	23.56	28.50	4.51
7	40.48	50.36	64.55	43.71	46.37	41.51	47.83	8.93
10	65.15	80.68	82.49	64.28	74.84	66.06	72.25	8.18
12	85.72	92.66	96.08	79.02	85.41	86.99	87.65	6.00
15	95.10	97.62	96.72	93.05	92.39	97.18	95.34	2.21
20	95.97	98.39	96.79	95.96	93.36	99.08	96.59	2.03
25	96.15	98.69	96.75	95.91	93.41	99.28	96.70	2.12
30	96.33	98.66	96.93	96.32	93.57	99.24	96.84	2.02

Table 291 Cumulative % drug release of core and tablets coated with chitosan citrate film containing different amount of additives at coating level of 3 % based on chitosan in dilute HCl solution

CC P G 0.5									CC P25 B 0.5									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	2.95	3.18	3.75	2.72	2.60	2.72	2.99	0.43	1	3.86	6.60	8.20	6.14	4.20	7.74	6.12	1.79	
3	12.67	6.39	12.56	13.93	12.33	13.47	11.89	2.76	3	11.31	9.15	12.02	12.46	11.42	14.07	11.74	1.61	
5	27.02	23.90	32.96	27.94	25.99	27.94	27.63	3.02	5	28.61	27.70	34.92	27.72	26.90	32.08	29.66	3.16	
7	40.42	39.45	44.45	41.11	40.06	41.45	41.16	1.77	7	44.53	44.08	55.33	43.41	41.90	54.41	47.28	5.96	
10	64.17	64.11	56.23	66.24	72.15	66.47	64.90	5.16	10	63.28	66.93	82.25	61.92	60.52	75.70	68.43	8.69	
12	90.79	85.94	85.78	85.91	84.54	88.19	86.86	2.25	12	76.77	85.35	94.58	79.16	82.31	95.39	85.59	7.83	
15	96.89	97.60	95.27	96.20	92.32	96.56	95.81	1.87	15	94.43	94.61	97.50	94.48	90.84	96.25	94.69	2.25	
20	99.59	98.60	98.20	98.21	93.28	97.77	97.61	2.21	20	99.18	95.47	97.46	97.25	97.62	96.06	97.17	1.30	
25	100.36	99.36	99.99	98.41	93.30	98.17	98.27	2.58	25	99.83	95.54	97.54	97.55	98.73	96.39	97.60	1.55	
30	100.79	99.79	100.19	98.71	93.49	98.38	98.56	2.64	30	99.69	95.48	97.72	97.28	98.69	96.45	97.55	1.51	

CC P25 B 0.5 Ta 15									CC P25 B 0.5 Ta 30									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	6.60	7.96	6.15	7.06	8.86	9.95	7.77	1.46	1	6.04	7.28	5.70	7.70	6.04	6.60	6.56	0.79	
3	23.26	18.75	20.43	16.71	27.37	23.84	21.73	3.86	3	17.04	30.73	19.98	21.76	19.53	20.55	21.60	4.74	
5	50.19	40.11	43.38	40.88	45.33	48.62	44.75	4.08	5	35.79	61.31	44.96	67.62	43.38	44.18	49.54	12.18	
7	81.10	63.96	72.34	64.17	70.23	71.05	70.48	6.31	7	54.42	87.77	65.90	95.35	74.60	68.17	74.37	15.02	
10	95.76	91.90	96.71	92.91	95.38	96.55	95.04	2.12	10	78.69	99.90	90.69	101.42	94.68	97.26	93.77	8.32	
12	99.72	102.09	101.65	103.21	101.11	102.28	101.68	1.19	12	93.93	101.81	101.14	101.97	100.86	104.58	100.72	3.58	
15	99.59	104.16	101.99	104.27	101.55	102.50	102.34	1.75	15	102.70	101.91	102.48	101.97	101.19	104.36	102.44	1.08	
20	99.34	104.05	102.09	104.73	101.42	103.06	102.45	1.95	20	103.94	101.90	102.70	101.73	101.51	104.59	102.73	1.27	
25	99.65	104.39	102.08	104.73	101.41	102.83	102.52	1.90	25	104.17	102.00	102.70	101.82	101.27	104.26	102.70	1.26	
30	99.40	104.62	102.18	104.73	101.50	102.82	102.54	2.01	30	104.17	102.09	102.80	104.73	101.48	104.59	103.31	1.38	

CC P25 B 0.5 Ta 45									CC P25 B 0.5 Ti 15									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	7.62	8.30	7.96	9.77	8.86	8.64	8.53	0.76	1	6.60	8.75	8.30	8.07	8.86	8.41	8.17	0.82	
3	15.69	18.07	23.04	18.53	26.10	20.33	20.29	3.76	3	18.40	16.49	17.39	19.76	18.86	19.77	18.45	1.31	
5	32.51	56.72	52.00	40.68	58.13	48.48	48.09	9.88	5	45.75	37.16	39.87	44.63	39.21	40.45	41.18	3.32	
7	61.23	78.97	85.30	64.20	89.77	79.39	76.48	11.42	7	77.55	56.92	63.61	68.63	58.76	63.06	64.76	7.49	
10	78.32	98.86	98.89	92.03	100.67	98.83	94.60	8.52	10	90.19	82.45	96.75	95.91	85.09	90.66	90.18	5.69	
12	101.70	105.39	101.92	102.14	101.58	102.31	102.67	1.37	12	103.12	99.75	99.55	102.32	99.92	102.81	101.25	1.67	
15	104.52	106.54	102.03	103.61	103.03	102.76	103.75	1.60	15	104.25	99.96	101.90	102.66	102.73	103.14	102.44	1.44	
20	104.64	106.55	102.13	103.72	102.68	103.21	103.82	1.59	20	101.99	100.73	103.70	102.99	103.06	103.82	102.72	1.17	
25	104.76	106.79	102.01	103.72	103.01	103.20	103.92	1.67	25	102.21	100.94	104.04	103.44	102.94	104.16	102.96	1.22	
30	104.76	107.25	102.10	103.71	103.11	103.08	104.00	1.82	30	102.08	100.47	104.15	102.86	103.27	104.49	102.89	1.47	

CC P25 B 0.5 Ti 30									CC P25 B 0.5 Ti 45									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	8.86	7.96	7.96	8.53	8.98	10.22	8.75	0.84	1	7.73	8.19	7.96	8.75	9.09	8.19	8.32	0.51	
3	11.74	16.37	16.82	17.05	23.27	21.81	17.84	4.15	3	16.37	19.42	19.88	18.64	18.19	17.28	18.30	1.31	
5	31.59	37.00	37.61	39.19	53.03	42.96	40.23	7.27	5	42.69	43.05	42.94	40.45	40.56	39.19	41.48	1.63	
7	52.91	61.22	63.82	64.29	82.04	72.03	66.05	9.95	7	70.63	68.62	66.02	61.93	63.96	62.02	65.53	3.56	
10	85.05	90.39	94.81	98.67	99.34	96.40	94.11	5.47	10	99.06	95.68	95.60	89.07	94.96	88.37	93.79	4.19	
12	101.50	104.79	103.48	103.51	102.94	102.24	103.08	1.14	12	104.02	103.10	102.75	102.22	104.51	102.09	103.12	0.97	
15	103.30	104.58	104.05	103.97	103.50	102.58	103.66	0.70	15	104.13	104.35	103.65	104.48	105.55	104.23	104.40	0.63	
20	103.30	104.92	103.60	104.31	103.61	102.69	103.74	0.78	20	104.48	104.24	103.65	104.48	105.45	104.23	104.42	0.59	
25	103.53	105.04	104.38	104.76	103.72	102.59	104.00	0.90	25	104.82	104.59	103.65	104.60	105.68	104.46	104.63	0.65	
30	103.29	105.38	104.16	104.99	103.94	102.55	104.05	1.05	30	105.27	104.91	103.87	104.60	105.80	104.80	104.88	0.65	

Table 292 Cumulative % drug release of core and tablets coated with chitosan citrate film containing different amount of additives at coating level of 3 % based on chitosan after kept in bottle and kept in accelerated condition for 7 days in dilute HCl solution

CC P25									CCP25 B0.5								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4.79	5.13	4.79	4.91	4.79	4.68	4.85	0.16	1	7.17	6.60	7.17	7.28	7.51	8.30	7.34	0.56
3	18.05	12.28	14.32	17.48	18.61	12.85	15.60	2.79	3	12.86	15.80	12.97	12.34	15.80	15.81	14.26	1.76
5	32.96	33.16	29.44	33.75	32.25	32.37	32.32	1.31	5	28.99	41.78	22.27	30.77	36.02	34.55	34.06	4.55
7	48.86	59.35	44.75	49.77	49.20	52.67	50.77	4.91	7	43.39	70.84	48.72	56.78	53.97	54.64	54.73	9.26
10	68.35	86.47	65.80	72.20	68.13	89.71	75.11	10.31	10	62.40	94.07	70.14	82.45	80.50	77.90	77.91	10.86
12	82.86	95.77	80.07	86.73	80.60	100.19	87.70	8.42	12	75.07	100.81	86.36	94.34	95.75	92.68	90.84	9.03
15	97.45	101.72	95.10	98.85	94.27	100.70	98.02	2.98	15	90.75	100.80	97.57	102.77	100.91	101.11	98.99	4.37
20	99.68	102.73	99.69	101.43	98.40	101.14	100.51	1.53	20	102.10	101.35	102.51	102.65	102.71	103.70	102.50	0.77
25	99.54	102.95	100.34	101.33	101.31	100.79	101.08	1.16	25	104.48	101.10	103.53	103.32	102.02	103.58	103.00	1.22
30	99.74	102.94	99.98	101.52	101.52	100.99	101.12	1.17	30	104.58	101.42	103.63	102.86	102.01	104.63	103.09	1.22
CCP25 G0.3%									CCP25 L 0.5 T13								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	6.94	8.07	6.60	7.51	8.19	7.51	7.47	0.62	1	5.25	4.45	4.79	4.34	5.13	5.13	4.85	0.38
3	14.44	10.49	10.26	13.32	11.74	16.59	12.81	2.46	3	15.64	16.35	20.20	18.05	18.50	22.01	18.13	2.93
5	29.45	23.89	20.83	26.84	23.33	35.23	26.60	5.18	5	34.41	41.26	47.45	45.51	41.78	50.62	44.01	5.57
7	47.70	42.91	47.85	44.40	43.14	63.35	48.23	7.72	7	55.29	77.74	80.38	73.55	68.22	82.56	72.93	10.05
10	72.27	64.85	85.32	65.91	67.68	81.45	72.91	8.59	10	83.07	95.36	92.02	94.56	92.71	96.36	92.35	4.82
12	88.50	82.51	98.68	83.12	85.13	88.57	87.75	5.94	12	97.32	99.84	98.18	99.60	101.81	98.70	99.24	1.56
15	101.99	98.11	100.69	96.46	99.62	99.46	99.39	1.94	15	100.12	100.28	99.28	99.92	103.39	99.01	100.33	1.58
20	103.68	102.72	100.79	101.06	103.33	103.17	102.46	1.23	20	100.33	100.03	99.37	100.24	103.16	99.10	100.37	1.45
25	104.02	103.96	101.50	101.61	104.12	103.28	103.08	1.22	25	100.31	100.46	99.57	100.22	103.15	99.18	100.48	1.40
30	104.24	103.73	102.11	102.39	104.12	103.50	103.35	0.90	30	100.62	100.78	99.54	100.42	103.03	99.49	100.65	1.29
CCP25 B0.5 T1x30									CC P25 B0.5 T1x5								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	5.39	6.38	6.72	6.94	6.04	6.72	6.40	0.51	1	7.85	7.31	8.67	7.06	7.51	8.07	7.78	0.56
3	16.36	16.59	20.55	20.77	23.26	20.10	19.61	2.66	3	17.50	14.45	17.16	17.27	19.65	15.24	16.88	1.84
5	41.89	43.48	43.16	56.96	43.96	42.59	45.34	5.74	5	46.99	34.88	38.18	41.68	43.95	46.76	42.07	4.83
7	62.70	64.86	65.56	64.51	66.26	64.76	64.78	1.20	7	73.83	58.93	63.83	63.73	64.89	53.27	63.41	6.28
10	92.89	89.64	93.06	79.00	92.29	92.03	89.82	5.44	10	99.79	88.65	89.96	88.28	89.33	77.74	88.96	7.00
12	102.34	97.94	99.45	101.14	98.00	98.30	99.33	1.84	12	102.71	99.09	101.42	98.26	98.64	94.56	99.11	2.83
15	103.80	98.81	99.77	101.58	98.42	99.64	100.34	2.02	15	103.05	100.09	103.33	100.16	100.20	102.31	101.32	1.54
20	103.69	99.01	99.75	100.67	98.84	100.07	100.34	1.78	20	103.38	99.95	103.22	100.93	100.32	103.44	101.91	1.61
25	103.92	98.87	100.40	102.01	99.38	100.27	100.81	1.86	25	103.60	100.95	103.33	100.91	100.50	103.55	102.14	1.49
30	104.03	99.18	100.27	102.44	99.46	100.58	100.99	1.88	30	104.05	100.93	103.77	100.89	100.14	104.33	102.33	1.89
CC P25 B0.5 T115									CC P25 B0.5 T130								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	5.13	4.57	4.57	5.70	5.13	4.91	5.00	0.42	1	4.79	5.47	5.59	6.38	6.49	7.06	5.96	0.83
3	8.55	8.21	12.28	10.93	13.22	12.74	11.32	2.67	3	6.74	6.75	7.88	7.88	8.45	10.03	7.96	1.22
5	26.01	23.07	37.56	26.14	35.89	34.08	30.46	6.10	5	19.16	22.27	24.00	24.32	26.47	27.84	24.00	1.10
7	48.43	41.85	62.19	43.70	59.15	55.28	51.77	8.37	7	38.32	43.99	45.14	46.95	46.41	53.32	45.69	4.85
10	79.34	65.71	87.41	66.67	86.27	88.60	79.00	10.44	10	62.73	70.35	71.85	68.58	73.46	86.52	72.25	7.91
12	97.08	86.99	98.07	83.99	97.38	98.59	95.68	6.44	12	79.69	90.08	91.69	87.62	89.47	99.77	89.72	6.48
15	99.65	100.25	99.97	98.48	98.48	99.36	99.37	0.75	15	97.32	103.46	103.39	101.67	103.64	101.00	101.75	2.42
20	99.63	100.80	99.49	102.80	98.79	99.90	100.24	1.42	20	103.39	104.03	104.79	104.26	104.21	101.33	103.67	1.23
25	100.06	100.22	100.15	103.42	99.33	99.76	100.49	1.47	25	103.84	104.37	104.87	104.72	104.55	100.97	103.89	1.47
30	99.92	100.42	100.69	103.53	98.85	99.62	100.51	1.62	30	104.18	104.71	105.21	104.95	104.89	101.29	104.21	1.47
CC P25 B0.5 T1x5																	
Time(min)	1	2	3	4	5	6	AVG	SD									
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
1	4.91	5.36	6.38	5.92	6.04	6.72	5.89	0.66									
3	5.95	7.88	6.86	6.52	7.88	8.45	7.26	0.96									
5	16.61	20.70	18.32	19.30	21.94	22.29	19.74	2.05									
7	34.12	37.66	37.64	39.68	41.28	41.63	38.67	2.81									
10	61.55	61.95	64.88	66.02	75.09	66.17	65.94	4.90									
12	87.45	84.11	80.83	88.77	94.05	84.63	86.64	4.57									
15	95.50	96.33	102.01	100.91	101.35	101.83	99.66	2.93									
20	102.81	102.63	104.00	103.61	100.89	104.08	103.00	1.20									
25	102.81	102.96	104.61	103.83	101.10	104.31	103.27	1.28									
30	103.25	103.07	104.84	104.06	101.53	104.65	103.57	1.23									

Table 293 Cumulative % drug release of core and tablets coated with chitosan citrate film containing different amount of additives at coating level of 3 % based on chitosan after direct exposure accelerated condition for 7 days in dilute HCl solution

CCP25 B0.5									CCP25 G0.5								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	8.40	5.70	6.00	6.15	6.60	6.94	6.63	0.97	1	4.57	5.70	6.04	5.59	4.68	5.02	5.27	0.60
3	12.76	11.04	10.82	15.34	10.37	11.39	11.95	1.85	3	9.34	9.46	10.03	10.70	8.21	8.67	9.40	0.90
5	22.89	19.81	20.83	24.47	20.26	22.19	21.74	1.77	5	15.50	17.32	19.58	17.66	13.68	15.38	16.52	2.08
7	31.95	29.31	30.56	33.99	31.80	35.21	32.14	2.17	7	23.05	24.42	28.74	24.09	19.64	23.27	23.87	2.93
10	42.98	42.58	43.95	46.05	42.94	50.44	44.82	3.03	10	31.77	33.15	39.30	32.14	26.53	32.45	32.56	4.07
12	49.55	53.67	51.20	53.20	50.41	59.08	52.85	3.44	12	39.63	39.78	47.43	36.38	32.10	38.62	38.99	5.03
15	56.04	63.01	58.16	66.04	60.19	82.59	64.34	9.61	15	49.23	46.89	57.86	43.48	39.06	44.82	46.89	6.37
20	70.02	72.06	68.65	87.60	75.21	90.12	77.28	9.27	20	62.39	56.19	71.86	54.46	50.02	52.87	57.97	7.96
25	81.82	81.16	80.22	98.09	93.83	101.44	89.43	9.48	25	70.20	64.53	76.53	65.95	61.15	60.05	66.40	6.14
30	88.49	78.29	90.04	102.58	97.85	101.65	93.15	9.33	30	76.46	70.87	88.84	77.96	70.19	68.63	75.49	7.51
45	98.31	96.30	97.51	103.33	98.45	102.27	99.36	2.79	45	86.91	86.37	97.77	91.01	84.34	84.47	88.48	5.15
60	100.31	97.39	99.62	98.92	98.42	102.26	99.49	1.69	60	93.94	96.34	99.88	95.13	94.29	94.31	95.65	2.25

CC P25 B0.5 Ta15									CC P25 B0.5 Ta30								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.66	5.47	4.79	5.25	5.02	4.79	4.83	0.63	1	4.68	3.89	3.66	3.78	4.68	4.57	4.21	0.48
3	4.14	5.62	5.05	5.50	8.33	5.84	5.75	1.40	3	4.59	4.14	3.68	4.25	5.27	6.18	4.69	0.90
5	5.97	10.06	7.56	6.89	14.70	8.24	8.90	3.16	5	5.30	6.99	4.95	5.52	6.32	10.51	6.60	2.05
7	8.38	14.97	9.87	9.53	20.55	11.80	12.52	4.56	7	6.80	7.59	7.01	7.36	10.08	15.31	9.03	3.30
10	11.59	22.41	13.31	12.52	29.48	17.85	17.86	6.99	10	8.87	10.57	9.88	9.88	13.65	19.36	12.04	3.94
12	13.91	26.83	16.44	14.74	35.64	22.36	21.65	8.46	12	10.95	13.68	12.42	12.54	17.00	22.29	14.81	4.19
15	16.93	32.85	18.34	19.68	42.28	27.23	26.22	9.94	15	14.18	15.91	15.65	14.42	20.82	25.46	17.74	4.48
20	22.45	41.62	23.41	26.00	49.18	34.28	32.82	10.86	20	18.78	20.29	20.03	18.91	26.93	34.20	23.19	6.19
25	28.68	48.18	29.19	33.38	53.52	41.14	39.02	10.33	25	24.08	25.94	25.68	24.77	34.88	43.65	29.83	7.84
30	37.88	55.80	36.36	42.16	59.92	51.31	47.24	9.82	30	29.53	31.51	31.70	31.02	44.45	51.47	36.61	9.10
45	62.62	72.49	53.52	57.77	72.45	75.45	65.72	9.03	45	41.90	43.89	45.90	44.64	59.96	63.85	50.02	9.38
60	79.68	86.99	70.63	72.64	83.11	90.19	80.54	7.78	60	58.95	56.21	63.88	59.45	73.15	77.17	64.80	8.49
75	90.27	96.37	86.48	84.99	91.88	97.55	91.26	5.08	75	75.87	68.14	80.04	74.33	85.85	89.09	78.89	7.74
90	95.81	101.36	96.07	93.33	99.08	101.88	97.92	3.40	90	86.66	77.63	88.25	86.13	94.53	97.54	88.46	7.00

CC P25 B0.5 Ta45									CC P25 B0.5 Ta15								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.32	3.32	3.32	3.66	3.44	3.32	3.40	0.14	1	3.89	4.23	3.78	4.68	4.68	5.13	4.40	0.52
3	3.57	3.34	3.46	3.34	3.68	3.57	3.49	0.14	3	4.59	5.16	4.93	5.50	5.72	5.73	5.27	0.46
5	5.62	5.28	4.72	4.83	5.29	4.83	5.10	0.35	5	5.75	6.43	7.67	8.24	10.89	7.79	7.80	1.78
7	7.58	7.80	6.67	7.57	8.25	7.12	7.50	0.55	7	7.70	9.06	11.89	12.58	14.79	11.79	11.30	2.54
10	10.45	11.80	9.30	10.89	11.69	9.53	10.61	1.06	10	10.23	12.85	17.84	15.82	17.47	15.48	14.95	2.91
12	12.99	14.92	11.28	14.23	14.13	11.62	13.20	1.49	12	12.55	15.06	23.14	19.41	20.85	20.65	18.61	3.99
15	16.23	18.28	13.83	17.59	18.50	14.40	16.47	2.00	15	15.10	17.97	28.58	23.36	25.94	27.43	23.06	5.43
20	20.73	24.60	19.78	22.66	24.49	19.11	21.90	2.38	20	20.50	23.84	36.88	29.93	31.62	38.21	30.16	7.01
25	26.27	29.82	25.77	28.44	32.99	24.76	28.01	3.06	25	25.93	30.98	45.45	37.33	42.31	47.58	38.26	8.50
30	32.63	34.73	32.35	33.00	42.21	30.21	34.19	4.19	30	31.83	38.61	54.06	44.32	52.11	56.77	46.28	9.76
45	46.37	47.13	45.31	48.22	58.72	45.07	48.47	5.16	45	48.29	65.05	66.79	59.04	64.36	75.06	63.10	8.92
60	59.16	63.20	60.24	68.48	81.30	62.37	65.79	8.26	60	65.26	81.55	78.33	71.43	78.59	90.48	77.61	8.64
75	74.39	78.45	74.11	83.08	92.81	79.65	80.42	6.95	75	84.82	90.45	89.13	83.77	89.05	98.86	89.35	5.36
90	84.94	86.65	83.88	90.29	97.92	87.64	88.55	5.10	90	94.07	95.09	95.11	91.65	95.49	101.39	95.47	3.22

Table 293 Cumulative % drug release of core and tablets coated with chitosan citrate film containing different amount of additives at coating level of 3 % based on chitosan after direct exposure accelerated condition for 7 days in dilute HCl solution (continue)

CC P25 B0.5 Ti30									CC P25 B0.5 Ti45								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4.57	4.79	3.89	4.68	4.79	4.34	4.51	0.35	1	6.83	6.72	6.04	6.49	7.28	7.85	6.87	0.63
3	5.05	6.03	4.36	6.06	5.27	7.42	5.70	1.06	3	8.22	9.58	8.78	7.32	9.70	9.59	8.87	0.95
5	9.48	13.00	8.80	11.41	9.03	12.21	10.66	1.79	5	13.92	20.83	16.75	13.01	18.23	19.36	17.02	3.07
7	15.98	17.24	14.16	16.22	14.62	18.04	16.04	1.49	7	21.57	33.83	24.87	18.96	25.57	31.57	26.06	5.71
10	23.64	24.34	20.00	21.06	20.24	25.83	22.52	2.42	10	30.17	47.25	36.54	25.29	35.43	47.35	37.01	8.93
12	28.86	30.23	25.54	26.58	24.65	31.17	27.81	2.66	12	36.22	57.91	44.99	30.06	40.49	56.09	44.29	11.02
15	32.86	34.56	29.19	30.37	27.61	35.87	31.74	3.22	15	43.65	69.31	52.82	35.43	51.56	70.75	53.92	13.96
20	39.15	43.56	36.58	38.33	33.42	44.54	39.26	4.21	20	57.80	76.58	62.15	50.32	65.19	90.93	67.16	14.52
25	48.30	56.73	45.26	46.01	40.38	58.24	49.15	6.97	25	67.39	87.18	69.50	60.88	72.44	97.87	75.88	13.86
30	55.46	65.42	52.07	53.49	46.60	67.72	56.79	8.16	30	74.77	93.76	76.21	69.81	78.15	98.40	81.85	11.46
45	67.29	82.31	64.22	66.90	60.76	82.11	70.60	9.29	45	84.44	95.40	87.48	84.32	87.17	99.05	89.64	6.13
60	78.49	87.92	76.76	78.66	77.12	95.43	82.40	7.61	60	93.00	95.76	94.81	95.37	94.66	99.31	95.49	2.10
75	87.59	96.51	88.57	88.44	88.14	99.42	91.45	5.14	75	97.08	95.77	97.43	98.50	96.87	99.79	97.57	1.40
90	92.65	99.71	96.24	96.54	95.35	100.57	96.84	2.91	90	97.87	95.71	97.74	99.25	97.41	99.66	97.94	1.41

Table 294 Cumulative % drug release of core and tablets coated with chitosan citrate film containing different amount of additives at coating level of 3 % based on chitosan after kept in bottle and kept in accelerated condition for one months in dilute HCl solution

CC P25									CC P25 B0.5								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	5.81	6.26	5.02	5.25	5.99	5.70	5.67	0.46	1	2.42	4.12	3.55	4.91	4.45	4.34	3.97	0.88
3	11.38	9.35	7.87	7.76	9.46	10.25	9.35	1.39	3	3.32	3.69	3.68	3.80	3.80	3.91	3.70	0.20
5	20.04	16.53	16.96	19.34	22.97	21.62	19.58	2.53	5	4.13	4.16	4.16	4.28	5.18	4.61	4.42	0.41
7	38.02	30.52	37.64	40.02	45.26	37.79	38.21	4.75	7	4.38	5.20	5.08	4.87	6.34	5.77	5.27	0.69
10	58.80	51.84	67.01	69.64	79.99	58.24	64.25	10.04	10	5.54	9.07	8.39	14.16	14.29	17.67	11.52	4.56
12	74.05	65.46	87.62	92.87	92.08	72.01	80.68	11.64	12	24.56	18.81	20.31	27.58	30.31	31.56	25.52	5.23
15	90.18	80.75	96.92	101.74	97.56	87.79	92.49	7.70	15	56.36	40.32	42.69	53.85	55.80	55.93	50.83	7.31
20	100.73	97.70	98.25	102.87	99.56	100.93	100.01	1.91	20	88.67	68.13	81.94	89.31	86.53	84.96	83.26	7.88
25	102.07	102.98	98.90	103.09	99.99	103.93	101.83	1.97	25	102.95	97.33	101.16	101.68	103.28	99.56	100.99	2.24
30	102.40	103.32	98.67	103.31	99.97	103.06	101.79	1.98	30	104.99	104.09	102.51	103.48	104.36	102.37	103.63	1.04
45	102.43	103.32	98.65	103.31	99.97	103.03	101.79	1.99	45	104.66	105.00	102.62	104.27	104.34	102.82	103.95	0.99

CC P25 G0.5									CC P25 B0.5 Ta15								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4.36	4.91	2.21	5.70	4.79	2.67	4.11	1.37	1	4.16	4.45	4.00	4.23	3.78	4.57	4.20	0.29
3	4.73	4.71	3.66	4.94	4.48	4.23	4.46	0.46	3	4.25	4.25	4.48	4.48	4.14	4.59	4.37	0.18
5	5.66	4.96	4.59	5.31	4.85	4.82	5.03	0.39	5	5.18	5.29	5.44	5.07	5.06	5.18	5.20	0.14
7	6.48	5.78	4.95	6.01	5.66	4.62	5.58	0.69	7	5.77	6.00	7.47	8.04	5.77	6.00	6.51	0.99
10	7.31	7.17	5.55	7.06	6.83	5.21	6.52	0.90	10	7.95	7.05	14.75	21.87	6.48	7.28	10.90	6.19
12	8.36	8.34	6.93	8.01	7.99	6.25	7.65	0.86	12	14.44	13.35	28.85	33.08	8.44	12.75	18.49	9.97
15	9.99	9.85	16.56	9.07	9.05	9.91	10.74	2.88	15	32.90	48.82	46.65	49.88	59.22	40.97	46.41	8.88
20	18.07	28.45	34.56	13.41	14.08	29.52	23.02	8.96	20	66.15	81.08	88.36	90.07	85.10	85.74	82.75	8.69
25	34.34	56.42	64.56	32.59	38.69	55.64	47.04	13.48	25	91.84	97.92	92.73	102.21	96.20	103.18	97.35	4.71
30	88.46	83.64	97.53	76.89	61.52	91.77	83.30	12.78	30	100.94	100.23	99.80	103.22	98.75	104.54	101.25	2.20
45	102.88	98.23	101.91	93.66	95.66	101.09	98.91	3.69	45	100.92	100.34	99.78	103.00	98.75	104.60	101.23	2.17

Table 294 Cumulative % drug release of core and tablets coated with chitosan citrate film containing different amount of additives at coating level of 3 % based on chitosan after kept in bottle and kept in accelerated condition for one months in dilute HCl solution (continue)

CC P25 B0.5 Ta30									CC P25 B0.5 Ta45								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4.79	4.57	3.78	4.00	4.34	3.44	4.15	0.51	1	3.78	4.00	3.66	2.78	5.07	3.66	3.83	0.74
3	5.16	4.25	4.59	3.91	5.24	4.34	4.58	0.53	3	3.91	4.14	4.25	3.66	5.77	4.25	4.33	0.74
5	8.24	5.52	7.55	4.61	6.40	4.48	6.13	1.55	5	5.97	5.18	5.06	6.77	8.75	7.24	6.50	1.40
7	16.88	12.56	13.93	6.56	15.59	13.73	13.21	3.59	7	12.50	11.65	9.28	15.25	14.56	15.17	13.07	2.37
10	37.66	33.32	29.38	21.07	30.49	25.90	29.64	5.76	10	28.80	24.38	19.39	24.38	26.88	28.82	25.44	3.57
12	56.41	52.39	45.03	39.27	55.08	44.70	48.81	6.81	12	50.44	51.42	40.07	40.57	65.25	58.15	50.98	9.83
15	78.77	70.99	63.71	66.17	77.10	81.58	73.05	7.22	15	77.85	72.74	69.69	61.71	94.33	80.63	76.16	11.09
20	97.52	90.04	92.33	93.56	94.82	98.53	94.47	3.19	20	89.81	96.43	94.39	87.83	100.05	100.30	94.80	5.18
25	101.11	98.90	100.41	99.96	100.20	101.22	100.30	0.85	25	102.07	102.16	99.54	102.67	100.15	103.67	101.71	1.56
30	100.19	100.46	99.72	99.26	101.43	101.44	100.42	0.89	30	102.17	102.16	99.97	104.93	100.17	103.79	102.20	1.95
45	100.08	100.38	99.70	99.25	101.42	101.05	100.31	0.82	45	102.18	102.14	99.97	104.71	100.13	103.70	102.14	1.89

CC P25 B0.5 Ti15									CC P25 B0.5 Ti30								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4.34	4.68	5.02	4.68	5.25	4.68	4.78	0.32	1	4.91	5.25	5.36	5.02	5.25	5.13	5.15	0.17
3	4.59	6.06	5.73	4.93	5.28	5.27	5.31	0.53	3	6.52	6.63	6.41	5.61	7.31	8.10	6.76	0.85
5	5.41	6.55	5.98	5.64	5.76	7.00	6.06	0.60	5	9.27	8.59	8.36	7.00	9.27	11.31	8.97	1.42
7	5.89	7.26	6.92	6.35	4.47	8.62	6.59	1.39	7	10.79	10.45	10.78	7.04	12.04	13.86	10.83	2.24
10	7.51	8.55	8.20	7.63	7.63	10.93	8.41	1.30	10	15.03	13.90	13.67	8.66	15.38	16.09	13.79	2.67
12	8.45	9.61	9.27	8.46	8.47	11.78	9.34	1.29	12	17.71	16.80	16.12	10.29	19.20	17.31	16.24	3.09
15	9.97	10.91	10.45	10.77	9.64	12.86	10.77	1.13	15	21.54	20.85	19.03	12.38	21.00	19.77	19.10	3.41
20	13.87	14.13	12.31	12.41	11.62	14.40	13.12	1.15	20	27.31	26.62	24.91	15.73	26.09	22.71	23.90	4.31
25	23.55	19.52	16.34	17.19	16.09	16.17	18.14	2.95	25	33.79	33.66	31.26	21.69	32.00	33.53	30.99	4.67
30	35.10	24.94	32.03	36.66	33.93	27.79	31.74	4.52	30	39.63	40.17	37.08	27.69	38.05	46.53	38.19	6.12
45	90.36	72.91	92.58	91.69	84.20	89.45	86.87	7.44	45	52.74	52.38	52.10	43.11	54.31	56.28	51.82	4.54

CC P25 B0.5 Ti45								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	5.13	5.36	4.79	5.36	5.02	4.68	5.06	0.28
3	8.44	6.86	6.86	6.29	5.95	5.72	6.69	0.98
5	12.78	9.05	9.72	8.25	8.13	7.57	9.25	1.89
7	16.47	11.24	14.18	10.90	10.70	9.76	12.21	2.57
10	21.54	15.38	18.90	13.67	13.44	13.09	16.00	3.46
12	25.39	19.19	21.83	16.23	16.00	15.53	19.03	3.94
15	29.71	24.38	27.49	19.26	19.82	18.67	23.22	4.68
20	37.11	31.75	34.76	23.32	24.34	23.52	29.13	6.17
25	45.45	40.97	41.85	30.91	31.14	29.08	36.57	6.98
30	52.14	48.88	48.07	37.87	37.75	34.78	43.25	7.28
45	65.32	64.53	62.80	55.37	54.24	49.66	58.65	6.44

Table 295 Cumulative % drug release of core and tablets coated with chitosan citrate or chitosan malate films containing different amount of additives at coating level of 3 % based on chitosan after kept at room temperature for one year in dilute HCl solution

CORE									CC								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	7.17	10.67	12.48	10.56	12.26	9.09	10.37	2.00	1	10.67	11.30	5.13	11.58	10.67	8.53	9.65	2.46
3	21.00	25.88	27.36	22.04	25.10	17.73	23.19	3.58	3	9.72	12.88	9.91	13.11	9.83	10.95	11.07	1.56
5	38.08	43.21	45.61	33.13	41.07	37.86	39.83	4.43	5	27.41	25.39	25.57	30.60	22.55	30.23	26.96	3.10
7	54.57	62.22	64.29	47.67	57.69	59.28	57.62	5.94	7	48.59	42.04	46.97	47.73	36.80	54.82	46.16	6.14
10	73.08	81.90	85.90	63.31	80.06	70.23	75.75	8.39	10	83.91	61.49	68.48	68.34	56.68	84.07	70.50	11.36
12	85.86	96.93	95.08	74.51	92.59	84.08	88.18	8.40	12	95.79	74.16	80.39	81.83	88.19	93.24	85.60	8.26
15	96.34	100.74	99.44	86.68	97.96	93.92	95.85	5.09	15	100.16	88.25	94.40	96.98	81.90	97.71	93.23	6.88
20	97.88	101.75	100.10	94.50	98.73	94.34	97.88	2.99	20	101.16	99.02	102.38	100.79	98.07	98.92	100.06	1.64
25	98.30	102.19	100.19	95.81	98.81	95.56	98.48	2.55	25	101.03	101.48	102.94	101.45	104.60	99.23	101.79	1.82
30	98.15	102.17	100.28	95.76	98.78	95.74	98.48	2.53	30	101.13	101.81	103.05	101.44	104.60	99.43	101.91	1.76

CC G25									CC P25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	6.94	6.72	5.47	5.25	5.70	6.26	6.06	0.69	1	5.70	6.94	6.04	4.34	8.19	6.04	6.21	1.29
3	7.77	9.92	13.19	11.83	7.99	10.14	10.14	2.12	3	8.67	10.03	9.46	11.72	10.15	11.16	10.20	1.11
5	18.90	30.78	25.36	28.97	25.22	27.16	26.07	4.11	5	22.29	27.05	27.15	29.87	26.83	28.41	26.93	2.55
7	31.78	61.07	40.88	44.28	44.13	43.82	44.33	9.49	7	37.67	45.29	49.01	50.84	47.10	56.49	47.73	6.25
10	55.02	79.17	66.09	70.08	73.88	65.54	68.30	8.26	10	57.55	70.64	70.54	74.07	72.35	85.64	71.80	8.98
12	71.26	92.61	79.23	82.50	89.22	80.71	82.59	7.58	12	70.76	87.76	86.31	92.12	90.62	95.49	87.18	8.67
15	87.03	95.83	94.71	94.89	99.43	97.21	94.85	4.21	15	84.27	96.95	94.02	96.81	97.67	97.83	94.59	5.24
20	100.40	96.58	97.26	96.54	101.11	100.23	98.69	2.11	20	97.84	98.39	95.78	97.57	98.60	97.91	97.68	1.01
25	102.98	96.54	97.34	96.39	101.09	100.44	99.13	2.75	25	99.51	98.58	95.84	97.64	98.63	98.67	98.15	1.28
30	103.09	96.61	97.41	97.59	101.53	100.42	99.44	2.62	30	99.26	98.78	96.07	97.72	98.83	99.09	98.29	1.21

CM									CM G25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	6.04	4.23	7.17	4.34	4.34	4.79	5.15	1.20	1	6.38	6.60	6.94	5.70	5.25	6.60	6.25	0.64
3	5.96	8.89	8.79	10.36	7.53	6.29	7.97	1.69	3	4.04	4.60	4.38	5.62	4.03	3.81	4.41	0.65
5	17.52	21.94	19.92	22.29	23.63	20.35	20.94	2.15	5	5.42	7.23	5.99	11.19	5.30	4.85	6.66	2.36
7	32.79	37.10	37.44	43.55	42.19	39.00	38.68	3.87	7	13.59	16.54	17.21	22.22	20.98	6.24	16.13	5.77
10	50.93	57.43	56.68	63.69	65.15	66.24	60.02	5.98	10	33.34	32.12	37.10	38.40	30.82	18.71	31.75	7.02
12	63.99	72.11	68.60	83.04	85.41	85.37	76.42	9.37	12	46.86	44.29	54.15	48.44	43.31	35.20	45.38	6.29
15	77.12	86.64	82.88	96.17	97.41	96.70	89.49	8.53	15	65.78	59.79	78.89	59.90	63.90	54.39	63.78	8.38
20	93.82	97.74	98.83	96.58	98.51	96.81	97.05	1.82	20	91.58	88.28	95.59	82.96	84.72	89.18	88.72	4.58
25	98.06	100.42	100.39	97.10	98.37	98.90	98.87	1.32	25	97.12	96.00	97.47	95.17	96.12	102.22	97.35	2.52
30	98.60	100.40	100.82	96.84	98.79	98.87	99.05	1.42	30	98.38	98.90	97.66	97.05	97.51	103.91	98.90	2.54

CM P25									CC P25 G0.5								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	5.70	5.70	6.15	4.79	5.30	4.45	5.35	0.63	1	7.06	3.78	4.79	6.60	4.34	5.92	5.42	1.31
3	10.71	7.09	4.94	8.89	8.22	6.03	7.65	2.07	3	13.65	14.20	10.02	13.76	10.58	13.08	12.55	1.79
5	25.24	21.82	18.76	21.49	19.23	23.62	21.69	2.49	5	27.63	29.66	30.20	32.16	27.15	28.42	29.20	1.86
7	42.79	43.77	43.29	38.23	33.02	45.81	41.15	4.70	7	44.30	44.74	51.40	49.29	42.79	47.57	46.68	3.30
10	68.92	77.02	74.39	59.81	54.91	71.16	67.70	8.61	10	65.68	63.31	76.22	72.07	70.16	71.46	69.82	4.66
12	91.46	95.54	86.00	73.26	70.59	93.94	85.13	10.76	12	80.86	75.53	92.70	89.76	92.03	89.72	86.77	6.95
15	97.95	98.89	95.18	88.13	86.69	102.48	94.89	6.26	15	97.36	90.98	103.95	98.51	98.64	98.47	97.99	4.15
20	98.72	99.55	97.40	98.45	97.57	104.06	99.29	2.47	20	100.94	99.62	103.27	100.29	99.96	99.91	100.67	1.35
25	98.80	99.52	97.81	100.01	99.46	103.50	99.85	1.94	25	101.27	100.28	103.72	100.50	100.29	100.34	101.07	1.35
30	98.09	99.95	97.89	100.01	99.66	104.17	99.96	2.26	30	101.59	100.82	104.06	100.48	100.39	100.55	101.32	1.41

Table 295 Cumulative % drug release of core and tablets coated with chitosan citrate or chitosan malate films containing different amount of additives at coating level of 3 % based on chitosan after kept at room temperature for one year in dilute HCl solution(continuc)

CC P25 B0.5									CC P25 B0.5 Ta15								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	9.88	6.49	9.66	8.86	8.64	11.01	9.09	1.53	1	9.09	4.91	5.92	4.91	6.38	5.47	6.11	1.57
3	14.57	16.35	17.74	18.52	18.30	19.67	17.53	1.81	3	19.88	20.65	20.66	17.82	18.28	17.04	19.06	1.55
5	31.84	46.87	33.78	42.14	34.11	42.28	38.50	6.06	5	42.83	43.15	42.14	39.41	38.51	41.33	41.23	1.89
7	50.33	76.75	47.76	69.87	53.30	63.20	60.20	11.63	7	67.49	65.15	64.99	58.05	62.47	61.00	63.19	3.39
10	71.64	95.15	66.34	88.56	77.68	94.30	82.28	12.15	10	93.19	91.12	89.88	78.39	90.29	85.42	88.05	5.37
12	87.64	97.94	77.90	94.24	89.18	104.09	91.83	9.08	12	98.00	99.88	98.06	99.51	98.59	95.84	98.31	1.43
15	97.50	98.25	89.52	94.76	93.06	104.55	96.27	5.14	15	99.44	101.45	98.72	103.67	99.13	96.82	99.87	2.38
20	98.83	98.56	99.05	95.36	93.80	104.11	98.29	3.57	20	99.64	101.77	99.03	103.68	99.44	98.17	100.29	2.04
25	99.14	99.43	100.16	98.51	96.34	104.33	99.65	2.64	25	100.07	101.99	99.23	103.79	99.76	98.45	100.55	1.98
30	99.56	99.85	100.36	99.49	98.00	104.44	100.28	2.18	30	100.15	102.31	99.08	104.23	100.18	98.75	100.78	2.10

CC P25 B0.5 Ta30									CC P25 B0.5 Ta45								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	6.60	5.36	5.70	6.49	5.13	4.34	5.60	0.86	1	5.70	5.25	6.26	6.38	6.94	5.02	5.93	0.73
3	23.60	19.07	20.43	24.62	21.67	20.08	21.58	2.15	3	22.35	20.54	22.35	18.00	21.91	19.75	20.82	1.73
5	54.94	43.03	38.41	53.70	44.63	41.34	46.01	6.77	5	40.59	39.42	39.10	37.27	39.78	38.40	39.09	1.15
7	80.79	65.77	62.14	79.66	68.28	66.44	70.51	7.79	7	55.83	57.73	63.51	53.64	63.06	56.70	58.41	4.01
10	97.29	94.85	86.11	92.76	92.29	88.18	91.91	4.15	10	79.31	80.32	90.77	73.27	83.54	79.74	81.16	5.77
12	99.53	99.56	96.42	96.55	96.64	95.45	97.36	1.75	12	96.60	97.95	99.30	89.65	99.26	96.24	96.50	3.59
15	100.18	100.56	97.74	97.53	97.85	96.31	98.36	1.65	15	101.88	101.99	100.41	100.85	102.52	99.25	101.15	1.21
20	99.49	100.99	99.18	98.63	98.27	96.38	98.82	1.52	20	101.64	102.33	100.84	101.40	102.85	102.28	101.89	0.73
25	99.57	101.43	99.49	99.05	98.58	96.68	99.13	1.54	25	101.86	103.67	101.39	101.14	102.96	103.63	102.44	1.13
30	99.54	101.75	99.24	99.36	98.99	97.20	99.35	1.45	30	101.95	102.76	101.71	101.59	103.29	102.72	102.34	0.68

CC P25 B0.5 Ti15									CC P25 B0.5 Ti30								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	8.64	11.46	12.93	9.66	10.22	10.79	10.62	1.49	1	9.44	11.92	9.99	9.88	8.64	7.96	9.64	1.36
3	14.90	15.03	15.15	12.65	15.03	17.63	15.07	1.58	3	15.25	15.15	17.97	15.82	17.51	16.26	16.33	1.18
5	30.82	33.55	31.97	29.57	33.09	32.88	31.98	1.53	5	31.28	33.32	35.70	34.79	36.03	30.93	33.68	2.20
7	49.42	55.44	51.03	49.29	56.45	52.62	52.38	3.04	7	51.12	56.01	57.04	58.27	55.57	49.42	54.57	3.50
10	70.27	79.49	79.92	70.59	82.43	79.71	77.07	5.25	10	71.98	79.61	84.61	85.27	82.89	73.21	79.60	5.78
12	88.41	94.29	94.49	90.77	95.88	96.20	93.34	3.09	12	90.13	92.60	97.28	98.86	97.94	92.95	94.96	3.53
15	97.60	98.65	98.86	98.96	100.48	102.04	99.43	1.58	15	101.25	98.53	100.53	101.21	102.60	99.57	100.62	1.42
20	100.39	100.32	100.19	101.08	100.92	103.62	101.09	1.29	20	101.47	98.96	100.86	101.31	102.77	100.45	100.97	1.26
25	100.83	100.64	100.51	101.40	101.58	103.73	101.45	1.20	25	101.68	99.38	101.66	101.75	102.87	100.88	101.37	1.16
30	101.15	100.84	100.82	102.07	101.79	103.95	101.77	1.18	30	102.12	99.69	101.38	101.62	103.20	100.98	101.50	1.17

CC P25 B0.5 Ti45								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	9.99	10.11	9.98	13.39	10.45	9.20	10.52	1.46
3	11.75	14.91	13.66	15.38	12.09	13.10	13.48	1.47
5	24.81	33.26	36.69	32.77	29.68	34.65	31.98	4.20
7	43.83	62.67	69.80	59.75	60.37	59.27	59.28	8.51
10	67.48	80.88	88.84	83.71	82.41	83.57	81.15	7.21
12	87.75	93.65	95.43	93.89	94.85	94.20	93.30	2.79
15	97.96	99.36	96.97	96.33	97.52	94.83	97.16	1.53
20	101.21	101.60	97.05	96.40	99.98	95.80	98.67	2.56
25	101.42	101.59	96.67	98.06	100.30	97.57	99.27	2.11
30	101.40	101.57	97.08	98.13	100.50	97.64	99.39	2.00

Table 296 Cumulative % drug release of core and tablets coated with unplasticized and plasticized chitosan citrate or chitosan malate films at coating level of 3 % based on chitosan in phosphate buffer pH 6.8

CC									CC G25									
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.49	2.95	1.23	3.75	2.60	0.09	2.02	1.33	1	0.00	0.00	0.00	0.05	0.00	0.32	0.06	0.13	
3	3.55	3.99	3.98	3.88	3.76	1.35	3.42	1.03	3	0.21	0.09	0.32	0.09	0.09	0.44	0.21	0.15	
5	2.55	2.64	5.03	6.30	6.07	2.61	4.20	1.80	5	0.44	1.35	2.38	1.69	0.32	2.04	1.37	0.84	
7	4.96	6.65	7.80	6.34	6.33	8.79	6.81	1.33	7	1.69	4.21	5.36	5.13	2.03	6.27	4.12	1.87	
10	24.74	18.80	18.69	24.76	24.64	20.26	21.98	3.04	10	11.75	14.40	10.42	10.64	10.61	10.76	11.43	1.53	
12	36.04	30.89	30.56	36.43	38.35	31.91	34.03	3.31	12	20.73	22.59	15.95	16.41	20.26	17.68	18.94	2.65	
15	49.41	48.65	48.43	49.88	51.14	48.76	49.38	1.02	15	25.75	34.93	23.70	23.92	25.40	25.54	26.54	4.20	
20	68.87	78.16	78.05	70.49	79.52	79.41	75.75	4.77	20	44.28	53.17	35.93	37.99	44.39	38.82	42.43	6.29	
25	80.67	91.38	94.36	81.04	88.18	87.05	87.11	5.48	25	57.21	70.03	50.06	50.53	56.97	51.71	56.09	7.52	
30	88.54	95.65	95.56	90.28	90.37	90.38	91.80	3.03	30	68.26	77.95	61.99	60.41	68.02	60.33	66.16	6.80	
									45	79.71	86.37	78.66	74.33	78.56	74.48	78.69	4.40	
									60	85.97	89.24	86.29	80.90	85.38	82.42	85.03	2.97	

CC P25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.78	0.89	0.09	0.78	0.66	0.21	0.57	0.33
3	1.24	1.70	0.66	1.01	1.58	1.23	1.24	0.38
5	1.70	1.93	1.69	2.04	4.90	1.70	2.33	1.27
7	2.17	2.97	4.79	3.54	6.30	2.28	3.68	1.60
10	11.09	7.90	6.30	8.93	9.87	11.31	9.23	1.93
12	24.17	13.20	9.99	13.66	21.01	24.05	17.68	6.15
15	38.24	30.63	19.87	31.55	38.83	37.66	32.80	7.25
20	57.04	52.96	38.02	54.68	51.60	57.29	51.93	7.17
25	73.14	68.21	51.02	69.03	62.74	72.22	66.06	8.23
30	82.80	73.15	62.04	74.32	89.81	80.96	77.18	9.58
45	91.81	93.47	90.36	90.03	91.78	91.68	91.52	1.23
60	92.31	94.16	91.77	92.01	94.57	94.58	93.23	1.34

CM								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.35	0.66	0.00	0.00	0.00	0.00	0.34	0.56
3	1.01	1.47	0.54	2.49	0.89	2.37	1.46	0.81
5	1.82	1.47	1.69	2.84	1.46	1.36	1.77	0.55
7	3.20	2.62	2.04	3.09	2.50	2.62	2.68	0.42
10	3.69	2.64	2.51	3.79	2.63	3.09	3.06	0.56
12	3.69	3.68	3.21	5.07	3.21	3.22	3.68	0.72
15	6.80	12.38	3.57	6.01	3.80	5.30	6.31	3.22
20	9.00	14.05	4.84	11.29	7.82	8.75	9.29	3.13
25	11.91	24.18	14.01	12.84	11.06	14.05	14.68	4.80
30	28.76	47.50	30.30	25.93	31.91	30.58	32.50	7.63
45	51.07	69.34	53.32	48.01	49.56	44.46	52.63	8.71
60	68.37	80.34	65.89	64.83	76.68	66.29	70.40	6.49
90	89.29	86.25	71.01	88.69	78.80	92.10	84.36	7.95
120	92.75	92.09	95.04	92.83	88.82	93.75	92.55	2.09

CM G25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.35	0.66	0.00	0.00	0.00	0.00	0.34	0.56
3	3.98	1.47	3.17	3.97	1.80	2.37	2.79	1.08
5	2.63	1.70	2.50	2.74	2.04	2.50	2.35	0.40
7	3.22	2.63	2.29	6.64	2.51	2.63	3.32	1.66
10	3.81	2.64	1.96	7.81	2.64	3.10	3.66	2.12
12	3.71	3.68	2.54	9.00	2.76	3.23	4.15	2.42
15	3.85	6.61	6.44	10.19	3.81	5.53	6.07	2.36
20	5.70	11.16	4.87	11.39	7.83	8.76	8.29	2.71
25	11.90	16.93	12.30	12.94	11.07	14.06	13.20	2.09
30	29.66	43.30	36.78	27.51	30.23	40.12	34.60	6.40
45	63.86	61.12	64.42	54.73	57.00	68.90	61.67	5.19
60	81.00	78.82	78.79	80.62	76.56	89.87	80.94	4.65
90	89.40	86.09	85.86	88.91	78.58	92.62	86.91	4.77
120	92.86	91.93	95.01	93.05	88.60	94.26	92.62	2.25

CM P25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.66	0.78	0.43	1.46	0.32	0.78	0.74	0.40
3	0.89	2.04	0.55	1.24	0.32	0.78	0.97	0.61
5	0.90	1.82	0.78	1.36	0.67	1.58	1.19	0.47
7	2.05	2.63	2.50	1.83	1.70	2.16	2.15	0.37
10	2.63	3.10	2.06	2.41	2.51	2.75	2.58	0.35
12	3.67	3.69	2.87	3.22	2.98	3.56	3.33	0.36
15	5.18	5.65	3.91	4.27	4.48	4.38	4.65	0.64
20	7.03	7.51	5.30	5.66	6.10	6.80	6.40	0.85
25	8.78	9.61	7.27	7.63	8.42	9.35	8.51	0.93
30	13.17	12.06	8.68	9.96	10.52	12.49	11.15	1.71
45	17.92	26.74	14.44	15.37	15.95	17.81	18.04	4.48
60	22.82	30.65	19.32	20.48	29.05	30.35	25.45	5.16
90	34.81	45.08	27.98	26.63	33.66	35.65	33.97	6.59
120	41.97	51.04	36.36	30.32	44.01	44.98	41.45	7.23
150	49.15	55.30	43.85	38.81	52.92	53.44	48.91	6.40
180	53.86	64.15	50.13	53.06	61.76	60.91	57.31	5.68
210	59.05	64.82	55.19	58.24	66.08	65.90	61.55	4.64
240	62.42	67.88	59.81	62.65	71.10	71.03	65.82	4.84
270	66.26	68.20	66.73	65.70	74.53	74.24	69.28	4.04
300	67.71	69.09	69.90	70.47	78.89	77.78	72.31	4.77
330	69.15	71.22	71.15	72.16	86.97	80.07	75.12	6.93
360	70.67	72.37	74.42	73.27	82.00	82.92	75.94	5.20

Table 297 Cumulative % drug release of core and tablets coated with unplasticized and plasticized chitosan citrate or chitosan malate films at coating level of 3 % based on chitosan after direct exposure accelerated condition for 7 days in phosphate buffer pH 6.8

CC G25									CC P25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	1.00	0.00	0.00	2.72	0.00	0.00	0.62	1.10	5	1.23	1.01	0.78	0.78	0.89	1.01	0.95	0.17
10	3.19	1.58	0.54	7.30	0.00	0.00	2.10	2.82	10	1.01	0.21	2.38	1.12	1.12	2.27	1.35	0.83
15	2.52	1.24	1.92	8.71	0.43	0.09	2.49	3.18	15	2.27	1.24	4.11	1.24	2.39	3.76	2.50	1.22
20	3.45	1.13	2.50	10.25	1.11	0.60	3.17	3.62	20	3.31	1.70	4.70	2.16	3.20	5.04	3.35	1.33
25	5.75	2.63	4.00	11.44	1.35	0.89	4.34	3.91	25	4.93	2.51	5.98	2.06	4.93	6.78	4.53	1.88
30	6.35	4.92	5.50	12.53	2.15	2.04	5.58	3.84	30	7.01	3.67	7.96	2.99	9.75	12.42	7.30	3.59
45	9.70	8.38	9.42	16.71	17.70	13.01	12.49	3.98	45	13.33	9.06	13.60	5.97	13.45	17.85	12.21	4.13
60	14.32	12.99	15.41	22.40	31.28	26.68	20.51	7.46	60	19.92	15.62	18.93	11.03	20.12	28.72	19.06	5.86
90	21.14	20.37	24.75	30.98	43.10	39.50	29.97	9.61	90	30.76	25.75	28.85	43.99	25.67	40.15	32.53	7.73
120	30.62	27.11	32.65	37.43	50.99	47.14	37.66	9.52	120	41.67	38.69	37.58	56.91	30.35	48.25	42.24	9.24
150	39.01	33.54	39.68	44.48	54.12	55.17	44.33	8.71	150	49.09	48.04	43.84	63.16	50.96	52.85	51.32	6.55
180	47.44	39.89	45.73	51.68	57.51	59.02	50.21	7.31	180	55.18	56.41	49.67	68.41	60.67	58.05	58.07	6.25
210	53.85	44.56	50.20	55.35	58.05	67.22	54.87	7.64	210	59.82	63.45	55.18	71.75	69.89	62.01	63.68	6.22
240	58.35	47.65	53.09	58.57	62.59	68.84	58.18	7.35	240	63.90	68.59	61.97	75.45	80.06	63.92	68.98	7.28
270	62.53	52.13	56.68	59.17	67.26	75.61	62.23	8.33	270	66.97	72.49	63.42	78.47	85.67	67.78	72.47	8.30
300	76.55	66.67	63.70	62.05	70.36	81.38	70.12	7.57	300	69.36	74.47	66.70	79.68	93.72	70.73	75.78	9.88
330	82.98	74.20	67.21	63.23	73.92	82.38	73.99	7.91	330	72.20	77.25	69.98	81.92	94.29	75.04	78.45	8.80
360	83.37	76.38	69.58	72.16	74.56	85.49	76.92	6.28	360	74.23	79.10	71.88	82.78	94.69	80.37	80.51	8.03

CM									CM G25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	4.09	4.66	2.83	9.57	4.20	1.46	4.47	2.76	5	1.23	6.26	8.77	6.03	4.77	4.77	5.31	2.47
10	5.82	5.37	3.99	12.71	5.25	4.10	6.21	3.27	10	2.27	8.35	13.96	6.75	4.00	8.23	7.26	4.07
15	7.34	7.00	5.50	17.23	6.77	6.63	8.41	4.36	15	3.77	11.48	19.75	9.19	5.51	20.04	11.62	6.96
20	9.32	9.21	6.10	20.75	7.49	7.81	10.11	5.35	20	5.39	14.63	25.11	10.72	11.94	21.63	14.90	7.30
25	9.60	11.77	7.16	21.78	8.45	8.77	11.26	5.38	25	15.48	20.65	30.62	12.84	16.11	29.40	20.85	7.54
30	10.68	11.95	8.46	23.16	9.41	9.04	12.12	5.55	30	20.59	26.01	35.92	17.70	22.48	33.56	26.04	7.30
45	15.43	15.33	12.04	28.88	13.00	11.38	16.01	6.52	45	28.70	30.95	43.66	22.37	29.69	41.51	32.81	8.15
60	20.31	19.64	16.22	34.06	16.84	15.89	20.49	6.89	60	37.08	35.80	49.49	26.72	34.76	48.48	38.72	8.74
90	28.30	28.08	24.08	42.24	23.90	25.23	28.64	6.93	90	43.57	42.62	57.07	32.80	43.79	55.60	45.91	9.07
120	35.76	34.97	31.40	48.64	30.88	32.22	35.65	6.66	120	49.39	50.62	62.52	38.58	47.77	60.81	51.62	8.88
150	41.55	40.53	37.40	53.81	37.56	38.11	41.49	6.27	150	53.99	56.04	67.54	43.01	50.62	66.05	56.21	9.33
180	47.58	45.98	43.53	59.42	43.11	44.25	47.31	6.16	180	56.43	60.42	70.60	48.47	54.17	69.01	59.85	8.64
210	52.72	50.43	48.88	62.30	48.34	48.81	51.91	5.34	210	60.59	63.33	74.79	51.89	57.27	74.02	63.65	9.17
240	55.48	54.77	54.14	68.02	52.79	54.29	56.58	5.67	240	64.86	67.14	76.56	54.86	60.14	74.42	66.33	8.28
270	60.07	59.36	59.09	68.62	57.72	67.22	62.01	4.66	270	67.53	69.48	78.66	57.61	64.32	75.84	68.91	7.67
300	62.28	62.59	60.85	71.15	60.50	70.16	64.59	4.78	300	68.36	72.02	79.26	60.48	67.80	78.14	71.01	7.04
330	67.73	64.91	63.53	72.32	62.94	74.49	67.65	4.80	330	70.34	74.21	81.65	63.67	72.43	79.51	73.64	6.49
360	67.62	68.15	67.46	75.17	66.63	79.85	70.81	5.42	360	73.11	76.03	82.42	65.38	78.80	82.45	76.37	6.50

CM P25								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.89	4.43	4.32	0.89	1.58	0.66	2.13	1.77
10	1.81	3.77	7.43	1.01	2.50	0.67	2.87	2.50
15	2.39	5.16	9.07	2.96	3.54	3.18	4.38	2.48
20	4.35	6.90	10.71	4.80	4.70	4.91	6.06	2.45
25	5.28	8.20	12.14	6.88	6.67	6.65	7.64	2.39
30	7.03	9.61	13.24	9.43	7.62	8.75	9.28	2.19
45	9.69	15.03	17.43	12.80	12.92	12.22	13.35	2.63
60	13.51	20.03	22.77	17.89	18.81	17.08	18.35	3.09
90	20.90	29.05	30.32	27.59	29.19	27.91	27.49	3.37
120	28.66	38.91	36.88	37.56	39.52	37.66	36.53	3.97
150	35.67	47.12	43.36	45.19	47.27	45.41	44.00	4.33
180	41.92	55.01	49.06	52.06	54.03	51.59	50.61	4.73
210	46.82	60.43	53.28	57.47	58.77	57.58	55.73	4.96
240	52.77	67.35	56.94	63.25	62.61	64.04	61.16	5.32
270	55.32	70.42	59.48	67.00	66.12	66.19	64.09	5.57
300	58.22	73.84	62.47	70.18	68.73	70.17	67.27	5.78
330	61.57	74.18	66.16	72.67	71.57	72.55	69.78	4.88
360	63.79	77.13	68.02	74.59	74.16	73.56	71.88	4.97

Table 298 Cumulative % drug release of core and tablets coated with chitosan citrate film containing different amount of additives at coating level of 3 % based on chitosan in phosphate buffer pH 6.8

CC P5									CC P15								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.12	0.43	0.09	0.00	0.00	1.01	0.44	0.51	1	0.32	0.44	0.32	0.43	0.32	0.00	0.31	0.16
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	1.10	0.54	0.41	0.60	1.34	0.00	0.67	0.48
5	0.00	0.00	0.00	0.00	0.00	0.10	0.02	0.04	5	1.42	1.00	1.24	1.54	1.65	0.40	1.21	0.46
7	0.67	1.69	0.00	0.00	2.02	1.24	0.94	0.86	7	2.30	2.21	2.10	3.21	3.00	1.00	2.30	0.78
10	1.93	6.49	1.45	0.99	5.00	2.05	2.99	2.22	10	3.40	3.03	3.00	5.43	4.43	2.06	3.56	1.19
12	2.85	11.90	5.69	4.31	12.68	2.63	6.68	4.49	12	10.11	9.82	10.12	12.34	13.11	9.34	10.81	1.53
15	4.81	18.02	13.37	11.30	19.04	4.81	11.89	6.19	15	14.23	12.00	14.11	18.45	19.54	11.98	15.05	3.23
20	24.71	28.28	27.95	26.55	27.14	23.91	26.42	1.76	20	39.41	32.50	30.43	40.21	42.70	37.40	37.11	4.74
25	64.50	47.54	51.63	48.17	41.50	64.20	52.92	9.43	25	58.12	50.30	49.56	62.10	64.60	42.30	54.50	8.53
30	78.20	60.10	78.99	73.91	63.10	75.40	71.62	8.03	30	74.12	62.20	65.45	78.45	79.45	60.20	69.98	8.43
45	91.85	78.30	90.96	89.63	77.94	90.90	86.60	6.60	45	88.80	75.00	80.30	89.98	90.10	85.40	84.93	6.12
60	92.81	90.61	93.52	94.81	93.67	93.91	93.22	1.43	60	92.81	93.42	93.56	95.43	93.60	93.91	93.79	0.88

CC P25									CC P35								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.12	0.00	0.00	0.00	0.00	0.02	0.05
1	0.78	0.89	0.09	0.78	0.66	0.21	0.57	0.33	1	0.86	0.46	0.11	0.65	0.90	0.32	0.55	0.31
3	1.24	1.70	0.66	1.01	1.58	1.23	1.24	0.38	3	0.00	0.21	0.12	1.00	0.21	1.00	0.42	0.45
5	1.70	1.93	1.69	2.04	4.90	1.70	2.33	1.27	5	1.20	1.56	1.23	1.34	1.11	2.01	1.41	0.33
7	2.17	2.97	4.79	3.54	6.30	2.28	3.68	1.60	7	4.32	3.45	5.32	5.32	3.21	4.56	4.36	0.90
10	11.09	7.90	6.30	8.93	9.87	11.31	9.23	1.93	10	14.32	12.34	15.67	15.67	12.35	15.56	14.32	1.61
12	24.17	13.20	9.99	13.66	21.01	24.05	17.68	6.15	12	32.10	30.21	36.57	36.75	28.76	35.54	33.32	3.44
15	38.24	30.63	19.87	31.55	38.83	37.66	32.80	7.25	15	42.45	42.11	51.23	45.67	42.34	45.70	44.92	3.51
20	57.04	52.96	38.02	54.68	51.60	57.29	51.93	7.17	20	61.23	60.23	64.32	63.21	56.78	67.87	62.27	3.79
25	73.14	68.21	51.02	69.03	62.74	72.22	66.06	8.23	25	72.34	70.32	73.43	72.34	68.96	74.56	71.99	2.04
30	82.80	73.15	62.04	74.32	89.81	80.96	77.18	9.58	30	83.56	83.20	85.63	80.21	74.56	85.00	82.03	4.11
45	91.81	93.47	90.36	90.03	91.78	91.68	91.52	1.23	45	91.23	90.21	93.45	88.98	89.76	92.34	91.00	1.68
60	92.31	94.16	91.77	92.01	94.57	94.58	93.23	1.34	60	93.45	93.25	95.34	90.21	91.14	95.34	93.12	2.12

CC P45									CC P25 G0.5								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.12	0.00	0.00	0.00	0.00	0.02	0.05
1	2.72	1.35	3.63	1.23	1.01	2.49	2.07	1.04	1	0.00	1.12	0.00	0.00	0.00	0.00	0.19	0.46
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	0.21	0.00	0.00	0.00	0.00	0.04	0.09
5	0.00	0.10	0.11	0.00	0.00	0.00	0.04	0.05	5	0.09	0.21	0.00	0.00	0.00	0.00	0.05	0.09
7	9.24	8.21	2.40	0.90	2.27	6.27	4.88	3.49	7	5.46	0.67	18.92	0.08	0.00	0.00	4.19	7.52
10	28.02	27.90	2.00	13.69	15.18	21.49	18.05	9.93	10	23.99	20.55	40.61	23.84	21.37	24.42	25.80	7.42
12	44.51	46.90	36.21	35.24	36.17	44.23	40.54	5.21	12	42.51	41.11	50.37	39.39	32.79	43.28	41.58	5.71
15	56.98	57.21	48.52	47.77	47.22	56.01	52.29	4.91	15	57.25	58.01	76.67	58.45	55.82	58.37	60.76	7.85
20	70.65	71.34	66.61	63.91	66.21	69.34	68.01	2.89	20	81.21	81.51	87.03	81.85	78.97	80.74	81.89	2.72
25	79.95	82.13	79.08	76.94	78.11	79.43	79.27	1.76	25	90.11	89.96	91.28	89.84	89.68	91.12	90.33	0.69
30	86.77	87.59	86.23	84.78	85.16	85.79	86.05	1.04	30	92.20	92.16	94.29	92.85	91.55	93.10	92.69	0.96
45	92.61	93.33	91.61	88.33	90.65	91.97	91.42	1.76	45	93.62	93.57	96.41	93.47	93.31	94.41	94.13	1.18
60	94.37	94.86	93.25	92.12	92.74	93.73	93.51	1.02	60	94.47	94.42	95.34	96.49	93.93	96.18	95.14	1.04

Table 299 Cumulative % drug release of core and tablets coated with chitosan citrate film containing different amount of additives at coating level of 3 % based on chitosan in phosphate buffer pH 6.8

CC P25 B0.5									CC P25 B0.5 Ta15								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.76	0.00	0.00	0.00	0.00	0.13	0.31	1	2.03	4.89	5.23	0.00	4.55	0.89	2.93	2.25
3	0.00	0.20	0.00	0.00	0.00	0.00	0.03	0.08	3	0.22	0.00	0.23	0.09	0.69	0.00	0.21	0.26
5	0.10	0.12	0.00	0.00	0.00	0.00	0.04	0.06	5	0.90	0.23	0.92	0.78	0.81	0.44	0.68	0.28
7	4.56	0.45	0.00	0.06	0.00	0.00	0.85	1.83	7	3.76	2.86	1.61	2.61	1.38	3.18	2.57	0.92
10	20.23	19.87	18.92	17.50	20.32	15.67	18.75	1.84	10	8.47	12.24	2.65	7.65	2.87	7.77	6.94	3.65
12	38.67	40.23	40.21	35.45	31.12	39.65	37.56	3.62	12	15.71	20.99	5.52	14.43	3.92	13.98	12.43	6.49
15	56.45	56.76	57.68	52.12	53.45	50.45	54.49	2.90	15	27.45	33.78	23.25	20.56	6.91	26.51	23.08	9.09
20	80.23	80.32	78.65	80.12	71.23	69.87	76.74	4.85	20	45.76	53.96	43.14	34.38	23.05	43.10	40.57	10.63
25	89.76	85.65	88.56	90.12	82.34	81.34	86.30	3.80	25	62.57	73.56	68.73	47.70	49.10	60.13	60.30	10.36
30	90.23	90.21	92.12	94.56	91.43	90.12	91.45	1.73	30	87.00	86.04	90.67	64.30	72.99	80.55	80.26	9.95
45	91.12	91.23	93.42	95.67	93.21	91.23	92.65	1.81	45	95.13	92.00	93.62	92.75	94.00	93.90	93.57	1.08
60	94.34	93.21	96.42	96.54	94.53	92.21	94.54	1.72	60	95.65	94.21	96.94	95.65	100.63	96.70	96.63	2.19

CC P25 B0.5 Ta30									CC P25 B0.5 Ta45								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.89	5.23	5.80	1.46	3.40	1.01	2.97	2.18	1	2.95	1.46	1.58	1.23	1.23	2.03	1.75	0.66
3	0.00	0.00	1.15	0.44	1.02	0.33	0.49	0.49	3	1.62	0.56	0.10	0.10	0.33	1.38	0.68	0.66
5	0.67	2.29	1.61	1.56	1.71	1.24	1.51	0.54	5	6.77	8.21	4.33	6.27	5.01	6.88	6.25	1.40
7	1.81	6.07	4.82	5.48	4.81	5.47	4.74	1.51	7	21.08	32.58	15.54	30.40	16.46	43.12	26.53	10.76
10	4.79	11.59	16.27	13.16	16.94	12.59	12.56	4.35	10	44.73	60.12	30.59	58.70	31.51	56.04	46.95	13.45
12	8.36	18.16	26.41	20.54	28.00	20.31	20.30	6.98	12	57.88	74.20	45.60	72.30	46.50	71.65	61.36	13.20
15	16.86	29.23	40.95	37.45	42.00	36.64	33.86	9.46	15	73.96	92.10	61.61	90.23	63.40	89.06	78.39	13.91
20	43.45	41.27	55.33	64.26	56.25	63.79	54.06	9.81	20	89.33	98.55	84.22	98.51	84.57	93.78	91.49	6.48
25	66.76	50.86	68.77	77.64	69.36	76.82	68.37	9.67	25	93.59	99.06	96.44	99.39	97.71	98.63	97.47	2.18
30	81.86	62.53	77.23	90.96	78.63	89.80	80.17	10.34	30	95.11	101.79	99.94	100.04	98.01	99.73	99.10	2.29
45	93.50	89.94	86.21	96.26	89.10	95.55	91.76	3.97	45	96.05	102.34	99.63	100.47	98.54	99.78	99.47	2.09
60	96.18	95.79	89.98	98.03	92.32	97.32	94.94	3.13	60	92.31	100.56	99.69	101.09	98.82	100.16	98.77	3.26

CC P25 B0.5 Ti15									CC P25 B0.5 Ti30								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.12	0.00	0.00	0.00	0.00	0.02	0.05	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	3.29	0.00	0.00	0.00	0.00	0.55	1.34	1	2.03	2.49	3.40	0.89	1.69	0.00	1.75	1.20
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.45	0.00	2.02	0.00	0.00	0.41	0.81	7	0.00	0.00	0.00	0.00	0.55	0.00	0.09	0.22
10	3.38	2.73	0.41	5.46	2.81	0.87	2.61	1.82	10	3.40	1.45	3.40	3.54	4.78	3.27	3.31	1.07
12	9.80	5.37	1.33	12.34	8.65	1.45	6.49	4.54	12	10.13	6.94	10.41	5.60	11.23	15.16	9.91	3.38
15	19.56	10.20	5.79	26.69	17.72	5.68	14.27	8.44	15	16.78	15.09	20.29	12.12	18.76	28.65	18.62	5.68
20	37.48	26.13	23.30	40.77	36.44	23.99	31.35	7.73	20	26.78	24.56	32.34	23.43	30.12	40.12	29.56	6.16
25	52.08	40.67	34.28	54.93	51.03	36.91	44.98	8.77	25	43.32	41.12	52.34	40.12	47.78	62.11	47.80	8.36
30	62.88	52.72	45.32	69.17	61.25	45.92	56.21	9.74	30	57.67	56.78	67.65	46.78	63.20	75.43	61.25	9.88
45	81.51	68.35	86.13	78.46	79.75	86.95	80.19	6.72	45	86.54	80.12	88.82	76.56	86.54	92.13	85.12	5.75
60	92.13	77.98	94.15	99.00	91.85	94.52	91.61	7.15	60	96.30	93.40	91.48	92.43	93.38	94.66	93.61	1.69

CC P25 B0.5 Ti45								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.89	1.01	1.80	3.40	0.00	2.03	1.52	1.17
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.68	0.00	0.00	0.11	0.28
7	0.00	0.00	0.00	1.03	0.00	0.00	0.17	0.42
10	0.54	1.34	1.20	2.88	0.07	1.11	1.19	0.96
12	2.60	3.74	5.11	6.77	0.87	2.03	3.52	2.16
15	8.44	7.99	14.96	14.56	6.59	6.61	9.86	3.87
20	20.59	19.23	27.04	26.97	17.70	20.35	21.98	4.02
25	35.89	34.41	45.69	37.61	35.73	35.31	37.44	4.17
30	52.31	48.41	62.61	56.56	52.04	49.78	53.62	5.21
45	82.30	77.58	78.61	66.34	84.31	79.18	78.05	6.26
60	92.47	90.58	88.75	84.89	93.69	91.28	90.28	3.13

Table 300 Cumulative % drug release from core and tablets coated with CA film at different coating level based on chitosan in HCl buffer pH 1.2

CORE									CA 1%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.31	5.00	5.12	6.14	6.14	5.48	5.20	1.05	1	5.73	5.36	0.37	3.44	1.03	5.12	5.51	2.32
3	13.09	14.30	15.32	16.29	16.17	16.47	15.27	1.34	3	10.82	15.87	7.42	11.28	7.12	13.22	10.96	3.36
5	19.97	22.39	24.68	24.39	23.37	23.79	23.10	1.73	5	21.36	24.75	19.08	26.39	16.01	23.29	21.81	3.82
7	25.56	28.72	33.55	32.60	31.21	31.81	30.58	2.95	7	30.75	31.21	29.36	31.96	27.30	33.59	30.70	2.17
10	34.85	37.91	42.11	42.41	40.53	40.17	39.66	2.86	10	36.46	39.27	40.96	37.68	37.38	40.28	38.67	1.77
12	39.21	42.64	48.30	47.59	45.76	45.52	44.84	3.39	12	43.83	45.33	48.11	51.38	44.28	53.45	47.73	3.98
15	46.35	49.62	56.10	56.76	53.17	52.45	52.41	3.94	15	54.19	51.30	57.47	67.67	52.41	69.33	58.73	7.87
20	58.58	62.41	67.96	72.12	68.33	62.55	65.33	4.98	20	63.40	63.32	72.71	73.58	66.48	80.37	69.98	6.76
25	67.81	75.15	77.97	86.72	78.94	76.92	77.25	6.11	25	72.23	73.48	83.95	85.00	78.46	90.08	80.53	7.01
30	77.58	84.05	87.36	95.14	88.58	85.77	86.41	5.76	30	89.90	83.59	95.66	98.95	89.25	97.20	92.39	5.90
45	96.59	97.69	97.89	100.96	97.56	98.52	98.20	1.49	45	100.50	97.51	101.01	103.65	101.47	99.90	100.67	2.01
60	99.84	98.35	98.43	101.27	97.43	99.24	99.09	1.35	60	100.64	99.67	102.46	104.16	102.21	100.08	101.54	1.71
75	99.48	98.65	98.24	101.70	97.48	99.12	99.11	1.45	75	98.96	99.68	101.88	104.24	102.05	99.25	101.01	2.07
90	100.81	99.25	98.96	102.32	98.85	99.90	100.02	1.34	90	100.81	99.26	102.31	103.45	102.43	99.72	101.33	1.66

CA 3%									CA 6%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	2.47	4.46	5.78	3.92	4.58	6.02	4.54	1.30	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	17.23	18.57	16.59	17.66	16.70	18.58	17.56	0.88	3	4.64	0.00	4.88	1.51	4.94	0.00	2.66	2.43
5	25.88	28.01	28.36	31.37	25.59	28.01	27.87	2.08	5	10.87	4.65	14.24	10.74	16.17	5.73	10.40	4.54
7	32.95	35.51	36.77	42.14	33.32	34.92	35.94	3.35	7	17.38	10.88	22.69	19.89	22.77	10.76	17.40	5.47
10	41.38	44.86	48.05	53.33	41.69	28.01	42.89	8.54	10	21.33	17.38	32.45	30.53	32.77	16.97	25.24	7.51
12	47.21	49.80	53.74	59.58	47.41	34.92	48.78	8.23	12	34.21	21.34	39.02	37.75	37.23	20.62	31.70	8.45
15	55.12	58.99	63.73	72.67	54.77	44.08	58.23	9.60	15	47.23	31.45	46.04	47.23	43.15	25.73	40.14	9.25
20	65.90	71.11	76.72	85.23	65.49	67.43	71.98	7.73	20	57.00	47.21	56.95	60.67	54.23	44.35	53.40	6.31
25	75.65	82.76	87.91	99.12	75.42	78.69	83.26	9.10	25	66.76	56.99	69.00	72.27	65.18	56.16	64.39	6.51
30	83.95	91.10	94.54	101.35	84.50	87.25	90.45	6.69	30	88.80	66.75	78.35	83.20	73.07	66.88	76.18	8.93
45	98.37	101.28	101.73	101.02	97.78	98.68	99.81	1.72	45	99.64	88.78	97.07	97.38	92.12	88.85	93.97	4.69
60	101.02	101.78	101.81	101.62	100.97	100.01	101.20	0.69	60	100.19	99.63	100.98	96.95	100.33	98.37	99.41	1.49
75	101.33	101.97	101.70	101.75	100.44	100.25	101.24	0.73	75	101.52	100.96	102.01	96.82	100.82	99.40	100.26	1.90
90	101.40	101.75	101.65	101.52	100.68	99.96	101.16	0.70	90	101.60	101.93	101.79	97.89	101.19	99.40	100.48	1.53

CA 9%									CA 12%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	1.82	0.68	0.43	1.10	2.12	1.76	1.32	0.68	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	9.36	11.22	9.53	8.87	10.80	11.88	10.28	1.19	7	10.78	0.25	0.00	1.22	3.21	0.73	2.70	4.12
10	20.19	23.50	20.18	24.34	21.46	21.46	21.86	1.72	10	19.64	11.15	10.06	11.64	18.03	7.36	12.98	4.80
12	25.90	29.84	25.83	31.03	26.82	27.37	27.80	2.16	12	25.05	15.37	14.34	16.16	26.14	11.14	18.03	6.11
15	33.75	37.83	33.02	40.00	34.86	33.72	35.53	2.77	15	30.55	20.88	20.86	21.01	36.04	15.61	24.16	7.57
20	45.98	50.08	44.71	53.52	46.55	43.12	47.33	3.82	20	38.18	27.74	28.75	27.40	48.88	22.08	32.17	9.71
25	55.21	59.45	54.71	66.52	58.42	54.44	58.13	4.61	25	44.42	33.26	35.47	33.39	61.13	28.04	39.29	11.96
30	64.54	68.26	64.70	77.96	68.08	64.61	68.03	5.17	30	59.47	38.68	42.83	59.36	72.55	50.00	53.82	12.47
45	85.84	89.10	87.68	100.77	88.43	87.35	89.86	5.46	45	89.70	70.07	82.00	73.87	101.83	71.70	81.53	12.37
60	96.90	99.22	98.40	102.78	97.29	96.98	98.60	2.24	60	99.77	91.52	103.10	96.31	101.37	89.89	96.99	5.39
75	99.97	101.21	98.94	103.28	100.59	99.86	100.64	1.50	75	101.70	101.05	104.49	102.56	101.51	98.35	101.61	2.01
90	100.41	101.71	98.88	103.13	101.02	100.17	100.89	1.45	90	102.38	105.40	104.01	103.31	102.19	103.17	103.41	1.18

CA15%C								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.86	0.08	0.26	0.86	0.32	1.28	0.61	0.46
15	8.46	2.01	5.03	8.04	2.37	6.89	5.47	2.80
20	16.69	10.52	16.13	16.09	11.30	14.28	14.17	2.66
25	25.94	20.51	24.77	24.25	17.69	20.02	22.20	3.25
30	34.51	28.87	34.72	30.83	23.87	26.16	29.83	4.40
45	41.27	58.58	73.01	59.16	53.61	70.47	59.35	11.58
60	70.92	82.50	96.16	88.25	88.20	97.22	87.21	9.69
75	93.64	98.31	101.03	101.14	103.08	102.87	100.01	3.56
90	100.72	102.77	100.99	103.15	104.86	104.05	102.76	1.64

Table 301 Cumulative % drug release from core and tablets coated with CA G25 film at different coating level based on chitosan in HCl buffer pH 1.2

CORE									CA G25 9%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	5.84	6.62	8.01	5.72	7.10	7.77	6.84	0.96	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	10.76	12.44	13.35	14.55	12.09	12.51	12.62	1.27	3	6.68	1.63	3.13	0.00	1.21	3.43	2.68	2.33
5	19.43	22.99	21.80	23.96	19.86	20.35	21.40	1.82	5	19.54	7.78	11.16	10.78	9.41	9.42	11.35	4.19
7	26.82	30.95	29.93	31.98	27.26	27.21	29.03	2.21	7	28.57	14.51	20.43	20.18	16.99	14.53	19.20	5.27
10	36.84	42.50	39.91	43.06	35.72	37.41	39.24	3.07	10	39.32	23.99	32.83	31.37	27.92	24.13	29.93	5.86
12	43.61	50.74	47.18	51.30	42.72	44.31	46.64	3.71	12	47.55	31.65	46.62	38.89	34.76	31.13	38.43	7.26
15	51.86	60.29	56.41	61.58	52.17	52.38	55.78	4.34	15	56.12	41.64	51.54	48.13	44.11	40.39	46.99	6.10
20	65.03	73.44	69.42	75.94	65.70	65.07	69.10	4.69	20	67.62	58.18	66.03	65.19	57.71	55.84	61.76	5.07
25	77.73	85.82	83.22	89.06	80.33	79.09	82.54	4.33	25	79.25	73.55	78.98	80.84	71.75	71.26	75.94	4.23
30	86.76	94.12	91.86	95.63	90.10	87.47	90.99	3.55	30	87.75	84.79	89.10	90.97	83.10	83.33	86.51	3.25
45	98.19	98.67	98.81	98.86	99.98	98.96	98.91	0.59	45	94.56	95.30	96.76	97.31	96.38	94.56	95.81	1.17
60	101.03	99.75	100.19	99.46	101.97	100.05	100.41	0.93	60	95.74	97.03	98.01	98.09	99.50	96.28	97.44	1.37
75	100.93	99.40	99.96	99.47	101.96	100.59	100.39	0.98	75	95.84	97.27	98.19	98.69	99.99	96.45	97.74	1.53
90	100.81	100.06	100.50	100.07	102.37	100.66	100.75	0.85	90	96.06	97.50	98.24	98.45	99.87	96.50	97.77	1.39

CA G25 12%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	2.29	2.11	2.89	1.03	2.47	1.80	1.08
3	0.55	0.51	2.01	1.15	0.56	1.29	1.01	0.59
5	10.37	8.70	11.30	7.02	10.38	6.42	9.03	1.99
7	17.78	15.98	16.84	12.12	17.24	12.54	15.42	2.47
10	24.80	23.72	21.64	17.37	24.81	17.49	21.64	3.46
12	29.04	29.21	27.24	21.75	29.04	22.41	26.45	3.47
15	33.18	35.09	33.59	27.83	33.18	27.96	31.81	3.11
20	39.86	45.64	42.45	42.31	39.87	42.62	42.13	2.14
25	47.13	53.96	64.65	49.47	47.01	49.42	51.94	6.72
30	59.79	66.24	81.19	66.60	58.77	67.20	66.63	8.01
45	76.25	79.96	95.72	92.66	72.82	88.27	84.28	9.29
60	90.93	97.49	103.29	101.59	82.06	97.31	95.45	7.83
75	100.69	104.23	104.52	102.94	97.20	103.32	102.15	2.78
90	101.73	104.68	104.92	103.14	100.44	103.59	103.08	1.73

Table 302 Cumulative % drug release from tablets coated with unplasticized and plasticized CP film at coating level of 15% based on chitosan in HCl buffer pH 1.2

CP									CP S25								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.33	0.09	1.13	2.24	3.09	0.15	1.17	1.24	7	6.40	0.38	0.00	0.00	0.00	0.00	1.13	2.59
10	7.74	6.23	7.76	9.72	12.20	6.66	8.39	2.23	10	17.34	9.54	2.26	8.34	1.53	1.78	6.80	6.24
12	15.07	14.52	14.25	17.43	19.98	13.98	15.87	2.37	12	24.90	16.04	8.29	14.89	7.99	9.02	13.52	6.57
15	26.23	27.18	26.07	29.08	30.93	26.04	27.59	2.01	15	35.03	25.58	17.67	24.30	16.64	20.12	23.22	6.78
20	39.12	41.24	38.43	41.83	41.21	39.31	40.19	1.40	20	46.18	36.56	29.15	35.82	28.05	30.12	34.31	6.81
25	52.84	55.97	50.98	56.56	57.21	54.94	54.75	2.40	25	58.30	48.56	36.30	49.86	36.64	40.12	44.96	8.75
30	63.67	67.54	62.04	65.73	67.88	66.92	65.63	2.33	30	67.95	59.42	47.33	61.51	49.00	54.20	56.57	7.88
45	83.88	87.95	83.51	88.23	91.72	89.13	87.40	3.17	45	90.71	82.74	69.08	91.46	75.63	82.11	81.96	8.64
60	96.56	97.16	95.88	97.57	101.20	96.73	97.52	1.89	60	100.18	95.78	86.37	98.34	92.60	98.16	95.24	5.07
75	97.09	97.94	96.48	98.41	101.58	97.87	98.23	1.78	75	100.73	98.23	91.18	99.13	94.68	98.76	97.12	3.53
90	98.83	99.02	97.37	99.07	102.20	98.65	99.19	1.60	90	100.99	98.89	95.06	99.62	97.13	99.02	98.45	2.08

CP Tri25

Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.67	0.25	0.00	0.31	0.61	0.31	0.29
3	0.37	2.36	0.50	4.40	0.62	0.56	1.47	1.62
5	0.93	4.13	5.08	5.16	2.31	4.66	3.71	1.72
7	12.07	11.44	13.48	14.46	12.38	12.88	12.79	1.08
10	22.25	19.94	25.78	26.94	24.43	25.17	24.09	2.56
12	29.54	26.31	32.73	35.58	33.60	32.60	31.73	3.29
15	37.78	34.35	41.31	43.91	43.78	41.03	40.36	3.70
20	49.00	44.95	52.94	55.83	57.44	52.75	52.15	4.57
25	62.03	55.25	67.20	69.08	67.94	61.77	63.88	5.23
30	70.80	62.30	74.31	79.63	78.06	72.77	72.98	6.18
45	91.59	83.22	91.45	98.42	96.97	89.24	91.82	5.49
60	101.79	97.34	101.34	103.72	102.86	100.44	101.25	2.23
75	102.41	97.82	101.72	103.99	103.24	100.69	101.65	2.20
90	101.77	97.94	101.50	103.60	103.57	100.52	101.48	2.12

Table 303 Cumulative % drug release from tablets coated with CA film containing different amount of additives and plasticizers at coating level of 15% based on chitosan in HCl buffer pH 1.2

CA Cas15									CA M45								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.20	0.86	2.07	3.45	0.92	2.13	1.61	1.17	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	9.29	9.00	10.99	12.92	8.82	10.33	10.23	1.56	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	17.24	17.24	19.84	21.79	14.11	19.48	18.28	2.67	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	24.44	25.88	29.28	31.96	21.65	30.67	27.31	3.98	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	36.13	37.89	43.89	45.98	31.47	44.86	40.04	5.77	20	2.51	1.36	0.70	1.42	2.03	1.18	1.53	0.64
25	45.79	50.44	57.14	60.86	40.49	61.96	52.78	8.65	25	17.81	12.75	11.36	14.01	14.38	12.08	13.73	2.30
30	54.89	62.27	72.20	72.28	58.77	72.42	65.47	7.84	30	28.20	21.07	21.18	24.56	23.43	20.64	23.18	2.90
45	75.11	80.97	93.66	94.70	82.93	96.59	87.33	8.82	45	56.94	46.04	45.55	49.98	45.53	44.95	48.17	4.67
60	96.39	94.72	102.18	100.70	100.21	104.16	99.73	3.55	60	82.53	72.36	72.46	74.75	69.73	69.27	73.52	4.85
75	99.07	101.14	103.65	102.82	102.06	104.02	102.13	1.83	75	96.90	88.99	90.32	90.15	86.07	86.45	89.81	3.91
90	101.67	102.54	103.56	102.79	102.32	103.81	102.78	0.80	90	99.12	92.99	94.79	94.56	90.88	91.44	93.96	2.98

Table 303 Cumulative % drug release from tablets coated with CA film containing different amount of additives and plasticizers at coating level of 15% based on chitosan in HCl buffer pH 1.2 (continue)

CA M60									CA M75								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.61	0.39	0.85	0.67	0.73	0.54	0.31	1	0.00	0.00	1.15	0.13	0.00	0.91	0.37	0.52
3	0.00	0.02	0.56	0.38	0.50	0.38	0.31	0.24	3	0.00	0.00	0.38	0.00	0.00	0.00	0.06	0.16
5	0.00	0.00	0.09	0.33	0.39	0.33	0.19	0.18	5	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.01
7	0.00	0.00	0.10	0.40	0.28	0.28	0.18	0.17	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.35	0.35	0.53	0.47	0.28	0.23	10	0.00	0.00	0.05	0.00	0.00	0.00	0.01	0.02
12	0.00	0.17	0.54	0.60	0.54	1.44	0.55	0.50	12	0.00	0.00	0.18	0.05	0.00	0.00	0.04	0.07
15	0.47	0.54	1.58	0.79	1.64	1.46	1.08	0.54	15	4.79	0.65	0.31	0.12	4.67	0.00	1.76	2.31
20	9.38	9.82	14.05	3.64	14.23	7.91	9.84	3.98	20	14.51	5.24	6.69	5.84	14.09	0.36	7.79	5.51
25	20.39	21.25	23.94	13.23	24.36	24.63	21.30	4.32	25	27.30	18.75	15.88	14.24	27.05	13.91	19.52	6.17
30	33.45	31.60	34.13	26.49	35.76	37.23	33.11	3.78	30	35.28	29.33	23.92	23.36	34.91	33.49	30.05	5.40
45	66.01	57.17	64.40	59.73	67.67	49.11	60.68	6.90	45	49.92	58.62	48.19	48.82	49.25	59.13	52.32	5.11
60	92.37	83.73	96.29	89.91	84.65	77.79	87.46	6.68	60	65.12	85.78	78.42	75.69	62.94	85.93	75.65	9.88
75	102.57	99.78	101.52	103.89	97.28	100.97	101.00	2.30	75	80.65	90.90	99.74	96.63	78.70	91.29	89.65	8.43
90	104.23	104.85	104.74	104.71	100.77	102.61	103.65	1.64	90	95.11	101.15	102.52	108.90	98.33	102.27	101.38	4.63

CA Tri45									CA Ta45								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.98	1.34	1.34	1.16	0.86	0.56	1.04	0.30	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	2.62	2.92	2.98	2.50	2.38	2.68	2.68	0.23	7	0.50	0.00	0.00	0.00	0.00	0.00	0.08	0.20
10	8.71	7.28	5.78	5.41	5.35	9.32	6.98	1.74	10	0.81	0.56	0.69	0.93	0.99	0.08	0.68	0.33
12	15.75	15.21	12.67	11.46	11.34	16.48	13.82	2.27	12	6.06	5.81	6.11	8.28	10.52	6.11	7.12	1.81
15	24.92	24.14	24.06	20.68	22.60	25.54	23.66	1.76	15	19.10	15.30	15.78	19.35	17.85	15.84	17.20	1.80
20	37.47	34.87	36.78	34.16	36.15	38.38	36.30	1.59	20	35.15	26.70	32.84	31.25	27.46	32.72	31.02	3.31
25	47.61	46.81	49.26	49.09	48.57	48.05	48.23	0.93	25	52.50	39.25	49.70	45.51	39.29	49.63	45.98	5.66
30	56.72	56.76	62.90	60.86	59.92	57.58	59.12	2.52	30	67.42	50.96	64.72	59.25	50.95	65.38	59.78	7.35
45	79.90	85.11	96.40	90.56	87.93	85.88	87.63	5.56	45	90.30	75.20	83.49	84.67	75.00	94.50	83.86	7.86
60	95.99	101.77	98.44	100.52	101.77	96.53	99.17	2.57	60	99.47	91.20	94.25	97.11	90.76	96.17	94.83	3.42
75	104.41	104.86	102.42	103.78	103.66	99.05	103.03	2.12	75	99.68	96.94	96.04	98.44	96.80	96.95	97.48	1.33
90	104.20	106.16	102.50	104.90	104.60	104.17	104.42	1.19	90	98.76	97.96	95.60	98.80	98.16	97.60	97.81	1.18

CA M45 Tri15									CA M45 Tri30								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10	0.00	0.00	0.00	0.03	0.04	0.00	0.01	0.02
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12	0.00	0.00	0.16	0.16	0.10	0.00	0.07	0.08
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.16	0.29	0.17	0.00	0.10	0.12
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20	0.00	0.54	0.00	0.00	0.00	0.00	0.09	0.22
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25	0.29	1.39	0.06	0.00	0.00	0.00	0.29	0.55
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30	1.15	3.81	0.91	0.74	0.43	0.00	1.17	1.35
45	1.13	0.00	0.00	0.00	0.17	0.00	0.22	0.45	45	3.57	8.35	3.33	3.40	3.09	2.23	4.00	2.19
60	4.88	1.14	1.44	2.28	3.61	1.44	2.47	1.49	60	7.99	13.76	7.39	7.88	7.69	5.86	8.43	2.73
75	12.19	11.86	5.24	6.81	6.99	5.24	8.06	3.17	75	13.63	20.77	12.73	14.00	13.04	15.28	14.91	3.01
90	26.89	26.67	11.06	13.72	19.38	11.42	18.19	7.29	90	21.06	27.87	19.13	20.89	21.54	21.87	22.06	3.00
105	37.81	43.55	18.04	21.74	35.74	18.77	29.28	11.06	105	29.66	34.28	28.08	27.87	29.73	29.46	29.85	2.32
120	49.16	50.48	32.17	36.55	48.34	32.96	41.61	8.61	120	36.51	40.56	35.95	34.11	37.48	36.13	36.79	2.15
135	58.28	59.07	45.59	67.98	62.15	46.38	56.58	8.89	135	42.68	47.71	45.18	40.98	45.58	42.77	44.15	2.45
150	67.03	67.22	55.54	78.77	72.31	57.48	66.39	8.79	150	50.50	62.77	53.61	50.18	55.16	56.31	54.76	4.63
180	78.72	74.76	70.05	79.58	75.60	66.58	74.22	5.04	180	61.19	63.54	69.50	65.14	71.83	69.02	66.70	4.06
210	84.39	80.10	74.59	80.14	80.05	81.27	80.09	3.17	210	73.44	78.94	81.50	78.49	83.42	78.73	79.09	3.38
240	87.26	85.06	80.54	86.96	85.13	85.64	85.10	2.42	240	81.61	89.12	89.23	88.01	90.02	86.69	87.45	3.08
270	93.76	90.88	87.00	91.41	88.42	91.04	90.42	2.38	270	91.09	93.64	93.57	91.15	92.86	93.42	92.62	1.20

Table 303 Cumulative % drug release from tablets coated with CA film containing different amount of additives and plasticizers at coating level of 15% based on chitosan in HCl buffer pH 1.2 (continue)

CA M45 Tri45									CA M45 Dp15 15%C								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	0.00	0.01	0.00	0.25	0.00	0.04	0.10
5	0.00	0.00	0.68	0.80	0.32	0.00	0.30	0.36	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.45	0.51	0.00	0.00	0.16	0.25	7	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.01
10	0.00	0.00	0.58	0.65	0.22	0.00	0.24	0.30	10	0.00	0.00	0.00	0.00	0.22	0.00	0.04	0.09
12	0.00	0.00	0.30	0.48	0.95	0.00	0.29	0.38	12	0.00	0.00	0.04	0.10	0.11	0.00	0.04	0.05
15	0.00	0.11	0.55	0.49	0.90	0.35	0.40	0.32	15	0.47	0.00	0.00	0.29	0.48	0.00	0.21	0.24
20	0.16	0.72	1.10	0.98	1.64	1.26	0.98	0.50	20	1.09	0.30	0.12	0.97	0.49	0.24	0.54	0.40
25	1.02	1.70	2.14	1.84	2.62	2.18	1.92	0.54	25	2.18	0.91	4.40	1.88	1.52	0.73	1.94	1.33
30	1.99	2.88	3.18	2.76	3.90	5.27	3.33	1.13	30	6.78	3.75	10.84	4.13	8.58	4.83	6.49	2.80
45	5.62	6.61	6.27	6.15	8.33	10.30	7.21	1.77	45	33.41	26.82	34.34	21.78	20.55	23.88	26.80	5.89
60	11.50	12.13	12.39	11.97	12.77	15.96	12.79	1.61	60	51.65	52.91	50.96	46.70	44.67	44.05	48.49	3.82
75	18.06	18.46	19.21	19.20	19.47	23.10	19.58	1.80	75	61.03	75.89	71.35	69.89	73.63	59.76	68.59	6.68
90	26.96	26.09	26.12	28.28	27.10	30.15	27.45	1.55	90	88.87	94.91	80.53	92.18	93.59	82.00	88.68	6.10
105	35.72	32.62	34.51	38.31	37.43	37.48	36.01	2.16	105	100.01	101.21	100.83	103.10	100.19	95.21	100.09	2.63
120	46.15	40.15	44.64	49.66	56.41	44.79	46.97	5.54	120	101.02	102.23	103.21	103.45	101.21	96.56	101.28	2.52
135	58.26	47.96	55.66	61.25	70.69	51.79	57.60	7.94	135	101.34	102.45	103.34	103.50	100.29	97.84	101.46	2.15
150	69.48	55.38	65.41	71.22	79.08	64.41	67.50	7.91									
180	99.40	72.90	84.79	91.00	94.20	82.57	87.48	9.42									
210	105.49	91.29	102.29	99.79	101.58	101.44	100.31	4.80									
240	106.19	101.97	102.85	100.70	102.62	102.12	102.74	1.85									
270	106.66	102.59	103.24	101.31	103.00	102.50	103.22	1.81									

CA M45 Pg30 15%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.13	0.00	0.13	0.13	0.19	0.00	0.10	0.08
3	0.20	0.01	0.08	0.14	0.32	0.00	0.13	0.12
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.43	0.00	0.07	0.18
30	0.12	0.00	0.12	0.25	0.80	0.06	0.23	0.29
45	1.76	1.27	1.76	1.58	3.16	1.27	1.80	0.70
60	6.05	3.63	22.41	3.64	22.86	4.11	10.45	9.48
75	27.56	12.63	42.21	8.73	42.54	23.52	26.20	14.29
90	47.88	54.03	67.00	22.26	57.29	48.68	49.52	15.05
105	80.46	89.60	87.71	43.69	78.30	79.41	76.53	16.74
120	91.44	99.91	98.07	77.63	93.84	96.69	92.93	8.08
135	98.93	102.27	100.12	96.35	98.46	99.40	99.26	1.95

Table 304 Cumulative % drug release from tablets coated with CA film at different coating level based on chitosan in phosphate buffer pH 6.8

CA 1%						CA 3%						CA 6%					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	6.78	8.84	7.47	7.70	1.05	5	4.04	4.10	4.44	4.19	0.22	5	1.24	0.56	1.59	1.13	0.52
15	31.38	29.10	30.64	30.37	1.16	15	6.24	5.72	6.24	6.07	0.30	15	1.77	1.70	1.94	1.80	0.12
30	76.72	65.24	78.89	73.62	7.34	30	21.72	21.29	21.06	21.36	0.34	30	3.43	3.77	3.89	3.70	0.24
45	94.62	92.10	93.21	93.31	1.26	45	55.33	62.92	55.44	57.90	4.35	45	6.42	6.19	6.94	6.52	0.38
60	97.89	97.83	97.91	97.88	0.04	60	77.16	88.80	76.57	80.84	6.90	60	8.85	8.79	10.46	9.37	0.95
75	97.45	98.48	98.44	98.12	0.58	75	91.98	93.34	88.50	91.27	2.50	75	12.67	12.21	16.57	13.82	2.40
90	97.93	99.01	98.92	98.62	0.60	90	95.68	94.25	94.52	94.82	0.76	90	17.08	16.90	20.23	18.07	1.87
105	98.23	99.15	99.34	98.91	0.59	105	96.26	94.54	96.58	95.79	1.10	105	20.89	20.19	29.85	23.64	5.39
120	98.76	99.74	99.06	99.19	0.50	120	96.16	96.43	96.94	96.51	0.40	120	24.60	24.42	33.32	27.45	5.09
135	99.18	100.10	100.18	99.82	0.56	135	96.51	97.06	97.06	96.88	0.32	135	29.25	29.29	37.50	32.01	4.75
150	99.59	100.47	100.61	100.22	0.55	150	96.46	97.13	97.75	97.11	0.65	150	34.94	34.53	44.50	37.99	5.64
180	99.97	100.72	100.91	100.53	0.50	180	96.04	97.00	98.03	97.02	1.00	180	44.09	52.08	58.90	51.69	7.41
210	100.27	100.89	100.89	100.68	0.36	210	96.00	98.00	98.40	97.47	1.29	210	52.72	64.09	67.80	61.54	7.86
240	100.37	100.80	100.80	100.66	0.25	240	95.65	98.28	98.80	97.58	1.69	240	57.73	71.76	73.39	67.63	8.61
270	100.15	100.80	100.79	100.58	0.37	270	95.33	98.11	98.85	97.43	1.86	270	60.89	77.26	80.32	72.82	10.45
300	100.02	100.74	100.73	100.50	0.41	300	95.33	98.14	98.89	97.45	1.88	300	73.02	80.08	88.67	80.59	7.84
360	99.96	100.73	100.67	100.45	0.43	360	95.12	98.03	98.35	97.17	1.78	360	81.39	85.24	90.80	85.81	4.73
420	99.95	100.67	100.55	100.39	0.39	420	94.26	97.97	98.18	96.80	2.21	420	87.79	87.27	92.04	89.03	2.62
480	99.38	100.55	100.53	100.15	0.67	480	93.49	97.57	98.17	96.41	2.55	480	89.64	88.82	93.59	90.68	2.55
600	99.37	100.43	100.52	100.11	0.64	600	92.89	97.56	98.22	96.22	2.91	600	90.61	89.62	93.42	91.22	1.97
720	99.94	100.42	100.50	100.29	0.30	720	92.34	97.44	98.04	95.94	3.13	720	94.31	89.77	93.66	92.58	2.46

CA 9%						CA 12%					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.45	0.00	0.45	0.30	0.26	5	0.45	0.07	0.73	0.42	0.33
15	1.02	0.90	0.90	0.94	0.07	15	0.96	1.65	1.25	1.29	0.35
30	1.31	2.11	1.54	1.65	0.41	30	1.31	2.57	1.48	1.79	0.68
45	2.57	3.32	2.03	2.64	0.65	45	2.12	2.53	2.75	2.47	0.32
60	4.19	4.82	4.07	4.36	0.40	60	3.38	3.80	3.39	3.52	0.24
75	5.87	6.62	6.09	6.19	0.39	75	4.37	5.08	4.67	4.71	0.36
90	7.78	9.11	8.07	8.32	0.70	90	5.48	6.76	5.89	6.04	0.65
105	9.82	11.50	10.86	10.73	0.85	105	7.00	9.25	7.07	7.77	1.28
120	12.73	13.96	13.26	13.32	0.62	120	8.64	9.76	8.93	9.11	0.58
135	15.77	17.24	16.70	16.57	0.74	135	11.31	11.81	10.98	11.37	0.42
150	18.83	20.53	19.59	19.65	0.85	150	12.80	14.33	13.15	13.43	0.80
180	25.44	26.64	25.92	26.00	0.60	180	18.23	20.34	18.02	18.86	1.28
210	32.48	34.03	33.53	33.35	0.79	210	23.53	27.89	22.45	24.62	2.88
240	40.99	41.68	40.96	41.21	0.41	240	29.01	35.78	28.56	31.12	4.04
270	57.02	47.60	47.68	50.77	5.42	270	34.76	42.56	34.18	37.17	4.68
300	64.16	53.55	64.42	60.71	6.20	300	41.38	48.76	40.92	43.69	4.40
360	71.73	64.02	75.53	70.43	5.86	360	52.38	60.34	51.85	54.86	4.76
420	78.36	73.06	82.24	77.89	4.61	420	62.11	73.06	60.89	65.35	6.70
480	84.15	78.82	86.68	83.22	4.01	480	68.81	78.82	68.78	72.14	5.79
600	88.71	84.42	89.24	87.46	2.64	600	79.92	84.42	79.56	81.30	2.71
720	90.18	87.12	90.32	89.21	1.81	720	84.64	87.12	85.47	85.74	1.26

Table 305 Cumulative % drug release from tablets coated with CA G25 film at different coating level based on chitosan in phosphate buffer pH 6.8

CA G25 9%						CA G25 12%					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	1.02	0.79	1.24	1.02	0.23	5	1.02	1.24	0.85	1.04	0.20
15	1.71	1.42	2.13	1.75	0.36	15	1.94	2.11	1.93	1.99	0.10
30	5.26	4.74	3.78	4.59	0.75	30	4.08	4.12	3.66	3.95	0.25
45	8.31	7.85	6.60	7.59	0.88	45	6.88	6.77	6.59	6.75	0.15
60	12.81	12.06	10.00	11.62	1.46	60	11.03	10.29	10.28	10.53	0.43
75	16.77	15.56	13.54	15.29	1.63	75	13.55	13.49	13.59	13.54	0.05
90	20.91	19.35	16.87	19.04	2.04	90	16.65	17.50	16.81	16.99	0.45
105	25.48	23.17	20.56	23.07	2.46	105	19.59	20.63	19.99	20.07	0.52
120	29.62	27.12	23.93	26.89	2.85	120	23.01	23.88	23.29	23.39	0.44
135	33.89	31.16	28.06	31.04	2.92	135	26.39	27.44	26.73	26.85	0.54
150	38.19	35.55	31.86	35.20	3.18	150	29.51	30.78	30.02	30.10	0.64
180	45.64	43.68	38.25	42.52	3.83	180	37.37	37.85	37.89	37.70	0.29
210	55.25	51.62	45.87	50.91	4.73	210	43.33	44.04	44.71	44.03	0.69
240	61.80	59.98	53.01	58.26	4.64	240	50.63	51.74	52.70	51.69	1.04
270	68.26	65.97	59.09	64.44	4.77	270	56.63	58.44	59.80	58.29	1.59
300	74.49	72.37	65.01	70.62	4.98	300	63.56	65.21	67.09	65.29	1.77
360	84.05	80.96	73.85	79.62	5.23	360	73.76	74.85	77.31	75.31	1.82
420	89.88	86.83	82.09	86.27	3.93	420	81.72	81.95	84.43	82.70	1.50
480	93.59	90.77	87.05	90.47	3.28	480	86.97	85.99	89.29	87.42	1.69
600	94.96	93.22	89.78	92.65	2.64	600	91.88	89.58	93.47	91.64	1.96
720	95.28	94.41	90.68	93.46	2.44	720	94.57	92.54	95.14	94.08	1.37

Table 306 Cumulative % drug release from tablets coated with CA film at coating level of 15% based on chitosan after moist heat treatment at 60°C for different time interval in HCl buffer pH 1.2

48hrs						72hrs						120hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	2.65	10.29	1.57	4.84	4.75	5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00
15	33.78	38.03	37.26	36.36	2.26	15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00
30	64.48	68.81	66.17	66.49	2.18	30	6.64	14.46	10.49	10.53	3.91	30	0.00	0.00	0.00	0.00	0.00
45	82.41	86.05	86.94	85.13	2.40	45	21.99	25.56	24.93	24.16	1.91	45	3.75	2.19	3.87	3.27	0.94
60	94.66	99.77	98.32	97.58	2.63	60	37.04	35.03	33.56	35.21	1.75	60	8.59	6.60	8.35	7.85	1.09
75	101.27	104.11	102.30	102.56	1.44	75	52.25	46.36	45.67	48.13	3.67	75	12.32	10.62	12.50	11.81	1.04
90	102.85	104.87	102.87	103.53	1.16	90	67.45	62.45	67.40	65.77	2.87	90	16.09	15.01	16.61	15.90	0.82
						105	78.89	73.29	72.99	75.06	3.32	105	28.92	23.44	27.27	26.54	2.81
						120	86.20	83.89	79.97	83.35	3.15	120	58.57	44.83	52.82	52.07	6.90
						135	87.56	86.84	87.64	87.35	0.44	135	71.28	68.53	75.15	71.65	3.33
						150	88.70	86.70	88.23	87.88	1.05	150	78.55	80.58	83.86	81.00	2.68
						180	89.00	87.03	88.23	88.09	0.99	180	82.93	84.63	87.91	85.16	2.53
						210	89.16	87.19	88.57	88.31	1.01	210	88.08	86.01	89.59	87.89	1.80
												240	89.14	86.89	90.13	88.72	1.66
												270	89.77	88.17	90.77	89.57	1.31
												300	90.39	88.93	90.93	90.08	1.03
												360	90.50	89.99	91.07	90.52	0.54
												420	90.47	90.92	91.62	91.00	0.58
												480	90.58	91.09	91.41	91.03	0.42
												600	89.37	90.93	90.89	90.40	0.89
												720	89.37	90.72	90.71	90.27	0.78

168hrs					
Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00
45	5.26	0.00	0.00	1.75	3.04
60	15.82	19.70	13.68	16.40	3.05
75	21.99	42.08	34.64	32.90	10.16
90	28.80	59.70	46.15	44.88	15.49
105	58.11	68.38	64.56	63.68	5.19
120	77.79	76.94	72.62	75.78	2.77
135	83.56	82.58	79.54	81.89	2.10
150	86.02	86.41	80.28	84.24	3.43
180	84.75	92.39	87.30	88.15	3.89
210	86.31	95.39	92.67	91.46	4.66
240	88.02	96.21	94.05	92.76	4.24
270	89.35	96.40	94.19	93.31	3.61
300	90.69	96.37	94.46	93.84	2.89
360	91.76	96.82	94.50	94.36	2.53
420	92.62	96.41	94.52	94.52	1.90
480	92.95	96.34	94.47	94.59	1.70
600	92.93	95.70	94.50	94.38	1.39
720	92.31	95.58	94.39	94.09	1.66

Table 308 Cumulative % drug release from tablets coated with CA films containing different amount of additives at coating level of 15% based on chitosan after dry heat treatment at 60°C for 168hrs in pH change system

CA M45						CA M60						CA M75					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.49	0.49	1.45	0.81	0.55	5	0.00	0.13	0.00	0.04	0.08	5	0.00	0.00	0.00	0.00	0.00
15	0.44	0.32	0.80	0.52	0.25	15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00
30	0.93	1.41	2.02	1.45	0.55	30	0.93	0.56	0.68	0.72	0.19	30	0.00	0.02	0.02	0.01	0.01
45	2.87	2.81	3.60	3.09	0.44	45	2.86	2.62	2.98	2.82	0.18	45	0.99	1.29	1.11	1.13	0.15
60	5.00	4.88	5.80	5.23	0.50	60	5.66	5.29	5.95	5.63	0.33	60	2.45	2.01	2.99	2.48	0.49
75	7.80	7.38	9.03	8.07	0.86	75	10.15	9.54	10.39	10.03	0.44	75	4.94	2.87	6.20	4.67	1.68
90	11.52	10.32	11.67	11.17	0.74	90	14.06	13.33	14.66	14.02	0.67	90	7.32	5.54	9.07	7.31	1.77
105	12.94	13.05	14.68	13.56	0.97	105	16.40	16.33	17.53	16.75	0.67	105	9.13	8.35	11.99	9.82	1.92
120	16.09	16.02	18.25	16.79	1.27	120	19.33	18.73	20.29	19.45	0.79	120	10.84	14.47	13.96	13.09	1.97
135	18.72	18.95	21.31	19.66	1.43	135	21.75	21.74	23.25	22.25	0.87	135	12.21	19.71	15.64	15.65	3.75
150	21.85	26.93	24.56	24.45	2.54	150	25.13	24.64	31.13	26.97	3.61	150	19.80	27.05	23.01	23.29	3.63
180	28.82	44.12	30.95	34.63	8.29	180	34.55	29.79	41.59	35.31	5.94	180	35.78	35.55	36.40	35.91	0.44
210	44.17	56.67	44.71	48.52	7.07	210	45.84	36.68	51.27	44.60	7.37	210	47.81	50.25	46.12	48.06	2.08
240	54.62	68.75	55.69	59.69	7.87	240	55.75	46.13	61.02	54.30	7.55	240	56.63	60.04	52.91	56.53	3.57
270	62.85	78.56	64.04	68.48	8.75	270	60.89	51.99	65.48	59.45	6.86	270	59.39	68.04	57.54	61.66	5.60
300	67.50	84.94	69.17	73.87	9.62	300	66.29	58.76	69.77	64.94	5.63	300	62.86	71.09	62.05	65.33	5.00
360	75.01	87.97	76.85	79.94	7.01	360	71.99	69.16	77.68	72.94	4.34	360	67.05	73.83	67.28	69.39	3.85
420	79.46	90.30	81.47	83.74	5.77	420	77.53	75.40	80.58	77.84	2.60	420	70.01	76.25	71.23	72.50	3.31
480	82.25	90.99	84.92	86.05	4.48	480	79.77	77.80	80.84	79.47	1.54	480	70.99	78.59	71.37	73.65	4.28
600	85.92	92.43	88.46	88.94	3.28	600	81.55	79.96	83.24	81.58	1.64	600	73.02	78.34	74.05	75.14	2.82
720	88.98	94.43	92.96	92.12	2.82	720	82.39	81.91	83.70	82.67	0.93	720	74.09	79.43	75.08	76.20	2.84
840	88.81	94.44	94.46	92.57	3.26	840	82.94	82.63	82.34	82.64	0.30	840	74.06	80.12	75.49	76.56	3.17
960	89.71	95.98	94.44	93.38	3.27	960	83.82	83.03	82.78	83.21	0.54	960	73.36	79.89	76.11	76.45	3.28
1080	91.72	95.14	96.05	94.30	2.28	1080	83.56	83.33	83.14	83.34	0.21	1080	73.18	79.69	76.36	76.41	3.26
1260	91.92	95.83	97.98	95.24	3.07	1260	83.91	84.11	83.34	83.79	0.40	1260	73.15	79.66	76.88	76.56	3.27
1440	92.22	96.15	98.30	95.56	3.08	1440	82.99	82.61	82.88	82.83	0.20	1440	73.10	79.97	77.14	76.74	3.45

CA M45 Cas15						CA Ta45					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	5	0.61	0.67	0.79	0.69	0.09
15	0.00	0.00	0.00	0.00	0.00	15	0.98	0.44	0.74	0.72	0.27
30	0.00	0.00	0.00	0.00	0.00	30	2.08	2.13	2.26	2.16	0.09
45	0.87	1.11	0.93	0.97	0.12	45	4.68	5.64	4.81	5.04	0.52
60	2.50	2.93	2.68	2.70	0.22	60	7.91	8.51	7.73	8.05	0.41
75	4.69	5.30	4.87	4.95	0.31	75	11.51	12.06	12.11	11.89	0.33
90	7.49	8.04	7.62	7.72	0.29	90	15.61	17.37	17.18	16.72	0.97
105	8.77	9.97	8.77	9.17	0.69	105	19.88	23.28	24.16	22.44	2.26
120	11.08	12.16	11.26	11.50	0.58	120	28.76	29.21	32.29	30.09	1.92
135	13.69	15.49	14.52	14.57	0.90	135	32.13	36.12	40.22	36.16	4.05
150	15.61	17.65	21.83	18.36	3.17	150	43.99	43.48	47.36	44.94	2.11
180	27.83	32.37	42.38	34.19	7.44	180	56.99	54.64	59.73	57.12	2.55
210	40.46	44.85	55.03	46.78	7.47	210	69.44	65.91	71.74	69.03	2.94
240	49.13	57.51	63.54	56.73	7.24	240	85.41	75.68	80.36	80.48	4.87
270	57.71	62.87	69.00	63.19	5.65	270	93.26	83.64	86.99	87.96	4.88
300	61.41	67.13	72.71	67.08	5.65	300	95.40	87.99	90.23	91.21	3.80
360	69.03	73.41	77.96	73.47	4.47	360	95.75	92.27	93.44	93.82	1.77
420	75.90	78.69	81.44	78.68	2.77	420	96.21	93.88	94.55	94.88	1.20
480	79.72	81.98	84.60	82.10	2.44	480	96.56	94.86	94.86	95.43	0.98
600	84.14	85.09	86.54	85.26	1.21	600	97.08	96.13	95.64	96.28	0.73
720	85.03	86.90	88.71	86.88	1.84	720	97.50	96.53	96.76	96.93	0.51
840	86.52	87.47	89.38	87.79	1.46	840	97.60	96.81	97.67	97.36	0.48
960	87.20	88.90	90.19	88.76	1.50	960	98.09	97.41	99.68	98.39	1.17
1080	88.28	89.19	90.99	89.49	1.38	1080	98.15	97.93	99.78	98.62	1.01
1260	89.15	90.33	91.70	90.39	1.28	1260	99.29	99.37	99.52	99.39	0.12
1440	90.40	90.92	93.83	91.72	1.85	1440	99.42	99.93	99.36	99.57	0.31

Table 309 Cumulative % drug release from tablets coated with CA films containing different amount of magnesium stearate at coating level of 15% based on chitosan after dry heat treatment at 60°C for different time interval in pH change system

CA M60 24hrs						CA M60 72hrs						CA M60 120hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.61	0.00	0.01	0.21	0.35	5	0.13	0.13	0.25	0.17	0.07	5	0.01	0.00	0.00	0.00	0.01
15	0.68	0.00	0.00	0.23	0.39	15	0.50	0.00	0.56	0.35	0.31	15	0.00	0.00	0.00	0.00	0.00
30	1.05	0.74	0.80	0.86	0.16	30	3.10	0.32	0.01	1.14	1.70	30	0.00	0.00	0.00	0.00	0.00
45	3.71	3.46	3.46	3.54	0.14	45	6.26	2.74	1.90	3.63	2.31	45	1.11	0.83	0.86	0.93	0.15
60	6.75	6.32	6.68	6.58	0.23	60	12.44	5.65	4.27	7.45	4.37	60	3.83	3.20	3.58	3.54	0.32
75	12.39	12.44	12.92	12.58	0.29	75	16.12	10.51	8.69	11.77	3.87	75	7.11	6.02	6.74	6.62	0.55
90	17.10	17.15	17.45	17.23	0.19	90	19.86	14.24	11.76	15.29	4.15	90	10.41	9.34	9.97	9.91	0.54
105	23.61	25.73	27.39	25.58	1.89	105	24.65	17.82	15.54	19.34	4.74	105	13.19	11.22	13.36	12.59	1.19
120	28.65	33.75	36.61	33.00	4.03	120	28.40	21.18	18.23	22.60	5.23	120	15.22	13.19	15.57	14.66	1.29
135	36.09	40.27	45.10	40.49	4.51	135	32.94	24.43	20.99	26.12	6.15	135	17.50	15.66	17.74	16.97	1.14
150	44.05	48.55	55.95	49.52	6.01	150	40.45	28.66	24.66	31.26	8.21	150	20.39	18.30	22.04	20.24	1.87
180	51.14	60.40	70.74	60.76	9.80	180	49.64	38.51	30.89	39.68	9.43	180	28.14	21.25	35.07	28.15	6.91
210	67.19	70.77	84.31	74.09	9.03	210	58.07	49.88	38.26	48.74	9.95	210	35.38	34.69	42.00	37.36	4.04
240	73.54	77.84	87.22	79.53	7.00	240	65.35	57.21	45.41	55.99	10.03	240	43.76	54.24	56.52	51.51	6.80
270	78.11	82.73	88.31	83.05	5.11	270	70.86	64.37	53.59	62.94	8.72	270	49.16	62.62	63.65	58.48	8.08
300	81.24	85.17	90.07	85.49	4.42	300	77.86	69.36	59.84	69.02	9.01	300	53.97	69.55	68.90	64.14	8.81
360	84.67	87.22	90.37	87.42	2.86	360	80.08	76.90	69.95	75.64	5.18	360	61.82	73.98	76.23	70.68	7.75
420	85.93	88.36	90.19	88.16	2.14	420	81.82	80.86	77.03	79.90	2.53	420	65.85	79.90	80.63	75.46	8.33
480	87.69	88.80	89.22	88.57	0.79	480	80.91	82.21	79.44	80.85	1.39	480	71.01	81.17	85.69	79.29	7.52
600	88.54	89.54	89.74	89.27	0.64	600	82.20	82.56	79.17	81.31	1.86	600	74.44	83.84	87.79	82.02	6.86
720	88.76	88.99	89.11	88.95	0.18	720	82.86	82.97	80.81	82.21	1.22	720	76.54	84.88	88.69	83.37	6.21
840	88.60	88.68	89.11	88.80	0.27	840	83.19	82.98	82.12	82.76	0.57	840	77.19	85.59	88.98	83.92	6.07
960	88.06	88.53	88.82	88.47	0.38	960	83.13	83.55	81.86	82.85	0.88	960	77.81	85.73	89.46	84.33	5.95
1080	87.85	88.43	88.43	88.24	0.33	1080	83.15	84.64	82.74	83.51	1.00	1080	78.29	85.19	89.68	84.39	5.74
1260	88.04	88.43	88.38	88.28	0.21	1260	83.64	84.25	83.22	83.70	0.52	1260	78.73	85.35	90.82	84.97	6.05
1440	88.05	88.49	88.38	88.31	0.23	1440	83.45	84.02	83.84	83.77	0.29	1440	78.56	85.67	90.33	84.85	5.93

CA M60 168hrs						CA M75 24hrs						CA M75 72hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.13	0.00	0.04	0.08	5	0.43	1.51	0.61	0.85	0.58	5	0.61	1.03	0.00	0.55	0.52
15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.79	0.26	0.46
30	0.93	0.56	0.68	0.72	0.19	30	0.02	0.00	0.08	0.03	0.04	30	0.00	0.00	0.00	0.00	0.00
45	2.86	2.62	2.98	2.82	0.18	45	2.32	1.54	2.26	2.04	0.43	45	1.53	1.96	1.17	1.55	0.40
60	5.66	5.29	5.95	5.63	0.33	60	6.55	4.92	6.07	5.85	0.84	60	4.14	4.87	3.41	4.14	0.73
75	10.15	9.54	10.39	10.03	0.44	75	10.99	8.57	10.02	9.86	1.22	75	8.56	7.61	6.03	7.40	1.28
90	14.06	13.33	14.66	14.02	0.67	90	15.21	12.17	13.87	13.75	1.52	90	13.67	11.03	10.34	11.68	1.76
105	16.40	16.33	17.53	16.75	0.67	105	20.49	16.07	17.87	18.14	2.22	105	16.96	13.69	12.18	14.28	2.44
120	19.33	18.73	20.29	19.45	0.79	120	24.75	19.35	20.93	21.68	2.78	120	19.95	16.13	13.66	16.58	3.17
135	21.75	21.74	23.25	22.25	0.87	135	29.04	22.72	24.13	25.30	3.32	135	22.67	18.36	19.98	20.34	2.18
150	25.13	24.64	31.13	26.97	3.61	150	33.88	27.00	28.41	29.76	3.63	150	26.36	21.78	26.12	24.75	2.58
180	34.55	29.79	41.59	35.31	5.94	180	43.05	34.84	35.19	37.69	4.64	180	33.19	36.34	33.28	34.27	1.79
210	45.84	36.68	51.27	44.60	7.37	210	53.14	44.18	43.40	46.91	5.41	210	40.99	48.30	41.94	43.74	3.97
240	55.75	46.13	61.02	54.30	7.55	240	62.32	53.44	51.11	55.62	5.92	240	49.22	56.04	46.56	50.61	4.89
270	60.89	51.99	65.48	59.45	6.86	270	69.50	63.02	60.02	64.18	4.85	270	58.24	63.40	56.22	59.29	3.70
300	66.29	58.76	69.77	64.94	5.63	300	72.73	68.01	64.33	68.36	4.21	300	62.72	67.34	63.20	64.42	2.54
360	71.99	69.16	77.68	72.94	4.34	360	77.43	76.09	70.96	74.83	3.42	360	70.06	73.30	69.08	70.81	2.21
420	77.53	75.40	80.58	77.84	2.60	420	79.88	80.05	74.83	78.25	2.97	420	74.88	76.68	72.54	74.70	2.08
480	79.77	77.80	80.84	79.47	1.54	480	82.55	83.89	78.21	81.55	2.97	480	78.57	79.58	75.52	77.89	2.11
600	81.55	79.96	83.24	81.58	1.64	600	85.96	85.51	80.99	84.15	2.75	600	81.24	81.64	76.88	79.92	2.64
720	82.39	81.91	83.70	82.67	0.93	720	86.90	87.51	82.91	85.77	2.50	720	83.23	83.30	77.11	81.21	3.55
840	82.94	82.63	82.34	82.64	0.30	840	88.16	88.46	83.19	86.60	2.96	840	84.84	83.91	77.92	82.22	3.76
960	83.82	83.03	82.78	83.21	0.54	960	89.44	90.01	82.96	87.47	3.92	960	87.16	84.55	79.10	83.60	4.11
1080	83.56	83.33	83.14	83.34	0.21	1080	90.88	90.18	85.60	88.89	2.87	1080	87.35	84.88	79.95	84.06	3.77
1260	83.91	84.11	83.34	83.79	0.40	1260	92.85	89.96	97.21	93.34	3.65	1260	89.93	85.53	79.93	85.13	5.01
1440	82.99	82.61	82.88	82.83	0.20	1440	97.29	95.81	88.10	93.73	4.93	1440	91.19	85.98	79.91	85.69	5.65

Table 309 Cumulative % drug release from tablets coated with CA films containing different amount of magnesium stearate at coating level of 15% based on chitosan after dry heat treatment at 60°C for different time interval in pH change system (continue)

CA M75 120hrs						CA M75 168hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	1.27	0.73	0.67	0.89	0.33	5	0.00	0.00	0.00	0.00	0.00
15	1.10	0.92	0.56	0.86	0.27	15	0.00	0.00	0.00	0.00	0.00
30	1.24	1.12	1.17	1.18	0.06	30	0.00	0.02	0.02	0.01	0.01
45	3.30	2.75	2.57	2.87	0.38	45	0.99	1.29	1.11	1.13	0.15
60	6.21	5.00	5.24	5.48	0.64	60	2.45	2.01	2.99	2.48	0.49
75	10.29	8.23	8.41	8.98	1.14	75	4.94	2.87	6.20	4.67	1.68
90	13.36	11.35	11.59	12.10	1.10	90	7.32	5.54	9.07	7.31	1.77
105	15.05	13.54	13.60	14.06	0.86	105	9.13	8.35	11.99	9.82	1.92
120	17.20	15.92	16.04	16.39	0.71	120	10.84	14.47	13.96	13.09	1.97
135	23.45	17.72	18.20	19.79	3.18	135	12.21	19.71	15.64	15.85	3.75
150	30.27	21.90	20.90	24.36	5.15	150	19.80	27.05	23.01	23.29	3.63
180	38.30	30.12	26.98	31.80	5.84	180	35.78	35.55	36.40	35.91	0.44
210	44.93	37.72	34.92	39.19	5.16	210	47.81	50.25	46.12	48.06	2.08
240	49.56	44.93	43.30	45.93	3.25	240	56.63	60.04	52.91	56.53	3.57
270	54.68	50.92	50.58	52.06	2.28	270	59.39	68.04	57.54	61.66	5.60
300	58.68	56.45	56.94	57.36	1.17	300	62.86	71.09	62.05	65.33	5.00
360	66.42	63.78	65.51	65.24	1.34	360	67.05	73.83	67.28	69.39	3.85
420	70.33	68.53	71.10	69.99	1.32	420	70.01	76.25	71.23	72.50	3.31
480	72.50	71.56	74.21	72.76	1.34	480	70.99	78.59	71.37	73.65	4.28
600	74.69	75.63	76.01	75.44	0.68	600	73.02	78.34	74.05	75.14	2.82
720	76.74	77.73	77.41	77.29	0.51	720	74.09	79.43	75.08	76.20	2.84
840	76.89	78.62	79.49	78.33	1.32	840	74.06	80.12	75.49	76.56	3.17
960	78.54	78.58	80.17	79.10	0.93	960	73.36	79.89	76.11	76.45	3.28
1080	78.64	80.83	81.24	80.24	1.40	1080	73.18	79.69	76.36	76.41	3.26
1260	80.13	82.87	82.21	81.74	1.43	1260	73.15	79.66	76.88	76.56	3.27
1440	79.58	83.83	82.20	81.87	2.14	1440	73.10	79.97	77.14	76.74	3.45

Table 310 Cumulative % drug release from tablets coated with CA M45 Cas15 and CA Ti45 films at coating level of 15% based on chitosan after dry heat treatment at 60°C for different time interval in pH change system

CA Cas15 24hrs						CA Cas15 72 hrs						CA Cas15 120 hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	5	1.33	1.33	2.11	1.59	0.45
15	1.46	1.76	0.79	1.34	0.50	15	0.37	0.07	0.49	0.31	0.22	15	1.95	1.65	1.89	1.83	0.16
30	10.02	15.91	9.23	11.72	3.65	30	4.77	3.81	5.44	4.67	0.82	30	6.36	5.33	5.94	5.88	0.52
45	38.84	42.54	36.36	39.25	3.11	45	14.31	11.42	16.78	14.17	2.68	45	16.33	11.63	13.14	13.70	2.40
60	61.50	71.42	65.15	66.02	5.02	60	30.77	24.31	33.49	29.52	4.72	60	32.01	23.43	27.30	27.58	4.30
75	79.36	90.29	84.95	84.87	5.47	75	45.26	42.38	50.41	46.02	4.07	75	49.46	41.80	45.99	45.75	3.84
90	92.89	98.56	97.82	96.42	3.08	90	59.66	55.49	67.00	60.72	5.83	90	60.75	55.51	56.18	57.48	2.85
105	99.30	98.62	92.67	96.86	3.65	105	73.37	80.68	90.53	81.53	8.61	105	69.07	66.78	66.91	67.59	1.29
120	100.73	99.76	100.59	100.36	0.52	120	82.07	79.00	98.79	86.62	10.65	120	77.91	78.63	77.16	77.90	0.74
135	101.34	100.12	101.31	100.92	0.70	135	90.87	88.61	102.41	93.96	7.40	135	85.14	87.47	86.87	86.49	1.21
150	101.48	100.57	101.46	101.17	0.52	150	99.04	94.41	104.36	99.27	4.98	150	92.97	97.27	95.13	95.12	2.15
180	102.13	101.12	101.81	101.69	0.52	180	102.05	98.41	104.66	101.71	3.14	180	101.86	103.13	101.38	102.12	0.90
												210	102.89	103.27	102.31	102.82	0.48
												240	103.11	103.54	102.97	103.21	0.30

CA Cas15 168hrs						CA Ti45 24hrs						CA Ti45 72 hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	1.33	0.97	1.21	1.17	0.18	5	3.62	4.52	4.28	4.14	0.47	5	4.04	3.44	3.74	3.74	0.30
15	1.83	1.28	2.13	1.75	0.43	15	5.33	4.97	5.81	5.37	0.42	15	5.45	3.82	4.01	4.43	0.89
30	4.61	4.13	4.73	4.49	0.32	30	11.68	12.17	13.31	12.39	0.84	30	9.76	8.06	8.67	8.83	0.86
45	9.76	9.99	9.34	9.70	0.33	45	38.95	38.65	36.50	38.03	1.34	45	16.32	14.92	15.10	15.45	0.76
60	17.82	19.80	15.96	17.86	1.92	60	64.26	63.84	54.76	60.95	5.37	60	26.77	27.94	33.06	29.26	3.35
75	39.17	35.74	31.52	35.48	3.83	75	78.52	78.64	73.90	77.02	2.70	75	49.60	49.28	54.73	51.20	3.06
90	52.99	46.12	43.25	47.45	5.01	90	90.93	90.33	90.14	90.47	0.41	90	63.24	62.68	67.86	64.59	2.84
105	65.17	56.59	55.71	59.16	5.23	105	100.55	101.37	103.90	101.94	1.75	105	73.90	74.29	79.77	75.99	3.28
120	76.72	66.67	66.08	69.82	5.98	120	101.73	102.02	104.15	102.63	1.32	120	83.05	84.69	94.64	87.46	6.27
135	86.13	75.92	76.85	79.63	5.65	135	104.92	102.97	104.45	104.11	1.02	135	93.54	96.44	102.72	97.57	4.69
150	95.28	85.19	86.13	88.87	5.57	150	105.25	103.23	104.77	104.42	1.06	150	104.13	103.85	103.71	103.90	0.21
180	104.63	93.12	98.10	98.62	5.77	180	105.49	103.40	105.08	104.66	1.11	180	104.67	104.28	104.13	104.36	0.28
210	104.93	97.67	102.28	101.63	3.67	210	105.58	103.54	105.11	104.74	1.07	210	104.97	104.58	104.45	104.67	0.27
240	105.17	98.89	102.61	102.22	3.16	240	105.49	103.61	105.15	104.75	1.00	240	105.21	104.69	104.54	104.81	0.35

CA Ti45 120 hrs						CA Ti45 168 hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	1.99	2.47	1.27	1.91	0.60	5	0.73	1.27	0.85	0.95	0.28
15	2.49	2.62	2.67	2.59	0.09	15	1.88	1.59	1.52	1.66	0.19
30	5.82	3.89	6.48	5.40	1.35	30	4.07	3.83	3.89	3.93	0.12
45	12.12	7.15	15.13	11.47	4.03	45	9.81	9.75	8.91	9.49	0.50
60	16.17	15.44	19.19	16.93	1.99	60	12.89	12.70	11.37	12.32	0.83
75	22.58	19.57	27.25	23.13	3.87	75	17.90	17.48	16.32	17.23	0.82
90	31.50	30.99	37.15	33.21	3.42	90	24.80	25.82	23.46	24.69	1.18
105	38.69	48.44	45.59	44.24	5.01	105	31.29	33.37	32.45	32.37	1.04
120	48.72	58.89	56.14	54.58	5.26	120	38.81	43.44	43.46	41.90	2.68
135	64.55	68.50	72.13	68.39	3.79	135	49.73	61.02	57.84	56.20	5.82
150	77.96	78.28	85.75	80.66	4.41	150	60.34	76.43	70.10	68.96	8.11
180	97.45	92.34	102.96	97.58	5.31	180	82.47	97.88	91.22	90.52	7.73
210	104.35	101.09	103.59	103.01	1.71	210	93.51	102.73	99.24	98.49	4.66
240	104.50	102.19	104.13	103.61	1.24	240	101.86	104.38	103.25	103.16	1.26
270	104.72	102.69	104.25	103.89	1.06	270	103.88	104.69	103.69	104.09	0.53
300	104.78	102.92	104.45	104.05	0.99	300	104.16	104.72	103.89	104.26	0.42

Table 311 Cumulative % drug release from tablets coated with CA M45 films containing different plasticizers at coating level of 15% based on chitosan after dry heat treatment at 60°C for 168 hrs in pH change system

CA M45 Tri15 168hrs						CA M45 Tri30 168hrs						CA M45 Tri45 168hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	3.19	4.76	3.80	3.92	0.79	5	1.99	2.59	2.47	2.35	0.32	5	3.31	1.57	2.95	2.61	0.92
15	5.87	6.48	7.13	6.49	0.63	15	21.20	22.17	20.42	21.26	0.88	15	9.96	4.29	10.98	8.41	3.60
30	10.72	13.14	14.70	12.85	2.01	30	44.67	46.54	42.54	44.58	2.00	30	19.89	22.80	20.74	21.14	1.50
45	20.48	18.70	21.05	20.08	1.23	45	50.94	53.13	54.00	52.69	1.58	45	27.95	31.53	30.73	30.07	1.88
60	31.67	32.58	31.88	32.04	0.48	60	57.43	64.02	63.63	61.69	3.70	60	43.72	40.92	37.46	40.70	3.14
75	41.29	38.37	41.81	40.49	1.85	75	62.44	76.71	72.89	70.68	7.39	75	53.95	53.13	47.06	51.38	3.76
90	58.38	48.99	50.59	52.65	5.02	90	88.18	92.96	80.16	87.10	6.47	90	60.33	62.39	58.10	60.27	2.15
105	63.40	61.87	69.38	64.88	3.97	105	95.33	95.81	87.51	92.88	4.66	105	67.36	64.65	73.72	68.58	4.66
120	81.46	86.26	86.23	84.65	2.76	120	97.17	97.11	94.22	96.17	1.69	120	73.18	83.26	84.44	80.29	6.19
135	91.69	91.84	95.42	92.98	2.11	135	97.89	98.65	96.46	97.67	1.11	135	79.16	91.48	89.53	86.72	6.62
150	94.10	94.54	99.50	96.05	3.00	150	98.54	99.02	97.94	98.50	0.54	150	86.41	94.12	91.87	90.80	3.96
180	94.98	96.02	100.82	97.27	3.12	180	98.97	99.62	98.84	99.14	0.42	180	90.14	95.41	93.56	93.04	2.67
210	96.33	96.19	102.45	98.32	3.57	210	99.45	100.10	99.31	99.62	0.42	210	93.84	96.77	95.02	95.21	1.47
240	96.86	97.37	102.89	99.04	3.34	240	99.93	100.71	99.79	100.14	0.50	240	96.72	97.77	95.96	96.82	0.91
270	97.43	98.02	103.33	99.59	3.25	270	100.41	101.19	100.80	100.80	0.39	270	98.69	98.24	96.84	97.92	0.96
300	97.86	98.80	104.08	100.25	3.35	300	101.15	102.21	100.80	101.39	0.73	300	99.95	99.25	97.34	98.85	1.35
360	98.86	98.38	104.34	100.53	3.31	360	101.31	102.43	101.00	101.58	0.75	360	101.09	99.84	98.00	99.64	1.55
420	100.64	98.96	104.96	101.52	3.10	420	101.30	102.44	100.70	101.48	0.88	420	101.10	99.87	98.45	99.81	1.33

CA M45 P30 168hrs						CA M45 Dp15 168hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.31	1.03	0.91	0.75	0.39	5	0.37	0.43	0.79	0.53	0.23
15	19.93	25.29	27.63	24.28	3.95	15	2.18	0.14	1.82	1.38	1.09
30	56.27	59.61	53.54	56.47	3.04	30	5.51	1.29	7.62	4.81	3.22
45	68.38	78.54	74.06	73.66	5.09	45	10.91	3.59	8.93	7.81	3.79
60	90.72	96.55	87.66	91.64	4.52	60	17.65	10.72	15.01	14.46	3.50
75	101.58	103.70	97.89	101.06	2.94	75	23.65	23.36	22.80	23.27	0.43
90	104.67	104.28	103.67	104.21	0.50	90	29.27	31.02	29.19	29.83	1.03
105	104.19	102.87	102.27	103.11	0.98	105	32.57	34.07	30.78	32.47	1.65
120	103.52	103.31	102.76	103.20	0.39	120	37.02	38.52	38.05	37.86	0.77
135	103.91	103.84	103.10	103.62	0.45	135	42.54	44.71	43.23	43.49	1.11
150	104.10	103.84	103.31	103.75	0.40	150	47.24	51.17	47.21	48.54	2.28
180	104.17	104.02	103.40	103.86	0.41	180	54.37	57.78	51.45	54.53	3.17
						210	60.67	63.45	58.34	60.82	2.56
						240	66.20	68.75	65.94	66.96	1.55
						270	69.90	73.44	71.29	71.54	1.78
						300	73.12	76.01	74.70	74.61	1.45
						360	77.46	80.12	76.85	78.14	1.74
						420	81.02	82.39	81.59	81.67	0.69
						480	85.16	84.69	85.51	85.12	0.41
						600	90.54	89.77	88.53	89.61	1.01
						720	91.05	91.57	89.75	90.79	0.94

Table 312 Cumulative % drug release from tablets coated with CA M45 Cas15 film at different coating level based on chitosan in HCl buffer pH 1.2

CA M45 CAS15 9%									CA M45 Cas15 12%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.97	0.04	0.00	0.00	0.00	0.00	0.17	0.39	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.92	0.00	0.00	0.00	0.00	0.00	0.15	0.38	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.27	0.00	0.00	0.00	0.02	0.00	0.05	0.11	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.34	9.00	0.00	0.00	0.00	0.03	1.56	3.65	7	0.45	0.00	0.00	0.00	0.00	0.03	0.08	0.18
10	0.96	0.64	0.51	0.00	1.36	0.16	0.61	0.50	10	0.34	0.04	0.52	0.34	0.00	0.00	0.21	0.22
12	0.31	0.35	0.29	0.46	0.54	0.71	0.44	0.16	12	0.47	0.17	0.17	0.41	0.10	0.17	0.25	0.15
15	0.38	0.48	0.78	1.31	0.60	0.60	0.69	0.33	15	0.72	0.78	0.54	0.90	0.47	1.32	0.79	0.30
20	0.75	0.91	1.51	1.09	0.97	1.00	1.04	0.26	20	0.74	0.97	0.67	0.91	0.55	1.34	0.86	0.28
25	1.30	1.35	2.25	1.52	1.40	1.15	1.50	0.39	25	0.81	1.10	0.80	0.99	0.74	1.35	0.97	0.23
30	1.80	2.15	3.41	2.38	2.02	1.53	2.22	0.65	30	1.00	1.24	1.11	1.00	1.35	1.40	1.18	0.17
45	5.01	5.90	8.31	3.60	2.82	2.39	4.67	2.22	45	2.46	3.00	2.39	1.06	3.17	1.61	2.28	0.81
60	10.34	10.81	16.31	8.57	6.52	5.12	9.61	3.94	60	5.91	7.42	5.30	2.46	6.81	3.79	5.28	1.87
75	19.25	18.94	25.07	19.27	15.10	14.00	18.61	3.91	75	10.28	12.94	9.49	5.91	11.48	8.03	9.69	2.50
90	25.44	23.62	30.15	31.48	28.61	29.84	28.19	3.03	90	17.08	18.19	14.60	11.00	17.33	14.58	15.46	2.64
105	35.57	31.94	37.54	42.31	35.69	43.73	37.80	4.46	105	24.95	27.63	22.75	17.15	24.17	22.61	23.21	3.49
120	58.27	41.33	46.66	56.51	51.78	61.29	52.64	7.56	120	31.83	35.49	30.04	27.84	31.23	32.07	31.42	2.53
135	71.66	49.81	54.86	67.59	72.41	74.83	65.19	10.35	135	39.71	43.21	37.74	37.99	38.67	41.34	39.78	2.14
150	85.29	63.32	63.29	78.68	90.12	91.23	78.66	12.69	150	54.86	60.84	49.80	49.88	48.30	50.60	52.38	4.70
180	99.06	92.13	78.51	86.64	103.79	101.53	93.61	9.75	180	72.07	84.94	64.88	80.54	59.58	73.26	72.55	9.44
210	103.04	99.98	93.08	100.17	104.85	101.57	100.45	4.05	210	97.14	99.86	89.07	96.81	76.54	88.71	91.36	8.57
240	103.73	101.56	99.61	102.71	104.52	103.70	102.64	1.80	240	102.01	101.79	96.85	100.12	88.61	99.43	98.14	5.03
270	104.06	101.76	100.10	103.09	104.91	103.94	102.98	1.77	270	103.18	102.41	99.25	100.73	96.92	101.24	100.62	2.27

CA M45 Cas15 15%									CA M45 Cas15 18%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15	0.57	0.00	0.00	0.00	0.00	0.00	0.10	0.23
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20	0.65	0.00	0.00	0.00	0.00	0.00	0.11	0.27
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25	0.72	0.00	0.00	0.00	0.00	0.00	0.12	0.29
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30	0.73	0.97	0.00	0.85	1.02	0.47	0.67	0.38
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45	0.86	1.16	0.42	1.22	0.92	0.42	0.83	0.35
60	3.39	3.15	3.61	2.91	3.74	4.28	3.51	0.48	60	1.30	2.08	1.15	2.14	1.89	1.28	1.64	0.45
75	7.09	6.18	6.89	5.46	7.38	8.10	6.85	0.93	75	2.39	2.58	1.88	3.30	3.35	2.43	2.66	0.57
90	11.17	9.83	10.54	8.45	11.40	12.49	10.65	1.40	90	4.40	4.59	2.31	5.20	5.91	4.62	4.51	1.21
105	16.95	15.43	16.03	13.68	17.31	19.30	16.45	1.90	105	7.02	8.47	4.98	8.66	9.14	7.60	7.65	1.51
120	22.53	20.52	20.81	19.23	22.22	24.95	21.71	1.99	120	9.59	12.08	8.38	11.97	12.68	10.36	10.84	1.68
135	28.80	26.11	26.29	25.48	27.17	31.11	27.49	2.11	135	13.08	16.18	12.17	16.19	16.91	15.24	14.96	1.91
150	36.48	34.39	33.36	33.09	33.88	38.45	34.94	2.10	150	18.10	21.33	18.26	21.04	21.89	18.34	19.83	1.77
180	47.40	42.70	42.10	43.57	42.02	48.35	44.36	2.80	180	24.52	27.35	24.92	25.98	28.03	23.98	25.80	1.62
210	66.26	58.05	57.19	62.59	54.95	64.63	60.61	4.52	210	46.50	40.44	32.17	39.72	41.07	41.57	40.25	4.63
240	79.02	68.30	67.74	73.83	64.64	74.50	71.34	5.33	240	64.75	52.53	50.04	53.91	53.45	58.83	55.59	5.33
270	89.33	78.54	79.79	84.52	75.77	83.51	81.91	4.86	270	82.92	67.56	68.13	69.01	67.11	74.68	71.57	6.21
300	95.90	87.46	90.10	92.03	85.33	90.05	90.15	3.66	300	90.79	77.32	93.54	77.64	77.71	84.79	83.63	7.23
360	99.73	94.86	97.09	97.89	92.78	95.72	96.35	2.44	360	96.58	86.17	101.82	84.86	86.99	91.87	91.38	6.71
420	101.72	99.60	101.18	100.96	98.29	98.89	100.11	1.38	420	100.19	96.10	102.92	91.77	95.11	97.37	97.24	3.92
480	100.71	100.80	101.19	103.07	101.23	101.90	101.48	0.88	480	102.24	98.85	103.57	96.61	98.52	99.71	99.92	2.56

Table 313 Cumulative % drug release from tablets coated with CA M45 Cas15 film containing pore forming agents at coating level of 15% based on chitosan in pH change system

CA M45 Cas15 15%									CA M45 Cas15 hpmc45 15%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.17	3.31	2.95	2.23	3.68	2.11	2.74	0.67	5	2.89	2.59	1.75	1.69	1.57	2.29	2.13	0.54
15	0.51	0.63	0.45	0.21	1.30	0.45	0.59	0.37	15	1.29	0.99	0.99	0.75	0.81	0.81	0.94	0.20
30	0.76	0.71	0.46	0.64	0.77	0.82	0.69	0.13	30	0.89	1.01	0.94	1.06	1.36	0.88	1.02	0.18
45	1.49	2.34	1.44	1.73	2.11	1.92	1.84	0.35	45	2.77	2.82	2.40	2.76	3.00	1.74	2.58	0.46
60	3.98	5.79	3.92	4.58	4.90	5.12	4.72	0.71	60	4.23	4.23	4.10	4.17	4.47	2.66	3.98	0.66
75	6.84	9.68	6.78	7.44	7.88	8.59	7.87	1.12	75	6.61	6.97	6.30	6.78	6.79	4.49	6.32	0.93
90	9.71	13.72	9.95	10.92	11.24	12.13	11.28	1.49	90	9.48	10.33	9.29	9.78	9.54	6.63	9.18	1.30
105	13.21	17.24	13.99	14.53	15.20	14.84	14.84	1.37	105	11.87	14.24	11.74	12.22	11.98	9.33	11.90	1.56
120	16.44	21.14	16.44	17.58	19.50	18.19	18.22	1.84	120	15.20	19.60	15.36	16.32	14.72	12.00	15.53	2.47
135	19.68	24.52	19.21	20.65	22.76	21.21	21.34	2.00	135	18.08	23.86	18.60	19.62	17.13	14.86	18.69	3.00
150	23.35	28.63	22.82	24.80	27.16	25.07	25.31	2.23	150	21.80	28.57	22.27	23.17	19.90	18.09	22.30	3.57
180	29.57	34.90	30.24	32.17	34.13	31.37	32.06	2.11	180	29.51	36.61	28.56	30.83	26.29	24.72	29.42	4.15
210	36.16	41.44	35.75	39.64	40.72	37.95	38.61	2.37	210	38.45	46.71	36.72	37.82	33.67	32.38	37.63	5.04
240	44.12	48.54	46.91	47.75	48.36	45.69	46.90	1.72	240	47.31	55.80	44.57	46.51	41.09	40.39	45.95	5.58
270	50.77	54.09	52.98	54.12	54.73	51.51	53.03	1.59	270	53.86	62.81	50.63	52.99	47.07	48.85	52.70	5.56
300	57.42	60.00	59.41	60.97	61.35	57.82	59.50	1.61	300	60.18	69.64	57.22	59.72	53.94	56.91	59.60	5.41
360	65.00	66.75	65.99	68.50	69.47	65.04	66.79	1.84	360	72.09	80.78	69.95	72.04	67.06	72.07	72.33	4.58
420	71.52	72.09	71.39	74.81	76.43	71.44	72.95	2.15	420	79.36	86.73	77.56	79.43	75.31	81.06	79.91	3.87
480	76.24	76.17	75.28	79.01	81.12	75.98	77.30	2.27	480	83.71	90.59	82.91	83.95	81.71	86.90	84.96	3.25
600	81.57	80.43	80.07	84.12	87.02	81.32	82.42	2.66	600	89.26	95.17	89.70	89.69	89.33	93.60	91.13	2.58
720	85.16	83.78	82.88	86.83	90.45	84.72	85.64	2.71	720	92.83	98.18	92.38	92.67	94.91	97.37	94.72	2.54

CA M45 Cas15 U5 15%

Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.31	0.49	0.61	1.21	1.21	0.43	0.71	0.40
15	0.86	1.34	0.68	0.56	0.56	0.38	0.73	0.34
30	3.28	4.24	4.12	3.64	3.10	2.73	3.52	0.59
45	7.52	9.45	9.45	8.00	8.54	6.19	8.19	1.25
60	12.80	17.21	16.43	13.29	16.00	11.77	14.58	2.24
75	18.05	24.53	17.01	18.30	23.49	17.61	19.83	3.28
90	24.00	31.96	29.56	23.89	31.69	25.12	27.70	3.80
105	28.60	37.31	34.58	28.37	37.34	30.60	32.80	4.15
120	32.56	40.84	37.92	31.21	41.65	35.52	36.62	4.28
135	37.07	46.17	42.70	35.36	47.16	41.11	41.60	4.75
150	40.72	50.58	46.44	40.95	51.57	45.73	46.00	4.60
180	50.90	58.92	54.58	51.61	60.86	57.77	55.77	4.06
210	60.72	67.42	62.94	60.66	69.32	66.98	64.67	3.72
240	69.12	74.55	70.81	68.82	76.39	75.11	72.47	3.29
270	75.31	79.64	76.36	74.77	81.08	78.73	77.65	2.54
300	79.41	83.32	80.08	79.11	84.41	82.08	81.40	2.20
360	84.39	87.05	84.15	84.32	88.03	86.13	85.68	1.64
420	88.00	90.13	87.16	87.22	90.17	88.97	88.61	1.36
480	89.96	92.04	88.99	89.23	91.55	91.06	90.47	1.26
600	92.58	94.14	94.10	91.32	93.41	92.56	93.02	1.08
720	98.53	97.79	98.33	97.44	97.11	96.73	97.66	0.70

Table 314 Cumulative % drug release from tablets coated with CA M45 Cas15 U5 film at different coating level based on chitosan in HCl buffer pH 1.2

CA M45 Cas15 U5 9%									CA M45 Cas15 U5 12%								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.19	0.73	1.09	0.43	1.27	1.27	0.83	0.45	1	1.93	0.00	0.25	1.15	1.27	1.15	0.96	0.71
3	0.02	0.56	0.92	0.32	0.98	0.86	0.61	0.38	3	1.29	0.01	0.08	0.98	1.16	0.92	0.74	0.55
5	0.08	0.27	0.00	0.21	0.88	0.76	0.37	0.37	5	1.18	0.08	0.03	0.64	1.06	0.70	0.62	0.48
7	0.03	0.10	0.04	0.22	0.77	0.71	0.31	0.34	7	1.20	0.00	0.00	0.65	0.95	0.59	0.57	0.49
10	0.12	0.23	0.11	0.17	0.90	0.54	0.35	0.31	10	0.97	0.04	0.00	0.60	0.85	0.54	0.50	0.40
12	0.11	0.30	0.12	0.30	0.68	0.49	0.33	0.22	12	0.57	0.05	0.00	0.43	0.68	0.67	0.40	0.30
15	0.24	0.55	0.55	0.31	0.75	0.80	0.53	0.23	15	0.58	0.00	0.00	1.16	0.63	0.98	0.56	0.48
20	1.51	1.28	1.64	0.68	1.54	1.84	1.42	0.40	20	0.23	0.07	0.67	0.94	0.58	0.94	0.57	0.36
25	2.37	2.08	2.62	1.35	2.46	2.76	2.27	0.51	25	0.72	0.62	1.34	1.37	1.08	1.61	1.12	0.39
30	8.29	3.36	11.01	2.27	3.63	4.11	5.45	3.42	30	1.09	1.05	3.71	1.99	1.93	3.25	2.17	1.10
45	36.32	33.47	33.94	30.79	37.89	25.92	33.06	4.27	45	3.87	3.71	7.77	6.04	5.20	7.85	5.74	1.82
60	65.22	65.01	68.01	52.12	63.79	52.00	61.03	7.08	60	9.20	7.53	12.57	13.96	12.15	15.12	11.76	2.88
75	91.64	93.65	92.33	92.13	94.47	85.08	91.55	3.34	75	39.40	22.27	33.82	26.26	28.53	24.39	29.11	6.41
90	99.26	99.77	99.29	97.78	100.24	99.21	99.26	0.83	90	58.09	48.50	51.94	52.34	50.44	49.50	51.80	3.40
105	100.65	100.69	100.50	99.89	100.68	101.21	100.60	0.43	105	78.93	81.51	76.28	69.72	72.34	64.82	73.93	6.18
120	101.75	101.91	101.48	101.29	100.99	101.83	101.54	0.36	120	98.63	98.45	99.46	96.17	96.47	98.45	97.94	1.31
135	102.19	102.41	101.98	101.91	101.01	102.16	101.94	0.49	135	101.95	101.47	102.11	100.37	99.18	104.42	101.58	1.77
150	102.57	102.79	102.42	102.35	101.56	102.60	102.38	0.43	150	103.35	101.37	102.12	101.23	99.91	104.34	102.05	1.59
180	103.07	102.79	103.22	102.85	102.06	103.00	102.83	0.41	180	103.50	103.49	103.45	102.45	100.10	104.67	102.94	1.56

CA M45 Cas15 U5 15%								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.33	0.43	0.25	0.61	0.37	0.61	0.60	0.38
3	0.62	0.00	0.00	0.20	0.14	0.56	0.25	0.27
5	0.00	0.00	0.00	0.00	0.00	0.33	0.06	0.13
7	0.00	0.00	0.00	0.00	0.00	0.40	0.07	0.16
10	0.05	0.10	0.00	0.34	0.00	0.00	0.08	0.13
12	0.00	0.17	0.00	0.41	0.00	0.00	0.10	0.17
15	0.00	0.00	0.00	0.36	0.06	0.00	0.07	0.14
20	0.19	0.13	0.06	0.68	0.19	0.01	0.21	0.24
25	0.62	0.38	0.49	1.41	0.74	0.62	0.71	0.36
30	1.42	0.99	1.05	2.39	1.53	1.30	1.45	0.51
45	4.50	3.17	3.47	5.90	4.08	4.80	4.32	0.99
60	9.83	6.44	7.96	15.02	8.68	6.76	9.12	3.15
75	16.45	12.08	13.17	20.05	16.86	13.25	15.31	3.01
90	22.92	19.25	19.51	24.86	24.48	19.94	21.83	2.57
105	29.86	26.53	26.18	29.88	32.92	26.80	28.70	2.65
120	39.11	34.44	35.30	37.39	42.92	35.92	37.51	3.12
135	56.00	41.86	43.56	49.45	51.70	46.17	48.12	5.30
150	67.81	55.03	55.72	56.17	62.58	54.53	58.64	5.37
180	80.40	61.84	67.88	74.95	78.27	75.43	73.13	6.97
210	96.56	76.00	84.45	90.12	93.45	91.11	88.62	7.37
240	100.12	89.12	98.87	99.88	100.12	99.12	97.87	4.32
270	100.12	99.99	99.93	100.00	100.22	100.12	100.06	0.11
300	100.13	100.12	100.11	100.24	101.23	100.13	100.33	0.45

Table 315 Cumulative % drug release from tablets coated with CA M45 Cas15 films at coating level of 15% based on chitosan after moist heat treatment at 45°C for different time intervals in pH change system

24hrs						48hrs						72hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00
30	1.94	2.31	2.13	2.13	0.19	30	0.56	0.86	0.00	0.47	0.44	30	0.00	0.00	0.00	0.00	0.00
45	6.30	8.28	8.89	7.82	1.35	45	3.22	4.60	3.46	3.76	0.74	45	3.45	1.88	2.25	2.53	0.82
60	11.99	16.10	16.40	14.83	2.46	60	8.06	10.33	9.50	9.46	1.39	60	9.32	5.99	6.72	7.34	1.75
75	17.36	23.06	23.48	21.30	3.42	75	13.99	17.46	16.18	15.88	1.75	75	15.51	11.09	14.17	13.59	2.27
90	25.05	31.37	32.04	29.49	3.86	90	19.57	24.66	20.85	21.69	2.65	90	22.52	17.05	20.51	20.03	2.77
105	35.21	38.03	38.10	37.11	1.65	105	24.51	31.21	26.19	27.30	3.49	105	31.05	24.04	28.35	27.81	3.54
120	40.62	42.33	43.41	42.12	1.41	120	33.77	39.27	34.99	36.01	2.89	120	34.54	30.22	36.27	33.68	3.12
135	46.71	47.25	47.80	47.25	0.55	135	37.81	43.10	34.62	38.51	4.28	135	36.46	33.71	39.02	36.40	2.66
150	51.39	53.42	53.85	52.89	1.31	150	41.57	47.12	43.22	43.97	2.85	150	38.26	36.50	42.32	39.03	2.98
180	59.93	62.19	63.10	61.74	1.63	180	49.07	56.30	50.54	51.97	3.82	180	42.01	42.20	50.12	44.78	4.63
210	68.66	70.50	71.64	70.27	1.50	210	58.00	64.01	60.60	60.87	3.01	210	47.28	48.98	58.47	51.58	6.03
240	75.04	75.85	77.18	76.02	1.08	240	62.86	70.66	66.17	66.56	3.91	240	54.20	56.94	64.69	58.61	5.44
270	79.05	79.11	81.99	80.05	1.68	270	68.07	75.65	72.34	72.02	3.80	270	58.76	61.96	69.08	63.27	5.28
300	82.18	81.46	84.82	82.82	1.77	300	71.26	78.67	77.15	75.69	3.91	300	62.46	65.42	72.37	66.75	5.09
360	84.99	83.74	86.34	85.02	1.30	360	75.90	81.60	81.46	79.65	3.25	360	68.39	70.99	77.60	72.33	4.75
420	87.64	85.83	87.02	86.83	0.92	420	78.71	84.06	84.94	82.57	3.37	420	73.02	76.16	82.25	77.14	4.69
480	88.90	86.77	88.38	88.02	1.11	480	80.63	85.85	85.88	84.12	3.02	480	76.16	79.40	84.71	80.09	4.32
600	90.47	88.08	89.57	89.37	1.21	600	82.51	86.95	87.37	85.61	2.69	600	80.31	84.21	88.33	84.28	4.01
720	91.82	89.18	89.72	90.24	1.39	720	84.18	88.02	87.85	86.68	2.17	720	81.79	86.41	90.32	86.17	4.27
840	92.26	89.54	90.44	90.75	1.39	840	84.58	88.41	88.35	87.11	2.19	840	82.77	87.34	91.46	87.19	4.35
960	92.69	90.06	91.07	91.27	1.33	960	85.50	88.88	88.52	87.63	1.86	960	83.96	89.31	92.35	88.54	4.25
1080	92.92	89.87	91.28	91.36	1.53	1080	85.51	89.41	88.67	87.86	2.07	1080	84.49	89.82	92.51	88.94	4.08
1260	93.73	90.02	91.66	91.80	1.86	1260	85.56	89.74	88.99	88.10	2.23	1260	85.11	89.95	93.24	89.43	4.09
1440	93.70	90.22	91.86	91.93	1.74	1440	86.84	90.42	89.32	88.86	1.83	1440	85.76	90.15	93.65	89.85	3.95

120hrs						168hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.31	0.13	0.01	0.15	0.15	5	0.00	0.00	1.21	0.40	0.70
15	0.02	0.00	0.08	0.03	0.04	15	0.00	0.00	2.37	0.79	1.37
30	0.15	0.00	0.21	0.12	0.11	30	0.00	0.00	0.00	0.00	0.00
45	1.24	0.00	0.82	0.69	0.63	45	0.00	0.00	0.41	0.14	0.24
60	4.68	0.93	3.36	2.99	1.90	60	3.14	2.13	2.77	2.68	0.51
75	9.17	4.02	7.48	6.89	2.63	75	8.28	6.30	5.32	6.63	1.51
90	14.10	8.86	12.52	11.83	2.69	90	15.26	12.66	10.29	12.74	2.49
105	20.22	14.21	20.44	18.29	3.54	105	19.24	15.90	17.57	17.57	1.67
120	24.13	22.05	25.64	23.94	1.80	120	25.22	21.44	24.00	23.55	1.93
135	26.81	26.50	28.15	27.15	0.88	135	28.09	27.07	27.92	27.69	0.55
150	28.79	29.19	28.78	28.92	0.23	150	30.80	29.83	30.86	30.50	0.58
180	33.92	31.08	31.13	32.04	1.63	180	33.99	33.62	36.18	34.60	1.38
210	38.47	36.63	33.71	36.27	2.40	210	39.32	39.24	42.47	40.34	1.84
240	43.54	41.08	37.53	40.72	3.02	240	48.78	44.34	47.17	46.76	2.25
270	49.21	46.40	44.77	46.79	2.25	270	53.17	48.78	52.35	51.43	2.33
300	59.79	51.73	50.17	53.90	5.16	300	60.05	52.86	56.44	56.45	3.60
360	62.29	56.86	58.71	59.29	2.76	360	66.51	58.89	62.06	62.49	3.83
420	67.28	63.19	61.24	63.90	3.08	420	70.51	64.68	67.69	67.63	2.92
480	73.70	64.14	67.75	68.53	4.83	480	76.05	69.67	71.98	72.57	3.23
600	77.53	69.94	75.71	74.39	3.96	600	81.11	75.49	77.50	78.03	2.85
720	79.04	74.74	81.20	78.33	3.29	720	83.61	79.11	79.99	80.90	2.38
840	79.94	78.23	83.57	80.58	2.73	840	83.04	83.27	83.96	83.42	0.48
960	79.94	79.94	85.20	81.69	3.04	960	85.77	84.04	80.99	83.60	2.42
1080	80.52	81.16	85.80	82.49	2.88	1080	85.22	84.98	82.30	84.17	1.62
1260	81.22	81.64	86.66	83.17	3.03	1260	85.23	85.77	85.96	85.65	0.38
1440	82.26	82.39	87.80	84.15	3.16	1440	85.66	85.94	87.54	86.38	1.01

Table 316 Cumulative % drug release from tablets coated with CA M45 Cas15 films at coating level of 15% based on chitosan after moist heat treatment at 60°C for different time intervals in pH change system

24hrs						48hrs						72hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	30	0.00	0.00	0.00	0.00	0.00	30	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	45	0.00	0.00	0.00	0.00	0.00	45	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.15	0.05	0.09	60	0.00	0.00	0.03	0.01	0.02	60	0.00	0.00	0.00	0.00	0.00
75	1.36	0.52	0.70	0.86	0.44	75	3.41	0.00	1.96	1.79	1.71	75	0.00	0.00	0.00	0.00	0.00
90	5.04	3.78	9.01	5.94	2.73	90	10.35	0.00	3.30	4.55	5.29	90	1.66	0.00	0.00	0.55	0.96
105	10.37	14.03	17.80	14.07	3.72	105	11.13	1.57	4.27	5.66	4.93	105	8.02	0.00	4.83	4.28	4.04
120	14.76	16.42	21.63	17.60	3.58	120	12.85	4.60	6.07	7.84	4.40	120	10.74	0.00	6.88	5.87	5.44
135	18.58	22.03	24.83	21.81	3.13	135	15.06	7.60	9.67	10.78	3.85	135	12.88	4.76	9.38	9.01	4.07
150	21.23	24.82	27.76	24.60	3.27	150	18.47	10.55	11.50	13.51	4.32	150	14.32	7.17	11.76	11.08	3.62
180	24.91	30.12	33.54	29.52	4.35	180	23.31	14.82	16.90	18.34	4.43	180	18.02	10.41	14.68	14.37	3.81
210	31.44	37.27	40.30	36.34	4.50	210	27.76	19.88	22.92	23.52	3.97	210	21.38	13.44	17.67	17.50	3.97
240	37.65	44.76	46.56	42.99	4.71	240	31.75	24.91	29.61	28.76	3.50	240	25.36	16.78	21.39	21.18	4.29
270	42.45	49.96	51.60	48.00	4.88	270	36.31	30.44	35.03	33.93	3.09	270	28.87	19.96	24.18	24.34	4.46
300	45.59	53.29	57.49	52.12	6.04	300	41.83	34.56	40.41	38.93	3.85	300	31.52	22.44	27.00	26.99	4.54
360	54.99	57.87	64.73	59.20	5.00	360	48.09	41.53	40.41	43.34	4.15	360	38.50	27.60	32.86	32.99	5.45
420	61.65	63.81	70.69	65.38	4.72	420	54.07	48.41	47.29	49.92	3.63	420	45.81	32.63	37.30	38.58	6.68
480	66.65	68.34	75.00	70.00	4.41	480	62.49	54.54	53.41	56.81	4.95	480	52.96	36.44	42.47	43.96	8.36
600	72.39	74.88	81.09	76.12	4.48	600	68.21	61.14	59.50	62.95	4.63	600	61.86	44.04	51.74	52.55	8.94
720	77.58	79.34	84.27	80.40	3.47	720	72.10	68.77	65.65	68.84	3.23	720	69.00	52.38	57.97	59.78	8.46
840	80.52	81.36	86.42	82.77	3.19	840	75.34	74.45	72.04	73.94	1.71	840	74.75	61.34	60.30	65.46	8.06
960	82.02	83.96	87.79	84.59	2.94	960	77.44	78.24	76.53	77.40	0.86	960	79.14	68.37	73.70	73.74	5.39
1080	83.17	84.60	88.25	85.34	2.62	1080	79.53	81.67	80.84	80.68	1.08	1080	83.07	73.36	77.74	78.06	4.86
1260	83.67	86.10	89.32	86.36	2.83	1260	80.57	84.08	83.13	82.59	1.82	1260	85.44	78.40	81.42	81.75	3.53
1440	84.37	86.34	89.77	86.83	2.73	1440	81.07	85.57	84.50	83.71	2.35	1440	86.95	81.90	84.44	84.43	2.53

120hrs						168hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.61	0.85	0.91	0.79	0.16	5	0.00	0.00	0.00	0.00	0.00
15	0.62	0.44	0.26	0.44	0.18	15	0.00	0.00	0.00	0.00	0.00
30	0.39	0.27	0.21	0.29	0.09	30	0.00	0.00	0.00	0.00	0.00
45	0.40	0.16	0.22	0.26	0.12	45	0.00	0.00	0.00	0.00	0.00
60	0.41	0.23	0.29	0.31	0.09	60	0.00	0.00	0.00	0.00	0.00
75	0.48	0.24	0.42	0.38	0.12	75	1.83	0.00	0.00	0.61	1.06
90	0.61	2.84	4.22	2.56	1.82	90	8.10	3.16	4.78	5.35	2.52
105	5.69	7.83	10.62	8.05	2.47	105	12.75	6.20	7.39	8.78	3.49
120	9.34	9.71	12.99	10.68	2.01	120	15.97	9.56	10.22	11.92	3.53
135	10.88	12.37	14.31	12.52	1.72	135	17.90	11.99	12.36	14.08	3.31
150	12.17	14.16	15.04	13.79	1.47	150	19.13	13.60	14.27	15.67	3.02
180	15.50	17.32	18.74	17.19	1.62	180	21.08	15.81	16.55	17.81	2.85
210	17.54	19.31	20.97	19.27	1.72	210	22.92	18.51	18.96	20.13	2.43
240	20.12	21.73	24.40	22.08	2.16	240	24.99	20.87	21.67	22.51	2.18
270	23.01	24.50	26.94	24.82	1.98	270	26.86	23.34	25.26	25.15	1.76
300	25.00	26.90	29.40	27.10	2.21	300	28.95	25.80	28.02	27.59	1.62
360	26.45	29.53	31.15	29.04	2.39	360	32.63	29.08	29.42	30.38	1.96
420	29.14	30.28	32.72	30.71	1.83	420	36.32	32.49	34.54	34.45	1.92
480	30.47	34.27	33.94	32.89	2.11	480	39.19	34.67	36.78	36.88	2.26
600	38.49	42.18	40.53	40.40	1.85	600	44.62	40.98	42.16	42.59	1.86
720	44.81	49.82	47.15	47.26	2.51	720	50.07	47.97	48.86	48.97	1.05
840	51.40	57.02	54.14	54.19	2.81	840	56.24	54.22	56.88	55.78	1.39
960	57.00	62.11	59.38	59.50	2.56	960	63.21	61.20	66.29	63.57	2.56
1080	61.97	67.16	63.86	64.33	2.63	1080	66.89	65.53	71.89	68.10	3.35
1260	66.84	71.03	68.78	68.88	2.10	1260	72.39	70.64	74.60	72.54	1.98
1440	71.79	75.04	72.94	73.26	1.65	1440	76.33	75.76	78.08	76.72	1.21

Table 317 Cumulative % drug release from tablets coated with CA M45 films at coating level of 15% based on chitosan after moist heat treatment at 45°C for different time intervals in pH change system

24hrs						48hrs						72hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.13	0.31	0.15	0.16	5	0.00	0.00	2.23	0.74	1.29
15	16.19	14.39	15.83	15.47	0.95	15	15.07	18.97	14.88	16.31	2.31	15	13.79	23.66	24.57	20.67	5.98
30	43.85	35.47	44.81	41.38	5.14	30	39.77	41.88	36.08	39.24	2.94	30	37.10	42.21	43.00	40.77	3.20
45	68.40	52.58	66.96	62.65	8.75	45	52.21	63.54	56.45	57.40	5.72	45	55.18	54.78	57.93	55.96	1.71
60	80.40	68.64	79.55	76.20	6.56	60	60.44	77.01	72.59	70.01	8.58	60	69.03	65.14	68.24	67.47	2.06
75	88.55	82.57	87.64	86.25	3.22	75	73.20	88.64	85.99	82.61	8.26	75	79.04	73.09	78.13	76.75	3.21
90	96.57	92.11	97.15	95.28	2.76	90	85.28	97.67	94.89	92.61	6.50	90	84.96	82.82	86.93	84.90	2.06
105	95.82	95.44	95.22	95.49	0.30	105	93.56	99.17	97.30	96.68	2.86	105	90.73	91.27	90.25	90.75	0.51
120	96.53	97.27	95.68	96.49	0.80	120	98.55	101.37	98.13	99.35	1.76	120	98.09	97.28	95.59	96.99	1.28
135	97.08	101.81	96.06	98.32	3.07	135	99.98	101.70	100.54	100.74	0.88	135	100.74	99.10	97.75	99.20	1.50
150	97.48	100.86	95.80	98.05	2.58	150	100.24	102.07	100.83	101.05	0.93	150	101.38	100.06	100.77	100.74	0.66
180	97.45	100.94	95.88	98.09	2.59	180	100.38	102.16	101.06	101.20	0.90	180	101.63	100.18	100.58	100.80	0.75
210	97.30	100.99	95.61	97.97	2.75	210	100.18	102.22	100.97	101.12	1.03	210	101.56	100.19	100.75	100.83	0.69
240	97.22	100.96	95.64	97.94	2.73	240	100.25	102.11	100.92	101.09	0.94	240	101.56	100.39	100.63	100.86	0.62
270	96.98	100.94	95.57	97.83	2.78	270	100.26	102.07	100.63	100.99	0.96	270	101.64	100.42	100.58	100.88	0.66
300	96.86	100.55	95.56	97.66	2.59	300	100.11	101.84	100.54	100.83	0.90	300	101.63	100.40	100.51	100.85	0.68
360	96.85	100.44	95.44	97.58	2.58	360	100.00	101.78	100.49	100.76	0.92	360	101.64	100.29	100.53	100.82	0.72
420	97.21	100.31	95.31	97.61	2.52	420	100.05	101.71	100.48	100.75	0.86	420	101.58	100.29	100.42	100.76	0.71
480	97.20	100.00	95.25	97.48	2.39	480	99.93	101.65	100.54	100.71	0.87	480	101.46	100.17	100.36	100.66	0.70
600	96.85	99.82	94.90	97.19	2.48	600	99.80	101.64	100.41	100.62	0.94	600	101.46	100.23	100.35	100.68	0.68
720	96.78	99.81	95.12	97.24	2.38	720	99.74	101.52	100.53	100.60	0.89	720	101.34	100.28	100.29	100.64	0.61
840	97.26	99.81	95.00	97.36	2.41	840	99.56	101.11	100.35	100.34	0.78	840	101.33	100.04	100.29	100.55	0.68
960	96.84	99.44	95.12	97.13	2.17	960	99.56	101.04	100.29	100.30	0.74	960	101.21	99.98	100.05	100.41	0.69
1080	96.84	99.97	95.00	97.27	2.51	1080	99.32	100.86	100.29	100.16	0.78	1080	101.15	99.86	99.93	100.31	0.73
1260	96.72	99.67	94.99	97.13	2.37	1260	99.30	100.44	100.05	99.93	0.58	1260	101.09	99.80	99.69	100.19	0.78
1440	96.70	99.31	95.11	97.04	2.12	1440	99.28	100.55	100.28	100.04	0.67	1440	101.09	99.80	99.74	100.21	0.76

120hrs						168hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.07	0.00	0.03	0.03	0.04	5	0.00	0.00	0.00	0.00	0.00
15	19.63	8.32	17.88	15.28	6.09	15	0.00	0.00	0.00	0.00	0.00
30	40.08	44.29	38.63	41.00	2.94	30	22.22	18.43	19.27	19.97	1.99
45	53.67	63.19	51.60	56.15	6.18	45	43.53	42.06	43.51	43.03	0.84
60	69.61	78.83	61.52	69.99	8.66	60	64.29	61.92	67.04	64.42	2.56
75	81.13	84.39	68.37	77.96	8.47	75	73.26	66.30	72.78	70.78	3.89
90	90.01	91.35	75.31	85.56	8.90	90	81.49	71.97	74.51	75.99	4.93
105	93.65	93.74	85.44	90.94	4.77	105	84.75	76.50	78.07	79.77	4.38
120	99.50	96.09	93.90	96.50	2.82	120	89.00	80.18	83.00	84.06	4.50
135	100.58	98.70	95.26	98.18	2.70	135	90.91	81.74	87.37	86.67	4.62
150	100.90	99.05	96.69	98.88	2.11	150	91.52	81.32	88.56	87.13	5.25
180	101.10	99.24	96.93	99.09	2.09	180	92.66	81.35	88.92	87.64	5.76
210	100.32	99.34	97.05	98.90	1.68	210	92.34	81.92	89.56	87.94	5.40
240	100.36	99.29	97.15	98.93	1.63	240	92.31	83.18	92.96	89.48	5.47
270	100.30	99.21	97.20	98.90	1.57	270	92.07	83.77	95.01	90.28	5.83
300	100.27	99.23	97.25	98.92	1.53	300	92.39	84.27	95.27	90.64	5.70
360	100.98	99.24	97.15	99.12	1.92	360	94.00	86.13	95.81	91.98	5.15
420	100.62	99.12	97.03	98.92	1.80	420	94.13	89.34	95.79	93.09	3.35
480	100.55	99.06	96.91	98.84	1.83	480	94.87	90.69	95.71	93.76	2.69
600	100.55	98.94	96.85	98.78	1.86	600	95.46	92.04	95.68	94.39	2.04
720	100.42	99.00	97.79	99.07	1.32	720	95.12	92.75	95.77	94.55	1.59
840	100.36	98.93	97.84	99.04	1.26	840	94.90	94.57	95.67	95.05	0.56
960	100.12	99.99	97.72	99.28	1.35	960	94.68	93.09	95.55	94.44	1.25
1080	100.11	99.93	97.78	99.27	1.30	1080	94.03	92.96	95.49	94.16	1.27
1260	100.03	99.87	97.66	99.19	1.32	1260	94.74	93.71	95.37	94.61	0.84
1440	100.04	99.81	97.36	99.07	1.49	1440	94.57	95.09	95.31	94.99	0.38

Table 318 Cumulative % drug release from tablets coated with CA M45 films at coating level of 15% based on chitosan after moist heat treatment at 60°C for different time intervals in pH change system

24hrs						48hrs						72hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00
30	1.22	2.30	5.37	2.96	2.15	30	0.00	0.00	0.00	0.00	0.00	30	0.00	0.00	0.00	0.00	0.00
45	5.50	6.24	10.10	7.28	2.47	45	0.32	0.00	0.00	0.11	0.18	45	0.00	0.00	0.00	0.00	0.00
60	10.96	12.11	14.37	12.48	1.73	60	3.34	1.90	2.07	2.44	0.79	60	2.62	0.93	0.00	1.18	1.33
75	17.04	18.90	19.69	18.54	1.36	75	7.70	5.59	4.86	6.05	1.47	75	7.09	4.80	3.88	5.26	1.65
90	23.10	24.63	25.41	24.38	1.18	90	10.34	12.54	8.68	10.52	1.94	90	10.51	7.90	7.04	8.48	1.81
105	29.37	29.29	31.81	30.16	1.43	105	10.56	13.24	11.43	11.74	1.37	105	14.71	11.42	10.99	12.37	2.04
120	35.11	36.09	37.52	36.24	1.21	120	21.98	15.86	16.71	18.18	3.32	120	18.65	15.28	15.55	16.49	1.87
135	37.85	40.79	42.30	40.31	2.26	135	24.66	20.51	19.42	21.53	2.76	135	20.77	18.15	17.78	18.90	1.63
150	40.13	44.79	50.70	45.21	5.30	150	28.06	23.83	21.78	24.56	3.20	150	22.38	19.80	20.55	20.91	1.33
180	45.77	50.57	57.40	51.25	5.84	180	31.53	26.69	25.64	27.95	3.14	180	25.23	23.17	24.52	24.31	1.05
210	52.41	57.47	61.87	57.25	4.73	210	36.19	30.73	31.27	32.73	3.01	210	28.43	26.79	28.27	27.83	0.90
240	57.34	61.89	66.63	61.95	4.65	240	40.43	34.90	35.98	37.10	2.93	240	32.10	29.64	31.96	31.23	1.38
270	62.45	66.06	70.85	66.45	4.21	270	45.99	40.77	40.87	42.54	2.99	270	36.19	33.19	35.41	34.93	1.56
300	67.06	69.93	73.83	70.27	3.40	300	51.47	46.13	44.28	47.29	3.73	300	40.09	37.10	38.62	38.60	1.50
360	72.50	74.20	76.48	74.39	2.00	360	59.15	54.05	50.35	54.52	4.42	360	46.60	44.02	44.49	45.04	1.37
420	77.01	77.81	78.76	77.86	0.88	420	66.20	60.92	58.34	61.82	4.01	420	57.49	51.68	50.44	53.20	3.76
480	79.58	79.46	82.34	80.46	1.63	480	71.62	67.04	64.10	67.59	3.79	480	61.59	57.95	56.99	58.84	2.43
600	82.60	82.16	84.54	83.10	1.27	600	76.87	70.75	69.93	72.52	3.79	600	71.03	67.91	67.35	68.76	1.98
720	84.24	83.12	86.26	84.54	1.59	720	83.13	78.49	78.31	79.98	2.73	720	78.54	75.54	75.91	76.66	1.64
840	85.92	85.42	88.14	86.49	1.45	840	87.50	82.10	83.69	84.43	2.78	840	83.77	80.99	82.48	82.41	1.39
960	89.95	87.42	89.12	88.83	1.29	960	88.79	82.50	84.45	85.25	3.22	960	87.70	84.81	88.36	86.96	1.89
1080	84.81	88.27	92.27	88.45	3.73	1080	89.82	83.58	87.51	86.97	3.15	1080	90.38	87.43	89.52	89.11	1.52
1260	95.58	90.25	93.01	92.95	2.67	1260	91.11	86.52	88.18	88.60	2.32	1260	91.56	89.68	91.66	90.97	1.12
1440	95.68	90.20	93.02	92.97	2.74	1440	91.12	87.54	89.11	89.26	1.79	1440	92.42	90.83	94.42	92.56	1.80

120hrs						168hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.07	0.00	0.02	0.04	5	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.19	0.00	0.06	0.11
30	0.00	0.00	0.00	0.00	0.00	30	0.00	0.00	0.32	0.11	0.18
45	0.00	0.00	0.45	0.15	0.26	45	0.00	0.27	4.66	1.64	2.62
60	0.51	2.20	3.17	1.96	1.35	60	3.28	5.94	5.33	4.85	1.39
75	4.25	3.96	6.38	4.86	1.32	75	2.47	7.00	5.94	5.14	2.37
90	6.75	3.15	10.82	6.91	3.84	90	3.03	7.65	6.58	5.75	2.42
105	10.34	9.21	13.12	10.89	2.01	105	8.74	11.94	9.11	9.93	1.75
120	13.37	12.05	15.28	13.57	1.62	120	11.10	14.50	11.53	12.38	1.85
135	16.11	14.31	18.38	16.27	2.04	135	12.53	18.14	13.02	14.56	3.11
150	18.40	16.29	21.22	18.64	2.47	150	14.08	21.68	15.05	16.94	4.14
180	22.83	23.59	29.80	25.41	3.82	180	15.76	25.29	16.29	19.11	5.36
210	26.92	27.31	33.45	29.23	3.66	210	18.32	28.48	19.14	21.98	5.64
240	30.30	32.30	37.80	33.47	3.88	240	20.72	32.03	21.70	24.82	6.27
270	33.03	35.68	42.93	37.21	5.13	270	23.13	36.07	23.21	27.47	7.45
300	35.95	47.18	49.13	44.09	7.11	300	25.51	35.85	25.65	29.00	5.93
360	39.27	53.22	51.50	48.00	7.61	360	30.33	43.36	30.53	34.74	7.47
420	43.95	57.92	53.98	51.95	7.20	420	36.52	50.13	37.07	41.24	7.70
480	48.82	65.41	58.11	57.45	8.31	480	41.44	52.95	42.70	45.70	6.31
600	57.37	72.15	62.36	63.96	7.52	600	50.28	59.20	50.70	53.39	5.03
720	65.53	76.66	67.57	69.92	5.93	720	58.15	65.82	58.59	60.85	4.31
840	70.28	78.79	73.99	74.35	4.27	840	64.81	69.67	66.72	67.07	2.45
960	78.63	81.63	78.65	79.64	1.73	960	70.13	72.04	71.69	71.29	1.02
1080	82.87	84.99	81.53	83.13	1.74	1080	73.86	73.66	79.11	75.54	3.09
1260	84.32	87.54	84.30	85.39	1.86	1260	78.01	78.26	82.10	79.46	2.29
1440	87.12	90.12	86.65	87.96	1.88	1440	82.38	82.26	87.61	84.08	3.05

Table 319 Cumulative % drug release from tablets coated with CA Ta45 films at coating level of 15% based on chitosan after moist heat treatment at 45°C for different time intervals in pH change system

24hrs						48hrs						72hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.01	0.07	0.00	0.03	0.04	5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00
15	0.62	0.50	0.44	0.52	0.09	15	0.44	0.97	0.43	0.61	0.31	15	0.43	7.95	0.55	2.98	4.31
30	4.66	4.00	4.48	4.38	0.34	30	1.24	1.89	2.01	1.71	0.41	30	2.01	10.05	3.94	5.33	4.20
45	12.51	10.83	11.91	11.75	0.85	45	6.34	4.68	6.06	5.69	0.89	45	6.66	12.28	8.84	9.26	2.83
60	24.26	20.40	24.02	22.89	2.16	60	10.62	8.74	9.89	9.75	0.95	60	12.12	15.25	14.67	14.01	1.67
75	30.84	28.10	29.57	29.50	1.37	75	18.09	14.03	16.75	16.29	2.07	75	18.87	20.15	21.94	20.32	1.54
90	36.68	34.82	36.18	35.89	0.96	90	22.29	18.75	21.61	20.88	1.88	90	24.64	24.66	27.52	25.61	1.66
105	42.63	41.80	41.61	42.01	0.54	105	28.33	23.47	28.07	26.62	2.75	105	30.36	28.31	32.39	30.35	2.04
120	47.72	47.84	47.23	47.60	0.32	120	39.85	29.82	39.54	36.40	5.70	120	37.64	38.42	40.27	38.78	1.35
135	55.15	55.32	53.94	54.80	0.75	135	50.07	40.76	49.70	46.84	5.27	135	47.50	47.47	51.03	48.67	2.05
150	62.77	66.56	58.83	62.72	3.87	150	56.09	48.08	55.30	53.16	4.41	150	54.98	58.55	57.09	56.87	1.79
180	71.69	79.30	70.28	73.76	4.85	180	64.06	58.62	59.36	60.68	2.95	180	65.55	71.56	66.42	67.84	3.25
210	79.71	91.47	78.41	83.20	7.19	210	71.40	67.31	70.17	69.63	2.10	210	73.77	83.71	74.16	77.21	5.63
240	84.95	95.07	87.26	89.09	5.30	240	76.37	73.82	75.73	75.31	1.33	240	78.81	87.14	78.95	81.63	4.77
270	88.17	94.98	88.07	90.41	3.96	270	81.11	78.91	80.77	80.26	1.18	270	83.31	88.78	83.67	85.25	3.06
300	89.18	95.15	90.27	91.53	3.18	300	84.59	82.23	84.07	83.63	1.24	300	86.85	90.24	87.20	88.10	1.86
360	90.70	96.64	90.96	92.77	3.36	360	90.04	88.55	87.74	88.78	1.17	360	91.56	91.28	92.90	91.91	0.87
420	93.02	100.47	98.13	97.21	3.81	420	92.56	92.18	91.79	92.18	0.39	420	94.39	93.71	96.14	94.75	1.25
480	92.15	100.18	98.99	97.11	4.33	480	94.58	94.96	94.47	94.67	0.26	480	94.48	96.20	99.54	96.74	2.57
600	92.46	99.93	99.50	97.30	4.19	600	95.93	97.41	96.25	96.53	0.78	600	95.17	96.26	100.84	97.42	3.01
720	92.17	98.78	99.25	96.73	3.96	720	97.06	98.98	97.63	97.89	0.99	720	94.09	96.21	100.98	97.09	3.53
840	91.85	98.79	99.25	96.63	4.15	840	97.56	98.88	97.69	98.04	0.73	840	95.65	96.19	101.57	97.80	3.27
960	91.62	98.81	99.19	96.54	4.27	960	96.48	99.16	97.06	97.57	1.41	960	96.60	96.10	101.48	98.06	2.97
1080	92.17	98.59	99.19	96.65	3.89	1080	96.42	99.01	96.54	97.32	1.46	1080	96.59	96.07	101.38	98.01	2.93
1260	92.05	98.18	99.08	96.44	3.83	1260	96.34	99.12	96.46	97.31	1.57	1260	96.31	97.22	101.01	98.18	2.49
1440	91.93	98.10	99.06	96.36	3.87	1440	96.12	98.97	96.42	97.17	1.57	1440	96.32	96.64	101.03	98.00	2.63

120hrs						168hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.49	0.91	0.19	0.53	0.36	5	0.00	0.00	0.00	0.00	0.00
15	0.56	0.44	0.80	0.60	0.18	15	0.00	0.00	0.00	0.00	0.00
30	0.63	0.21	0.39	0.41	0.21	30	0.00	0.00	0.00	0.00	0.00
45	2.69	1.72	0.76	1.72	0.97	45	0.51	1.89	0.20	0.87	0.90
60	6.62	5.59	2.28	4.83	2.27	60	2.80	5.64	2.38	3.61	1.77
75	11.36	10.61	6.33	9.43	2.71	75	6.44	9.59	5.65	7.23	2.08
90	15.94	14.12	10.04	13.37	3.02	90	10.27	13.02	9.24	10.84	1.95
105	22.58	21.37	17.16	20.37	2.85	105	13.77	15.90	15.71	15.13	1.18
120	31.00	29.42	23.77	28.06	3.80	120	20.66	21.56	22.73	21.65	1.04
135	36.73	36.15	28.34	33.74	4.69	135	25.64	27.13	28.49	27.09	1.43
150	41.55	41.15	31.87	38.19	5.48	150	28.74	30.13	32.26	30.38	1.77
180	49.35	48.42	39.39	45.72	5.50	180	33.88	34.72	38.48	35.69	2.45
210	58.11	55.88	49.12	54.37	4.68	210	39.44	41.22	46.67	42.44	3.77
240	66.01	63.00	56.94	61.98	4.62	240	44.59	47.73	52.31	48.24	3.94
270	72.20	69.07	62.00	67.76	5.23	270	51.41	53.19	58.51	54.37	3.69
300	76.44	73.65	67.92	72.67	4.34	300	57.06	57.89	63.83	59.59	3.69
360	81.65	80.99	74.85	79.16	3.75	360	64.48	66.38	71.04	67.30	3.38
420	86.45	86.03	80.19	84.22	3.50	420	71.44	74.11	77.01	74.19	2.79
480	90.19	89.64	84.77	88.20	2.98	480	76.71	79.26	82.05	79.34	2.67
600	95.73	95.31	91.23	94.09	2.49	600	83.39	85.96	85.48	84.94	1.37
720	97.89	97.99	93.94	96.61	2.31	720	87.83	90.58	87.93	88.78	1.56
840	99.47	99.67	94.26	97.80	3.07	840	90.37	93.12	91.91	91.80	1.38
960	99.38	100.84	96.15	98.79	2.40	960	92.18	94.46	94.22	93.62	1.25
1080	100.92	102.46	96.12	99.83	3.31	1080	92.84	95.00	95.21	94.35	1.31
1260	100.55	101.74	98.00	100.10	1.91	1260	93.46	95.04	95.81	94.77	1.20
1440	100.14	101.88	97.21	99.74	2.36	1440	94.76	96.39	96.26	95.80	0.91

Table 320 Cumulative % drug release from tablets coated with CA Ta45 films at coating level of 15% based on chitosan after moist heat treatment at 60°C for different time intervals in pH change system

24hrs						48hrs						72hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.61	0.00	0.20	0.35	5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00
15	0.00	0.08	0.00	0.03	0.05	15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.38	0.13	0.22	30	0.00	0.68	0.00	0.23	0.39	30	0.00	0.00	0.00	0.00	0.00
45	0.98	0.27	2.38	1.21	1.07	45	0.21	2.80	0.27	1.09	1.48	45	0.00	0.00	0.00	0.00	0.00
60	4.01	1.55	6.07	3.88	2.26	60	1.84	6.13	1.66	3.21	2.53	60	4.55	0.64	0.27	1.82	2.37
75	7.89	5.84	10.32	8.02	2.24	75	4.69	9.84	4.26	6.26	3.10	75	6.99	3.54	2.21	4.25	2.47
90	12.09	10.99	15.74	12.94	2.49	90	7.91	14.30	7.42	9.88	3.84	90	8.24	7.05	7.46	7.58	0.60
105	16.10	16.08	18.95	17.04	1.65	105	10.01	15.80	10.18	12.00	3.29	105	12.23	10.64	11.76	11.54	0.82
120	19.57	20.08	29.36	23.00	5.51	120	18.18	21.93	17.82	19.31	2.28	120	17.46	15.23	15.27	15.99	1.28
135	26.14	27.77	33.85	29.25	4.06	135	24.03	28.27	23.97	25.42	2.47	135	23.06	22.40	19.74	21.73	1.76
150	32.21	35.74	39.48	35.81	3.64	150	28.08	31.63	27.48	29.06	2.24	150	26.51	25.85	23.64	25.33	1.50
180	39.73	42.87	47.80	43.47	4.07	180	33.27	37.65	33.73	34.88	2.41	180	31.04	29.90	29.10	30.01	0.97
210	49.82	52.69	54.31	52.27	2.27	210	39.19	44.70	43.56	42.48	2.91	210	37.76	30.77	35.60	34.71	3.58
240	57.51	56.81	62.49	58.94	3.10	240	44.29	50.51	51.48	48.76	3.90	240	44.33	43.18	41.83	43.11	1.25
270	64.39	63.99	68.37	65.58	2.42	270	52.01	59.89	57.70	56.53	4.07	270	51.69	48.47	48.47	49.54	1.86
300	69.39	67.27	76.15	70.94	4.64	300	59.17	66.64	62.10	62.64	3.76	300	58.83	55.55	54.65	56.34	2.20
360	75.40	73.33	83.69	77.47	5.48	360	66.79	75.35	69.15	70.43	4.42	360	69.24	63.58	63.27	65.36	3.36
420	82.48	80.97	88.34	83.93	3.89	420	72.77	80.99	74.78	76.18	4.29	420	75.83	70.38	70.79	72.33	3.04
480	85.95	84.71	93.99	88.22	5.04	480	77.39	85.52	79.06	80.66	4.29	480	80.59	76.18	76.37	77.71	2.49
600	90.63	89.43	97.49	92.52	4.35	600	83.66	91.47	85.41	86.85	4.10	600	85.89	83.54	84.03	84.49	1.24
720	93.69	92.05	99.44	95.06	3.88	720	87.81	93.91	89.42	90.38	3.16	720	89.53	89.03	88.67	89.08	0.43
840	94.65	93.23	99.40	95.76	3.23	840	90.29	95.50	91.45	92.41	2.74	840	91.78	92.42	91.76	91.99	0.38
960	95.23	93.68	99.50	96.14	3.01	960	91.56	96.04	92.40	93.33	2.38	960	93.06	94.31	93.71	93.69	0.63
1080	95.30	93.70	99.74	96.25	3.13	1080	92.03	96.32	92.62	93.66	2.33	1080	93.60	95.17	94.69	94.49	0.80
1260	95.34	93.75	95.58	94.89	0.99	1260	96.84	97.07	92.92	95.61	2.33	1260	95.02	95.98	96.28	95.76	0.66
1440	95.29	93.58	99.52	96.13	3.06	1440	96.31	97.75	93.49	95.85	2.17	1440	96.31	96.47	97.18	96.65	0.46

120hrs						168hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.07	0.31	0.13	0.17	0.12	5	0.00	0.00	0.00	0.00	0.00
15	0.32	0.26	0.56	0.38	0.16	15	0.00	0.00	0.00	0.00	0.00
30	0.21	0.21	0.15	0.19	0.03	30	0.00	0.00	0.00	0.00	0.00
45	0.03	0.34	0.04	0.14	0.18	45	0.00	0.00	0.00	0.00	0.00
60	0.10	0.17	0.04	0.10	0.07	60	0.01	1.84	0.67	0.84	0.93
75	0.47	0.18	2.10	0.92	1.04	75	4.31	5.47	2.01	3.93	1.76
90	1.87	1.33	4.16	2.45	1.50	90	7.65	9.00	6.21	7.62	1.40
105	5.75	5.92	9.50	7.06	2.12	105	10.76	12.21	9.98	10.98	1.13
120	10.11	9.28	13.58	10.99	2.28	120	14.50	15.90	14.06	14.82	0.96
135	12.71	12.11	16.86	13.89	2.59	135	17.66	19.30	17.58	18.18	0.97
150	14.80	14.37	19.38	16.18	2.78	150	20.37	21.49	19.70	20.52	0.90
180	19.26	19.60	24.17	21.01	2.74	180	23.98	25.46	22.76	24.07	1.35
210	24.05	24.87	28.74	25.89	2.50	210	28.50	30.62	26.48	28.53	2.07
240	30.52	31.70	34.46	32.23	2.02	240	32.54	35.09	29.73	32.45	2.68
270	36.01	37.73	39.84	37.86	1.92	270	36.65	39.14	33.70	36.50	2.72
300	41.68	43.29	45.27	43.41	1.80	300	40.52	43.07	37.62	40.40	2.73
360	50.97	50.99	54.15	52.04	1.83	360	48.53	49.38	45.21	47.71	2.20
420	59.52	59.02	61.28	59.94	1.19	420	58.00	55.28	60.75	58.01	2.74
480	67.64	65.48	68.19	67.10	1.43	480	66.67	60.79	72.82	66.76	6.02
600	78.62	77.15	77.19	77.65	0.84	600	77.85	69.57	81.97	76.46	6.32
720	85.49	83.54	84.56	84.53	0.98	720	85.28	77.36	87.48	83.37	5.32
840	89.69	88.43	88.09	88.74	0.84	840	90.25	82.98	90.05	87.76	4.14
960	92.82	91.61	91.07	91.83	0.90	960	92.96	86.94	93.00	90.97	3.49
1080	95.05	92.58	95.58	94.40	1.60	1080	94.90	89.55	95.68	93.38	3.34
1260	98.25	96.59	97.76	97.53	0.85	1260	97.23	92.72	96.84	95.60	2.50
1440	100.41	97.08	99.43	98.97	1.71	1440	98.74	93.34	99.67	97.25	3.42

Table 321 Cumulative % drug release from tablets coated with CA M60 films at coating level of 15% based on chitosan after moist heat treatment at 45°C for different time intervals in pH change system

24hrs						72hrs						120hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	2.83	2.11	2.13	2.36	0.41	5	3.86	2.05	0.67	2.19	1.60	5	0.19	0.61	1.21	0.67	0.51
15	2.92	7.67	6.36	5.65	2.45	15	3.28	2.55	0.80	2.21	1.27	15	0.38	0.50	1.04	0.64	0.35
30	9.38	21.92	10.98	14.09	6.83	30	5.60	5.04	2.38	4.34	1.72	30	0.39	0.45	0.88	0.57	0.27
45	14.01	29.51	17.96	20.49	8.05	45	10.51	10.19	8.30	9.67	1.19	45	2.02	8.46	0.83	3.77	4.11
60	21.86	37.80	26.43	28.70	8.21	60	16.77	16.93	13.64	15.78	1.86	60	16.25	17.06	18.61	17.31	1.20
75	31.79	44.75	33.32	36.62	7.08	75	22.65	22.51	19.50	21.55	1.78	75	22.03	26.61	22.21	23.62	2.59
90	40.16	48.80	38.25	42.40	5.62	90	27.60	27.40	24.61	26.54	1.67	90	26.47	30.92	26.71	28.03	2.50
105	48.86	50.25	42.60	47.24	4.08	105	31.04	30.90	28.68	30.21	1.32	105	29.93	32.78	30.88	31.20	1.45
120	63.27	55.19	47.38	55.28	7.95	120	35.28	35.56	33.93	34.92	0.87	120	35.18	39.18	35.55	36.64	2.21
135	74.97	51.97	58.86	65.27	8.55	135	41.26	43.74	40.03	41.68	1.89	135	40.86	46.80	42.13	43.26	3.13
150	80.54	66.51	66.82	71.29	8.01	150	43.76	47.50	44.21	45.16	2.04	150	44.65	55.76	46.08	48.83	6.04
180	83.93	73.28	66.61	74.61	8.74	180	46.49	52.39	48.91	49.26	2.97	180	49.98	62.41	51.20	54.53	6.85
210	85.10	77.97	71.45	78.17	6.83	210	50.03	57.38	56.03	54.48	3.91	210	54.72	65.50	56.59	58.94	5.76
240	86.10	80.52	75.15	80.59	5.48	240	55.92	62.84	61.56	60.11	3.68	240	60.64	67.55	60.62	62.94	4.00
270	86.58	81.70	77.48	81.92	4.55	270	59.75	68.66	65.31	64.57	4.50	270	65.50	69.11	66.55	67.05	1.86
300	87.07	82.22	80.45	83.25	3.43	300	63.87	72.24	68.47	68.19	4.19	300	71.32	71.97	70.47	71.25	0.75
360	89.27	83.49	84.89	85.88	3.02	360	70.42	77.36	74.28	74.02	3.48	360	78.26	75.81	73.97	76.01	2.15
420	89.63	86.62	86.03	87.43	1.93	420	74.66	81.02	77.78	77.82	3.18	420	82.07	78.87	79.47	80.14	1.70
480	90.80	87.32	88.50	88.87	1.77	480	77.25	82.98	79.14	79.79	2.92	480	84.23	81.71	82.25	82.73	1.33
600	91.36	88.87	89.62	89.95	1.28	600	80.91	85.39	81.90	82.73	2.35	600	84.82	85.72	84.25	84.93	0.74
720	92.75	90.29	91.07	91.37	1.26	720	81.90	87.02	83.64	84.19	2.60	720	86.05	87.60	84.75	86.13	1.43
840	92.43	92.05	91.81	92.10	0.31	840	83.76	87.85	85.41	85.67	2.06	840	87.13	87.94	84.88	86.65	1.59
960	93.52	92.11	94.19	93.27	1.06	960	83.94	87.48	86.82	86.08	1.88	960	88.07	88.34	86.40	87.60	1.05
1080	93.62	92.46	96.93	94.34	2.32	1080	85.18	89.93	87.98	87.70	2.39	1080	89.00	88.96	85.95	87.97	1.75
1260	95.30	93.15	96.13	94.86	1.54	1260	88.86	90.82	91.31	90.33	1.30	1260	90.11	89.56	91.31	90.33	0.89
1440	95.51	96.27	96.13	95.97	0.40	1440	93.20	93.53	90.37	92.37	1.74	1440	91.24	90.50	90.37	90.70	0.47

Table 322 Cumulative % drug release from tablets coated with CA M60 films at coating level of 15% based on chitosan after moist heat treatment at 60°C for different time intervals in pH change system

24hrs						72hrs						120hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	5	0.31	0.19	0.55	0.35	0.18	5	0.19	0.19	0.19	0.19	0.00
15	0.00	0.00	0.00	0.00	0.00	15	0.38	0.14	0.68	0.40	0.27	15	0.20	0.20	0.08	0.16	0.07
30	0.02	0.14	0.32	0.16	0.15	30	0.27	0.03	0.00	0.10	0.15	30	0.21	0.21	0.21	0.21	0.00
45	2.62	1.96	3.40	2.66	0.72	45	1.78	0.09	0.10	0.66	0.97	45	0.58	0.40	0.27	0.42	0.16
60	6.01	4.98	7.82	6.27	1.44	60	5.53	1.25	0.41	2.40	2.75	60	0.53	0.41	0.41	0.45	0.07
75	9.18	8.21	12.32	9.90	2.15	75	11.28	1.68	1.14	4.70	5.70	75	0.78	0.66	0.60	0.68	0.09
90	14.23	12.11	17.27	14.54	2.59	90	15.81	3.63	3.98	7.81	6.93	90	2.72	3.50	3.68	3.30	0.51
105	22.01	15.71	21.11	19.61	3.41	105	20.32	7.07	9.80	12.40	7.00	105	3.81	5.41	5.58	4.93	0.98
120	28.12	21.66	25.62	25.13	3.26	120	23.21	11.91	14.17	16.43	5.98	120	7.21	8.64	8.76	8.20	0.86
135	32.60	27.00	31.21	30.27	2.92	135	28.20	17.90	20.41	22.17	5.37	135	10.68	11.65	11.47	11.27	0.52
150	35.15	29.34	36.95	33.81	3.98	150	30.72	23.39	22.30	25.47	4.58	150	13.11	14.08	14.02	13.74	0.54
180	40.36	35.12	42.46	39.31	3.78	180	33.37	30.75	27.82	30.65	2.78	180	16.03	17.24	16.89	16.72	0.62
210	45.35	41.09	48.69	45.04	3.81	210	36.60	37.66	31.94	35.40	3.04	210	19.67	20.36	20.41	20.15	0.41
240	50.35	45.12	51.50	48.99	3.40	240	39.70	43.25	39.50	40.82	2.11	240	23.15	23.78	23.37	23.43	0.32
270	54.75	50.51	54.53	53.26	2.39	270	42.56	48.09	43.02	44.56	3.07	270	25.99	25.14	25.97	25.70	0.49
300	58.89	55.20	57.26	57.12	1.85	300	45.70	50.27	45.57	47.18	2.68	300	29.37	26.08	28.98	28.14	1.80
360	63.32	57.45	61.33	60.70	2.99	360	51.09	55.74	51.01	52.61	2.71	360	34.76	31.68	31.87	32.77	1.73
420	67.63	65.37	65.76	66.25	1.21	420	57.54	60.51	57.45	58.50	1.74	420	39.62	36.23	33.99	36.61	2.83
480	70.88	69.59	69.40	69.96	0.81	480	62.36	65.86	61.84	63.35	2.19	480	44.50	40.43	40.26	41.73	2.40
600	74.77	73.92	74.04	74.24	0.46	600	68.56	72.97	68.30	69.94	2.62	600	50.87	49.67	50.39	50.31	0.60
720	77.83	76.94	76.96	77.24	0.51	720	72.52	76.53	72.40	73.82	2.35	720	57.08	56.64	56.83	56.85	0.22
840	78.86	78.23	78.34	78.48	0.34	840	75.07	79.14	75.07	76.43	2.35	840	62.89	62.98	62.10	62.66	0.48
960	79.11	79.21	79.18	79.17	0.05	960	76.37	80.01	76.42	77.60	2.09	960	68.54	67.27	66.86	67.56	0.88
1080	79.87	79.87	79.77	79.84	0.06	1080	77.30	80.64	77.24	78.39	1.95	1080	71.12	71.22	70.38	70.91	0.46
1260	80.07	80.46	80.75	80.43	0.34	1260	77.62	81.31	77.61	78.85	2.13	1260	73.56	74.45	73.84	73.95	0.46
1440	81.79	80.65	81.48	81.31	0.59	1440	77.25	80.65	77.19	78.36	1.98	1440	76.47	77.03	75.95	76.48	0.54

Table 323 Cumulative % drug release from tablets coated with CA M75 films at coating level of 15% based on chitosan after moist heat treatment at 45°C for different time intervals in pH change system

24hrs						72hrs						120hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.19	0.37	0.31	0.29	0.09	5	0.07	0.00	0.00	0.02	0.04	5	1.15	0.97	0.61	0.91	0.27
15	1.40	0.74	0.68	0.94	0.40	15	0.80	0.00	0.38	0.39	0.40	15	1.04	0.92	0.56	0.84	0.25
30	2.86	3.28	2.98	3.04	0.22	30	0.00	0.50	0.69	0.40	0.36	30	1.18	0.82	0.87	0.96	0.20
45	5.05	5.77	5.23	5.35	0.37	45	5.51	5.15	5.15	5.27	0.21	45	1.37	1.13	0.52	1.01	0.44
60	8.88	10.08	8.99	9.32	0.66	60	11.38	10.00	11.99	11.12	1.02	60	1.33	1.51	0.60	1.15	0.48
75	14.11	17.43	14.29	15.28	1.87	75	17.11	15.41	17.48	16.67	1.10	75	2.31	1.88	0.73	1.64	0.82
90	18.53	23.85	20.87	21.08	2.67	90	22.15	21.40	22.63	22.06	0.62	90	2.81	2.20	1.46	2.16	0.68
105	22.59	28.99	23.55	25.04	3.45	105	25.70	24.79	28.08	26.19	1.70	105	5.50	4.66	4.28	4.81	0.62
120	27.34	31.93	28.07	29.11	2.47	120	30.94	30.32	33.92	31.73	1.92	120	10.44	10.01	7.50	9.32	1.59
135	35.54	41.58	33.84	36.99	4.07	135	35.07	34.28	40.03	36.46	3.12	135	14.82	13.97	10.39	13.06	2.35
150	46.14	49.72	44.43	46.76	2.70	150	38.77	43.30	44.22	42.10	2.92	150	18.15	18.61	12.63	16.46	3.33
180	55.90	56.84	55.27	56.00	0.79	180	44.04	48.63	49.29	47.32	2.86	180	22.33	24.33	20.10	22.25	2.12
210	62.32	62.24	60.71	61.76	0.91	210	49.31	56.21	56.83	54.12	4.17	210	25.53	28.61	27.03	27.06	1.54
240	66.67	66.58	65.54	66.26	0.63	240	54.76	58.36	64.27	59.13	4.80	240	29.22	33.55	33.09	31.95	2.38
270	70.13	70.07	68.79	69.66	0.76	270	58.61	62.51	65.81	62.31	3.60	270	31.91	37.81	38.25	35.99	3.54
300	72.52	72.06	72.80	72.46	0.37	300	61.81	71.86	66.72	66.80	5.03	300	33.83	41.61	42.69	39.38	4.83
360	75.25	75.18	80.64	77.02	3.13	360	68.01	74.72	72.16	71.63	3.39	360	38.75	48.88	50.23	45.95	6.27
420	79.60	81.51	82.93	81.35	1.67	420	72.98	78.88	73.63	75.16	3.24	420	44.68	54.75	56.66	52.03	6.44
480	81.32	82.92	87.38	83.87	3.14	480	75.71	83.63	75.74	78.36	4.56	480	51.75	60.57	61.99	58.10	5.55
600	84.59	86.79	88.73	86.70	2.07	600	83.22	86.96	84.47	84.88	1.90	600	60.08	68.35	69.08	65.84	5.00
720	84.82	87.87	90.83	87.84	3.01	720	86.54	87.95	87.16	87.22	0.71	720	66.84	72.65	73.28	70.92	3.55
840	80.45	90.05	91.56	87.35	6.03	840	86.71	89.53	87.99	88.08	1.41	840	69.83	75.29	75.33	73.48	3.16
960	87.49	90.21	93.63	90.44	3.08	960	88.93	89.67	89.41	89.34	0.38	960	73.70	77.79	77.12	76.20	2.19
1080	89.28	91.61	93.86	91.58	2.29	1080	88.01	89.41	90.89	89.44	1.44	1080	74.63	79.17	78.37	77.39	2.42
1260	89.29	92.41	95.29	92.33	3.00	1260	91.31	89.25	92.24	90.93	1.53	1260	76.89	80.87	80.42	79.39	2.18
1440	90.53	94.30	96.34	93.72	2.95	1440	91.76	90.11	92.51	91.46	1.23	1440	76.59	80.71	80.72	79.34	2.38

Table 324 Cumulative % drug release from tablets coated with CA M75 films at coating level of 15% based on chitosan after moist heat treatment at 60°C for different time intervals in pH change system

24hrs						72hrs						120hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.43	0.14	0.25
15	0.00	0.00	0.00	0.00	0.00	15	0.00	0.37	0.07	0.15	0.20	15	0.13	0.13	0.20	0.15	0.04
30	0.00	0.00	0.00	0.00	0.00	30	0.00	0.02	0.00	0.01	0.01	30	0.08	0.01	0.21	0.10	0.10
45	0.00	0.00	0.09	0.03	0.05	45	0.00	0.00	0.00	0.00	0.00	45	0.21	0.21	0.22	0.21	0.01
60	0.82	0.70	0.94	0.82	0.12	60	0.00	0.10	0.00	0.03	0.06	60	0.16	0.28	0.29	0.24	0.07
75	2.39	1.73	2.39	2.17	0.38	75	0.16	0.11	0.00	0.09	0.08	75	0.29	0.23	0.30	0.27	0.04
90	5.18	5.58	8.91	6.56	2.05	90	0.35	0.36	0.29	0.33	0.04	90	0.42	0.36	0.43	0.40	0.04
105	9.32	10.71	15.33	11.79	3.15	105	0.64	0.64	0.28	0.52	0.21	105	0.00	0.00	0.00	0.00	0.00
120	17.26	15.45	21.46	18.06	3.98	120	4.26	2.78	0.58	2.54	1.85	120	3.73	3.66	3.60	3.66	0.07
135	22.21	18.80	26.02	22.34	3.61	135	8.20	6.83	6.45	7.16	0.92	135	6.89	7.18	7.47	7.18	0.29
150	26.96	21.92	29.31	26.06	3.78	150	10.79	9.36	10.93	10.36	0.87	150	8.71	9.23	9.77	9.24	0.53
180	34.16	26.72	33.50	31.46	4.12	180	16.36	13.73	15.97	15.35	1.42	180	10.83	12.13	12.07	11.68	0.73
210	39.61	31.07	37.23	35.97	4.41	210	21.25	19.02	20.03	20.10	1.12	210	13.32	14.86	14.63	14.27	0.83
240	44.20	34.18	40.86	39.75	5.10	240	25.22	22.74	23.46	23.81	1.28	240	15.17	17.14	17.08	16.46	1.12
270	47.91	37.36	44.77	43.35	5.42	270	28.08	26.30	26.32	26.90	1.02	270	16.97	17.94	19.01	17.97	1.02
300	50.90	42.95	48.18	47.34	4.04	300	31.14	29.52	29.72	30.13	0.88	300	17.66	18.58	20.66	18.97	1.54
360	55.23	49.37	52.23	52.28	2.93	360	36.31	37.60	35.03	36.31	1.29	360	20.46	23.60	23.42	22.49	1.76
420	60.14	54.69	56.69	57.17	2.76	420	41.32	44.34	40.92	42.19	1.87	420	22.54	28.11	26.29	25.65	2.84
480	63.87	61.32	60.21	61.80	1.88	480	44.62	47.85	45.05	45.84	1.75	480	24.34	31.52	28.57	28.14	3.61
600	69.18	66.12	64.97	66.76	2.18	600	54.01	54.54	54.27	54.27	0.27	600	31.04	39.56	36.06	35.55	4.28
720	72.83	68.80	69.44	70.36	2.17	720	60.23	59.12	60.50	59.95	0.73	720	36.52	45.02	40.26	40.60	4.26
840	74.82	70.29	71.85	72.32	2.30	840	64.21	62.45	64.96	63.87	1.29	840	42.14	50.21	45.48	45.94	4.05
960	75.61	71.59	73.41	73.54	2.01	960	67.83	65.13	69.02	67.33	1.99	960	47.14	53.76	49.59	50.16	3.35
1080	76.57	72.81	74.44	74.61	1.89	1080	69.99	66.86	71.83	69.56	2.51	1080	50.97	57.56	53.53	54.02	3.32
1260	77.63	74.53	76.09	76.08	1.55	1260	71.23	68.26	74.27	71.25	3.01	1260	56.28	61.30	58.85	58.81	2.51
1440	78.79	74.53	78.68	77.33	2.43	1440	71.57	68.15	75.23	71.65	3.54	1440	60.38	63.91	62.87	62.39	1.81

Table 326 Cumulative % drug release from tablets coated with CA M45 and CA M45 Cas15 films at coating level of 15% based on chitosan after moist heat treatment at 60°C for different time intervals in phosphate buffer pH 6.8

CA M45 48hrs						CA M45 Cas15 24hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.23	0.08	0.13	5	0.34	0.00	0.05	0.13	0.18
15	0.00	0.00	0.01	0.00	0.00	15	0.00	0.18	0.24	0.14	0.12
30	0.00	0.00	0.00	0.00	0.00	30	0.00	0.55	0.55	0.37	0.32
45	0.00	0.00	0.00	0.00	0.00	45	0.00	0.21	0.00	0.07	0.12
60	0.00	0.00	0.00	0.00	0.00	60	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	75	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	90	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	105	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	120	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	135	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	150	0.00	0.00	0.00	0.00	0.00
180	0.30	0.00	0.00	0.13	0.22	180	0.00	0.00	0.00	0.00	0.00
210	8.98	10.57	8.10	9.22	1.25	210	0.00	0.00	0.24	0.08	0.14
240	13.95	13.78	13.19	13.64	0.40	240	0.00	0.30	0.32	0.21	0.18
270	17.71	17.01	17.12	17.28	0.38	270	7.06	0.25	5.07	4.13	3.50
300	21.85	22.86	20.90	21.87	0.98	300	12.08	12.64	10.02	11.58	1.38
360	29.32	29.09	28.25	28.89	0.56	360	19.09	22.61	16.31	19.34	3.16
420	37.13	35.13	36.23	36.16	1.00	420	25.84	30.03	27.95	27.94	2.10
480	44.28	45.81	42.30	44.13	1.76	480	34.28	36.07	32.86	34.40	1.61
600	56.20	55.25	54.39	55.28	0.91	600	42.18	46.35	48.50	45.68	3.21
720	65.63	63.50	66.13	65.09	1.40	720	50.65	54.55	57.90	54.37	3.63
840	72.45	70.60	72.59	71.88	1.11	840	58.45	62.32	64.79	61.85	3.20
960	77.77	74.61	80.64	77.67	3.02	960	64.06	67.04	70.08	67.06	3.01
1080	81.34	80.42	81.92	81.23	0.76	1080	69.45	70.86	74.38	71.56	2.54
1260	85.23	86.72	86.57	86.17	0.82	1260	75.52	75.64	78.58	76.58	1.73
1440	90.32	88.86	91.20	90.13	1.18	1440	80.32	80.61	84.41	81.78	2.28
1620	91.52	88.22	91.93	90.56	2.03	1620	82.48	80.88	85.05	82.80	2.10
1800	94.15	89.35	92.97	92.16	2.50	1800	82.94	83.81	85.69	84.15	1.41
1980	94.48	91.79	93.41	93.23	1.35	1980	84.81	83.32	86.28	84.80	1.48
2160	96.18	93.05	93.26	94.16	1.75	2160	87.64	85.25	86.81	86.57	1.21

Table 327 Cumulative % drug release from tablets coated with CA M45 and CA M45 Cas15 films at coating level of 15% based on chitosan after moist heat treatment at 60°C for different time intervals in HCl buffer pH 1.2

CA M45 48hrs						CA M45 Cas15 24hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.25	0.43	0.23	0.22	5	0.31	0.49	0.19	0.33	0.15
15	0.00	0.08	0.14	0.07	0.07	15	0.14	0.68	0.00	0.27	0.36
30	0.00	0.02	0.15	0.06	0.08	30	0.27	0.15	0.02	0.15	0.13
45	0.51	0.06	1.24	0.60	0.59	45	0.46	0.64	0.39	0.50	0.13
60	2.93	1.97	3.54	2.81	0.79	60	0.89	1.61	0.89	1.13	0.42
75	6.20	3.86	6.64	5.57	1.49	75	2.71	4.28	5.29	4.09	1.30
90	10.46	7.80	10.41	9.56	1.52	90	6.58	8.22	9.60	8.13	1.51
105	14.49	12.12	14.15	13.59	1.28	105	10.60	12.24	13.09	11.98	1.27
120	18.73	17.07	17.54	17.78	0.86	120	14.69	16.29	16.66	15.88	1.05
135	24.02	23.07	22.64	23.24	0.71	135	20.26	21.92	20.91	21.03	0.84
150	27.65	27.05	26.02	26.91	0.82	150	24.05	25.96	24.04	24.68	1.11
180	34.84	34.31	32.79	33.98	1.06	180	31.35	33.27	29.96	31.53	1.66
210	43.16	42.86	40.26	42.09	1.59	210	41.63	42.30	37.05	40.33	2.86
240	56.16	51.47	48.60	52.08	3.82	240	51.37	51.75	43.88	49.00	4.44
270	58.64	59.58	54.71	57.64	2.58	270	60.33	60.04	50.98	57.12	5.32
300	64.99	66.59	60.97	64.18	2.90	300	67.34	67.35	57.64	64.11	5.60
360	77.14	78.15	72.20	75.83	3.18	360	76.56	77.83	67.05	73.81	5.89
420	86.10	87.54	80.30	84.65	3.83	420	84.56	86.14	74.16	81.62	6.51
480	93.01	93.26	86.88	91.05	3.61	480	89.12	91.19	80.46	86.92	5.69
600	98.52	99.36	94.45	97.44	2.63	600	93.70	96.74	87.10	92.51	4.93
720	102.30	102.97	99.66	101.64	1.75	720	96.73	99.86	91.30	95.96	4.33
840	104.24	103.41	101.04	102.90	1.66	840	98.76	101.78	94.21	98.25	3.81
960	104.26	103.73	101.77	103.25	1.31	960	99.66	102.93	95.98	99.52	3.48
1080	104.58	104.04	102.92	103.85	0.85	1080	100.31	103.36	97.28	100.32	3.04
1260	104.78	104.54	104.91	104.74	0.19	1260	100.91	103.50	97.92	100.78	2.79
1440	104.91	104.67	104.93	104.84	0.14	1440	103.91	103.98	102.95	103.61	0.58

Table 328 Cumulative % drug release from tablets coated with CA M45 films containing different amount of triacetin at coating level of 15% based on chitosan after moist heat treatment at 45°C for different time intervals in pH change system

CA M45 Tri15 24hrs						CA M45 Tri15 72hrs						CA M45 Tri30 24hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	1.51	3.98	2.47	2.65	1.25	5	0.00	0.00	0.00	0.00	0.00	5	1.99	1.87	2.83	2.23	0.52
15	37.38	32.34	36.12	35.28	2.62	15	16.62	24.92	16.80	19.45	4.74	15	36.12	32.15	34.98	34.42	2.04
30	60.40	52.38	56.73	56.50	4.01	30	47.16	56.23	44.57	49.32	6.12	30	66.83	56.22	61.42	61.49	5.31
45	85.89	69.71	75.64	77.08	8.19	45	68.24	73.51	69.43	70.39	2.76	45	84.56	74.95	71.51	77.01	6.76
60	98.58	81.47	90.02	90.02	8.56	60	84.51	91.80	87.51	87.94	3.66	60	99.79	87.34	89.54	92.22	6.64
75	101.30	93.00	100.69	98.33	4.63	75	94.01	99.71	97.51	97.08	2.87	75	102.34	97.46	100.81	100.20	2.50
90	102.34	97.97	102.88	101.06	2.69	90	100.25	104.90	102.20	102.45	2.34	90	102.78	102.03	101.61	102.14	0.59

CA M45 Tri30 72hrs						CA M45 Tri45 24hrs						CA M45 Tri45 72hrs					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	15	17.10	18.18	22.93	19.40	3.10	15	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	30	43.79	48.31	54.53	48.88	5.39	30	0.00	0.00	0.00	0.00	0.00
45	26.49	25.12	22.41	24.67	2.08	45	63.30	69.34	74.66	69.10	5.68	45	2.67	1.65	1.53	1.95	0.63
60	46.92	43.97	45.46	45.45	1.48	60	78.99	87.36	81.03	82.46	4.36	60	6.30	6.06	5.94	6.10	0.18
75	61.03	56.38	59.20	58.87	2.34	75	88.58	100.54	94.19	94.44	5.98	75	10.80	9.65	9.41	9.95	0.74
90	70.52	66.32	74.63	70.49	4.16	90	97.62	103.63	99.05	100.10	3.14	90	15.32	13.44	12.72	13.83	1.34
105	77.32	72.45	84.23	78.00	5.92							105	18.65	19.34	19.10	19.03	0.35
120	85.56	80.20	94.88	86.88	7.43							120	20.11	21.88	21.57	21.19	0.95
												135	22.55	24.37	24.18	23.70	1.00
												150	27.86	28.30	27.28	27.81	0.51
												180	32.62	35.02	34.35	34.00	1.24
												210	32.76	38.02	37.41	36.06	2.88
												240	42.36	42.50	41.42	42.09	0.59
												270	47.77	47.28	46.73	47.26	0.52
												300	52.61	55.42	54.16	54.06	1.41
												360	59.46	63.48	59.60	60.85	2.28
												420	68.53	69.49	69.03	69.02	0.48
												480	72.36	72.97	71.92	72.42	0.53
												600	78.91	82.89	81.95	81.25	2.08
												720	85.20	88.98	88.40	87.53	2.04
												840	88.27	90.36	87.70	88.78	1.40
												960	91.51	93.84	93.19	92.85	1.20
												1080	95.39	96.30	96.66	96.12	0.65
												1260	98.00	98.25	98.04	98.10	0.13
												1440	100.05	99.41	98.96	99.47	0.55

Table 330 Cumulative % drug release from tablets coated with CA M45 P30 at coating level of 15% based on chitosan after moist heat treatment at 45°C (A) and 60°C(B) for different time intervals in pH change system

24hrs (A)						72hrs (A)						24hrs (B)					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	0.97	2.59	1.51	1.69	0.82	5	0.31	0.07	0.13	0.17	0.12	5	0.07	0.00	0.73	0.27	0.40
15	25.11	27.82	26.67	26.53	1.36	15	0.02	0.02	0.14	0.06	0.07	15	0.02	0.44	0.00	0.15	0.25
30	46.13	49.70	47.41	47.75	1.81	30	0.09	0.08	0.14	0.10	0.03	30	0.00	0.00	0.00	0.00	0.00
45	59.33	65.81	59.23	61.46	3.77	45	25.18	23.31	25.24	24.58	1.10	45	0.09	0.00	0.00	0.03	0.05
60	70.07	79.18	77.43	75.56	4.83	60	46.93	40.72	44.88	44.18	3.16	60	0.00	0.00	0.00	0.00	0.00
75	79.97	88.28	87.31	85.19	4.54	75	58.75	58.46	58.37	58.53	0.20	75	0.00	1.37	0.17	0.51	0.75
90	90.40	94.55	93.75	92.90	2.20	90	69.61	64.14	68.21	67.32	2.84	90	3.00	2.89	1.74	2.54	0.70
						105	74.46	71.18	79.65	75.10	4.27	105	7.64	8.72	5.74	7.37	1.51
						120	88.38	84.49	87.32	86.73	2.01	120	11.66	14.11	10.17	11.98	1.99
						135	91.95	90.83	92.07	91.62	0.68	135	14.52	17.22	13.38	15.04	1.97
						150	93.17	92.70	93.12	93.00	0.26	150	17.34	19.63	15.53	17.50	2.05
						180	94.88	94.69	94.94	94.84	0.13	180	20.53	21.76	17.53	19.94	2.18
						210	95.46	96.46	95.81	95.91	0.51	210	23.85	24.86	20.24	22.98	2.43
						240	95.92	97.76	97.11	96.93	0.93	240	26.54	28.26	23.03	25.94	2.67
												270	29.77	31.56	25.41	28.91	3.16
												300	34.27	34.00	27.64	31.97	3.75
												360	38.55	38.16	31.23	35.98	4.12
												420	39.60	44.42	33.84	39.29	5.30
												480	49.65	46.15	35.57	43.79	7.33
												600	55.91	52.68	41.34	49.98	7.65
												720	62.21	58.60	48.44	56.42	7.14
												840	67.11	63.07	54.93	61.70	6.20
												960	70.38	67.15	60.15	65.89	5.23
												1080	74.09	70.60	64.87	69.85	4.66
												1260	76.74	74.60	69.43	73.59	3.76
												1440	81.24	76.78	72.35	76.79	4.45

72hrs (B)					
Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00
5	0.07	0.91	0.73	0.57	0.44
15	0.08	0.32	0.08	0.16	0.14
30	0.00	0.72	0.00	0.24	0.42
45	0.00	0.28	0.00	0.09	0.16
60	0.00	0.17	0.11	0.09	0.09
75	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00
105	2.00	3.02	2.71	2.58	0.52
120	4.33	4.41	6.95	5.23	1.49
135	6.44	6.40	6.95	6.60	0.31
150	8.03	8.40	11.68	9.37	2.01
180	10.27	9.17	14.24	11.23	2.67
210	12.89	9.23	16.58	12.90	3.68
240	15.28	12.67	19.23	15.73	3.30
270	17.39	16.13	21.60	18.37	2.86
300	18.57	17.84	22.98	19.80	2.78
360	24.48	18.88	25.83	23.06	3.69
420	27.34	22.84	29.54	26.57	3.42
480	31.35	31.51	33.20	32.02	1.03
600	38.22	38.20	40.08	38.83	1.08
720	45.19	45.47	47.47	46.04	1.24
840	52.02	52.65	53.72	52.80	0.86
960	58.12	58.28	60.06	58.82	1.08
1080	62.25	64.82	67.88	64.98	2.82
1260	72.60	72.52	72.61	72.58	0.05
1440	75.49	76.18	75.20	75.62	0.50

Table 331 Cumulative % drug release from tablets coated with CA M45 Dp at coating level of 15% based on chitosan after moist heat treatment at 45°C (A) and 60°C(B) for different time intervals in pH change system

24hrs (A)						72hrs (A)						24hrs (B)					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	2.17	1.75	3.74	2.55	1.05	5	0.73	1.03	0.01	0.59	0.52	5	0.00	0.25	0.19	0.15	0.15
15	31.31	25.35	27.95	28.20	2.99	15	0.26	0.38	0.20	0.28	0.09	15	0.00	0.14	0.00	0.05	0.08
30	50.44	45.35	47.36	47.72	2.56	30	13.87	13.22	14.65	13.91	0.72	30	0.00	0.45	0.00	0.15	0.26
45	59.45	56.92	61.11	59.16	2.11	45	21.59	18.95	22.62	21.05	1.89	45	0.00	0.40	0.00	0.13	0.23
60	67.61	66.51	73.67	69.26	3.86	60	36.34	40.06	37.49	37.96	1.90	60	0.22	0.47	0.34	0.34	0.13
75	79.54	76.03	88.70	81.42	6.54	75	47.80	53.94	49.20	50.31	3.22	75	0.71	1.02	0.95	0.89	0.16
90	99.18	94.74	98.94	97.62	2.50	90	59.86	68.63	59.34	62.61	5.22	90	2.52	3.74	3.19	3.15	0.61
						105	64.10	76.15	67.08	69.11	6.28	105	8.23	9.32	8.60	8.72	0.55
						120	72.10	85.94	75.22	77.75	7.26	120	11.96	13.47	12.68	12.70	0.76
						135	84.11	95.18	85.94	88.41	5.93	135	16.37	17.11	15.49	16.32	0.81
						150	92.75	98.50	96.07	95.77	2.89	150	19.66	20.47	18.19	19.44	1.16
						180	95.22	100.05	98.50	97.92	2.47	180	24.46	25.51	22.03	24.00	1.79
						210	96.16	101.37	99.28	98.94	2.62	210	28.81	31.11	26.96	28.96	2.08
						240	97.05	102.10	99.77	99.64	2.53	240	33.60	37.27	32.04	34.30	2.69
												270	37.17	43.11	35.72	38.67	3.92
												300	39.58	47.99	40.31	42.63	4.66
												360	50.10	56.48	47.05	51.21	4.81
												420	58.56	62.78	53.59	58.31	4.60
												480	60.36	62.89	58.04	60.43	2.43
												600	68.58	70.76	65.70	68.35	2.54
												720	73.75	76.19	72.70	74.21	1.79
												840	77.95	79.62	77.42	78.33	1.15
												960	81.58	82.55	81.82	81.98	0.51
												1080	83.62	83.77	83.86	83.75	0.12
												1260	86.03	85.58	87.70	86.44	1.12
												1440	87.21	86.16	88.88	87.42	1.37

72hrs (B)

Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.15	0.05	0.09
45	0.00	0.00	0.00	0.00	0.00
60	0.00	0.16	0.00	0.05	0.09
75	0.00	0.35	0.12	0.16	0.18
90	0.00	0.24	0.06	0.10	0.12
105	1.76	2.72	2.60	2.36	0.52
120	5.45	8.84	5.86	6.72	1.85
135	7.92	12.28	10.90	10.37	2.23
150	9.64	14.20	13.40	12.41	2.43
180	11.48	17.01	16.45	14.98	3.04
210	13.63	18.71	18.86	17.07	2.98
240	20.17	21.26	21.94	21.12	0.89
270	23.01	23.22	23.25	23.16	0.13
300	24.40	24.85	25.71	24.99	0.67
360	26.61	28.42	28.63	27.89	1.11
420	30.38	29.94	33.06	31.13	1.69
480	33.10	38.05	38.52	36.56	3.00
600	41.52	44.55	50.70	45.59	4.68
720	48.86	50.95	59.09	52.97	5.40
840	55.30	57.10	67.07	59.82	6.34
960	60.99	62.99	72.42	65.47	6.10
1080	65.77	67.90	77.26	70.31	6.11
1260	72.83	76.91	83.85	77.86	5.57
1440	78.20	78.58	85.14	80.64	3.90

Table 332 Cumulative % drug release from tablets coated with CA M45 Cas15 and CA M45 Cas15 U5 films at different coating level based on chitosan after moist heat treatment at 60°C for 24 hrs in pH change system

CA M45 Cas15 9%						CA M45 Cas15 12%						CA M45 Cas15 15%					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	2.11	1.75	1.87	1.91	0.18	5	1.93	1.87	1.57	1.79	0.19	5	2.59	1.90	2.95	2.48	0.53
15	0.27	0.01	0.21	0.16	0.14	15	0.09	0.45	0.32	0.29	0.18	15	1.05	1.23	0.87	1.05	0.18
30	0.00	0.67	0.00	0.22	0.39	30	0.09	0.10	0.21	0.13	0.07	30	0.40	0.64	0.47	0.50	0.12
45	0.16	0.68	0.10	0.31	0.32	45	0.22	0.65	0.34	0.40	0.22	45	0.54	0.77	0.66	0.66	0.12
60	0.29	3.60	1.07	1.65	1.73	60	0.23	0.60	0.60	0.48	0.21	60	0.73	0.97	0.79	0.83	0.12
75	4.94	7.66	4.52	5.71	1.70	75	3.43	2.35	2.95	2.91	0.54	75	2.00	2.30	2.13	2.14	0.15
90	9.30	11.50	9.85	10.22	1.14	90	6.71	5.81	5.93	6.15	0.49	90	3.85	3.00	4.23	3.69	0.63
105	17.49	15.29	10.86	14.55	3.38	105	10.12	9.47	10.00	9.86	0.35	105	8.93	7.65	9.45	8.68	0.93
120	13.51	18.93	13.89	15.44	3.03	120	13.03	13.38	14.10	13.50	0.55	120	11.12	11.23	12.32	11.56	0.66
135	20.65	22.72	21.21	21.53	1.07	135	16.37	16.25	16.32	16.31	0.06	135	14.34	16.56	14.56	15.15	1.22
150	23.49	27.65	23.58	24.91	2.38	150	18.55	19.49	20.09	19.38	0.78	150	18.67	18.65	19.68	19.00	0.59
180	29.91	35.51	30.30	31.91	3.13	180	21.62	24.40	26.37	24.13	2.39	180	25.12	23.34	24.77	24.41	0.94
210	37.43	44.13	37.52	39.69	3.84	210	26.31	28.16	29.01	27.83	1.38	210	31.13	30.12	30.42	30.56	0.52
240	44.75	49.77	45.20	46.57	2.78	240	32.69	33.00	35.16	33.62	1.35	240	35.02	35.02	35.52	35.19	0.29
270	49.33	53.60	49.84	50.92	2.33	270	37.61	36.04	36.61	36.75	0.79	270	40.22	41.45	39.76	40.48	0.87
300	54.47	58.32	54.87	55.89	2.12	300	39.67	39.04	39.79	39.50	0.40	300	42.11	43.23	40.12	41.82	1.58
360	62.76	64.95	65.94	64.55	1.63	360	52.32	46.60	47.88	48.93	3.00	360	45.64	46.54	47.65	46.61	1.01
420	66.55	70.29	66.79	67.88	2.09	420	60.32	53.49	54.01	55.94	3.80	420	55.32	56.75	58.67	56.91	1.68
480	71.30	74.94	72.55	72.93	1.85	480	66.40	62.50	67.40	65.43	2.59	480	61.23	62.34	63.45	62.34	1.11
600	80.04	82.87	81.47	81.46	1.42	600	74.41	71.84	74.11	73.45	1.41	600	72.11	72.81	71.23	72.05	0.79
720	85.10	85.99	85.30	85.46	0.47	720	79.26	77.93	79.20	78.80	0.75	720	78.65	80.67	73.43	77.58	3.74
840	88.83	91.02	88.78	89.54	1.28	840	82.66	82.44	83.25	82.78	0.42	840	82.32	84.55	79.32	82.06	2.62
960	90.85	90.92	91.46	91.08	0.33	960	86.55	86.03	87.26	86.61	0.62	960	85.43	86.79	82.11	84.78	2.41
1080	92.23	92.54	92.43	92.40	0.16	1080	88.44	88.58	89.28	88.77	0.45	1080	89.41	89.51	85.65	88.19	2.20
1260	94.21	93.69	94.82	94.24	0.57	1260	91.58	92.26	92.49	92.11	0.47	1260	91.83	91.18	90.19	91.07	0.83
1440	95.96	95.26	96.75	95.99	0.75	1440	92.55	93.17	93.70	93.14	0.58	1440	93.12	92.33	92.57	92.67	0.41

CA M45 Cas15 18%						CA M45 Cas15 U5 9%						CA M45 Cas15 U5 12%					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	3.19	2.53	2.95	2.89	0.33	5	0.91	0.61	0.97	0.83	0.19	5	0.43	0.31	0.37	0.37	0.06
15	1.12	0.57	0.69	0.79	0.29	15	0.56	0.08	0.38	0.34	0.24	15	0.20	0.20	0.02	0.14	0.10
30	0.71	0.40	0.40	0.50	0.18	30	0.63	0.39	0.51	0.51	0.12	30	0.63	0.45	0.39	0.49	0.12
45	0.66	0.41	0.72	0.60	0.16	45	0.83	0.64	0.76	0.74	0.10	45	0.76	0.70	1.90	1.12	0.68
60	0.73	0.78	0.67	0.73	0.06	60	5.23	5.04	4.87	5.05	0.18	60	3.24	0.89	5.47	3.20	2.29
75	1.05	0.86	0.86	0.92	0.11	75	8.16	8.27	8.03	8.15	0.12	75	6.03	4.70	8.70	6.48	2.04
90	1.54	0.87	1.17	1.19	0.34	90	11.94	12.05	11.69	11.89	0.18	90	9.26	8.58	12.18	10.01	1.91
105	3.41	3.99	3.05	3.48	0.47	105	15.66	16.30	16.01	15.99	0.32	105	13.60	12.87	15.78	14.08	1.51
120	8.12	7.93	6.57	7.54	0.85	120	19.84	20.31	20.25	20.13	0.26	120	17.48	17.15	19.79	18.14	1.44
135	11.20	11.30	10.65	11.05	0.35	135	22.98	23.28	23.51	23.26	0.27	135	20.19	20.28	22.87	21.11	1.52
150	12.87	13.51	13.38	13.25	0.34	150	25.61	26.26	25.67	25.85	0.36	150	22.92	23.30	24.20	23.47	0.66
180	15.74	16.91	16.25	16.30	0.59	180	30.02	31.27	29.96	30.42	0.74	180	28.33	28.24	30.12	28.90	1.06
210	17.25	19.33	18.13	18.24	1.04	210	33.87	35.83	34.05	34.58	1.08	210	33.05	32.49	35.43	33.66	1.56
240	19.55	21.58	20.78	20.64	1.02	240	39.57	40.48	38.92	39.66	0.78	240	37.98	36.47	46.32	40.26	5.31
270	22.69	23.90	23.69	23.43	0.65	270	44.36	45.15	43.47	44.33	0.84	270	42.23	40.94	55.00	46.06	7.77
300	24.97	28.25	26.98	26.73	1.65	300	48.91	49.71	48.37	49.00	0.67	300	47.11	45.57	60.64	51.11	8.29
360	31.56	32.91	34.41	32.96	1.43	360	56.73	58.89	57.13	57.58	1.15	360	54.34	54.10	65.22	57.89	6.35
420	36.06	37.18	40.41	37.88	2.26	420	67.40	70.95	69.83	69.39	1.81	420	65.36	66.13	70.11	67.20	2.55
480	45.15	44.32	47.57	45.68	1.69	480	72.93	77.03	77.02	75.66	2.36	480	70.99	72.25	72.51	71.92	0.81
600	53.52	57.60	59.80	56.97	3.19	600	82.39	85.62	86.09	84.70	2.01	600	80.68	81.41	80.07	80.72	0.67
720	61.63	66.21	67.18	65.01	2.96	720	90.19	90.42	92.49	91.03	1.27	720	85.93	87.25	83.71	85.63	1.79
840	67.49	72.09	72.23	70.60	2.70	840	95.66	93.16	98.44	95.75	2.64	840	89.95	91.52	89.09	90.19	1.23
960	72.36	77.22	76.90	75.49	2.72	960	99.38	95.80	99.04	98.07	1.98	960	93.58	94.39	92.35	93.44	1.03
1080	77.68	81.20	80.70	79.86	1.90	1080	103.18	97.68	100.65	100.50	2.75	1080	96.64	98.63	94.45	96.57	2.09
1260	82.00	85.44	85.70	84.38	2.07	1260	104.09	100.05	104.21	102.78	2.37	1260	100.71	99.93	96.21	98.95	2.40
1440	87.38	88.99	88.00	88.12	0.81	1440	104.59	102.36	104.65	103.87	1.31	1440	101.20	100.08	100.69	100.66	0.56

Table 334 Cumulative % drug release from tablets coated with CA M45 Cas15 films containing different amount of urea and HPMC at coating level of 15% based on chitosan in HCl buffer pH 1.2 (continue)

CA M45 Cas15 U30									CA M45 Cas15 U45								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.21	1.45	1.45	1.81	1.51	1.63	1.51	0.20	1	1.69	1.45	1.45	1.69	1.15	1.39	1.47	0.20
3	1.22	1.47	1.53	1.71	1.41	1.53	1.48	0.16	3	1.29	1.23	1.05	1.54	0.68	1.29	1.18	0.29
5	1.24	1.24	1.48	1.25	1.18	1.42	1.30	0.12	5	1.30	0.94	1.00	1.12	0.63	1.12	1.02	0.23
7	1.32	0.84	1.38	0.90	1.02	1.26	1.12	0.23	7	1.20	0.95	0.89	0.90	0.71	1.50	1.03	0.28
10	0.91	1.09	1.22	1.09	0.91	1.03	1.04	0.12	10	1.33	0.97	0.55	1.15	0.78	1.57	1.06	0.37
12	0.74	1.23	1.26	1.11	0.92	0.99	1.04	0.20	12	0.03	1.22	0.50	0.63	1.09	0.63	0.68	0.43
15	1.24	1.36	1.10	1.12	1.00	0.76	1.10	0.21	15	0.00	1.24	0.81	0.76	1.35	0.40	0.76	0.51
20	1.43	1.26	1.08	1.08	1.07	0.71	1.11	0.24	20	0.16	1.91	1.72	1.43	2.03	0.53	1.30	0.77
25	1.75	0.91	1.10	1.09	1.21	0.79	1.14	0.33	25	0.71	1.91	4.15	3.01	7.94	1.02	3.12	2.68
30	2.91	0.99	3.16	0.98	2.66	2.30	2.17	0.96	30	8.12	12.58	29.81	15.61	19.18	1.64	14.49	9.67
45	4.92	5.06	4.15	3.65	4.55	4.31	4.44	0.52	45	34.95	23.90	46.22	41.21	45.47	37.33	38.18	8.27
60	8.98	10.33	6.65	5.36	12.47	15.77	9.93	3.83	60	61.74	49.97	62.61	61.66	73.28	52.46	60.29	8.32
75	39.90	39.93	27.57	34.99	35.10	48.77	37.71	7.06	75	81.70	69.15	73.91	80.24	96.13	78.03	79.86	9.18
90	68.41	60.43	53.54	61.79	55.04	72.82	62.01	7.49	90	98.89	87.15	85.16	90.44	102.20	96.22	93.34	6.80
105	91.90	90.43	88.55	86.92	85.61	92.48	89.32	2.76	105	99.44	95.53	98.69	99.78	102.89	100.36	99.45	2.40
120	100.17	99.30	101.20	103.11	97.94	99.48	100.20	1.78	120	103.60	100.70	99.35	103.16	103.28	100.86	101.83	1.75
135	104.64	101.54	104.05	103.99	102.58	100.89	102.95	1.52	135	103.75	102.03	99.78	103.49	103.79	101.36	102.37	1.61
150	104.62	102.46	104.63	104.92	104.41	102.11	103.86	1.23	150	104.34	103.20	100.15	104.00	104.24	100.86	102.80	1.83
180	105.37	102.50	104.77	105.02	104.87	102.49	104.17	1.31	180	104.34	103.52	100.57	104.45	104.74	101.36	103.16	1.77

CA M45 Cas15 HPMC45

Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.06	2.59	0.24	0.00	1.09	0.00	0.66	1.03
60	1.99	4.84	2.05	0.08	3.69	0.25	2.15	1.87
75	4.54	7.28	4.06	2.86	6.85	1.89	4.58	2.14
90	7.76	10.70	7.40	5.95	10.20	4.13	7.69	2.50
105	16.77	14.86	16.29	9.54	14.06	6.63	13.03	4.05
120	21.09	21.33	20.72	14.35	19.86	10.88	18.04	4.37
135	30.30	29.69	29.93	27.43	30.02	21.12	28.08	3.57
150	52.67	51.94	52.48	53.82	58.53	55.53	54.16	2.49
180	64.94	79.25	66.07	76.09	84.55	82.74	75.61	8.36
210	99.41	101.71	100.26	98.41	101.15	98.49	99.91	1.37
240	100.69	100.65	100.87	103.35	102.55	96.93	100.84	2.22
270	101.07	100.97	100.83	104.63	103.06	99.75	101.72	1.78
300	101.51	103.45	101.63	104.20	103.51	96.09	101.73	2.97
360	101.95	103.90	103.87	103.88	104.08	102.04	103.29	1.00

Table 335 Cumulative % drug release from tablets coated with CA M45 Cas15 film containing different amount of urea and HPMC after moist heat treatment at 60°C for 24 hrs in pH change system

CA M45 Cas15 U15						CA M45 Cas15 U30					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	2.58	3.19	2.95	2.91	0.31	5	3.07	2.89	3.07	3.01	0.10
15	0.94	1.12	1.41	1.16	0.24	15	1.66	1.78	1.66	1.70	0.07
30	1.68	1.49	2.51	1.89	0.54	30	1.97	3.84	3.18	3.00	0.95
45	5.25	4.64	5.72	5.20	0.54	45	5.72	8.62	7.72	7.35	1.48
60	9.67	8.82	10.16	9.55	0.68	60	12.50	14.45	13.60	13.52	0.98
75	13.65	12.85	14.79	13.76	0.97	75	18.96	19.96	19.28	19.40	0.51
90	18.00	16.90	19.64	18.18	1.38	90	25.51	25.01	24.93	25.15	0.31
105	20.89	19.44	23.16	21.16	1.88	105	29.27	28.42	28.16	28.62	0.58
120	25.69	23.29	28.27	25.75	2.49	120	32.99	33.62	33.07	33.23	0.34
135	29.81	26.75	32.17	29.58	2.72	135	36.50	38.91	38.41	37.94	1.27
150	32.59	30.22	35.61	32.81	2.70	150	41.03	41.20	40.59	40.94	0.31
180	40.36	37.56	41.38	39.77	1.98	180	50.68	48.66	48.04	49.13	1.38
210	47.28	45.53	46.71	46.51	0.89	210	60.38	58.00	57.49	58.62	1.54
240	52.82	52.31	51.60	52.24	0.61	240	64.04	64.18	60.07	62.76	2.33
270	58.39	59.06	56.15	57.87	1.52	270	68.72	67.92	66.74	67.79	1.00
300	62.09	64.24	59.55	61.96	2.35	300	71.96	70.28	69.03	70.42	1.47
360	69.25	71.23	64.97	68.48	3.20	360	76.84	74.66	73.69	75.06	1.61
420	72.59	75.77	69.83	72.73	2.97	420	81.17	78.92	78.61	79.57	1.40
480	77.02	80.63	74.59	77.41	3.04	480	85.41	82.97	82.30	83.56	1.64
600	82.12	85.63	80.63	82.79	2.57	600	89.54	86.85	86.12	87.50	1.80
720	85.82	88.82	85.39	86.68	1.87	720	92.57	89.63	89.43	90.54	1.76
840	88.36	91.26	89.17	89.60	1.50	840	94.38	91.89	91.69	92.65	1.50
960	90.67	93.18	90.18	91.34	1.61	960	96.54	94.16	93.49	94.73	1.60
1080	93.12	95.10	95.35	94.52	1.22	1080	97.77	96.19	95.59	96.52	1.13
1260	95.63	96.32	98.35	96.77	1.41	1260	99.89	97.84	97.38	98.37	1.34
1440	98.21	98.26	100.23	98.90	1.15	1440	101.25	100.14	98.92	100.10	1.17

CA M45 Cas15 U45						CA M45 Cas15 HPMC45					
Time(min)	1	2	3	AVG	SD	Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
5	3.13	2.11	1.99	2.41	0.63	5	2.47	2.47	1.93	2.29	0.31
15	1.72	1.65	2.43	1.93	0.43	15	0.03	0.21	0.00	0.08	0.11
30	4.50	2.27	2.27	3.01	1.29	30	0.28	0.16	0.33	0.26	0.09
45	9.65	3.98	4.88	6.17	3.05	45	2.75	2.27	2.87	2.63	0.32
60	13.80	6.23	7.44	9.16	4.07	60	5.43	5.18	6.02	5.54	0.43
75	19.24	13.61	13.27	15.37	3.35	75	9.19	9.79	9.92	9.63	0.39
90	24.65	20.50	17.90	21.02	3.40	90	14.01	15.09	14.43	14.51	0.54
105	26.64	24.19	20.16	23.66	3.27	105	17.41	19.01	17.95	18.12	0.81
120	30.65	30.13	27.39	29.39	1.75	120	24.32	25.35	24.81	24.83	0.52
135	36.33	34.99	35.84	35.72	0.68	135	29.86	31.71	30.17	30.58	0.99
150	40.93	39.57	42.74	41.08	1.59	150	33.59	35.10	34.43	34.37	0.76
180	46.61	47.44	52.93	48.99	3.43	180	39.53	40.45	40.26	40.08	0.49
210	54.09	55.47	56.01	55.19	0.99	210	47.45	49.98	48.60	48.68	1.27
240	59.37	60.04	65.62	61.68	3.43	240	52.93	56.78	53.43	54.38	2.09
270	64.68	64.64	69.13	66.15	2.58	270	57.55	64.68	58.41	60.21	3.89
300	69.27	68.78	77.85	71.97	5.10	300	61.53	69.09	63.46	64.69	3.93
360	75.61	75.04	82.26	77.64	4.01	360	69.53	75.85	69.93	71.77	3.54
420	84.02	83.27	88.16	85.15	2.63	420	78.03	81.77	76.65	78.82	2.65
480	89.78	88.46	94.63	90.96	3.25	480	83.07	85.42	83.65	84.05	1.22
600	95.45	94.93	96.09	95.49	0.58	600	88.86	89.15	88.73	88.91	0.22
720	97.21	96.39	97.27	96.96	0.49	720	91.30	90.04	93.83	91.72	1.93
840	97.85	97.92	98.33	98.03	0.26	840	94.70	94.03	97.36	95.36	1.76
960	98.56	98.74	99.45	98.92	0.47	960	96.10	95.08	98.54	96.57	1.78
1080	99.21	99.51	100.33	99.68	0.58	1080	98.69	96.59	100.14	98.47	1.78
1260	99.79	100.40	102.47	100.89	1.40	1260	99.99	98.00	100.44	99.48	1.30
1440	99.97	100.92	102.95	101.28	1.52	1440	100.41	100.18	102.69	101.09	1.39

Table 336 Cumulative % drug release from tablets coated with CA M45 Cas15 U5 after moist heat treatment at 60°C at different %RH for 24 hrs in pH change system

0%RH									75%RH								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	1.39	1.51	1.27	1.45	1.03	0.85	1.25	0.26	5	4.46	4.88	5.12	5.06	4.64	4.52	4.78	0.28
15	10.01	14.58	0.80	6.46	3.96	7.90	7.29	4.79	15	1.24	1.55	2.27	1.49	1.91	1.66	1.69	0.36
30	16.03	25.86	3.40	17.09	7.81	15.05	14.21	7.82	30	1.32	1.02	1.21	1.20	0.96	1.26	1.16	0.14
45	20.58	34.56	9.09	26.82	13.34	22.36	21.13	9.17	45	0.79	0.79	0.92	0.98	1.46	1.70	1.11	0.38
60	29.54	42.58	16.97	35.22	24.73	30.92	29.99	8.76	60	0.62	1.47	1.78	2.86	1.77	2.38	1.81	0.77
75	34.95	48.41	23.75	44.99	34.50	38.62	37.54	8.73	75	4.25	4.07	4.08	5.65	4.50	4.74	4.55	0.60
90	41.04	54.34	30.68	53.18	42.70	48.04	45.00	8.83	90	8.97	8.01	7.30	8.75	8.68	8.69	8.40	0.63
105	43.70	57.28	34.69	57.32	48.00	55.66	49.44	9.11	105	12.78	11.42	10.89	12.15	12.20	12.03	11.91	0.66
120	50.41	62.99	46.32	61.31	53.61	63.02	56.28	7.16	120	16.83	15.10	14.87	15.72	16.19	16.19	15.82	0.74
135	59.10	77.79	57.24	71.13	59.66	76.70	66.94	9.37	135	20.54	18.75	17.86	19.26	19.60	19.61	19.27	0.91
150	65.29	85.05	65.26	76.44	63.66	83.70	73.23	9.78	150	23.10	21.00	20.05	21.80	21.85	22.10	21.65	1.03
180	73.89	90.01	73.15	81.78	70.41	88.31	79.59	8.34	180	27.32	24.50	24.25	25.72	25.77	26.08	25.61	1.12
210	79.69	91.93	78.36	85.32	76.31	91.17	83.80	6.71	210	31.74	28.49	28.96	30.20	29.83	30.85	30.01	1.20
240	84.39	93.50	83.29	88.39	81.18	93.45	87.37	5.28	240	36.84	35.06	35.05	35.40	35.10	36.00	35.58	0.72
270	87.46	94.54	86.18	90.30	84.41	94.32	89.54	4.25	270	40.73	38.04	38.21	39.22	38.32	39.58	39.02	1.04
300	89.83	95.18	88.83	91.76	87.03	95.25	91.31	3.59	300	44.70	41.29	42.06	42.84	41.99	42.97	42.64	1.18
360	92.04	95.80	92.47	93.24	90.02	96.65	93.37	2.47	360	52.94	47.43	48.85	48.57	48.08	50.30	49.36	2.00
420	94.44	96.67	93.86	94.75	92.47	97.70	94.98	1.91	420	59.45	53.15	55.70	54.35	53.68	58.28	55.77	2.57
480	95.54	97.25	95.26	95.61	93.91	98.35	95.99	1.57	480	66.77	59.25	61.76	59.86	70.82	63.04	63.58	4.44
600	97.00	98.06	97.14	96.66	95.29	99.58	97.29	1.44	600	80.94	73.26	75.74	72.99	77.19	79.38	76.58	3.22
720	100.18	100.83	98.31	98.24	97.89	101.41	99.48	1.51	720	85.88	79.88	81.47	78.78	83.24	83.02	82.05	2.56
840	100.18	100.86	99.12	99.76	98.23	101.21	99.89	1.11	840	91.15	85.47	86.65	84.78	88.50	88.21	87.46	2.33
960	100.18	100.90	100.11	99.90	99.01	101.20	100.22	0.77	960	94.14	90.86	92.46	90.04	93.13	94.68	92.55	1.82
1080	100.19	101.12	100.12	100.11	99.02	101.20	100.29	0.80	1080	97.26	94.96	94.74	92.90	97.72	96.73	95.72	1.84
1260	100.17	101.12	100.11	100.12	99.01	101.11	100.27	0.78	1260	100.68	97.20	98.09	96.25	100.11	100.28	98.77	1.84
1440	100.13	101.23	100.13	100.13	99.03	101.13	100.30	0.81	1440	103.54	102.40	101.41	99.49	101.92	102.00	101.79	1.34

85%RH									96%RH								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.23	1.33	1.87	1.51	1.69	0.97	1.60	0.44	5	0.37	0.55	0.97	0.25	1.39	0.85	0.73	0.42
15	1.11	0.98	1.05	0.81	0.87	0.68	0.92	0.16	15	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01
30	1.37	1.30	1.12	1.24	1.18	0.93	1.19	0.15	30	0.09	0.21	0.00	0.02	0.15	0.15	0.10	0.08
45	1.68	1.62	1.32	1.44	1.44	1.19	1.45	0.18	45	0.27	0.34	0.16	0.27	0.34	0.46	0.31	0.10
60	2.00	1.93	1.57	1.57	1.69	1.44	1.70	0.22	60	0.40	0.47	0.29	0.40	0.41	0.47	0.41	0.07
75	3.58	2.19	1.77	1.65	4.48	5.31	3.16	1.53	75	0.54	0.60	2.34	0.59	0.60	0.60	0.88	0.72
90	6.68	8.17	8.11	7.92	7.70	7.51	7.68	0.55	90	2.71	5.60	2.84	3.37	2.54	3.26	3.39	1.13
105	10.93	11.22	11.51	10.97	11.17	10.04	10.97	0.50	105	6.53	9.33	6.60	7.71	6.35	7.95	7.41	1.15
120	15.62	15.38	16.02	14.95	15.62	14.72	15.39	0.48	120	11.61	12.83	11.09	11.44	10.60	12.27	11.64	0.80
135	18.74	17.72	19.80	17.83	18.80	17.83	18.45	0.82	135	14.41	15.45	13.88	14.06	12.93	14.78	14.25	0.86
150	21.28	20.97	22.46	20.37	21.40	20.13	21.10	0.83	150	16.45	16.85	15.69	15.81	14.55	17.01	16.06	0.91
180	25.20	25.00	26.86	23.21	25.67	23.69	24.94	1.33	180	20.05	19.74	17.62	18.45	16.59	20.66	18.85	1.57
210	29.37	28.35	30.87	26.55	29.73	27.15	28.67	1.63	210	23.37	22.47	19.27	20.40	18.71	24.70	21.49	2.39
240	33.57	31.65	34.84	29.73	33.52	31.16	32.41	1.89	240	26.17	24.97	20.45	21.77	20.60	27.98	23.66	3.16
270	38.03	34.86	39.01	33.16	37.62	35.19	36.31	2.25	270	28.87	27.01	24.42	23.20	22.03	30.99	26.09	3.47
300	41.34	37.39	42.27	36.68	37.97	38.54	39.03	2.25	300	31.12	28.54	26.59	25.01	23.89	33.73	28.15	3.76
360	47.54	41.73	48.00	42.32	45.99	44.49	45.01	2.63	360	36.15	31.66	29.76	35.33	28.16	39.42	33.41	4.27
420	53.67	46.76	54.19	47.77	51.81	51.02	50.87	3.04	420	40.56	34.50	36.74	41.21	35.49	44.91	38.90	4.00
480	63.03	54.54	63.25	56.74	60.75	60.30	59.77	3.48	480	45.11	39.14	43.40	46.66	42.14	51.26	44.62	4.15
600	70.96	61.60	71.72	65.59	68.96	68.46	67.88	3.75	600	55.49	46.35	52.35	55.30	52.51	60.25	53.71	4.60
720	77.27	69.16	78.86	74.30	76.51	75.94	75.34	3.38	720	63.91	53.66	60.11	62.74	60.56	68.23	61.54	4.84
840	81.49	74.58	83.03	79.80	81.02	80.57	80.08	2.90	840	71.08	59.52	66.95	69.07	67.77	74.59	68.16	5.04
960	84.72	79.72	86.98	84.80	85.13	85.21	84.43	2.45	960	76.80	64.88	71.94	73.66	73.24	78.91	73.24	4.83
1080	87.49	83.77	90.18	88.05	88.50	88.46	87.74	2.14	1080	81.37	70.99	77.26	78.63	79.03	83.43	78.45	4.26
1260	90.22	88.14	93.33	91.43	91.82	91.84	91.13	1.77	1260	88.68	78.01	82.95	83.44	84.44	85.72	83.87	3.53
1440	92.24	90.81	95.49	94.47	94.21	92.40	93.27	1.74	1440	91.06	84.36	86.01	87.39	88.57	91.75	88.19	2.87

Table 337 Cumulative % drug release from tablets coated with CA M45 film after moist heat treatment at 60°C for 48 hrs in deionized water and glucose solutions

Time(min)	In Deionized Water					In 1.22 m Glucose Solution				
	1	2	3	AVG	SD	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	1.32	1.55	1.38	1.42	0.12	4.75	4.20	4.84	4.60	0.35
15	1.05	1.05	0.88	0.99	0.10	2.80	3.56	3.38	3.25	0.40
30	1.22	1.00	0.99	1.07	0.13	2.51	3.40	3.40	3.10	0.51
45	4.89	4.94	4.37	4.73	0.32	1.86	2.39	2.39	2.21	0.31
60	10.97	11.48	11.42	11.29	0.28	1.69	1.86	1.86	1.80	0.10
75	17.65	16.85	17.13	17.21	0.41	1.70	1.69	1.99	1.79	0.17
90	21.12	21.34	21.28	21.25	0.11	1.16	3.21	3.21	2.53	1.18
105	30.20	33.68	33.51	32.46	1.96	1.29	6.37	6.31	4.66	2.92
120	36.42	40.21	38.37	38.33	1.90	2.51	9.43	8.40	6.78	3.73
135	41.42	45.28	44.92	43.87	2.13	6.51	12.08	11.65	10.08	3.10
150	45.98	49.24	48.65	47.96	1.74	9.93	15.29	15.22	13.48	3.07
180	50.63	54.42	52.29	52.45	1.90	15.98	17.86	17.48	17.11	0.99
210	55.47	60.26	57.14	57.62	2.43	19.81	21.70	20.66	20.72	0.95
240	61.25	64.69	65.21	63.72	2.15	23.97	25.87	25.49	25.11	1.01
270	65.18	69.84	71.28	68.77	3.19	27.61	29.28	28.48	28.46	0.84
300	68.56	72.73	73.55	71.61	2.68	33.63	32.77	32.14	32.85	0.75
360	73.44	76.89	75.20	75.18	1.73	41.37	37.60	36.79	38.59	2.44
420	75.55	78.50	77.37	77.14	1.49	46.44	46.70	48.42	47.19	1.08
480	76.92	79.83	78.35	78.37	1.46	54.98	52.09	51.70	52.92	1.79
600	78.41	81.11	79.34	79.62	1.37	63.92	58.36	57.73	60.00	3.41
720	79.68	83.25	80.61	81.18	1.85	70.37	65.93	66.08	67.46	2.52
840	80.50	84.16	82.21	82.29	1.83	74.99	72.35	71.43	72.92	1.85
960	81.32	84.12	82.77	82.74	1.40	78.36	77.38	76.80	77.51	0.79
1080	81.29	84.73	83.83	83.28	1.78	82.29	81.42	80.66	81.46	0.82
1260	82.28	84.94	85.06	84.09	1.57	85.87	85.12	84.72	85.24	0.58
1440	82.81	85.15	85.96	84.64	1.64	88.56	88.29	87.77	88.21	0.40
Time(min)	In 2.06 m Glucose Solution					In 3.13 m Glucose Solution				
	1	2	3	AVG	SD	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	3.66	3.30	3.06	3.34	0.30	0.00	0.00	0.00	0.00	0.00
15	3.44	2.78	1.51	2.58	0.98	0.00	0.00	0.00	0.00	0.00
30	1.18	0.51	1.77	1.15	0.63	0.00	0.00	0.00	0.00	0.00
45	0.23	0.00	0.28	0.17	0.15	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.41	0.14	0.24	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	1.20	0.40	0.69	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	1.11	0.44	0.81	0.79	0.34	0.00	0.00	0.00	0.00	0.00
210	6.12	4.78	3.71	4.87	1.21	0.00	0.00	0.00	0.00	0.00
240	10.61	9.38	7.29	9.09	1.68	0.00	0.00	0.00	0.00	0.00
270	14.16	14.67	10.76	13.20	2.13	0.05	0.00	0.00	0.02	0.03
300	16.83	18.37	15.16	16.79	1.61	1.56	0.00	0.98	0.85	0.79
360	22.53	21.91	20.24	21.56	1.18	4.06	2.52	2.49	3.02	0.90
420	27.05	25.88	24.21	25.71	1.43	7.42	5.28	4.28	5.66	1.60
480	30.03	30.60	32.29	30.97	1.18	11.19	8.85	9.34	9.79	1.23
600	38.68	39.50	40.47	39.55	0.90	17.40	14.33	15.60	15.78	1.54
720	46.00	46.04	48.46	46.83	1.41	24.23	21.60	21.71	22.51	1.49
840	52.21	52.28	55.38	53.29	1.81	29.89	29.04	27.95	28.96	0.97
960	57.49	57.59	61.25	58.78	2.14	35.06	34.83	32.97	34.29	1.15
1080	63.65	62.67	67.30	64.54	2.44	40.29	40.39	37.67	39.45	1.54
1260	68.51	68.43	72.07	69.67	2.08	47.06	45.78	44.02	45.62	1.53
1440	72.62	73.13	74.81	73.52	1.15	54.90	53.42	51.65	53.32	1.63

Table 338 Cumulative % drug release from tablets coated with CA M45 Cas15 film after moist heat treatment for 24 hrs in deionized water and glucose solutions

Time(min)	In Deionized Water					In 1.22 m Glucose Solution				
	1	2	3	AVG	SD	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	1.27	1.72	1.38	1.46	0.23	4.21	3.96	4.57	4.45	0.44
15	0.99	1.16	1.10	1.08	0.09	4.71	3.92	4.23	4.29	0.40
30	0.82	1.06	0.94	0.94	0.12	3.51	2.80	3.04	3.12	0.36
45	0.89	1.06	1.12	1.02	0.12	4.15	2.09	2.58	2.94	0.08
60	1.00	1.12	1.12	1.08	0.07	2.97	1.91	2.83	2.57	0.58
75	8.72	7.01	5.01	6.91	1.86	3.22	1.50	2.97	2.56	0.93
90	17.50	19.61	15.83	16.98	2.92	2.15	1.39	1.96	1.83	0.40
105	24.05	29.77	21.33	25.05	4.31	2.35	1.88	2.15	2.13	0.24
120	28.76	36.51	25.05	30.11	5.85	2.36	2.43	2.22	2.34	0.11
135	32.23	41.45	28.90	34.19	6.50	2.19	1.96	2.29	2.15	0.17
150	36.24	46.13	32.77	38.41	6.92	5.10	2.22	4.54	3.95	1.53
180	41.45	51.63	43.51	45.53	5.38	9.30	6.40	9.46	8.39	1.72
210	47.27	58.02	51.63	52.31	5.41	14.28	14.42	15.20	14.67	0.46
240	52.67	63.25	57.17	57.70	5.31	19.17	19.64	19.34	19.38	0.24
270	56.67	67.31	61.19	61.72	5.34	22.66	24.22	22.77	23.22	0.87
300	61.37	70.70	65.52	65.86	4.67	25.45	28.04	25.62	26.37	1.45
360	67.81	75.30	70.50	71.20	3.79	29.76	32.49	29.87	30.71	1.55
420	71.03	77.30	73.27	73.87	3.18	37.18	39.14	37.83	38.05	1.00
480	73.07	79.37	75.38	75.94	3.19	44.28	44.86	44.87	44.67	0.34
600	76.14	81.28	78.07	78.50	2.60	51.53	52.00	51.91	51.81	0.25
720	79.17	83.82	81.11	81.37	2.34	59.43	60.75	59.91	60.03	0.67
840	80.46	84.86	82.08	82.47	2.23	66.40	70.00	69.59	68.66	1.97
960	80.19	84.99	82.37	82.52	2.40	72.93	77.42	75.67	75.34	2.26
1080	81.23	84.52	82.91	82.89	1.65	76.78	81.16	80.83	79.58	2.43
1260	81.60	86.74	83.23	83.86	2.63	80.69	84.26	84.19	83.05	2.04
1440	82.25	86.56	83.95	84.25	2.17	87.11	88.94	87.73	87.93	0.93
Time(min)	In 2.06 m Glucose Solution					In 3.13 m Glucose Solution				
	1	2	3	AVG	SD	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.64	3.66	3.12	3.14	0.51	0.00	0.00	0.00	0.00	0.00
15	1.45	3.50	1.76	2.24	1.11	0.00	0.00	0.00	0.00	0.00
30	0.99	1.12	0.21	0.77	0.49	0.00	0.00	0.00	0.00	0.00
45	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	1.27	0.00	0.00	0.42	0.73	0.00	0.00	0.00	0.00	0.00
210	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
240	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
270	0.00	0.52	1.71	0.74	0.88	0.00	0.00	0.00	0.00	0.00
300	3.71	3.42	7.38	4.84	2.21	0.00	0.00	0.00	0.00	0.00
360	11.19	6.99	12.66	10.28	2.94	0.00	0.00	0.00	0.00	0.00
420	16.07	13.54	17.97	15.86	2.22	0.00	0.00	0.00	0.00	0.00
480	19.18	17.41	20.48	19.02	1.54	0.00	0.00	0.01	0.00	0.00
600	25.60	26.29	26.85	26.25	0.63	7.93	5.34	7.00	6.76	1.31
720	31.77	32.34	33.02	32.38	0.63	16.74	11.26	13.72	13.91	2.74
840	36.03	39.36	40.53	38.64	2.33	22.53	16.71	18.70	19.31	2.96
960	44.06	44.71	46.73	45.17	1.39	27.95	22.01	24.49	24.82	2.98
1080	52.55	50.26	52.35	51.72	1.27	32.22	27.37	29.60	29.73	2.43
1260	57.48	55.83	59.98	57.76	2.09	39.33	34.39	35.91	36.54	2.53
1440	63.27	63.06	65.91	64.08	1.59	48.12	42.62	43.44	44.73	2.97

Table 339 Cumulative % drug release from tablets coated with CA M45 Cas15 U5 film after moist heat treatment at 60°C for 24 hrs in deionized water

Time(min)	1	2	3	AVG	SD
0	0.00	0.00	0.00	0.00	0.00
5	3.27	3.04	2.81	3.04	0.23
15	1.37	2.43	1.57	1.79	0.56
30	2.72	6.64	2.83	4.06	2.23
45	4.16	11.15	7.70	7.67	3.50
60	4.87	17.55	14.88	12.43	6.68
75	21.86	23.08	21.88	22.27	0.70
90	32.89	28.63	26.17	29.23	3.40
105	41.35	34.50	29.91	35.25	5.76
120	48.89	39.60	36.20	41.56	6.57
135	55.72	42.78	41.38	46.63	7.91
150	59.80	49.24	54.91	54.65	5.28
180	67.43	56.02	61.72	61.72	5.71
210	73.96	62.26	71.25	69.16	6.12
240	77.91	67.68	77.81	74.47	5.88
270	81.07	71.58	81.71	78.12	5.67
300	83.44	76.82	84.61	81.62	4.20
360	86.29	70.49	86.72	84.50	3.48
420	88.29	84.23	90.15	87.56	3.03
480	90.76	86.45	92.29	89.83	3.03
600	93.12	88.16	97.01	92.76	4.44
720	94.35	90.45	99.18	94.66	4.37
840	95.36	92.18	101.98	96.51	5.00
960	96.60	92.83	102.12	97.18	4.67
1080	96.59	93.37	102.48	97.48	4.62
1260	97.08	93.91	102.78	97.92	4.49
1440	97.52	94.34	103.20	98.35	4.49

Table 340 Cumulative % drug release from tablets coated with CA M45 Cas15 film at coating level of 15% based on chitosan after moist heat treatment at 60°C for 24 hrs after kept in bottle at 45°C 75%RH for one month (A) and after kept at room temperature for one year (B) in pH change system

(A)									(B)								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	1.81	1.51	1.63	1.15	1.27	1.15	1.42	0.27	5	0.49	0.07	0.19	0.31	0.00	0.43	0.25	0.20
15	0.21	0.56	0.38	0.26	0.50	0.44	0.39	0.14	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.40	0.82	0.52	0.33	0.63	0.45	0.53	0.18	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.59	1.19	2.99	0.46	1.07	1.31	1.27	0.91	45	0.00	0.00	0.21	0.00	0.26	0.00	0.08	0.12
60	0.84	1.63	5.12	0.65	1.38	1.98	1.93	1.64	60	1.12	0.45	1.72	0.40	4.31	0.46	1.41	1.51
75	1.15	2.49	6.30	1.03	2.24	4.53	2.96	2.07	75	5.28	1.79	5.23	8.41	9.27	1.37	5.23	3.26
90	2.13	5.04	9.11	2.18	2.38	5.23	4.35	2.74	90	10.68	6.80	10.08	16.65	15.17	7.52	11.15	4.00
105	6.84	8.94	11.44	7.25	8.21	10.73	8.90	1.86	105	15.18	10.45	13.40	21.85	18.08	11.58	15.09	4.27
120	10.68	14.04	16.08	10.91	13.54	14.89	13.36	2.16	120	19.06	18.75	18.58	27.44	22.87	17.28	20.66	3.82
135	14.18	16.55	20.02	14.77	14.81	19.01	16.56	2.45	135	24.57	24.85	24.67	32.51	27.98	21.71	26.05	3.74
150	15.81	19.20	23.17	16.35	18.16	24.87	19.59	3.68	150	27.26	29.73	29.85	35.60	32.06	24.21	29.79	3.91
180	18.34	23.76	27.09	18.76	23.60	26.44	23.00	3.72	180	31.27	35.30	36.07	39.42	37.51	30.46	35.01	3.51
210	23.30	30.18	30.92	23.79	29.72	29.85	27.96	3.45	210	37.26	42.73	41.31	43.62	40.57	37.39	40.48	2.67
240	27.00	36.87	34.95	27.72	36.24	33.99	32.80	4.33	240	43.39	49.31	45.81	46.59	43.47	44.77	45.56	2.23
270	30.41	41.88	39.00	30.66	41.18	38.04	36.86	5.10	270	49.32	54.62	50.51	48.75	46.44	50.71	50.06	2.71
300	33.62	45.69	42.16	34.64	44.86	45.67	41.11	5.57	300	55.17	63.16	57.07	53.05	51.32	56.80	56.10	4.11
360	39.96	52.62	49.71	40.60	52.21	48.40	47.25	5.62	360	62.76	71.09	64.91	58.32	58.77	64.04	63.32	4.68
420	44.87	58.60	55.38	45.60	57.77	55.13	52.89	6.08	420	68.80	75.46	71.43	63.26	64.96	69.44	68.89	4.41
480	51.04	65.03	61.84	51.78	60.23	60.11	58.34	5.66	480	73.98	79.37	77.34	67.76	70.96	73.85	73.88	4.20
600	65.72	73.62	71.25	66.58	66.49	64.53	68.03	3.57	600	80.19	85.73	84.51	73.81	70.95	79.17	79.06	5.81
720	74.61	79.53	77.86	77.55	76.68	70.81	76.17	3.08	720	84.24	89.11	88.95	78.13	79.57	82.86	83.81	4.60
840	81.00	84.06	82.14	81.94	82.91	78.96	81.84	1.74	840	86.72	91.13	91.21	80.39	84.98	85.27	86.62	4.12
960	85.06	87.12	85.13	86.90	85.50	82.83	85.42	1.55	960	88.11	91.98	92.95	81.95	87.93	86.33	88.21	3.99
1080	88.14	89.14	87.08	89.03	87.80	85.94	87.86	1.22	1080	89.80	93.25	93.81	83.04	89.48	87.39	89.46	3.97
1260	91.99	92.05	90.04	92.60	89.70	88.96	90.89	1.51	1260	91.17	94.58	95.14	84.02	92.40	88.57	90.98	4.16
1440	93.56	93.02	92.83	94.29	90.71	90.80	92.54	1.47	1440	92.19	95.03	95.89	84.95	93.25	89.40	91.79	4.05

Table 341 Cumulative % drug release from tablets coated with CA M45 Cas15 U5 after moist heat treatment at 60°C for 24 hrs and after kept in bottle and kept for one month in accelerated condition (A) and after kept at room temperature for one year (B) in pH change system

(A)									(B)								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.29	1.93	1.99	1.69	1.93	1.27	1.85	0.34	5	1.06	1.00	1.45	0.56	0.67	1.11	0.98	0.32
15	1.11	1.11	1.41	0.81	1.23	0.92	1.10	0.21	15	1.34	0.98	1.23	0.21	1.03	1.23	1.00	0.41
30	0.88	2.09	1.55	1.12	1.48	0.64	1.29	0.52	30	1.09	1.67	1.65	1.09	1.23	2.22	1.49	0.44
45	1.08	4.99	3.25	1.92	2.82	3.12	2.86	1.33	45	1.23	3.00	2.43	2.02	2.78	4.01	2.58	0.94
60	3.74	5.03	5.92	4.58	5.98	7.35	5.43	1.26	60	2.65	4.21	5.78	4.56	6.02	6.08	4.88	1.35
75	7.56	8.13	8.61	7.80	9.39	11.49	8.83	1.46	75	6.78	8.76	8.76	8.03	9.03	8.21	8.26	0.82
90	10.08	11.62	11.43	10.92	12.52	14.15	11.79	1.41	90	9.89	10.00	11.04	9.34	11.78	11.21	10.54	0.94
105	12.81	14.33	13.74	13.71	15.04	16.13	14.29	1.16	105	11.40	13.23	14.09	12.67	14.35	14.32	13.34	1.16
120	17.03	17.92	17.14	17.20	18.63	20.97	18.15	1.51	120	17.08	15.67	18.12	16.98	17.55	17.43	17.14	0.82
135	20.81	20.81	20.44	21.13	21.89	22.99	21.35	0.94	135	19.32	18.78	22.98	20.09	20.61	20.11	20.32	1.46
150	22.89	23.30	22.64	25.93	24.33	26.15	24.21	1.53	150	21.78	23.09	24.05	24.76	23.78	24.18	23.61	1.05
180	27.05	27.82	26.86	31.06	29.44	31.81	29.01	2.10	180	26.89	26.00	28.21	30.23	29.41	30.22	28.49	1.77
210	31.65	33.38	33.83	35.74	37.73	40.64	35.50	3.27	210	31.06	32.45	35.43	34.44	38.02	37.56	34.83	2.76
240	36.57	38.36	40.48	40.15	44.34	46.79	41.12	3.80	240	33.01	34.78	38.65	34.34	42.11	45.21	38.02	4.86
270	40.99	43.20	45.27	44.70	50.51	53.69	46.39	4.77	270	39.00	38.32	45.21	41.11	47.89	49.07	43.43	4.60
300	44.69	46.27	48.11	48.60	54.63	61.09	50.57	6.17	300	43.98	44.67	50.11	47.22	54.00	60.21	50.03	6.21
360	51.96	53.18	54.38	56.19	58.92	65.52	56.69	4.96	360	51.21	50.22	56.99	55.32	57.45	62.11	55.55	4.38
420	58.64	58.93	59.07	62.60	62.80	69.15	61.87	4.03	420	56.21	58.21	62.01	61.00	61.34	63.77	60.42	2.74
480	65.78	64.94	64.84	69.64	67.00	78.06	68.38	5.07	480	64.89	63.23	67.87	69.01	68.33	73.21	67.76	3.47
600	76.15	73.95	74.26	79.62	74.83	81.80	76.77	3.22	600	77.89	72.09	78.45	77.56	75.21	78.21	76.57	2.48
720	84.21	80.22	80.89	85.03	80.63	85.57	82.76	2.43	720	80.01	79.65	82.11	83.21	81.08	86.21	82.05	2.43
840	89.94	85.81	86.31	90.41	85.93	89.29	87.95	2.15	840	85.46	86.32	88.32	89.11	86.21	90.11	87.59	1.86
960	93.75	91.13	91.46	93.92	91.25	92.44	92.33	1.26	960	91.98	88.90	93.23	92.48	92.43	93.21	92.04	1.61
1080	97.99	94.41	92.13	95.44	94.41	96.85	95.21	2.06	1080	96.56	94.56	95.67	94.65	95.10	98.54	95.85	1.51
1260	102.49	98.47	98.67	100.63	102.09	102.64	100.83	1.89	1260	98.76	98.00	99.01	95.34	99.12	99.11	98.22	1.47
1440	102.87	99.30	99.91	100.82	102.58	103.25	101.46	1.67	1440	99.20	99.00	102.32	98.78	99.21	100.32	99.81	1.34

Table 342 Cumulative % drug release from tablets coated with CA M45 Cas15 film at coating level of 15% based on chitosan after kept in bottle and in accelerated condition for one month(A) and after kept at room temperature for one year (B) in pH change system

CA M45 CAS15 15%C (A)									CA M45 CAS15 15%C (B)								
Time(min)	1	2	3	4	5	6	AVG	SD	Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	1.81	1.57	2.17	2.53	2.41	2.65	2.19	0.43	5	1.75	1.87	1.09	2.29	1.45	1.87	1.72	0.41
15	0.00	0.32	0.09	0.03	0.21	0.15	0.13	0.12	15	0.20	0.63	0.14	0.45	0.38	0.45	0.38	0.18
30	0.57	0.94	0.46	0.40	0.58	0.88	0.64	0.22	30	0.58	0.52	0.87	0.40	0.70	1.06	0.69	0.24
45	2.15	2.27	1.73	1.55	2.15	2.22	2.01	0.30	45	2.27	1.85	2.87	1.61	2.21	2.76	2.26	0.49
60	4.58	4.46	6.14	4.22	3.98	4.40	4.63	0.77	60	4.52	4.22	5.90	3.80	4.70	5.73	4.81	0.84
75	7.32	7.20	11.78	6.65	6.72	9.19	8.14	2.01	75	7.32	7.20	10.04	6.59	9.73	11.00	8.65	1.83
90	10.31	14.11	16.30	9.17	11.64	13.10	12.44	2.61	90	11.70	11.16	14.79	9.59	14.54	17.39	13.20	2.87
105	13.87	16.20	19.45	11.55	14.88	17.81	15.63	2.83	105	15.60	15.53	18.48	11.43	17.23	21.05	16.55	3.24
120	22.37	21.46	25.84	12.04	19.83	24.91	21.08	4.95	120	18.60	19.55	21.73	12.61	19.09	25.50	19.60	4.26
135	28.90	25.91	31.56	13.95	24.16	30.27	25.79	6.42	135	26.59	27.06	25.65	18.58	26.78	30.45	25.85	3.92
150	34.99	29.44	36.84	15.58	28.45	34.53	29.97	7.78	150	34.44	33.80	30.31	26.09	36.08	40.26	33.50	4.87
180	49.52	38.26	48.24	23.08	34.71	44.33	39.69	9.94	180	46.54	42.87	38.18	36.85	48.67	51.47	44.10	5.84
210	57.74	43.27	56.21	33.64	39.77	57.67	48.05	10.51	210	56.05	50.64	45.33	45.23	58.78	57.80	52.31	6.13
240	63.69	51.22	61.15	43.49	44.44	66.40	55.07	10.02	240	62.64	56.32	51.69	51.29	65.38	61.92	58.21	5.98
270	67.96	57.55	65.82	51.67	48.84	70.92	60.46	9.11	270	67.26	60.96	57.19	57.15	70.37	65.82	63.13	5.52
300	72.22	62.35	69.42	58.57	53.53	74.25	65.06	8.21	300	71.07	65.09	61.89	62.03	73.72	69.32	67.19	4.93
360	77.27	69.23	74.33	67.21	61.55	79.72	71.55	6.80	360	75.43	71.73	70.17	70.20	78.40	75.57	73.58	3.38
420	80.42	74.47	77.58	73.45	68.17	84.42	76.42	5.69	420	78.57	76.15	76.67	75.97	82.21	79.36	78.16	2.41
480	83.11	77.55	80.02	76.82	72.93	85.42	79.31	4.52	480	81.14	79.77	80.69	80.07	84.44	82.29	81.40	1.73
600	85.64	81.41	82.77	81.10	77.95	88.26	82.86	3.64	600	85.73	84.89	86.17	89.03	89.75	86.47	87.01	1.93
720	88.18	84.22	85.41	85.39	81.76	89.39	85.73	2.74	720	89.16	88.96	90.14	90.82	93.44	89.25	90.30	1.69
840	89.84	86.76	87.35	87.52	83.74	93.13	88.06	3.16	840	91.97	91.46	92.34	93.56	94.60	91.80	92.62	1.21
960	91.04	88.53	88.06	89.00	86.33	94.17	89.52	2.74	960	92.39	92.84	94.03	95.55	96.94	93.30	94.18	1.75
1080	93.89	91.14	91.20	91.50	89.17	95.97	92.15	2.40	1080	96.20	94.00	96.55	100.38	99.83	96.53	97.25	2.41
1260	94.22	91.33	91.68	92.05	89.53	95.72	92.42	2.21	1260	95.73	98.35	100.50	97.94	101.97	98.64	98.86	2.16
1440	95.25	92.29	93.00	92.84	91.49	97.23	93.68	2.14	1440	96.53	98.64	100.57	99.32	104.05	99.23	99.72	2.50

Table 343 Cumulative % drug release from Inderal LA80 in pH change system

Inderal LA80								
Time(min)	1	2	3	4	5	6	AVG	SD
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.43	0.00	0.61	0.19	0.07	0.31	0.27	0.23
15	3.69	2.18	2.79	1.64	2.24	2.72	2.54	0.70
30	7.02	5.75	6.84	5.03	5.51	6.54	6.12	0.80
45	11.16	9.46	11.22	8.55	8.98	10.61	10.00	1.15
60	14.96	13.31	14.78	12.04	12.17	14.59	13.64	1.32
75	18.12	16.52	18.06	15.60	14.90	17.45	16.78	1.33
90	21.42	19.33	21.23	18.70	17.75	20.56	19.83	1.47
105	21.37	19.54	21.60	18.68	17.79	20.76	19.96	1.54
120	24.92	22.97	24.98	22.58	21.09	24.25	23.47	1.53
135	28.83	26.28	28.06	26.37	23.92	26.68	26.69	1.70
150	31.91	28.47	31.14	29.15	26.45	29.04	29.36	1.95
180	35.70	31.95	34.39	33.47	30.22	33.05	33.13	1.91
210	40.20	35.96	38.05	37.73	34.17	37.00	37.19	2.04
240	44.29	39.03	41.18	41.76	37.30	39.77	40.56	2.42
270	47.96	42.39	47.27	45.38	40.60	43.08	44.45	2.90
300	51.84	45.42	51.14	48.84	43.98	46.28	47.92	3.20
360	56.48	49.33	55.54	53.72	50.15	50.66	52.65	3.01
420	61.49	52.77	58.77	58.01	54.08	54.22	56.56	3.38
480	65.44	55.56	64.19	61.72	57.60	57.97	60.41	3.97
600	71.46	60.60	68.91	67.32	63.25	62.90	65.74	4.15
720	76.42	64.64	72.69	71.39	67.91	67.71	70.13	4.21
840	79.85	68.15	75.40	74.45	71.15	70.83	73.31	4.14
960	82.74	70.60	77.92	77.09	73.92	73.88	76.03	4.20
1080	85.04	73.58	80.19	79.73	78.85	76.33	78.95	3.87
1260	87.15	76.85	82.34	81.88	80.27	80.26	81.46	3.39
1440	89.59	78.28	83.47	83.84	81.78	82.53	83.25	3.69

Table 344 Weight of tablet coated with CA M45 Cas15 film before and during dissolution test in different dissolution fluids at different time interval

(A) In HCl Buffer pH 1.2 ^a									(B) In HCl Buffer pH 1.2 ^b								
Time(hr)	Weight (mg)						AVG	SD	Time(hr)	Weight (mg)						AVG	SD
	1	2	3	4	5	6				1	2	3	4	5	6		
0	363.5	366.6	363.3	363.7	368.5	364.7	365.1	2.1	0	367.2	374.0	368.8	364.3	367.5	366.7	368.1	3.3
0.5	1058.6	1062.2	1064.2	1242.2	1457.5	990.4	1145.9	174.3	0.5	496.0	503.8	493.0	499.7	501.5	506.0	500.0	4.9
1.5	1489.6	1591.3	1433.7	1557.6	1838.9	1547.0	1576.4	140.2	1.0	545.2	551.9	540.6	552.9	557.2	564.9	552.1	8.6
3.0	1720.1	1699.9	1780.3	1774.2	1682.8	1679.1	1722.7	44.7	1.5	605.8	630.1	606.5	620.0	639.3	624.8	621.1	13.2
4.0	1526.2	1420.0	1501.0	1494.0	1558.6	1395.5	1482.6	62.7	3.0	599.7	625.8	599.7	604.7	642.4	608.2	613.4	17.2
5.0	1307.7	1292.4	1302.7	1294.2	1377.2	1184.2	1293.1	62.0	4.0	583.5	626.5	597.7	590.2	620.0	586.7	600.8	18.2
6.0	1174.2	1194.2	1200.1	1100.1	1120.0	1090.3	1146.5	48.8	5.0	574.9	616.7	594.1	572.8	601.1	568.2	588.0	19.1
									6.0	529.0	613.5	588.3	542.4	584.2	541.1	566.4	33.6

(C) In Phosphate Buffer pH 6.8 ^b									(D) In pH Change System ^b								
Time(hr)	Weight (mg)						AVG	SD	Time(hr)	Weight (mg)						AVG	SD
	1	2	3	4	5	6				1	2	3	4	5	6		
0	367.2	364.7	365.4	372.0	367.0	375.0	368.6	4.1	0	363.8	376.5	367.5	373.8	362.2	362.1	367.7	6.2
0.5	417.5	414.4	415.6	424.1	417.7	425.5	419.1	4.6	0.5	500.0	514.5	504.4	516.2	502.8	511.2	508.2	6.7
1.0	427.7	423.2	424.5	433.6	426.7	434.6	428.4	4.7	1.5	625.2	650.9	632.7	666.8	644.4	627.9	641.3	15.9
1.5	441.8	435.8	437.2	446.9	439.8	448.1	441.6	5.0	3.0	548.4	559.6	531.8	561.6	539.4	527.7	544.8	14.2
3.0	478.5	468.9	471.4	481.6	474.2	484.5	476.5	6.1	4.0	540.2	537.1	526.7	534.7	526.7	524.8	531.7	6.5
4.0	502.4	490.5	494.4	503.8	495.7	505.9	498.8	6.1	5.0	565.1	547.6	544.7	550.4	547.7	527.7	547.2	12.0
5.0	528.5	515.3	520.4	528.9	520.1	530.6	524.0	6.2	6.0	561.0	549.2	575.5	560.0	554.1	530.1	555.0	15.1
6.0	562.0	546.9	557.1	546.8	550.7	562.1	554.3	7.1	7.0	567.4	551.2	575.6	560.3	559.2	527.4	556.9	16.6
7.0	494.1	481.7	478.1	488.1	490.2	493.5	487.6	6.5	8.0	565.3	548.5	557.6	539.7	559.5	520.2	548.5	16.5
8.0	482.3	469.7	471.2	482.1	480.9	487.6	479.0	7.0									
10.0	475.6	458.1	459.7	471.6	471.2	478.6	469.1	8.4									
12.0	470.4	440.2	450.5	465.3	464.3	470.3	460.2	12.2									
22.0	444.9	419.6	424.6	443.9	441.4	445.2	436.6	11.4									
24.0	444.9	414.0	424.0	441.2	439.5	436.2	433.3	11.9									

^a Freshly prepared

^b After moist heat at 60°C for 24 hrs

Table 345 Weight of tablet coated with CA M45 Cas15 U5 film before and during dissolution test in different dissolution fluids at different time interval

(A) In HCl Buffer pH 1.2 ^a									(B) In HCl Buffer pH 1.2 ^b								
Time(hr)	Weight (mg)						AVG	SD	Time(hr)	Weight (mg)						AVG	SD
	1	2	3	4	5	6				1	2	3	4	5	6		
0	366.5	374.3	376.3	373.2	370.0	366.2	371.1	4.2	0	366.5	366.2	371.4	370.3	371.6	370.8	369.5	2.5
0.5	1444.6	1357.2	1320.8	1439.4	1431.3	1414.2	1401.3	50.6	0.5	515.7	508.2	519.2	495.7	506.2	507.2	508.7	8.2
1.0	1268.4	1204.0	1220.9	1323.4	1304.1	1132.4	1242.2	70.8	1.0	597.7	554.6	554.1	555.9	561.0	583.6	567.8	18.4
1.5	1090.6	945.2	946.5	1014.7	970.0	922.9	981.7	61.8	1.5	582.8	566.7	559.7	557.3	579.5	572.9	569.8	10.4
3.0	967.7	894.2	872.8	883.5	829.0	890.8	889.7	45.0	3.0	585.3	565.3	559.4	559.1	578.1	580.8	571.3	11.5
4.0	966.6	845.5	822.0	831.4	800.2	899.9	860.9	61.6	4.0	582.1	559.0	552.3	552.3	576.8	579.3	567.0	13.9
5.0	851.3	826.6	776.3	819.5	776.1	878.1	821.3	40.6	5.0	580.1	542.0	541.5	550.2	554.1	571.4	556.6	15.9
6.0	808.5	774.7	722.1	790.2	736.3	726.2	759.7	36.4									

(C) In pH Change System ^b									(D) In Phosphate Buffer pH 6.8 ^b								
Time(hr)	Weight (mg)						AVG	SD	Time(hr)	Weight (mg)						AVG	SD
	1	2	3	4	5	6				1	2	3	4	5	6		
0	366.5	364.6	378.6	374.0	364.8	374.2	370.5	5.9	0	367.0	369.3	373.7	377.5	368.7	372.1	371.4	3.8
0.5	493.1	494.8	505.3	499.4	500.8	521.5	502.5	10.3	0.5	417.5	420.6	421.8	429.5	422.9	421.2	422.3	4.0
1.0	540.4	531.9	557.8	548.0	542.8	568.5	548.2	13.1	1.0	441.0	436.6	436.8	447.2	440.8	445.0	441.2	4.3
1.5	546.5	537.9	571.9	557.7	558.5	569.2	557.0	13.0	1.5	453.5	453.1	452.4	461.2	453.7	458.0	455.3	3.5
3.0	460.4	468.8	480.9	472.9	468.8	483.4	472.5	8.5	3.0	457.7	469.0	453.6	457.0	471.7	461.0	461.7	7.2
4.0	455.4	453.3	472.3	463.8	457.3	471.4	462.3	8.2	4.0	453.0	460.4	451.1	455.4	468.8	457.2	457.7	6.4
5.0	464.3	467.7	474.7	483.6	472.4	493.9	476.1	10.9	5.0	451.2	458.3	452.0	455.3	471.1	450.2	456.4	7.8
6.0	460.1	471.2	470.2	472.2	470.2	492.4	472.7	10.6	6.0	446.9	454.8	452.8	451.3	465.8	448.1	453.3	6.8
8.0	451.2	479.3	464.8	465.0	465.4	493.4	469.9	14.6	8.0	440.2	454.1	453.1	447.2	464.2	438.9	449.6	9.5
									12.0	438.2	453.7	461.2	444.5	462.7	437.7	449.7	11.2

^a Freshly prepared

^b After moist heat at 60°C for 24 hrs

Table 346 Percentage of weight increase of tablet coated with CA M45 Cas15 film before and during dissolution test in different dissolution fluids at different time interval

(A) In HCl Buffer pH 1.2 ^a									(B) In HCl Buffer pH 1.2 ^b								
Time(hr)	%Weight Increase						AVG	SD	Time(hr)	%Weight Increase						AVG	SD
	1	2	3	4	5	6				1	2	3	4	5	6		
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.5	191.2	189.7	192.9	241.5	295.5	171.6	213.8	46.4	0.5	35.1	34.7	33.7	37.2	36.5	38.0	35.8	1.6
1.5	309.8	334.1	294.6	328.3	399.0	324.2	331.7	35.9	1.0	48.5	47.6	46.6	51.8	51.6	54.0	50.0	2.9
3.0	373.2	363.7	390.0	387.8	356.7	360.4	372.0	14.3	1.5	65.0	68.5	64.5	70.2	74.0	70.4	68.7	3.6
4.0	319.9	287.3	313.2	310.8	323.0	282.6	306.1	17.0	3.0	63.3	67.3	62.6	66.0	74.8	65.9	66.7	4.4
5.0	259.8	252.5	258.6	255.8	273.7	224.7	254.2	16.2	4.0	58.9	67.5	62.1	62.0	68.7	60.0	63.2	4.0
6.0	223.0	225.8	230.3	202.5	203.9	199.0	214.1	13.8	5.0	56.6	64.9	61.1	57.2	63.6	54.9	59.7	4.1
									6.0	44.1	64.0	59.5	48.9	59.0	47.6	53.8	8.0

(C) In Phosphate Buffer pH 6.8 ^b									(D) In pH Change System ^b								
Time(hr)	%Weight Increase						AVG	SD	Time(hr)	%Weight Increase						AVG	SD
	1	2	3	4	5	6				1	2	3	4	5	6		
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.5	13.7	13.6	13.7	14.0	13.8	13.5	13.7	0.2	0.5	37.4	36.7	37.3	38.1	38.8	41.2	38.2	1.6
1.0	16.5	16.0	16.2	16.6	16.3	15.9	16.2	0.3	1.5	71.9	72.9	72.2	78.4	77.9	73.4	74.4	2.9
1.5	20.3	19.5	19.6	20.1	19.8	19.5	19.8	0.3	3.0	50.7	48.6	44.7	50.2	48.9	45.7	48.2	2.4
3.0	30.3	28.6	29.0	29.5	29.2	29.2	29.3	0.6	4.0	48.5	42.7	43.3	43.0	45.4	44.9	44.6	2.2
4.0	36.8	34.5	35.3	35.4	35.1	34.9	35.3	0.8	5.0	55.3	45.4	48.2	47.2	51.2	45.7	48.9	3.8
5.0	43.9	41.3	42.4	42.2	41.7	41.5	42.2	1.0	6.0	54.2	45.9	56.6	49.8	53.0	46.4	51.0	4.3
6.0	53.1	50.0	52.5	47.0	50.1	49.9	50.4	2.2	7.0	56.0	46.4	56.6	49.9	54.4	45.7	51.5	4.8
7.0	34.6	32.1	30.8	31.2	33.6	31.6	32.3	1.5	8.0	55.4	45.7	51.7	44.4	54.5	43.7	49.2	5.3
8.0	31.3	28.8	29.0	29.6	31.0	30.0	30.0	1.1									
10.0	29.5	25.6	25.8	26.8	28.4	27.6	27.3	1.5									
12.0	28.1	20.7	23.3	25.1	26.5	25.4	24.9	2.6									
22.0	21.2	15.1	16.2	19.3	20.3	18.7	18.5	2.4									
24.0	21.2	13.5	16.0	18.6	19.8	16.3	17.6	2.8									

^a Freshly prepared

^b After moist heat at 60°C for 24 hrs

Table 347 Percentage of weight increase of tablet coated with CA M45 Cas15 U5 film before and during dissolution test in different dissolution fluids at different time interval

(A) In HCl Buffer pH 1.2 ^a									(B) In HCl Buffer pH 1.2 ^b								
Time(hr)	%Weight Increase						AVG	SD	Time(hr)	%Weight Increase						AVG	SD
	1	2	3	4	5	6				1	2	3	4	5	6		
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.5	294.2	262.6	251.0	285.7	286.8	286.2	277.7	16.9	0.5	40.7	38.8	39.8	33.9	36.2	36.8	37.7	2.5
1.0	246.1	221.7	224.4	254.6	252.5	209.2	234.7	18.8	1.0	63.1	51.4	49.2	50.1	51.0	57.4	53.7	5.4
1.5	197.6	152.5	151.5	171.9	162.2	152.0	164.6	18.0	1.5	59.0	54.8	50.7	50.5	55.9	54.5	54.2	3.2
3.0	164.0	138.9	131.9	136.7	124.1	143.3	139.8	13.6	3.0	59.7	54.4	50.6	51.0	55.6	56.6	54.6	3.5
4.0	163.7	125.9	118.4	122.8	116.3	145.7	132.1	18.7	4.0	58.8	52.6	48.7	49.1	55.2	56.2	53.5	4.0
5.0	132.3	120.8	106.3	119.6	109.8	139.8	121.4	12.8	5.0	58.3	48.0	45.8	48.6	49.1	54.1	50.6	4.6
6.0	120.6	107.0	91.9	111.7	99.0	98.3	104.8	10.4									

(C) In pH Change System ^b									(D) In Phosphate Buffer pH 6.8 ^b								
Time(hr)	%Weight Increase						AVG	SD	Time(hr)	%Weight Increase						AVG	SD
	1	2	3	4	5	6				1	2	3	4	5	6		
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.5	34.5	35.7	33.5	33.5	37.3	39.4	35.6	2.3	0.5	13.8	13.9	12.9	13.8	14.7	13.2	13.7	0.6
1.0	47.4	45.9	47.3	46.5	48.8	51.9	48.0	2.2	1.0	20.2	18.2	16.9	18.5	19.6	19.6	18.8	1.2
1.5	49.1	47.5	51.1	49.1	53.1	52.1	50.3	2.1	1.5	23.6	22.7	21.1	22.2	23.1	23.1	22.6	0.9
3.0	25.6	28.6	27.0	26.4	28.5	29.2	27.6	1.4	3.0	24.7	27.0	21.4	21.1	27.9	23.9	24.3	2.8
4.0	24.3	24.3	24.7	24.0	25.4	26.0	24.8	0.8	4.0	23.4	24.7	20.7	20.6	27.1	22.9	23.2	2.5
5.0	26.7	28.3	25.4	29.3	29.5	32.0	28.5	2.3	5.0	22.9	24.1	21.0	20.6	27.8	21.0	22.9	2.8
6.0	25.5	29.2	24.2	26.3	28.9	31.6	27.6	2.8	6.0	21.8	23.2	21.2	19.5	26.3	20.4	22.1	2.4
8.0	23.1	31.5	22.8	24.3	27.6	31.9	26.9	4.1	8.0	19.9	23.0	21.2	18.5	25.9	18.0	21.1	3.0
									12.0	19.4	22.9	23.4	17.7	25.5	17.6	21.1	3.3

^a Freshly prepared

^b After moist heat at 60°C for 24 hrs

Table 348 Solubility of propranolol HCl in different dissolution fluids at 37°C

Dissolution fluid	Solubility(mg/ml)				
	A	B	C	AVG	SD
Deionized Water	271.88	272.39	273.91	272.73	1.06
HCl Solution pH 1.2	224.58	223.53	225.10	224.40	0.80
Phosphate Buffer pH 6.8	194.42	203.37	196.53	198.11	4.68
1.22 m Glucose Solution	143.37	145.41	142.79	143.86	1.38
2.06 m Glucose Solution	88.18	88.45	87.91	88.18	0.27
3.13 m Glucose Solution	49.87	49.60	49.60	49.69	0.16

Table 349 Viscosity of propranolol HCl in different dissolution fluids at 37°C

Dissolution fluid	Viscosity(cps)				
	A	B	C	AVG	SD
Deionized Water	1.23	1.35	1.35	1.31	0.07
HCl Solution pH 1.2	1.23	1.35	1.23	1.27	0.07
Phosphate Buffer pH 6.8	1.11	1.23	1.35	1.23	0.12
1.22 m Glucose Solution	1.72	1.72	1.84	1.76	0.07
2.06 m Glucose Solution	2.21	2.09	2.21	2.17	0.07
3.13 m Glucose Solution	3.19	3.32	3.19	3.23	0.08

Table 350 pH of propranolol HCl in different dissolution fluids

Dissolution fluid	pH				
	A	B	C	AVG	SD
Deionized Water	6.27	6.22	6.17	6.22	0.05
HCl Solution pH 1.2	1.20	1.20	1.20	1.20	0.00
Phosphate Buffer pH 6.8	6.80	6.80	6.80	6.80	0.00
1.22 m Glucose Solution	7.13	7.08	7.07	7.09	0.03
2.06 m Glucose Solution	7.05	7.04	7.03	7.04	0.01
3.13 m Glucose Solution	6.90	6.89	6.88	6.89	0.01

Table 351 Osmolality of different dissolution fluids and saturated core component at 37°C

Fluid	Osmolality(osmol/kg)				
	A	B	C	AVG	SD
Deionized Water	0.005	0.006	0.004	0.005	0.001
HCl Solution pH 1.2	0.219	0.219	0.219	0.219	0.000
Phosphate Buffer pH 6.8	0.326	0.328	0.330	0.328	0.002
1.22 m Glucose Solution	1.140	1.130	1.140	1.137	0.006
2.06 m Glucose Solution	1.710	1.700	1.690	1.700	0.010
3.13 m Glucose Solution	2.550	2.520	2.570	2.547	0.025
Saturated Core Component	3.500	3.500	3.500	3.500	0.000

Table 352 Osmotic pressure of different dissolution fluids and saturated core component at 37°C

Fluid	Osmotic pressure(atm)				
	A	B	C	AVG	SD
Deionized Water	0.13	0.15	0.10	0.13	0.03
HCl Solution pH 1.2	5.57	5.57	5.57	5.57	0.00
Phosphate Buffer pH 6.8	8.30	8.35	8.40	8.35	0.05
1.22 m Glucose Solution	29.01	28.76	29.01	28.93	0.14
2.06 m Glucose Solution	43.52	43.27	43.01	43.27	0.26
3.13 m Glucose Solution	64.90	64.14	65.41	64.82	0.64
Saturated Core Component	89.08	89.08	89.08	89.08	0.00

Appendix D

Estimate and Informative Parameters From Curve Fitting

Table 353 Coefficient of determination from curve fitting with different model expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in dilute HCl solution

Coating Level (%)	First Order								
	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
0	0.9645	0.9379	0.9724	0.9369	0.9691	0.9720	0.9588	0.0168	
1	0.9741	0.9681	0.9739	0.9462	0.9664	0.9689	0.9663	0.0103	
3	0.9690	0.9771	0.9625	0.9693	0.9711	0.9532	0.9670	0.0082	
6	0.9502	0.9545	0.9386	0.9446	0.9307	0.9675	0.9477	0.0129	
9	0.9592	0.9413	0.9277	0.9325	0.9400	0.9585	0.9432	0.0131	
12	0.9368	0.9346	0.9257	0.9520	0.9646	0.9658	0.9466	0.0167	

Coating Level (%)	Weibull								
	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
0	0.9890	0.9921	0.9441	0.9965	0.9835	0.9906	0.9826	0.0193	
1	0.9932	0.9854	0.9936	0.9937	0.9930	0.9939	0.9921	0.0033	
3	0.9961	0.9935	0.9996	0.9996	0.9950	0.9936	0.9962	0.0028	
6	0.9963	0.9974	0.9957	0.9974	0.9984	0.9968	0.9970	0.0009	
9	0.9993	0.9940	0.9880	0.9965	0.9993	0.9979	0.9958	0.0043	
12	0.9939	0.9985	0.9977	0.9984	0.9972	0.9989	0.9974	0.0018	

Coating Level (%)	Higuchi's								
	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
0	0.7399	0.4486	0.3135	0.5428	0.6861	0.6032	0.5557	0.1571	
1	0.7180	0.7011	0.8186	0.6285	0.7153	0.8663	0.7413	0.0862	
3	0.6902	0.7620	0.7355	0.7880	0.6320	0.7025	0.7184	0.0558	
6	0.6291	0.6365	0.7539	0.5171	0.6553	0.8108	0.6671	0.1032	
9	0.7687	0.7575	0.6887	0.7805	0.7756	0.7225	0.7489	0.0361	
12	0.8450	0.8176	0.7949	0.6207	0.8608	0.7451	0.7807	0.0883	

Coating Level (%)	Cube Root								
	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
0	0.9868	0.9861	0.9933	0.9379	0.9827	0.9923	0.9798	0.0210	
1	0.9894	0.9999	0.9959	0.9920	0.9870	0.9983	0.9937	0.0051	
3	0.9942	0.9816	0.9861	0.9829	0.9828	0.9878	0.9859	0.0047	
6	0.9831	0.9841	0.9812	0.9964	0.9895	0.9969	0.9885	0.0069	
9	0.9899	0.9967	0.9913	0.9617	0.9913	0.9987	0.9883	0.0135	
12	0.9818	0.9892	0.9824	0.9977	0.9862	0.9970	0.9891	0.0070	

Coating Level (%)	KGT2								
	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
0	0.9985	0.9995	0.9974	0.9914	0.9996	0.9995	0.9977	0.0032	
1	0.9989	0.9917	0.9973	0.9980	0.9988	0.9971	0.9970	0.0027	
3	0.9984	0.9954	0.9998	0.9999	0.9974	0.9998	0.9984	0.0018	
6	1.0000	0.9996	0.9985	0.9973	0.9997	0.9973	0.9988	0.0012	
9	0.9968	0.9971	0.9992	0.9938	0.9964	0.9996	0.9972	0.0021	
12	0.9944	0.9980	0.9972	0.9985	0.9950	0.9991	0.9970	0.0019	

Table 354 Coefficient of determination from curve fitting with KGT2 expression of drug release from tablets coated with chitosan malate film at different coating levels in dilute HCl solution

Coating Level (%)	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
1	0.9968	0.9990	0.9988	0.9983	0.9996	0.9995	0.9987	0.0010	
3	0.9996	0.9992	0.9993	0.9993	0.9974	0.9965	0.9985	0.0013	
6	0.9940	0.9968	0.9971	0.9982	0.9991	0.9983	0.9972	0.0018	
9	0.9928	0.9969	0.9969	0.9970	0.9970	0.9970	0.9962	0.0017	
12	0.9972	0.9979	0.9972	0.9983	0.9989	0.9980	0.9979	0.0006	

Table 355 Coefficient of determination from curve fitting with KGT2 expression of drug release from tablets coated with unplasticized and plasticized chitosan citrate and chitosan malate films at coating level of 3% of polymer in dilute HCl solution

Formula	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
CC	0.9938	0.9945	0.9982	0.9982	0.9988	0.9995	0.9972	0.0024	
CC G25	0.9759	0.9974	0.9909	0.9961	0.9940	0.9959	0.9917	0.0081	
CC P25	0.9968	0.9968	0.9966	0.9985	0.9987	0.9987	0.9977	0.0011	
CM	0.9986	0.9991	0.9964	0.9975	0.9952	0.9714	0.9930	0.0107	
CM G25	0.9954	0.9970	0.9961	0.9985	0.9914	0.9987	0.9962	0.0027	
CM P25	0.9953	0.9979	0.9990	0.9953	0.9992	0.9995	0.9977	0.0019	

Table 356 Coefficient of determination from curve fitting with KGT2 expression of drug release from tablets coated with CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in dilute HCl solution

Formula	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
CC P25 G0.5	0.9984	0.9967	0.9634	0.9990	0.9975	0.9987	0.9923	0.0142	
CC P25 B0.5	0.9947	0.9932	0.9952	0.9972	0.9945	0.9920	0.9945	0.0018	
CC P25 B0.5 Ta15	0.9996	0.9986	1.0000	0.9977	0.9988	0.9984	0.9988	0.0008	
CC P12 B0.5 Ta30	0.9990	0.9995	0.9977	0.9980	0.9999	0.9995	0.9989	0.0009	
CC P25 B0.5 Ta45	0.9881	0.9977	0.9984	0.9984	0.9986	0.9987	0.9966	0.0042	
CC P25 B0.5 Ti15	0.9946	0.9961	0.9969	0.9985	0.9975	0.9987	0.9970	0.0016	
CC P12 B0.5 Ti30	0.9923	0.9971	0.9984	0.9983	0.9988	0.9966	0.9969	0.0024	
CC P25 B0.5 Ti45	0.9981	0.9990	0.9989	0.9979	0.9974	0.9967	0.9980	0.0009	

Table 357 Coefficient of determination from curve fitting with KGT2 expression of drug release from tablets coated with chitosan acetate film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
1	0.9886	0.9967	0.9982	0.9894	0.9985	0.9910	0.9937	0.0045	
3	0.9985	0.9989	0.9985	0.9943	0.9992	0.9967	0.9977	0.0019	
6	0.9856	0.9968	0.9991	0.9991	0.9989	0.9934	0.9955	0.0053	
9	0.9992	0.9986	0.9967	0.9967	0.9990	0.9978	0.9980	0.0011	
12	0.9859	0.9844	0.9698	0.9851	0.9990	0.9881	0.9854	0.0093	
15	0.9727	0.9954	0.9895	0.9881	0.9893	0.9790	0.9857	0.0083	

Table 358 Coefficient of determination from curve fitting with different model expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in phosphate buffer pH 6.8

Coating Level (%)	First Order							AVG	SD
	Coefficient of Determination								
	1	2	3	4	5	6			
0	0.9700	0.9728	0.9678	0.9764	0.9896	0.9777	0.9757	0.0078	
1	0.9709	0.9769	0.9824	0.9558	0.9520	0.9532	0.9652	0.0132	
3	0.9775	0.9785	0.9526	0.9824	0.9775	0.9700	0.9731	0.0108	
6	0.9899	0.9895	0.9963	0.9895	0.9555	0.9902	0.9852	0.0148	
9	0.9832	0.9849	0.9892	0.9407	0.9560	0.9415	0.9659	0.0225	
12	0.9328	0.9337	0.9956	0.9904	0.9514	0.9780	0.9636	0.0281	

Coating Level (%)	Weibull							AVG	SD
	Coefficient of Determination								
	1	2	3	4	5	6			
0	0.9915	0.9945	0.9935	0.9924	0.9947	0.9963	0.9938	0.0017	
1	0.9722	0.9866	0.9897	0.9685	0.9721	0.9721	0.9768	0.0089	
3	0.9868	0.9391	0.9488	0.9842	0.9892	0.9854	0.9722	0.0222	
6	0.9920	0.9725	0.9769	0.9941	0.9616	0.9957	0.9821	0.0139	
9	0.9922	0.9884	0.9789	0.9896	0.9990	0.9809	0.9882	0.0074	
12	0.9722	0.9917	0.9960	0.9936	0.9931	0.9975	0.9907	0.0093	

Coating Level (%)	KGT2							AVG	SD
	Coefficient of Determination								
	1	2	3	4	5	6			
0	0.9965	0.9987	0.9989	0.9975	0.9985	0.9973	0.9979	0.0010	
1	0.9920	0.9973	0.9942	0.9841	0.9957	0.9928	0.9927	0.0046	
3	0.9956	0.9932	0.9884	0.9994	0.9973	0.9967	0.9951	0.0039	
6	0.9874	0.9984	0.9916	0.9867	0.9907	0.9909	0.9909	0.0042	
9	0.9947	0.9954	0.9809	0.9928	0.9970	0.9895	0.9917	0.0059	
12	0.9815	0.9962	0.9930	0.9982	0.9978	0.9777	0.9907	0.0089	

Coating Level (%)	Higuchi's							AVG	SD
	Coefficient of Determination								
	1	2	3	4	5	6			
0	0.5912	0.6434	0.5096	0.5213	0.3382	0.2367	0.4734	0.1554	
1	0.7045	0.7752	0.8737	0.7445	0.7016	0.6323	0.7386	0.0818	
3	0.8147	0.8443	0.8214	0.8675	0.8397	0.8063	0.8323	0.0225	
6	0.9446	0.9311	0.9450	0.9802	0.8867	0.9003	0.9313	0.0338	
9	0.8345	0.9075	0.9089	0.8663	0.8898	0.8799	0.8812	0.0281	
12	0.8831	0.8637	0.9721	0.9571	0.7770	0.8576	0.8851	0.0716	

Coating Level (%)	Cube Root							AVG	SD
	Coefficient of Determination								
	1	2	3	4	5	6			
0	0.9759	0.9830	0.9771	0.9838	0.9954	0.9890	0.9841	0.0073	
1	0.9914	0.9946	0.9921	0.9751	0.9915	0.9759	0.9868	0.0088	
3	0.9949	0.9496	0.9640	0.9985	0.9992	0.9945	0.9834	0.0212	
6	0.9960	0.9942	0.9874	0.7895	0.9657	0.9870	0.9533	0.0810	
9	0.9927	0.9875	0.9826	0.9812	0.9740	0.9972	0.9859	0.0084	
12	0.9581	0.9780	0.9930	0.9948	0.9941	0.9962	0.9857	0.0151	

Table 359 Coefficient of determination from curve fitting with KGT2 expression of drug release from tablets coated with CC and CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in phosphate buffer pH 6.8

Formula	Coefficient of Determination						AVG	SD
	1	2	3	4	5	6		
CC	0.9986	0.9973	0.9976	0.9973	0.9928	0.9938	0.9962	0.0023
CC P25	0.9963	0.9938	0.9968	0.9892	0.9866	0.9964	0.9932	0.0043
CC P25 B0.5	0.9959	0.9928	0.9943	0.9986	0.9972	0.9929	0.9953	0.0024
CC P25 G0.5	0.9977	0.9955	0.9910	0.9961	0.9961	0.9963	0.9955	0.0023
CC P25 B0.5 Ta15	0.9910	0.9927	0.9857	0.9950	0.9949	0.9952	0.9924	0.0037
CC P25 B0.5 Ta30	0.9973	0.9955	0.9828	0.9978	0.9907	0.9965	0.9934	0.0058
CC P25 B0.5 Ta45	0.9984	0.9988	0.9942	0.9992	0.9948	0.9992	0.9974	0.0023
CC P25 B0.5 Ti15	0.9974	0.9851	0.9926	0.9910	0.9937	0.9937	0.9923	0.0041
CC P25 B0.5 Ti30	0.9947	0.9964	0.9924	0.9973	0.9953	0.9955	0.9953	0.0017
CC P25 B0.5 Ti45	0.9976	0.9986	0.9918	0.9881	0.9982	0.9985	0.9955	0.0044

Table 360 The A value from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in dilute HCl solution

Coating Level (%)	A						AVG	SD
	1	2	3	4	5	6		
0	0.1848	0.1620	0.1518	0.0657	0.0660	0.0748	0.1175	0.0545
1	0.5068	0.8824	1.2410	0.8132	1.1397	0.4993	0.8471	0.3098
3	0.6841	0.6139	0.4572	0.5413	0.4282	0.3306	0.5092	0.1294
6	0.3365	0.3418	0.3500	0.3422	0.3500	0.3958	0.3527	0.0217
9	1.2775	1.3059	0.7439	0.7359	0.6244	0.5685	0.8760	0.3289
12	0.3730	0.5877	0.6236	0.5388	0.3916	0.5830	0.5163	0.1074

Table 361 The A value from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan malate film at different coating levels in dilute HCl solution

Coating Level (%)	A						AVG	SD
	1	2	3	4	5	6		
1	0.2142	0.1460	0.1170	0.1025	0.2242	0.1137	0.1529	0.0534
3	1.0018	0.7384	0.4649	0.6381	0.6206	0.6561	0.6866	0.1782
6	0.8402	0.7117	0.5950	0.6996	0.1016	0.4652	0.5689	0.2611
9	0.8786	1.5000	1.5000	0.4973	0.5533	0.8230	0.9587	0.4445
12	0.6919	0.8411	1.3080	1.2322	0.5845	1.5000	1.0263	0.3708

Table 362 The A value from curve fitting with KGT2 expressions of drug release from tablets coated with unplasticized and plasticized chitosan citrate and chitosan malate films at coating level of 3% of polymer in dilute HCl solution

Coated Tablet	A						AVG	SD
	1	2	3	4	5	6		
CC	1.2965	0.4641	0.6091	0.6479	0.8006	0.7495	0.7613	0.2872
CC G25	1.5000	0.4364	0.3879	0.4934	0.6493	0.5327	0.6666	0.4180
CC P25	0.4712	0.5551	0.8211	0.7458	0.8552	0.7534	0.7003	0.1530
CM	1.1237	0.4342	0.6600	1.0948	0.4904	1.1584	0.8269	0.3362
CM G25	0.6232	0.5878	0.5367	0.5477	0.5611	0.4877	0.5574	0.0461
CM P25	0.6030	0.5892	0.8239	0.6674	0.5052	1.1196	0.7180	0.2237

Table 363 The A value from curve fitting with KGT2 expressions of drug release from tablets coated with CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in dilute HCl solution

Coated Tablet	A						AVG	SD
	1	2	3	4	5	6		
CC P25 G0.5	0.8295	0.5028	0.4503	0.6488	0.4503	0.8350	0.6194	0.1802
CC P25 B0.5	0.4087	0.6075	0.7147	0.5945	0.4414	0.4300	0.5328	0.1239
CC P25 B0.5 Ta15	0.4485	0.9208	1.0761	0.8051	0.8825	0.6660	0.7998	0.2187
CC P25 B0.5 Ta30	0.8176	0.4428	0.5859	0.3401	1.4548	0.7073	0.7248	0.3971
CC P25 B0.5 Ta45	0.9036	1.5000	0.8755	0.8742	0.8330	0.8981	0.9807	0.2556
CC P25 B0.5 Ti15	0.6525	1.0545	0.7833	0.8331	0.8800	1.0621	0.8776	0.1593
CC P25 B0.5 Ti30	1.0694	0.9903	1.1131	0.9593	1.4268	0.9059	1.0775	0.1867
CC P25 B0.5 Ti45	0.8348	0.8119	0.8065	1.0449	1.0539	0.7018	0.8756	0.1422

Table 364 The A value from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan acetate film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	A						AVG	SD
	1	2	3	4	5	6		
1	0.3189	0.4224	0.1648	0.1110	0.2565	0.2420	0.2526	0.1106
3	0.1901	0.1987	0.1509	0.0929	0.1504	0.1507	0.1556	0.0376
6	0.3227	0.6879	0.2744	0.3224	0.3377	0.3326	0.3796	0.1527
9	0.5341	0.3735	0.2502	0.2712	0.3700	0.1649	0.3273	0.1282
12	0.4972	0.7170	0.4346	0.3520	0.0371	0.4744	0.4187	0.2230
15	0.0854	0.0902	0.1411	0.1570	0.2966	0.1004	0.1451	0.0796

Table 365 The A value from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in phosphate buffer pH 6.8

Coating Level (%)	A						AVG	SD
	1	2	3	4	5	6		
0	0.1800	0.1877	0.2353	0.1814	0.1750	0.1957	0.1925	0.0221
1	0.3143	0.3454	0.2057	0.2751	0.6222	0.4166	0.3632	0.1451
3	0.3157	0.2353	0.5304	0.1917	0.1900	0.1970	0.2767	0.1332
6	0.1970	0.1198	0.0996	0.0998	0.3427	0.3400	0.1998	0.1153
9	0.6608	0.6190	0.5062	0.7838	0.8420	0.9447	0.7261	0.1604
12	1.3297	0.8920	0.8197	0.7810	0.3196	0.3196	0.7436	0.3827

Table 366 The A value from curve fitting with KGT2 expressions of drug release from tablets coated with CC film and CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in phosphate buffer pH 6.8

Coated Tablet	A						AVG	SD
	1	2	3	4	5	6		
CC	0.1549	0.2083	0.2117	0.2181	0.1610	0.2003	0.1924	0.0274
CC P25	0.1531	0.1587	0.1423	0.0720	0.0928	0.0896	0.1181	0.0375
CC P25 B0.5	0.4590	0.4574	0.4500	0.6911	0.4500	0.4348	0.4904	0.0987
CC P25 G0.5	0.3080	0.4638	0.4675	0.3198	0.3449	0.3080	0.3687	0.0763
CC P25 B0.5 Ta15	0.2466	0.5811	0.4923	0.2094	0.1499	0.1478	0.3045	0.1858
CC P25 B0.5 Ta30	0.4752	0.4548	0.3339	0.2457	0.1533	0.3533	0.3360	0.1228
CC P25 B0.5 Ta45	0.1926	0.4601	0.5015	0.2010	0.3273	0.6308	0.3855	0.1754
CC P25 B0.5 Ti15	0.3791	0.2507	0.4315	0.5731	0.1472	0.1469	0.3214	0.1700
CC P25 B0.5 Ti30	0.1431	0.1440	0.0737	0.1940	0.2437	0.2584	0.1761	0.0697
CC P25 B0.5 Ti45	0.2734	0.2889	0.4001	0.2917	0.2307	0.1934	0.2797	0.0702

Table 367 The A value from curve fitting with KGT2 expressions of drug release from tablets coated with CA M45 Cas15 film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	A						AVG	SD
	1	2	3	4	5	6		
9	0.2052	0.5560	0.5560	0.4300	0.4179	0.4159	0.4302	0.1286
12	0.6637	0.6642	0.6679	0.6639	0.6641	0.6567	0.6634	0.0037
15	0.6895	0.7157	0.7266	0.7396	0.7050	0.6573	0.7056	0.0293
18	0.8764	0.8715	0.9282	0.8326	0.8378	0.8777	0.8707	0.0344

Table 368 The B value from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in dilute HCl solution

Coating Level (%)	B						AVG	SD
	1	2	3	4	5	6		
0	0.0299	0.0403	0.0420	0.0148	0.0185	0.0230	0.0281	0.0113
1	0.0567	0.2057	0.2228	0.0933	0.1344	0.0555	0.1281	0.0730
3	0.2086	0.2583	0.2540	0.0893	0.0952	0.0672	0.1621	0.0879
6	0.1055	0.1071	0.0714	0.1196	0.1117	0.1278	0.1072	0.0194
9	0.3991	0.3992	0.1673	0.1445	0.1868	0.1899	0.2478	0.1184
12	0.0852	0.1472	0.1487	0.2187	0.0907	0.1534	0.1406	0.0488

Table 369 The B value from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan malate film at different coating levels in dilute HCl solution

Coating Level (%)	B						AVG	SD
	1	2	3	4	5	6		
1	0.0459	0.0346	0.0300	0.0235	0.0493	0.0289	0.0354	0.0102
3	0.1579	0.1057	0.0754	0.1144	0.1235	0.1122	0.1149	0.0267
6	0.1170	0.1522	0.1058	0.0826	0.0226	0.1147	0.0992	0.0437
9	0.1192	0.3852	0.3347	0.1115	0.1273	0.1306	0.2014	0.1240
12	0.1116	0.1221	0.2383	0.1662	0.1114	0.2911	0.1734	0.0754

Table 370 The B value from curve fitting with KGT2 expressions of drug release from tablets coated with unplasticized and plasticized chitosan citrate and chitosan malate films at coating level of 3% of polymer in dilute HCl solution

Coated Tablet	B						AVG	SD
	1	2	3	4	5	6		
CC	0.1473	0.0902	0.0622	0.0672	0.1488	0.1452	0.1101	0.0416
CC G25	0.3464	0.0502	0.0446	0.0568	0.0746	0.0614	0.1057	0.1184
CC P25	0.1118	0.0959	0.1314	0.0818	0.1407	0.1233	0.1141	0.0222
CM	0.1899	0.0858	0.1105	0.1773	0.0851	0.2621	0.1518	0.0704
CM G25	0.1028	0.0970	0.0875	0.0580	0.0594	0.0515	0.0760	0.0223
CM P25	0.1002	0.0944	0.1396	0.1109	0.0560	0.1633	0.1107	0.0373

Table 371 The B value from curve fitting with KGT2 expressions of drug release from tablets coated with CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in dilute HCl solution

Coated Tablet	B						AVG	SD
	1	2	3	4	5	6		
CC P25 G0.5	0.0831	0.0707	0.0707	0.0690	0.0707	0.0852	0.0749	0.0072
CC P25 B0.5	0.0679	0.0872	0.1147	0.0595	0.0675	0.0868	0.0806	0.0201
CC P25 B0.5 Ta15	0.1107	0.1326	0.1832	0.1272	0.1039	0.1060	0.1273	0.0298
CC P25 B0.5 Ta30	0.0868	0.1150	0.1074	0.1117	0.2644	0.1140	0.1332	0.0651
CC P25 B0.5 Ta45	0.9036	0.3361	0.1803	0.1809	0.1760	0.1886	0.3276	0.2889
CC P25 B0.5 Ti15	0.1592	0.1087	0.1355	0.1334	0.0950	0.1168	0.1248	0.0227
CC P25 B0.5 Ti30	0.1459	0.1412	0.1672	0.1489	0.2689	0.1495	0.1703	0.0491
CC P25 B0.5 Ti45	0.1550	0.1298	0.1251	0.1107	0.1402	0.1128	0.1289	0.0168

Table 372 The B value from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan acetate film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	B						AVG	SD
	1	2	3	4	5	6		
1	0.3200	0.1999	0.0736	0.0751	0.0833	0.0808	0.1388	0.1013
3	0.0638	0.0656	0.0493	0.0472	0.0752	0.0835	0.0641	0.0142
6	0.0790	0.1058	0.2040	0.1035	0.0946	0.0610	0.1080	0.0499
9	0.3910	0.4511	0.4857	0.5281	0.4500	0.6738	0.4966	0.0979
12	0.1198	2.3791	0.3698	0.4117	1.3096	0.0948	0.7808	0.8997
15	0.1864	0.0469	0.0309	0.0218	0.0222	0.0192	0.0546	0.0654

Table 373 The B value from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in phosphate buffer pH 6.8

Coating Level (%)	B						AVG	SD
	1	2	3	4	5	6		
0	0.0600	0.0447	0.0669	0.0664	0.0742	0.0786	0.0651	0.0119
1	0.1978	0.1646	0.1160	0.1246	0.2296	0.1424	0.1625	0.0442
3	0.1413	0.2489	0.1984	0.2534	0.2500	0.2500	0.2236	0.0455
6	0.2500	0.3553	0.3425	0.3456	0.9316	0.6644	0.4816	0.2620
9	0.1878	0.2187	0.3455	0.3019	0.3199	0.7564	0.3551	0.2058
12	0.2683	0.1461	0.2500	0.2507	0.1435	0.1435	0.2003	0.0617

Table 374 The B value from curve fitting with KGT2 expressions of drug release from tablets coated with CC film and CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in phosphate buffer pH 6.8

Coated Tablet	B						AVG	SD
	1	2	3	4	5	6		
CC	0.0453	0.0364	0.0335	0.0384	0.0433	0.0418	0.0398	0.0045
CC P25	0.0357	0.0367	0.0277	0.0342	0.0191	0.0132	0.0278	0.0097
CC P25 B0.5	0.5592	0.5654	0.5600	0.6180	0.5600	0.6061	0.5781	0.0266
CC P25 G0.5	0.2628	0.5574	0.3660	0.2896	0.2991	0.2677	0.3405	0.1126
CC P25 B0.5 Ta15	0.0286	0.1580	0.0472	0.0207	0.0209	0.0228	0.0497	0.0540
CC P25 B0.5 Ta30	0.0500	0.0505	0.1757	0.0551	0.0893	0.0645	0.0808	0.0487
CC P25 B0.5 Ta45	0.0469	0.1407	0.1336	0.2817	0.0770	0.2384	0.1530	0.0910
CC P25 B0.5 Ti15	0.1589	0.1617	0.1545	0.1519	0.0419	0.0418	0.1184	0.0594
CC P25 B0.5 Ti30	0.0317	0.0460	0.0531	0.0370	0.0636	0.1461	0.0629	0.0423
CC P25 B0.5 Ti45	0.0573	0.0316	0.0474	0.0574	0.0390	0.0395	0.0454	0.0106

Table 375 The B value from curve fitting with KGT2 expressions of drug release from tablets coated with CA M45 Cas15 film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	B(E+3)						AVG	SD
	1	2	3	4	5	6		
9	4.2460	7.4651	7.4622	13.4095	8.9460	9.1354	8.4440	2.9977
12	8.9410	8.9383	8.9393	8.9985	8.9950	8.9387	8.9585	0.0297
15	8.9419	8.9368	8.9334	8.9300	8.9270	8.9246	8.9323	0.0064
18	8.9599	8.9619	8.9605	8.9593	8.9559	8.9500	8.9579	0.0044

Table 376 The C value from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in dilute HCl solution

Coating Level (%)	C(E+2)						AVG	SD
	1	2	3	4	5	6		
0	2.7770	3.3789	2.3927	1.6112	2.4574	2.3218	2.4898	0.5803
1	4.1010	4.7620	11.1200	8.2050	10.7580	4.4353	7.2302	3.2318
3	4.6236	4.4784	3.2277	4.2124	3.4612	3.1030	3.8511	0.6665
6	2.5822	2.7019	1.9323	1.7619	1.1773	1.8035	1.9932	0.5671
9	5.0462	4.4180	3.7873	3.3805	2.1614	2.8656	3.6098	1.0443
12	1.3253	1.6559	2.2397	1.6302	1.8013	3.0824	1.9558	0.6273

Table 377 The C value from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan malate film at different coating levels in dilute HCl solution

Coating Level (%)	C(E+2)						AVG	SD
	1	2	3	4	5	6		
1	1.4214	1.7783	1.0592	1.2401	2.1675	1.3063	1.4955	0.4070
3	2.7354	4.2270	2.5848	2.7882	2.8517	2.5728	2.9600	0.6305
6	2.2173	2.2228	1.8253	2.1061	2.7263	1.5810	2.1131	0.3911
9	2.4247	2.5685	3.2204	1.1730	1.3361	2.3367	2.1766	0.7803
12	0.9542	0.8605	2.2870	1.7097	1.3866	2.1147	1.5521	0.5907

Table 378 The C value from curve fitting with KGT2 expressions of drug release from tablets coated with unplastized and plastized chitosan citrate and chitosan malate films at coating level of 3% of polymer in dilute HCl solution

Coated Tablet	C(E+2)						AVG	SD
	1	2	3	4	5	6		
CC	6.6939	1.9421	3.3701	3.7267	4.4214	4.4285	4.0971	1.5664
CC G25	5.4611	2.2611	2.3897	2.2771	3.6561	3.0166	3.1770	1.2443
CC P25	1.3347	2.3897	3.4109	4.4324	4.9425	4.0156	3.4210	1.3496
CM	3.1931	1.6635	2.6282	4.0362	2.0390	4.3775	2.9896	1.0822
CM G25	2.5792	2.1493	1.9255	2.6990	2.9996	2.3194	2.4453	0.3907
CM P25	2.2528	1.7618	2.4946	2.4388	2.5788	4.9422	2.7448	1.1154

Table 379 The C value from curve fitting with KGT2 expressions of drug release from tablets coated with CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in dilute HCl solution

Coated Tablet	C(E+2)						AVG	SD
	1	2	3	4	5	6		
CC P25 G0.5	3.3609	1.5040	1.5040	2.8462	1.5044	3.5743	2.3823	0.9907
CC P25 B0.5	1.4905	2.0924	2.8795	2.6797	1.5906	1.5000	2.0388	0.6184
CC P25 B0.5 Ta15	2.9809	5.2797	6.1704	4.4076	7.2902	5.1176	5.2077	1.4748
CC P25 B0.5 Ta30	4.6997	3.7005	3.5745	1.7900	7.7320	4.4211	4.3196	1.9564
CC P25 B0.5 Ta45	5.1908	6.8013	5.4715	5.4342	5.5611	5.1029	5.5936	0.6169
CC P25 B0.5 Ti15	3.1015	6.2468	4.1280	5.3621	5.7774	7.0907	5.2844	1.4519
CC P25 B0.5 Ti30	4.7222	5.1434	5.6984	4.9995	9.1022	5.6407	5.8844	1.6206
CC P25 B0.5 Ti45	4.2932	4.8637	4.9010	6.7855	6.1091	3.7356	5.1147	1.1372

Table 380 The C value from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan acetate film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	C(E+2)						AVG	SD
	1	2	3	4	5	6		
1	0.4284	0.4339	0.0879	0.2231	0.2369	0.3867	0.2995	0.1391
3	0.5924	0.6937	0.5781	0.2306	0.5917	0.6924	0.5632	0.1710
6	0.2956	0.2240	0.4559	0.1724	0.5722	0.1327	0.3088	0.1720
9	0.9347	1.3165	1.0362	1.1136	1.3000	1.3220	1.1705	0.1661
12	0.5694	1.2505	0.0663	0.1440	1.7290	0.1518	0.6518	0.6894
15	0.0649	0.0100	0.0502	0.0669	0.1792	0.0100	0.0635	0.0621

Table 381 The C value from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in phosphate buffer pH 6.8

Coating Level (%)	C(E+2)						AVG	SD
	1	2	3	4	5	6		
0	2.2868	2.7305	3.3429	2.5792	3.4242	3.9287	3.0487	0.6171
1	0.6281	0.5639	1.4216	1.9773	1.3240	2.5536	1.4114	0.7700
3	0.7782	0.0714	0.9570	0.7275	0.6904	0.7000	0.6541	0.3018
6	0.7418	0.4379	1.2570	1.1800	0.5661	0.8124	0.8325	0.3275
9	0.3636	0.3050	0.2247	0.1283	0.1247	0.2954	0.2403	0.0986
12	0.5460	0.3390	0.7418	0.1879	0.0855	0.0855	0.3310	0.2669

Table 382 The C value from curve fitting with KGT2 expressions of drug release from tablets coated with CC film and CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in phosphate buffer pH 6.8

Coated Tablet	C(E+2)						AVG	SD
	1	2	3	4	5	6		
CC	0.1092	0.2154	0.3481	0.1781	0.2175	0.2449	0.2189	0.0788
CC P25	0.0605	0.1264	0.1279	0.1284	0.1043	0.0205	0.0947	0.0448
CC P25 B0.5	0.1963	0.0482	0.0470	0.0067	0.0470	0.0340	0.0632	0.0671
CC P25 G0.5	0.4404	0.1891	0.0137	0.4408	0.4294	0.4530	0.3277	0.1840
CC P25 B0.5 Ta15	0.1159	0.2649	0.4183	0.1549	0.0652	0.0821	0.1835	0.1352
CC P25 B0.5 Ta30	0.2177	0.3756	0.4000	0.3396	0.1725	0.1809	0.2810	0.1023
CC P25 B0.5 Ta45	0.1832	0.1818	0.3149	0.4132	0.2249	0.3993	0.2862	0.1049
CC P25 B0.5 Ti15	0.0618	0.1838	0.0674	0.0912	0.0719	0.0718	0.0913	0.0464
CC P25 B0.5 Ti30	0.1251	0.0916	0.0523	0.1156	0.1352	0.0678	0.0979	0.0331
CC P25 B0.5 Ti45	0.0678	0.1056	0.0206	0.0496	0.0873	0.0962	0.0712	0.0320

Table 383 The C value from curve fitting with KGT2 expressions of drug release from tablets coated with CA M45 Cas15 film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	C(E+3)						AVG	SD
	1	2	3	4	5	6		
9	0.6941	2.0217	2.4401	2.5000	1.8190	1.5192	1.8323	0.6700
12	1.4199	1.6758	1.4334	1.4309	1.6840	1.4946	1.5231	0.1243
15	1.0291	1.0312	1.0470	1.0508	1.0797	1.1716	1.0682	0.0538
18	0.9405	1.0159	0.8097	1.0011	1.0420	1.0734	0.9804	0.0947

Table 384 K from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in dilute HCl solution

Coating Level (%)	K						AVG	SD
	1	2	3	4	5	6		
0	0.2823	0.3727	0.2080	0.4323	0.3602	0.2736	0.3215	0.0814
1	0.3070	0.2861	0.3081	0.1195	0.1043	0.1703	0.2159	0.0955
3	0.3233	0.2951	0.2526	0.2780	0.2873	0.2716	0.2846	0.0239
6	0.2794	0.2741	0.2655	0.3477	0.3022	0.1596	0.2714	0.0622
9	0.2047	0.2432	0.4337	0.3712	0.2266	0.2419	0.2869	0.0927
12	0.2320	0.2551	0.3100	0.3609	0.1644	0.2511	0.2622	0.0673

Table 385 K from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan malate film at different coating levels in dilute HCl solution

Coating Level (%)	K						AVG	SD
	1	2	3	4	5	6		
1	0.2116	0.3184	0.2063	0.4499	0.2792	0.2106	0.2794	0.0951
3	0.2660	0.2426	0.1687	0.2010	0.2618	0.2305	0.2284	0.0376
6	0.2877	0.2345	0.1550	0.1585	0.3197	0.1735	0.2215	0.0706
9	0.2017	0.2249	0.1961	0.1569	0.1939	0.2106	0.1973	0.0228
12	0.1730	0.1692	0.2144	0.1259	0.1637	0.1555	0.1670	0.0287

Table 386 K from curve fitting with KGT2 expressions of drug release from tablets coated with unplasticized and plasticized chitosan citrate and chitosan malate films at coating level of 3% of polymer in dilute HCl solution

Coated Tablet	K						AVG	SD
	1	2	3	4	5	6		
CC	0.4244	0.1601	0.2120	0.2276	0.2784	0.2731	0.2626	0.0904
CC G25	0.1489	0.1789	0.3724	0.2093	0.2372	0.2045	0.2252	0.0780
CC P25	0.1330	0.1824	0.2627	0.3191	0.2930	0.2613	0.2419	0.0704
CM	0.3021	0.1462	0.2036	0.3104	0.1656	0.1838	0.2186	0.0705
CM G25	0.1921	0.1779	0.1600	0.1471	0.2367	0.1367	0.1751	0.0363
CM P25	0.1844	0.1344	0.2327	0.1860	0.1409	0.1666	0.1742	0.0358

Table 387 K from curve fitting with KGT2 expressions of drug release from tablets coated with CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in dilute HCl solution

Coated Tablet	K						AVG	SD
	1	2	3	4	5	6		
CC P25 G0.5	0.3851	0.1998	0.1790	0.2427	0.1790	0.2854	0.2452	0.0800
CC P25 B0.5	0.1323	0.1622	0.2058	0.1904	0.1410	0.1800	0.1686	0.0287
CC P25 B0.5 Ta15	0.3180	0.2524	0.2892	0.2632	0.3777	0.2828	0.2972	0.0455
CC P25 B0.5 Ta30	0.2320	0.3153	0.2173	0.3933	0.2403	0.2898	0.2813	0.0663
CC P25 B0.5 Ta45	0.4371	0.2144	0.3656	0.3637	0.3778	0.2911	0.3416	0.0778
CC P25 B0.5 Ti15	0.2255	0.5119	0.2700	0.2840	0.3717	0.3341	0.3329	0.1014
CC P25 B0.5 Ti30	0.2706	0.2604	0.2891	0.3344	0.2453	0.2837	0.2806	0.0308
CC P25 B0.5 Ti45	0.2742	0.2563	0.2828	0.3766	0.3002	0.2224	0.2854	0.0519

Table 388 K from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan acetate film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	K						AVG	SD
	1	2	3	4	5	6		
1	0.0444	0.0430	0.0561	0.0558	0.0492	0.0653	0.0523	0.0084
3	0.0438	0.0482	0.0554	0.0734	0.0425	0.0437	0.0512	0.0119
6	0.0472	0.0365	0.0403	0.0495	0.0354	0.0365	0.0409	0.0061
9	0.0340	0.0358	0.0444	0.0444	0.0350	0.0336	0.0379	0.0051
12	0.0316	0.0239	0.0290	0.0286	0.0409	0.0279	0.0303	0.0057
15	0.0208	0.0284	0.0386	0.0292	0.0350	0.0326	0.0308	0.0062

Table 389 K from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in phosphate buffer pH 6.8

Coating Level (%)	K						AVG	SD
	1	2	3	4	5	6		
0	0.2748	0.2995	0.3375	0.2779	0.2731	0.3218	0.2974	0.0272
1	0.1893	0.1863	0.1334	0.1763	0.2586	0.2726	0.2028	0.0529
3	0.2002	0.1497	0.1632	0.1383	0.1679	0.2019	0.1702	0.0261
6	0.0906	0.1339	0.1086	0.0651	0.0855	0.0656	0.0916	0.0265
9	0.0642	0.0938	0.0665	0.0976	0.0968	0.1232	0.0904	0.0221
12	0.0801	0.0815	0.0681	0.0813	0.0912	0.0691	0.0786	0.0087

Table 390 K from curve fitting with KGT2 expressions of drug release from tablets coated with CC film and CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in phosphate buffer pH 6.8

Coated Tablet	K						AVG	SD
	1	2	3	4	5	6		
CC	0.0678	0.0945	0.1040	0.0691	0.0831	0.0859	0.0841	0.0142
CC P25	0.0600	0.0551	0.0416	0.0544	0.0577	0.0580	0.0544	0.0066
CC P25 B0.5	0.0605	0.0880	0.0941	0.0968	0.7838	0.0746	0.1996	0.2865
CC P25 G0.5	0.0944	0.0969	0.0978	0.0949	0.0973	0.0932	0.0958	0.0018
CC P25 B0.5 Ta15	0.0597	0.0613	0.1003	0.0443	0.0681	0.0542	0.0646	0.0192
CC P25 B0.5 Ta30	0.0724	0.0377	0.0464	0.0769	0.0492	0.0717	0.0590	0.0166
CC P25 B0.5 Ta45	0.1026	0.1420	0.0872	0.1427	0.0932	0.1433	0.1185	0.0269
CC P25 B0.5 Ti15	0.0385	0.0275	0.0396	0.0403	0.0425	0.0425	0.0385	0.0056
CC P25 B0.5 Ti30	0.0405	0.0367	0.0428	0.0341	0.0392	0.0501	0.0406	0.0055
CC P25 B0.5 Ti45	0.0387	0.0380	0.0371	0.0281	0.0452	0.0384	0.0376	0.0055

Table 391 K from curve fitting with KGT2 expressions of drug release from tablets coated with CA M45 Cas15 film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	K(E+3)						AVG	SD
	1	2	3	4	5	6		
9	19.9160	25.9770	12.5810	13.1760	23.8200	21.3500	19.4700	5.5149
12	15.0700	19.1770	13.6800	20.7140	9.8184	13.9320	15.3986	3.9719
15	8.1695	6.6210	6.7860	7.5210	5.9170	6.6482	6.9438	0.7882
18	10.6868	6.8929	9.3180	7.3634	7.0320	9.2620	8.4259	1.5510

Table 396 Lag time from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan acetate film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	Tl(min)						AVG	SD
	1	2	3	4	5	6		
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.90	0.49	1.94	0.87	1.21	1.55	1.33	0.58
9	5.73	6.28	6.53	6.53	6.30	6.36	6.29	0.29
12	5.83	8.29	7.38	7.32	7.34	6.99	7.19	0.80
15	12.56	15.97	13.98	12.03	12.03	11.67	13.04	1.65

Table 397 Lag time from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in phosphate buffer pH 6.8

Coating Level (%)	Tl(min)						AVG	SD
	1	2	3	4	5	6		
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	3.78	0.00	1.23	1.14	0.00	0.29	1.07	1.43
3	1.87	2.06	1.00	3.18	3.81	2.86	2.46	1.01
6	4.96	5.50	5.62	5.09	6.36	6.35	5.65	0.60
9	7.23	6.39	6.92	6.81	6.64	8.06	7.01	0.59
12	7.04	7.49	7.40	7.34	12.17	10.00	8.57	2.07

Table 398 Lag time from curve fitting with KGT2 expressions of drug release from tablets coated with CC film and CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in phosphate buffer pH 6.8

Coated Tablet	Tl(min)						AVG	SD
	1	2	3	4	5	6		
CC	3.69	3.96	4.75	2.12	4.63	4.57	3.95	0.99
CC P25	4.43	6.42	7.51	8.36	5.20	1.55	5.58	2.44
CC P25 B0.5	7.49	6.33	6.33	6.86	6.33	6.27	6.60	0.49
CC P25 G0.5	6.64	6.74	3.73	7.29	7.43	6.43	6.38	1.35
CC P25 B0.5 Ta15	2.89	5.77	6.92	4.26	10.08	4.80	5.79	2.51
CC P25 B0.5 Ta30	5.00	3.40	5.70	7.00	5.48	4.41	5.17	1.22
CC P25 B0.5 Ta45	1.60	1.54	2.69	4.37	2.36	2.51	2.51	1.03
CC P25 B0.5 Ti15	7.28	10.07	11.94	5.28	12.65	12.65	9.98	3.08
CC P25 B0.5 Ti30	9.82	10.09	9.51	9.62	7.94	7.85	9.14	0.98
CC P25 B0.5 Ti45	10.02	8.27	2.72	5.15	11.56	11.39	8.19	3.58

Table 399 Lag time from curve fitting with KGT2 expressions of drug release from tablets coated with CA M45 Cas15 film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	Tl(min)						AVG	SD
	1	2	3	4	5	6		
9	54.1500	69.4200	69.0200	76.3700	68.2200	57.9400	65.8533	8.2285
12	61.4400	61.7100	63.5200	67.8500	67.3600	63.5400	64.2367	2.7574
15	64.1800	67.0400	67.4100	68.6800	69.3600	67.5400	67.3683	1.7884
18	93.3600	92.1200	94.8600	95.7200	96.2700	100.0000	95.3883	2.7287

Table 400 Film dissolution time from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in dilute HCl solution

Coating Level (%)	Te+Tl(min)						AVG	SD
	1	2	3	4	5	6		
0	6.18	4.02	3.61	4.44	3.57	3.25	4.18	1.06
1	8.94	4.29	5.57	8.72	8.48	9.00	7.50	2.04
3	4.48	3.58	3.00	6.56	5.00	5.42	4.67	1.29
6	5.00	5.00	6.10	4.06	4.33	4.10	4.77	0.78
9	5.21	5.28	6.40	7.00	5.12	5.00	5.67	0.83
12	6.70	6.31	6.51	4.56	6.42	5.90	6.07	0.78

Table 401 Film dissolution time from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan malate film at different coating levels in dilute HCl solution

Coating Level (%)	Te+Tl(min)						AVG	SD
	1	2	3	4	5	6		
1	4.67	4.22	3.90	4.36	4.55	3.93	4.27	0.32
3	6.36	7.01	6.20	8.49	5.06	5.88	6.50	1.17
6	8.70	6.20	7.14	9.47	6.06	5.62	7.20	1.56
9	9.48	6.30	6.89	6.87	6.76	8.71	7.50	1.28
12	10.00	10.69	9.89	11.21	9.05	8.95	9.97	0.89

Table 402 Film dissolution time from curve fitting with KGT2 expressions of drug release from tablets coated with unplasticized and plasticized chitosan citrate and chitosan malate films at coating level of 3% 3%C

Coated Tablet	Te+Tl(min)						AVG	SD
	1	2	3	4	5	6		
CC	10.00	6.35	10.99	10.84	6.58	6.36	8.52	2.32
CC G25	5.64	10.00	10.01	10.00	10.00	10.01	9.28	1.78
CC P25	4.99	6.57	7.14	10.01	6.77	7.00	7.08	1.63
CM	6.23	5.62	6.53	6.48	6.34	5.00	6.03	0.60
CM G25	6.62	6.62	6.69	10.00	10.01	10.03	8.33	1.85
CM P25	6.59	6.55	9.35	6.64	9.64	7.51	7.71	1.43

Table 403 Film dissolution time from curve fitting with KGT2 expressions of drug release from tablets coated with CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in dilute HCl solution

Coated Tablet	Te+Tl(min)						AVG	SD
	1	2	3	4	5	6		
CC P25 G0.5	10.00	7.39	6.65	9.60	6.65	10.00	8.38	1.66
CC P25 B0.5	6.22	6.97	6.23	9.99	6.84	5.15	6.90	1.65
CC P25 B0.5 Ta15	4.73	7.50	6.43	6.89	9.21	7.00	6.96	1.46
CC P25 B0.5 Ta30	9.98	4.41	6.02	3.60	6.06	6.76	6.14	2.22
CC P25 B0.5 Ta45	6.13	4.77	5.30	5.27	5.04	5.35	5.31	0.46
CC P25 B0.5 Ti15	4.64	10.01	6.52	6.99	10.00	9.83	8.00	2.28
CC P25 B0.5 Ti30	7.89	7.57	8.44	7.00	5.90	6.65	7.24	0.91
CC P25 B0.5 Ti45	5.95	6.82	7.01	10.00	8.08	6.78	7.44	1.43

Table 404 Film dissolution time from curve fitting with KGT2 expressions of drug release from tablets coated with chitosan acetate film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	Te+Tl(min)							AVG	SD
	1	2	3	4	5	6	7		
1	1.00	2.10	2.24	1.48	3.08	2.99		2.15	0.82
3	2.99	3.03	3.06	1.97	2.00	1.80		2.48	0.61
6	5.98	6.99	3.29	3.98	3.57	7.00		5.14	1.72
9	8.60	7.10	7.05	7.04	7.12	6.60		7.25	0.69
12	9.98	8.59	8.56	8.17	7.37	11.99		9.11	1.65
15	12.56	15.97	13.98	12.03	12.03	11.67		13.04	1.65

Table 405 Film dissolution time from curve fitting with KGT2 expressions of drug release from core tablet and tablets coated with chitosan citrate film at different coating levels in phosphate buffer pH 6.8

Coating Level (%)	Te+Tl(min)							AVG	SD
	1	2	3	4	5	6	7		
1	3.00	4.20	3.52	2.73	2.36	2.49		3.05	0.70
3	5.37	2.10	3.00	3.35	2.71	3.22		3.29	1.11
6	4.10	3.01	3.67	3.94	4.57	3.65		3.82	0.52
9	5.75	5.84	5.91	5.38	6.73	6.86		6.08	0.59
12	10.75	9.22	8.39	9.41	9.27	9.31		9.39	0.76
15	12.00	13.60	10.68	10.46	14.40	12.23		12.23	1.56

Table 406 Film dissolution time from curve fitting with KGT2 expressions of drug release from tablets coated with CC film and CC P25 film colored with green FS or brilliant blue and pigmented with talcum or titanium dioxide at coating level of 3% of polymer in phosphate buffer pH 6.8

Coated Tablet	Te+Tl(min)							AVG	SD
	1	2	3	4	5	6	7		
CC	7.11	9.68	11.07	7.80	8.35	9.36		8.90	1.43
CC P25	8.72	10.74	12.65	10.47	10.06	9.89		10.42	1.29
CC P25 B0.5	8.31	7.14	7.13	7.98	7.13	6.99		7.45	0.55
CC P25 G0.5	7.81	7.57	5.01	8.39	8.58	7.58		7.49	1.29
CC P25 B0.5 Ta15	11.51	9.45	17.35	14.38	17.25	11.28		13.54	3.31
CC P25 B0.5 Ta30	14.50	12.41	7.60	11.46	7.20	9.89		10.51	2.84
CC P25 B0.5 Ta45	5.71	4.81	6.44	5.08	6.61	5.50		5.69	0.72
CC P25 B0.5 Ti15	9.67	11.62	14.73	9.05	16.16	16.16		12.90	3.21
CC P25 B0.5 Ti30	14.33	13.22	10.90	14.86	11.77	9.62		12.45	2.04
CC P25 B0.5 Ti45	10.02	17.41	11.16	10.23	17.48	16.29		13.77	3.65

Table 407 Film dissolution time from curve fitting with KGT2 expressions of drug release from tablets coated with CA M45 Cas15 film at different coating levels in HCl buffer pH 1.2

Coating Level (%)	Te+Tl(min)							AVG	SD
	1	2	3	4	5	6	7		
9	102.4800	143.9000	143.5300	108.4400	114.9300	103.4700		119.4583	19.3010
12	135.6700	136.0200	138.2400	141.6300	141.1900	137.0100		138.2933	2.5777
15	141.2900	147.1200	148.7500	151.5000	148.3300	141.1900		146.3633	4.2196
18	191.1700	189.3700	198.4500	188.6500	189.8200	198.0700		192.5883	4.4710

Table 408 Film dissolution rate of tablet coated with chitosan citrate film at different coating level based on polymeric salt in dilute HCl solution

Coating Level (%)	Film dissolution rate (mcm/min)						AVG	SD
	1	2	3	4	5	6		
1	0.45	0.94	0.72	0.46	0.47	0.44	0.58	0.20
3	3.46	4.33	5.17	2.36	3.10	2.86	3.55	1.03
6	8.20	8.20	6.72	10.00	9.47	10.00	8.77	1.29
9	11.23	11.08	9.14	8.36	11.43	11.70	10.49	1.39
12	10.75	11.41	11.06	15.79	11.22	12.20	12.07	1.89

Table 409 Film dissolution rate of tablet coated with chitosan malate film at different coating level based on polymeric salt in dilute HCl solution

Coating Level (%)	Film dissolution rate (mcm/min)						AVG	SD
	1	2	3	4	5	6		
1	1.15	1.18	1.28	1.15	1.10	1.27	1.19	0.07
3	2.67	2.43	2.74	2.00	3.36	2.89	2.68	0.45
6	4.02	5.65	4.91	3.70	5.78	6.23	5.05	1.02
9	5.33	8.02	7.33	7.35	7.47	5.80	6.88	1.06
12	6.85	6.41	6.93	6.11	7.57	7.65	6.92	0.61

Table 410 Film dissolution rate of tablet coated with unplasticized and plasticized chitosan citrate film at coating level of 3% w/w based on polymeric salt in dilute HCl solution

Coating Level (%)	Film dissolution rate (mcm/min)						AVG	SD
	1	2	3	4	5	6		
CC	3.45	5.43	3.14	3.18	5.24	5.42	4.31	1.16
CC G25	8.60	4.85	4.85	4.85	4.85	4.85	5.47	1.53
CC P25	7.72	5.86	5.39	3.85	5.52	5.50	5.64	1.24
CM	5.70	6.32	5.44	5.48	5.60	7.10	5.94	0.65
CM G25	6.04	6.04	5.98	4.00	4.00	3.99	5.01	1.11
CM P25	5.69	5.73	4.01	5.65	3.89	4.99	4.99	0.85

Table 411 Film dissolution rate of tablet coated with colored and pigmented chitosan citrate film at coating level of 3% w/w based on polymeric salt in dilute HCl solution

Coating Level (%)	Film dissolution rate (mcm/min)						AVG	SD
	1	2	3	4	5	6		
CCP25 G0.5	4.65	6.29	6.99	4.84	6.99	4.65	5.74	1.15
CCP25 B0.5	6.75	6.03	6.74	4.20	6.14	8.16	6.34	1.29
CC P25 B0.5 Ta15	7.51	4.73	5.52	5.15	3.85	5.07	5.31	1.22
CC P12 B0.5 Ta30	3.46	7.82	5.73	9.58	5.69	5.10	6.23	2.16
CC P25 B0.5 Ta45	7.75	9.96	8.96	9.01	9.42	8.88	9.00	0.73
CC P25 B0.5 Ti15	10.13	4.50	7.21	6.72	4.70	4.78	6.34	2.18
CCP25 B0.5 Ti30	6.72	7.00	6.28	7.57	8.98	7.97	7.42	0.97
CC P25 B0.5 Ti45	8.66	7.55	7.35	5.15	6.37	7.60	7.11	1.21

Table 412 Film dissolution rate of tablet coated with chitosan acetate film at different coating level based on chitosan in dilute HCl solution

Coating Level (%)	Fim dissolution rate (mcm/min)						AVG	SD
	1	2	3	4	5	6		
1	8.53	4.03	3.79	5.74	2.76	2.84	4.62	2.20
3	5.85	5.78	5.72	8.88	8.75	9.72	7.45	1.86
6	5.35	4.58	9.73	8.03	8.96	4.57	6.87	2.31
9	5.76	6.97	7.02	7.03	6.95	7.50	6.87	0.58
12	6.76	7.86	7.89	8.26	9.16	5.63	7.59	1.23
15	6.22	4.53	4.37	4.21	3.19	4.79	4.55	0.98

Table 413 Film dissolution rate of tablet coated with chitosan citrate film at different coating level based on polymeric salt in phosphate buffer pH 6.8

Coating Level (%)	Fim dissolution rate (mcm/min)						AVG	SD
	1	2	3	4	5	6		
1	0.74	1.90	1.33	1.19	1.48	1.24	1.32	0.38
3	3.78	5.15	4.22	3.93	3.39	4.25	4.12	0.59
6	7.13	7.02	6.94	7.62	6.09	5.98	6.80	0.64
9	5.44	6.34	6.97	6.22	6.31	6.28	6.26	0.49
12	6.00	5.29	6.74	6.88	5.00	5.89	5.97	0.75

Table 414 Film dissolution rate of tablet coated with colored and pigmented chitosan citrate film at coating level of 3% w/w based on polymeric salt in phosphate buffer pH 6.8

Coated Tablet	Fim dissolution rate (mcm/min)						AVG	SD
	1	2	3	4	5	6		
CC	4.85	3.56	3.09	4.42	4.13	3.69	3.96	0.64
CC P25	4.42	3.58	3.04	3.68	3.83	3.91	3.74	0.45
CC P25 B0.5	5.05	5.88	5.89	5.26	5.89	6.01	5.66	0.40
CC P25 G0.5	5.95	6.14	9.28	5.54	5.42	6.13	6.41	1.44
CC P25 B0.5 Ta15	3.08	3.76	2.05	2.47	2.06	3.15	2.76	0.68
CC P12 B0.5 Ta30	2.38	2.78	4.54	3.01	4.79	3.49	3.50	0.98
CC P25 B0.5 Ta45	8.32	9.88	7.38	9.35	7.19	8.64	8.46	1.06
CC P25 B0.5 Ti15	4.86	4.04	3.19	5.19	2.91	2.91	3.85	1.01
CC P12 B0.5 Ti30	3.70	4.01	4.86	3.57	4.50	5.51	4.36	0.75
CC P25 B0.5 Ti45	5.14	2.96	4.61	5.03	2.95	3.16	3.98	1.06

Table 415 Film dissolution rate of tablet coated with CA M45 Cas15 film at coating level of 15% w/w based on chitosan in HCl buffer pH 1.2

Coated Tablet	Fim dissolution rate (mcm/min)						AVG	SD
	1	2	3	4	5	6		
9	1.1612	0.8270	0.8291	1.0974	1.0354	1.1501	1.0167	0.1528
12	1.1609	1.1579	1.1393	0.8992	1.1155	1.1496	1.1037	0.1015
15	1.1820	1.1351	1.1227	1.1023	1.1259	1.1828	1.1418	0.0332
18	1.2633	1.2753	1.2169	1.2801	1.2723	1.2193	1.2545	0.0288

Table 416 Coefficient of determination from curve fitting with different model expressions of drug release from core tablet containing propranolol HCl 80 mg in HCl buffer pH 1.2

Equation	Coefficient of Determination						AVG	SD
	1	2	3	4	5	6		
Cube Root	0.9978	0.9971	0.9980	0.9933	0.9963	0.9957	0.9964	0.0017
First Order	0.9897	0.9897	0.9947	0.9842	0.9894	0.9912	0.9898	0.0034
Higuchi's	0.9493	0.9188	0.8879	0.8888	0.8884	0.9103	0.9073	0.0244
KGT1	0.9980	0.9972	0.9990	0.9958	0.9965	0.9965	0.9972	0.0012
KGT3	0.9981	0.9974	0.9993	0.9958	0.9965	0.9952	0.9970	0.0015
Power Expression	0.9978	0.9992	0.9985	0.9991	0.9994	0.9989	0.9988	0.0006
Weibull	0.9949	0.9947	0.9973	0.9925	0.9943	0.9937	0.9945	0.0016
Zero Order	0.9078	0.8368	0.8678	0.9369	0.9407	0.9259	0.9026	0.0418

Table 417 Coefficient of determination from curve fitting with different model expressions of drug release from core tablet containing propranolol HCl 80 mg in phosphate buffer pH 6.8

Equation	Coefficient of Determination						AVG	SD
	1	2	3	4	5	6		
Cube Root	0.9899	0.9855	0.9917	0.9857	0.9899	0.9840	0.9878	0.0031
First Order	0.9715	0.9677	0.9749	0.9683	0.9731	0.9662	0.9703	0.0034
Higuchi's	0.6510	0.6220	0.7195	0.5665	0.5276	0.5843	0.6118	0.0680
KGT1	0.9997	0.9993	0.9995	0.9985	0.9990	0.9988	0.9991	0.0005
KGT3	0.9995	0.9992	0.9995	0.9986	0.9990	0.9988	0.9991	0.0004
Power Expression	0.9995	0.9987	0.9978	0.9998	0.9993	0.9999	0.9992	0.0008
Weibull	0.9966	0.9948	0.9966	0.9923	0.9935	0.9927	0.9944	0.0019
Zero Order	0.9680	0.9892	0.9815	0.9864	0.9778	0.9900	0.9821	0.0084

Table 418 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 film after moist heat treatment at 60°C for different time intervals in pH change system

Equation	24 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9849	0.9683	0.9921	0.9818	0.0122
First Order	0.9948	0.9863	0.9965	0.9925	0.0054
Higuchi's	0.9876	0.9818	0.9927	0.9874	0.0054
KGT3	0.9944	0.9932	0.9967	0.9948	0.0018
Power Expression	0.9756	0.9664	0.9904	0.9775	0.0121
Weibull	0.9961	0.9956	0.9965	0.9960	0.0005
Zero Order	0.9309	0.8977	0.9612	0.9299	0.0317

Equation	48 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9688	0.9845	0.9752	0.9761	0.0079
First Order	0.9869	0.9953	0.9874	0.9899	0.0047
Higuchi's	0.9700	0.9909	0.9916	0.9841	0.0123
KGT3	0.9882	0.9972	0.9943	0.9932	0.0046
Power Expression	0.9747	0.9915	0.9876	0.9846	0.0088
Weibull	0.9920	0.9982	0.9939	0.9947	0.0032
Zero Order	0.8941	0.9380	0.9280	0.9200	0.0230

Equation	72 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9968	0.9942	0.9935	0.9949	0.0017
First Order	0.9974	0.9961	0.9912	0.9949	0.0033
Higuchi's	0.9877	0.9869	0.9780	0.9842	0.0054
KGT3	0.9972	0.9981	0.9938	0.9964	0.0023
Power Expression	0.9800	0.9948	0.9898	0.9882	0.0075
Weibull	0.9986	0.9981	0.9929	0.9965	0.0031
Zero Order	0.9121	0.9693	0.9568	0.9461	0.0300

Table 418 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 film after moist heat treatment at 60°C for different time intervals in pH change system (continue)

Equation	120 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9952	0.9938	0.9927	0.9939	0.0012
First Order	0.9931	0.9942	0.9946	0.9940	0.0008
Higuchi's	0.9801	0.9843	0.9903	0.9849	0.0051
KGT3	0.9951	0.9944	0.9942	0.9946	0.0005
Power Expression	0.9948	0.9932	0.9953	0.9944	0.0011
Weibull	0.9946	0.9946	0.9937	0.9943	0.0005
Zero Order	0.9855	0.9740	0.9765	0.9787	0.0061

Equation	168 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9975	0.9979	0.9931	0.9962	0.0026
First Order	0.9976	0.9968	0.9914	0.9953	0.0034
Higuchi's	0.9932	0.9863	0.9814	0.9869	0.0060
KGT3	0.9982	0.9981	0.9931	0.9965	0.0029
Power Expression	0.9979	0.9979	0.9922	0.9960	0.0033
Weibull	0.9980	0.9978	0.9930	0.9963	0.0028
Zero Order	0.9803	0.9830	0.9745	0.9793	0.0043

Table 419 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 film after moist heat treatment at 45°C for different time intervals in pH change system

Equation	24 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9949	0.9966	0.9984	0.9967	0.0018
First Order	0.9972	0.9973	0.9970	0.9971	0.0002
Higuchi's	0.9813	0.9918	0.9909	0.9880	0.0058
KGT3	0.9968	0.9976	0.9987	0.9977	0.0010
Power Expression	0.9924	0.9952	0.9981	0.9952	0.0029
Weibull	0.9975	0.9981	0.9985	0.9980	0.0005
Zero Order	0.9622	0.9679	0.9795	0.9699	0.0088

Equation	48 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9758	0.9963	0.9957	0.9893	0.0117
First Order	0.9910	0.9987	0.9937	0.9945	0.0039
Higuchi's	0.9834	0.9969	0.9909	0.9904	0.0068
KGT3	0.9935	0.9985	0.9956	0.9959	0.0025
Power Expression	0.9857	0.9954	0.9939	0.9916	0.0052
Weibull	0.9961	0.9989	0.9960	0.9970	0.0016
Zero Order	0.9095	0.9650	0.9801	0.9515	0.0372

Equation	72 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9705	0.9800	0.9864	0.9789	0.0080
First Order	0.9845	0.9926	0.9952	0.9908	0.0055
Higuchi's	0.9777	0.9887	0.9936	0.9866	0.0081
KGT3	0.9903	0.9963	0.9970	0.9945	0.0037
Power Expression	0.9898	0.9917	0.9941	0.9918	0.0022
Weibull	0.9918	0.9972	0.9974	0.9955	0.0032
Zero Order	0.9073	0.9234	0.9429	0.9245	0.0178

Table 419 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 film after moist heat treatment at 45°C for different time intervals in pH change system (continue)

Equation	120 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9521	0.9369	0.9840	0.9576	0.0240
First Order	0.9752	0.9657	0.9840	0.9750	0.0092
Higuchi's	0.9266	0.9449	0.9823	0.9513	0.0284
KGT3	0.9778	0.9796	0.9846	0.9806	0.0035
Power Expression	0.9666	0.9779	0.9847	0.9764	0.0091
Weibull	0.9837	0.9896	0.9843	0.9859	0.0033
Zero Order	0.9642	0.8424	0.9639	0.9235	0.0702

Equation	168 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9905	0.9746	0.9720	0.9791	0.0100
First Order	0.9922	0.9902	0.9894	0.9906	0.0014
Higuchi's	0.9862	0.9872	0.9770	0.9834	0.0056
KGT3	0.9917	0.9963	0.9953	0.9944	0.0024
Power Expression	0.9893	0.9917	0.9907	0.9906	0.0012
Weibull	0.9925	0.9976	0.9975	0.9959	0.0030
Zero Order	0.9744	0.9080	0.8985	0.9270	0.0413

Table 420 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 film after moist heat treatment at 60°C for different time intervals in pH change system

Equation	24 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9816	0.9632	0.9647	0.9698	0.0102
First Order	0.9936	0.9846	0.9838	0.9873	0.0055
Higuchi's	0.9913	0.9754	0.9647	0.9771	0.0134
KGT3	0.9977	0.9927	0.9822	0.9909	0.0079
Power Expression	0.9937	0.9836	0.9715	0.9830	0.0111
Weibull	0.9981	0.9964	0.9893	0.9946	0.0047
Zero Order	0.9256	0.8836	0.8540	0.8877	0.0360

Equation	48 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9850	0.9894	0.9929	0.9891	0.0039
First Order	0.9890	0.9941	0.9978	0.9936	0.0044
Higuchi's	0.9879	0.9867	0.9940	0.9895	0.0039
KGT3	0.9909	0.9924	0.9978	0.9937	0.0036
Power Expression	0.9894	0.9863	0.9961	0.9906	0.0050
Weibull	0.9891	0.9941	0.9980	0.9937	0.0045
Zero Order	0.9496	0.9480	0.9571	0.9516	0.0049

Equation	72 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9950	0.9976	0.9973	0.9966	0.0014
First Order	0.9894	0.9930	0.9945	0.9923	0.0027
Higuchi's	0.9730	0.9775	0.9865	0.9790	0.0069
KGT3	0.9953	0.9979	0.9975	0.9969	0.0014
Power Expression	0.9936	0.9971	0.9986	0.9964	0.0026
Weibull	0.9961	0.9980	0.9965	0.9969	0.0010
Zero Order	0.9832	0.9877	0.9862	0.9857	0.0023

Table 420 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 film after moist heat treatment at 60°C for different time intervals in pH change system (continue)

Equation	120 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9928	0.9758	0.9484	0.9723	0.0224
First Order	0.9946	0.9892	0.9697	0.9845	0.0131
Higuchi's	0.9755	0.9740	0.9684	0.9726	0.0037
KGT3	0.9960	0.9880	0.9791	0.9877	0.0084
Power Expression	0.9980	0.9777	0.9818	0.9858	0.0107
Weibull	0.9948	0.9910	0.9902	0.9920	0.0025
Zero Order	0.9773	0.9080	0.8870	0.9241	0.0473

Equation	168 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9971	0.9683	0.9972	0.9875	0.0166
First Order	0.9960	0.9852	0.9907	0.9906	0.0054
Higuchi's	0.9816	0.9845	0.9629	0.9763	0.0117
KGT3	0.9967	0.9953	0.9988	0.9970	0.0018
Power Expression	0.9923	0.9909	0.9971	0.9934	0.0033
Weibull	0.9983	0.9970	0.9991	0.9981	0.0010
Zero Order	0.9803	0.9089	0.9920	0.9604	0.0450

Table 421 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M60 film after moist heat treatment at 45°C for different time intervals in pH change system

Equation	24 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9466	0.9902	0.9796	0.9722	0.0227
Higuchi's	0.8885	0.9921	0.9646	0.9484	0.0537
KGT3	0.9463	0.9914	0.9776	0.9717	0.0231
Power Expression	0.9979	0.9923	0.9659	0.9854	0.0171

Equation	72 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9897	0.9952	0.9900	0.9916	0.0031
Higuchi's	0.9931	0.9910	0.9813	0.9885	0.0063
KGT3	0.9968	0.9943	0.9934	0.9948	0.0017
Power Expression	0.9943	0.9913	0.9854	0.9903	0.0045

Equation	120 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9978	0.9553	0.9945	0.9825	0.0237
Higuchi's	0.9952	0.9346	0.9886	0.9728	0.0332
KGT3	0.9966	0.9687	0.9946	0.9867	0.0156
Power Expression	0.9971	0.9606	0.9892	0.9823	0.0192

Table 422 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M60 film after moist heat treatment at 60°C for different time intervals in pH change system

Equation	24 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9270	0.9497	0.9252	0.9340	0.0137
Higuchi's	0.8489	0.9158	0.8839	0.8829	0.0334
KGT3	0.9563	0.9763	0.9628	0.9652	0.0102
Power Expression	0.9713	0.9684	0.9641	0.9679	0.0036

Equation	72 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9472	0.9637	0.9317	0.9475	0.0160
Higuchi's	0.9176	0.9461	0.8928	0.9189	0.0267
KGT3	0.9742	0.9909	0.9870	0.9840	0.0088
Power Expression	0.9692	0.9870	0.9664	0.9742	0.0112

Equation	120 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9917	0.9960	0.9946	0.9941	0.0022
Higuchi's	0.9894	0.9883	0.9893	0.9890	0.0006
KGT3	0.9911	0.9976	0.9961	0.9949	0.0034
Power Expression	0.9897	0.9896	0.9899	0.9897	0.0001

Table 423 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M75 film after moist heat treatment at 45°C for different time intervals in pH change system

Equation	24 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9721	0.9735	0.9860	0.9772	0.0077
Higuchi's	0.9214	0.9638	0.9887	0.9580	0.0340
KGT3	0.9707	0.9789	0.9829	0.9775	0.0062
Power Expression	0.9542	0.9620	0.9776	0.9646	0.0119

Equation	72 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9932	0.9913	0.9677	0.9840	0.0142
Higuchi's	0.9941	0.9759	0.9600	0.9767	0.0170
KGT3	0.9985	0.9914	0.9815	0.9905	0.0085
Power Expression	0.9944	0.9858	0.9894	0.9899	0.0043

Equation	120 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9791	0.9795	0.9493	0.9693	0.0173
Higuchi's	0.9650	0.9677	0.9191	0.9506	0.0274
KGT3	0.9845	0.9913	0.9832	0.9863	0.0044
Power Expression	0.9759	0.9846	0.9689	0.9765	0.0079

Table 424 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M75 film after moist heat treatment at 60°C for different time intervals in pH change system

Equation	24 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9090	0.9302	0.9325	0.9239	0.0130
Higuchi's	0.8605	0.9117	0.9076	0.8933	0.0284
KGT3	0.9689	0.9816	0.9794	0.9766	0.0067
Power Expression	0.9756	0.9620	0.9869	0.9748	0.0125

Equation	72 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9703	0.9299	0.9834	0.9612	0.0279
Higuchi's	0.9703	0.9312	0.9797	0.9604	0.0257
KGT3	0.9982	0.9895	0.9981	0.9953	0.0050
Power Expression	0.9822	0.9713	0.9835	0.9790	0.0067

Equation	120 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9967	0.9920	0.9987	0.9958	0.0035
Higuchi's	0.9781	0.9893	0.9923	0.9866	0.0075
KGT3	0.9969	0.9946	0.9987	0.9968	0.0020
Power Expression	0.9957	0.9908	0.9982	0.9949	0.0037

Table 425 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA Ta45 film after moist heat treatment at 45°C for different time intervals in pH change system

Equation	24 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9953	0.9819	0.9957	0.9910	0.0079
First Order	0.9880	0.9676	0.9676	0.9744	0.0118
Higuchi's	0.9784	0.9346	0.9810	0.9647	0.0261
KGT3	0.9967	0.9881	0.9965	0.9937	0.0049
Power Expression	0.9971	0.9961	0.9978	0.9970	0.0009
Weibull	0.9946	0.9934	0.9949	0.9943	0.0008
Zero Order	0.9869	0.9961	0.9872	0.9901	0.0052

Equation	48 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9836	0.9911	0.9793	0.9847	0.0060
First Order	0.9821	0.9870	0.9832	0.9841	0.0025
Higuchi's	0.9471	0.9722	0.9641	0.9611	0.0128
KGT3	0.9827	0.9904	0.9820	0.9850	0.0046
Power Expression	0.9749	0.9847	0.9771	0.9789	0.0051
Weibull	0.9863	0.9932	0.9833	0.9876	0.0051
Zero Order	0.9774	0.9702	0.9490	0.9655	0.0148

Table 425 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA Ta45 film after moist heat treatment at 45°C for different time intervals in pH change system (continue)

Equation	72 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9917	0.9293	0.9906	0.9705	0.0357
First Order	0.9836	0.9074	0.9863	0.9591	0.0448
Higuchi's	0.9514	0.8217	0.9652	0.9128	0.0792
KGT3	0.9921	0.9206	0.9899	0.9675	0.0407
Power Expression	0.9874	0.9891	0.9852	0.9872	0.0019
Weibull	0.9939	0.9865	0.9776	0.9860	0.0082
Zero Order	0.9769	0.9667	0.9703	0.9713	0.0052

Equation	120 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9975	0.9915	0.9915	0.9935	0.0035
First Order	0.9975	0.9977	0.9972	0.9975	0.0002
Higuchi's	0.9792	0.9852	0.9638	0.9761	0.0110
KGT3	0.9982	0.9992	0.9961	0.9978	0.0016
Power Expression	0.9962	0.9981	0.9922	0.9955	0.0030
Weibull	0.9983	0.9988	0.9973	0.9981	0.0008
Zero Order	0.9775	0.9554	0.9554	0.9628	0.0127

Equation	168 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9952	0.9976	0.9939	0.9956	0.0019
First Order	0.9959	0.9982	0.9980	0.9974	0.0013
Higuchi's	0.9735	0.9813	0.9712	0.9753	0.0053
KGT3	0.9966	0.9985	0.9980	0.9977	0.0010
Power Expression	0.9977	0.9978	0.9968	0.9974	0.0006
Weibull	0.9961	0.9982	0.9982	0.9975	0.0012
Zero Order	0.9741	0.9740	0.9622	0.9701	0.0068

Table 426 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA Ta45 film after moist heat treatment at 60°C for different time intervals in pH change system

Equation	24 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9950	0.9837	0.9948	0.9912	0.0065
First Order	0.9957	0.9926	0.9941	0.9941	0.0015
Higuchi's	0.9814	0.9814	0.9881	0.9836	0.0038
KGT3	0.9951	0.9925	0.9954	0.9944	0.0016
Power Expression	0.9894	0.9855	0.9959	0.9903	0.0053
Weibull	0.9969	0.9940	0.9947	0.9952	0.0015
Zero Order	0.9681	0.9423	0.9824	0.9643	0.0203

Equation	48 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9937	0.9955	0.9869	0.9920	0.0045
First Order	0.9943	0.9875	0.9957	0.9925	0.0044
Higuchi's	0.9901	0.9728	0.9901	0.9843	0.0100
KGT3	0.9942	0.9961	0.9950	0.9951	0.0009
Power Expression	0.9919	0.9956	0.9905	0.9927	0.0026
Weibull	0.9951	0.9943	0.9988	0.9961	0.0024
Zero Order	0.9682	0.9885	0.9395	0.9654	0.0246

Table 426 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA Ta45 film after moist heat treatment at 60°C for different time intervals in pH change system (continue)

Equation	72 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9952	0.9891	0.9984	0.9942	0.0047
First Order	0.9901	0.9901	0.9969	0.9923	0.0039
Higuchi's	0.9765	0.9138	0.9814	0.9573	0.0377
KGT3	0.9958	0.9890	0.9983	0.9944	0.0048
Power Expression	0.9783	0.9876	0.9964	0.9874	0.0090
Weibull	0.9934	0.9894	0.9988	0.9939	0.0047
Zero Order	0.9868	0.9705	0.9793	0.9788	0.0081

Equation	120 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9971	0.9986	0.9984	0.9980	0.0008
First Order	0.9909	0.9973	0.9955	0.9946	0.0033
Higuchi's	0.9627	0.9780	0.9789	0.9732	0.0091
KGT3	0.9975	0.9987	0.9981	0.9981	0.0006
Power Expression	0.9947	0.9967	0.9952	0.9955	0.0010
Weibull	0.9989	0.9990	0.9991	0.9990	0.0001
Zero Order	0.9855	0.9781	0.9800	0.9812	0.0038

Equation	168 hrs				
	Coefficient of Determination				
	1	2	3	AVG	SD
Cube Root	0.9947	0.9966	0.9488	0.9800	0.0271
First Order	0.9960	0.9994	0.9322	0.9759	0.0379
Higuchi's	0.9624	0.9944	0.8984	0.9517	0.0489
KGT3	0.9974	0.9995	0.9594	0.9854	0.0226
Power Expression	0.9981	0.9985	0.9936	0.9967	0.0027
Weibull	0.9979	0.9994	0.9813	0.9929	0.0100
Zero Order	0.9947	0.9681	0.9774	0.9800	0.0135

Table 427 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 film after moist heat treatment at 60°C for 48 hrs in deionizer water and glucose solution with different molality

Equation	Deionized Water				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9410	0.9681	0.9405	0.9498	0.0158
Higuchi's	0.8910	0.9498	0.8966	0.9125	0.0324
KGT3	0.9656	0.9779	0.9605	0.9680	0.0089
Power Expression	0.9502	0.9670	0.9429	0.9533	0.0124
Zero Order	0.7515	0.8356	0.7582	0.7818	0.0467

Equation	1.22 m Glucose Solution				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9956	0.9981	0.9957	0.9964	0.0014
Higuchi's	0.9896	0.9905	0.9848	0.9883	0.0030
KGT3	0.9951	0.9977	0.9949	0.9959	0.0016
Power Expression	0.9946	0.9951	0.9912	0.9936	0.0021
Zero Order	0.9426	0.9644	0.9616	0.9562	0.0119

Table 427 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 film after moist heat treatment at 60°C for 48 hrs in deionizer water and glucose solution with different molality (continue)

Equation	2.06 m Glucose Solution				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9988	0.9992	0.9977	0.9985	0.0008
Higuchi's	0.9849	0.9848	0.9901	0.9866	0.0030
KGT3	0.9987	0.9988	0.9970	0.9982	0.0010
Power Expression	0.9972	0.9974	0.9921	0.9956	0.0030
Zero Order	0.9706	0.9711	0.9556	0.9658	0.0088

Equation	3.13 m Glucose Solution				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9978	0.9973	0.9978	0.9976	0.0003
Higuchi's	0.9722	0.9962	0.9863	0.9849	0.0121
KGT3	0.9977	0.9975	0.9975	0.9976	0.0001
Power Expression	0.9992	0.9993	0.9988	0.9991	0.0003
Zero Order	0.9955	0.9828	0.9959	0.9914	0.0075

Table 428 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 film after moist heat treatment at 60°C for 24 hrs in deionizer water and glucose solution with different molality

Equation	Deionized Water				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9547	0.9663	0.9643	0.9618	0.0062
Higuchi's	0.9133	0.9425	0.9279	0.9279	0.0146
KGT3	0.9745	0.9863	0.9774	0.9794	0.0062
Power Expression	0.9724	0.9908	0.9654	0.9762	0.0131
Zero Order	0.8057	0.8596	0.8287	0.8313	0.0270

Equation	1.22 m Glucose Solution				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9987	0.9947	0.9949	0.9961	0.0022
Higuchi's	0.9948	0.9928	0.9876	0.9917	0.0037
KGT3	0.9979	0.9933	0.9950	0.9954	0.0023
Power Expression	0.9976	0.9982	0.9974	0.9977	0.0004
Zero Order	0.9763	0.9849	0.9867	0.9826	0.0056

Equation	2.06 m Glucose Solution				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9919	0.9991	0.9958	0.9956	0.0036
Higuchi's	0.9714	0.9902	0.9772	0.9796	0.0096
KGT3	0.9839	0.9988	0.9986	0.9938	0.0085
Power Expression	0.9927	0.9984	0.9978	0.9963	0.0031
Zero Order	0.9865	0.9847	0.9925	0.9879	0.0041

Equation	3.13 m Glucose Solution				
	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9911	0.9941	0.9981	0.9944	0.0035
Higuchi's	0.9759	0.9647	0.9812	0.9739	0.0084
KGT3	0.9868	0.9936	0.9967	0.9924	0.0051
Power Expression	0.9965	0.9983	0.9985	0.9978	0.0011
Zero Order	0.9965	0.9983	0.9973	0.9973	0.0009

Table 429 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 U5 film after moist heat treatment at different %RH at 60°C for 24 hrs in pH change system

Equation	0% RH								
	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
First Order	0.9785	0.9722	0.9733	0.9969	0.9969	0.9888	0.9844	0.0113	
Higuchi's	0.9494	0.9616	0.9514	0.9827	0.9976	0.9135	0.9594	0.0292	
KGT3	0.9948	0.9768	0.9812	0.9940	0.9921	0.9932	0.9887	0.0077	
Power Expression	0.9935	0.9801	0.9754	0.9946	0.9600	0.9914	0.9825	0.0135	
Zero Order	0.9897	0.9739	0.9644	0.9853	0.9439	0.9935	0.9751	0.0187	

Equation	75% RH								
	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
First Order	0.9916	0.9935	0.9944	0.9969	0.9774	0.9888	0.9904	0.0069	
Higuchi's	0.9805	0.9763	0.9819	0.9880	0.9435	0.9744	0.9741	0.0157	
KGT3	0.9976	0.9972	0.9976	0.9974	0.9855	0.9966	0.9953	0.0048	
Power Expression	0.9989	0.9974	0.9970	0.9984	0.9894	0.9981	0.9965	0.0036	
Zero Order	0.9911	0.9826	0.9790	0.9748	0.9867	0.9927	0.9845	0.0070	

Equation	85% RH								
	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
First Order	0.9969	0.9972	0.9960	0.9936	0.9938	0.9939	0.9952	0.0017	
Higuchi's	0.9796	0.9870	0.9913	0.9775	0.9869	0.9761	0.9831	0.0061	
KGT3	0.9974	0.9978	0.9975	0.9975	0.9954	0.9977	0.9972	0.0009	
Power Expression	0.9961	0.9980	0.9979	0.9966	0.9963	0.9966	0.9969	0.0008	
Zero Order	0.9719	0.9656	0.9759	0.9821	0.9775	0.9861	0.9765	0.0073	

Equation	96% RH								
	Coefficient of Determination							AVG	SD
	1	2	3	4	5	6			
First Order	0.9949	0.9946	0.9905	0.9911	0.9828	0.9981	0.9920	0.0053	
Higuchi's	0.9764	0.9866	0.9606	0.9633	0.9482	0.9887	0.9706	0.0160	
KGT3	0.9990	0.9983	0.9962	0.9936	0.9941	0.9992	0.9967	0.0025	
Power Expression	0.9993	0.9988	0.9940	0.9900	0.9919	0.9983	0.9954	0.0040	
Zero Order	0.9898	0.9899	0.9874	0.9769	0.9886	0.9776	0.9850	0.0061	

Table 430 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 film after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2

Equation	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9872	0.9904	0.9918	0.9898	0.0023
Higuchi's	0.9669	0.9668	0.9738	0.9692	0.0040
KGT3	0.9932	0.9991	0.9990	0.9971	0.0034
Power Expression	0.9921	0.9987	0.9982	0.9963	0.0036
Zero Order	0.9870	0.9946	0.9913	0.9910	0.0038

Table 431 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 film after moist heat treatment at 60°C for 24 hrs in HCl buffer pH 1.2

Equation	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9892	0.9889	0.9950	0.9910	0.0034
Higuchi's	0.9683	0.9600	0.9764	0.9682	0.0082
KGT3	0.9960	0.9981	0.9978	0.9973	0.0011
Power Expression	0.9939	0.9968	0.9949	0.9952	0.0015
Zero Order	0.9880	0.9929	0.9801	0.9870	0.0064

Table 432 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 U5 film after moist heat treatment at 60°C for 24 hrs in HCl buffer pH 1.2

Equation	Coefficient of Determination						AVG	SD
	1	2	3	4	5	6		
First Order	0.9871	0.9805	0.9886	0.9859	0.9829	0.9723	0.9829	0.0059
Higuchi's	0.9593	0.9485	0.9665	0.9554	0.9598	0.9345	0.9540	0.0112
KGT3	0.9998	0.9974	0.9996	0.9992	0.9991	0.9955	0.9984	0.0016
Power Expression	0.9993	0.9995	0.9991	0.9993	0.9992	0.9956	0.9987	0.0015
Zero Order	0.9961	0.9995	0.9964	0.9983	0.9983	0.9955	0.9973	0.0016

Table 433 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 film after moist heat treatment at 60°C for 48 hrs in phosphate buffer pH 6.8

Equation	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9986	0.9972	0.9959	0.9972	0.0014
Higuchi's	0.9890	0.9823	0.9642	0.9785	0.0128
KGT3	0.9985	0.9947	0.9966	0.9966	0.0019
Power Expression	0.9959	0.9905	0.9984	0.9949	0.0040
Zero Order	0.9743	0.9594	0.9901	0.9746	0.0154

Table 434 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 film after moist heat treatment at 60°C for 24 hrs in phosphate buffer pH 6.8

Equation	Coefficient of Determination				
	1	2	3	AVG	SD
First Order	0.9984	0.9948	0.9898	0.9943	0.0043
Higuchi's	0.9958	0.9955	0.9852	0.9922	0.0061
KGT3	0.9991	0.9990	0.9960	0.9980	0.0018
Power Expression	0.9961	0.9963	0.9922	0.9949	0.0023
Zero Order	0.9497	0.9414	0.9183	0.9365	0.0163

Table 435 Coefficient of determination from curve fitting with different model expressions of drug release from tablet coated with CA M45 Cas15 U5 film after moist heat treatment at 60°C for 24 hrs in phosphate buffer pH 6.8

Equation	Coefficient of Determination						AVG	SD
	1	2	3	4	5	6		
First Order	0.9973	0.9980	0.9985	0.9979	0.9967	0.9982	0.9978	0.0006
Higuchi's	0.9968	0.9920	0.9873	0.9926	0.9849	0.9941	0.9913	0.0044
KGT3	0.9982	0.9972	0.9989	0.9979	0.9974	0.9983	0.9980	0.0006
Power Expression	0.9968	0.9941	0.9966	0.9961	0.9954	0.9981	0.9962	0.0014
Zero Order	0.9556	0.9640	0.9742	0.8384	0.9788	0.9773	0.9481	0.0544

Table 436 The A value from curve fitting with KGT3 expressions of drug release from core tablet in HCl buffer pH 1.2 (A) and in phosphate buffer pH 6.8 (B)

Tablet	A						AVG	SD
	1	2	3	4	5	6		
A	0.4036	0.4053	0.2923	0.6148	0.4321	0.3000	0.4080	0.1170
B	1.0290	1.1626	1.0343	1.0956	0.8549	1.2395	1.0693	0.1321

Table 437 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	A				
	1	2	3	AVG	SD
24	0.0641	0.0344	0.0923	0.0636	0.0290
48	0.1250	0.1800	0.1447	0.1499	0.0279
72	0.5306	0.5126	0.3899	0.4777	0.0765
120	0.2036	0.1010	0.0997	0.1348	0.0596
168	0.3171	0.0897	0.5074	0.3047	0.2091

Table 438 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	A				
	1	2	3	AVG	SD
24	0.6067	0.6090	0.5401	0.5853	0.0391
48	0.3340	0.4012	0.1924	0.3092	0.1066
72	0.5581	0.3198	0.4095	0.4291	0.1204
120	0.2668	0.1004	0.1714	0.1795	0.0835
168	0.2129	0.2409	0.1358	0.1966	0.0544

Table 439 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	A				
	1	2	3	AVG	SD
24	0.2722	0.1221	0.2716	0.2220	0.0865
48	0.2353	0.5718	0.0994	0.3022	0.2432
72	0.5581	0.3256	0.5210	0.4016	0.1356
120	0.5538	0.3099	0.3793	0.4144	0.1257
168	0.6630	0.1788	0.7110	0.5176	0.2944

Table 440 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	A				
	1	2	3	AVG	SD
24	0.1989	0.1971	0.1033	0.1664	0.0547
72	0.0498	0.1140	0.0524	0.0721	0.0363
120	0.1000	0.0008	0.0875	0.0628	0.0540

Table 441 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	A				
	1	2	3	AVG	SD
24	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.0000	0.0000	0.0000	0.0000	0.0000
120	0.0002	0.2524	0.2043	0.1523	0.1339

Table 442 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	A				
	1	2	3	AVG	SD
24	0.0736	0.0387	0.2043	0.1055	0.0873
72	0.0609	0.0956	0.0298	0.0621	0.0329
120	0.0262	0.0104	0.0000	0.0122	0.0132

Table 443 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	A				
	1	2	3	AVG	SD
24	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.0443	0.0000	0.0839	0.0427	0.0420
120	0.3227	0.0899	0.1794	0.1973	0.1174

Table 444 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	A				
	1	2	3	AVG	SD
24	0.2178	0.2270	0.2935	0.2461	0.0413
48	0.0616	0.0205	0.0337	0.0386	0.0210
72	0.0470	0.0638	0.0838	0.0649	0.0184
120	0.0298	0.0300	0.2463	0.1020	0.1250
168	0.2125	0.0422	0.0159	0.0902	0.1067

Table 445 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	A				
	1	2	3	AVG	SD
24	0.1118	0.0420	0.1446	0.0994	0.0524
48	0.0776	0.0935	0.0504	0.0738	0.0218
72	0.2609	0.3417	0.3691	0.3239	0.0563
120	0.4017	0.2538	0.2035	0.2863	0.1030
168	0.2459	0.3090	0.3193	0.2914	0.0397

Table 446 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in glucose solution with different molality

Conc(m)	A				
	1	2	3	AVG	SD
0.00	0.0000	0.0005	0.0028	0.0011	0.0015
1.22	0.1042	0.1666	0.1779	0.1496	0.0397
2.06	0.1661	0.1618	0.1426	0.1568	0.0125
3.13	0.3286	0.2571	0.3285	0.3047	0.0413

Table 447 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 24 hrs in glucose solution with different molality

Conc(m)	A				
	1	2	3	AVG	SD
0.00	0.0000	0.0000	0.0102	0.0034	0.0059
1.22	0.1898	0.1754	0.1726	0.1793	0.0092
2.06	0.2209	0.2092	0.2139	0.2147	0.0059
3.13	0.2659	0.5112	0.1786	0.3186	0.1725

Table 448 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C and at different %RH for 24 hrs in pH change system

%RH	A						AVG	SD
	1	2	3	4	5	6		
0	1.0877	0.5734	0.5440	0.4249	0.2402	0.5000	0.5617	0.2839
75	0.6007	0.4639	0.3634	0.3497	0.4398	0.8060	0.5039	0.1731
85	0.2493	0.1606	0.2710	0.4121	0.2882	0.4528	0.3057	0.1084
96	0.4683	0.4626	0.5762	0.3899	0.8911	0.2727	0.5101	0.2118

Table 449 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	A				
	1	2	3	AVG	SD
A	0.6522	0.8553	0.6442	0.7172	0.1196
B	0.1841	0.1191	0.1966	0.1666	0.0416

Table 450 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	A				
	1	2	3	AVG	SD
A	0.6524	0.8452	0.3852	0.6276	0.2310
B	0.1114	0.0597	0.0296	0.0669	0.0414

Table 451 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	A						AVG	SD
	1	2	3	4	5	6		
A	1.0601	1.0371	1.0621	1.0939	1.2429	1.8999	1.2327	0.3352
B	0.1015	0.1671	0.2489	0.2272	0.2846	0.1880	0.2029	0.0651

Table 452 The A value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 film without or containing different additives at coating levels of 15% in pH change system

Coated Tablet	A						AVG	SD
	1	2	3	4	5	6		
CA M45 Cas15	0.2761	0.1127	0.1304	0.3022	0.3691	0.2792	0.2449	0.1014
CA M45 Cas15 HPMC45	0.6513	1.0000	0.9175	0.6883	1.0936	1.3695	0.9534	0.2675
CA M45 Cas15 U5	0.8194	0.3830	0.3117	0.7841	0.3313	0.5956	0.5375	0.2285

Table 453 The C value from curve fitting with KGT3 expressions of drug release from core tablet in HCl buffer pH 1.2 (A) and in phosphate buffer pH 6.8 (B)

Coated Tablet	C(E+2)						AVG	SD
	1	2	3	4	5	6		
A	1.5890	1.8290	1.6510	2.8880	2.1250	1.5510	1.9388	0.5105
B	9.2450	10.5780	7.9953	10.0540	8.4210	11.1109	9.5674	1.2272

Table 454 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	C(E+4)				
	1	2	3	AVG	SD
24	16.1800	16.0000	19.2650	17.1483	1.8353
48	7.1251	13.8134	16.7520	12.5635	4.9337
72	4.5394	5.8699	8.2287	6.2127	1.8684
120	3.4894	3.4817	6.0302	4.3338	1.4692
168	7.6579	3.5840	3.5480	4.9300	2.3625

Table 455 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	C(E+4)				
	1	2	3	AVG	SD
24	35.4000	40.9786	31.0700	35.8162	4.9674
48	22.8600	24.1944	16.9810	21.3451	3.8379
72	32.9480	21.0840	25.2230	26.4183	6.0216
120	15.1700	9.0115	9.7478	11.3098	3.3633
168	7.7780	8.7075	7.9120	8.1325	0.5025

Table 456 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	C(E+4)				
	1	2	3	AVG	SD
24	13.1000	8.7880	14.6580	12.1820	3.0408
48	8.7296	19.0000	6.9607	11.5634	6.5007
72	16.4750	16.6740	10.0446	14.3979	3.7713
120	11.8980	7.9651	8.7560	9.5397	2.0803
168	12.3900	4.5690	13.5142	10.1577	4.8725

Table 457 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	C(E+4)				
	1	2	3	AVG	SD
24	25.0670	15.1670	10.7200	16.9847	7.3442
72	4.7897	8.1098	5.8190	6.2395	1.6995
120	7.4244	5.7630	6.7800	6.6558	0.8376

Table 458 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	C(E+4)				
	1	2	3	AVG	SD
24	2.7900	2.5990	2.7020	2.6970	0.0956
72	1.8402	2.7560	2.1460	2.2474	0.4662
120	1.9946	3.0500	2.6780	2.5742	0.5353

Table 459 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	C(E+4)				
	1	2	3	AVG	SD
24	8.1260	7.2206	12.6380	9.3282	2.9019
72	5.0135	7.4862	5.1928	5.8975	1.3788
120	1.7646	2.2955	2.3123	2.1241	0.3115

Table 460 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	C(E+4)				
	1	2	3	AVG	SD
24	2.2578	1.8207	1.8936	1.9907	0.2342
72	1.7452	1.3873	2.1280	1.7535	0.3704
120	1.9968	1.2588	1.4930	1.5829	0.3771

Table 461 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	C(E+4)				
	1	2	3	AVG	SD
24	4.3820	3.6806	6.4949	4.8525	1.4650
48	2.8500	3.0572	2.3910	2.7661	0.3409
72	4.5170	3.8508	4.3410	4.2363	0.3452
120	2.9438	2.4962	1.9980	2.4793	0.4731
168	2.3564	2.7618	3.1005	2.7396	0.3726

Table 462 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	C(E+4)				
	1	2	3	AVG	SD
24	5.8110	5.6330	7.9292	6.4577	1.2774
48	5.1254	4.9561	4.3670	4.8162	0.3981
72	8.6412	8.0000	6.4370	7.6927	1.1338
120	3.4307	3.9789	3.0818	3.4971	0.4522
168	3.6515	2.2922	5.5104	3.8180	1.6155

Table 463 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in glucose solution with different molality

Conc(m)	C(E+4)				
	1	2	3	AVG	SD
0.00	4.1653	5.3197	4.9609	4.8153	0.5908
1.22	3.2767	3.3696	3.4711	3.3725	0.0972
2.06	2.1050	2.0534	2.2460	2.1348	0.0997
3.13	2.1656	1.8204	2.0220	2.0027	0.1734

Table 464 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 24 hrs in glucose solution with different molality

Conc(m)	C(E+4)				
	1	2	3	AVG	SD
0.00	3.3359	5.4040	4.4937	4.4112	1.0365
1.22	3.2750	3.4550	3.3320	3.3540	0.0920
2.06	2.0450	1.9168	2.1610	2.0409	0.1222
3.13	1.7410	2.8070	1.2625	1.9368	0.7907

Table 465 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C and at different %RH for 24 hrs in pH change system

%RH	C(E+4)						AVG	SD
	1	2	3	4	5	6		
0	50.8000	37.5400	36.7780	32.9190	19.4460	34.9950	35.4130	10.0448
75	10.8948	7.7507	7.2100	6.6907	8.7802	13.3857	9.1187	2.5646
80	5.4615	3.4033	5.7899	6.4198	5.6379	7.3214	5.6723	1.3028
95	5.5316	4.0268	5.8444	4.7859	8.4721	4.3698	5.5051	1.6069

Table 466 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	C(E+4)				
	1	2	3	AVG	SD
A	21.2650	27.3221	18.5230	22.3700	4.5024
B	4.1776	3.2737	4.3560	3.9358	0.5803

Table 467 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	C(E+4)				
	1	2	3	AVG	SD
A	23.3770	27.7000	11.6991	20.9254	8.2774
B	2.3579	2.1211	2.2884	2.2558	0.1217

Table 468 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	C(E+4)						AVG	SD
	1	2	3	4	5	6		
A	23.7880	23.9000	26.0800	25.7280	30.2900	44.9737	29.1266	8.1134
B	2.3175	2.6909	3.3756	3.5566	3.3642	2.9037	3.0347	0.4789

Table 469 The C value from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 film without or containing different additives at coating levels of 15% in pH change system

Coated Tablet	C(E+4)						AVG	SD
	1	2	3	4	5	6		
CA M45 Cas15	9.5057	5.9080	6.4330	10.7150	12.4620	9.2504	9.0457	2.5053
CA M45 Cas15 HPMC15	20.5705	35.1900	25.4300	21.0370	28.2800	41.5718	28.6799	8.2883
CA M45 Cas15 U5	31.0607	19.8680	16.3300	30.4880	19.4160	28.6050	24.2946	6.4738

Table 470 Lag time from curve fitting with KGT3 expressions of drug release from core tablet in HCl buffer pH 1.2 (A) and in phosphate buffer pH 6.8 (B)

Tablet	Tl(min)						AVG	SD
	1	2	3	4	5	6		
A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table 471 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	Tl(min)				SD
	1	2	3	AVG	
24	45.13	35.03	33.29	37.82	6.39
48	60.38	43.78	41.83	48.66	10.19
72	58.08	60.46	57.17	58.57	1.70
120	69.96	92.94	13.17	58.69	41.06
168	42.07	69.21	80.86	64.05	19.90

Table 472 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	Tl(min)				SD
	1	2	3	AVG	
24	19.08	29.78	19.48	22.78	6.07
48	45.97	55.32	56.06	52.45	5.62
72	41.87	37.22	37.94	39.01	2.50
120	56.37	70.80	70.00	65.72	8.11
168	55.19	50.65	70.22	58.69	10.24

Table 473 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	Tl(min)				SD
	1	2	3	AVG	
24	67.77	75.81	58.81	67.46	8.50
48	62.34	48.25	87.65	66.08	19.96
72	58.23	64.18	65.75	62.72	3.97
120	79.69	89.87	59.20	76.25	15.62
168	44.00	49.84	53.35	49.06	4.72

Table 474 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	Tl(min)				SD
	1	2	3	AVG	
24	36.92	-5.87	20.04	17.03	21.55
72	29.93	31.51	43.90	35.11	7.65
120	35.27	52.07	30.53	39.29	11.32

Table 475 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	Tl(min)				SD
	1	2	3	AVG	
24	66.87	81.14	63.89	70.63	9.22
72	61.12	110.50	102.67	91.43	26.54
120	65.36	23.85	33.45	40.89	21.73

Table 476 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(hr)	Tl(min)				
	1	2	3	AVG	SD
24	62.93	61.03	52.73	58.90	5.42
72	43.74	52.89	51.28	49.30	4.88
120	94.57	115.45	139.19	116.40	22.33

Table 477 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	Tl(min)				
	1	2	3	AVG	SD
24	84.94	95.94	70.36	83.75	12.83
72	111.21	158.99	98.28	122.83	31.98
120	-14.92	83.59	7.37	25.35	51.66

Table 478 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas 15 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	Tl(min)				
	1	2	3	AVG	SD
24	75.72	84.61	62.46	74.26	11.15
48	69.70	116.59	111.08	99.12	25.63
72	42.41	81.33	40.90	54.88	22.92
120	-43.81	77.33	-35.43	-0.64	67.65
168	-67.54	-15.47	-5.13	-29.38	33.45

Table 479 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(hr)	Tl(min)				
	1	2	3	AVG	SD
24	45.33	50.05	36.29	43.89	6.99
48	61.45	46.78	58.91	55.71	7.84
72	9.34	21.28	18.92	16.51	6.32
120	22.77	91.37	43.59	52.58	35.17
168	27.50	33.65	28.56	29.90	3.29

Table 480 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in glucose solution with different molality

Conc(m)	Tl(min)				
	1	2	3	AVG	SD
0.00	56.25	58.19	56.79	57.08	1.00
1.22	122.71	70.24	71.41	88.12	29.96
2.06	142.21	136.68	194.50	157.80	31.91
3.13	310.33	345.23	317.40	324.32	18.45

Table 481 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 24 hrs in glucose solution with different molality

Conc(m)	Tl(min)				
	1	2	3	AVG	SD
0.00	70.38	72.76	81.33	74.82	5.76
1.22	117.00	129.00	130.56	125.52	7.42
2.06	272.91	253.88	278.21	268.33	12.79
3.13	452.80	530.00	530.00	504.27	44.57

Table 482 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C and at different %RH for 24 hrs in pH change system

%RH	Tl(min)						AVG	SD
	1	2	3	4	5	6		
0	-3.62	-10.64	36.73	6.15	21.00	9.00	9.77	17.10
75	25.39	19.37	40.59	24.60	45.00	18.21	28.86	11.24
85	43.09	36.19	35.53	18.83	31.87	19.32	30.81	9.78
96	4.77	-58.17	4.41	27.77	6.37	33.50	3.11	32.56

Table 483 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	Tl(min)				
	1	2	3	AVG	SD
A	61.99	66.19	57.63	61.94	4.28
B	186.55	194.70	194.29	191.85	4.59

Table 484 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	Tl(min)				
	1	2	3	AVG	SD
A	81.28	69.28	63.60	71.39	9.03
B	236.06	250.06	320.61	268.91	45.32

Table 485 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	Tl(min)						AVG	SD
	1	2	3	4	5	6		
A	52.080	51.080	47.950	62.580	49.000	45.000	51.282	6.068
B	110.760	83.600	91.970	69.180	99.070	84.270	89.808	14.312

Table 486 Lag time from curve fitting with KGT3 expressions of drug release from tablets coated with CA M45 Cas15 film without or containing different additives at coating levels of 15% in pH change system

Coated Tablet	Tl(min)						AVG	SD
	1	2	3	4	5	6		
CA M45 Cas15	68.87	63.14	80.12	62.39	57.18	57.34	64.84	8.64
CA M45 Cas15 HPMC45	71.71	63.27	64.23	66.78	67.00	94.00	71.17	11.56
CA M45 Cas15 U5	25.25	21.95	29.21	28.99	28.99	34.85	28.21	4.34

Table 487 Release rate (K) from curve fitting with first order equation of drug release from core tablet in HCl buffer pH 1.2 (A) and in phosphate buffer pH 6.8 (B)

Tablet	K						AVG	SD
	1	2	3	4	5	6		
A	0.0457	0.0525	0.0599	0.0606	0.0584	0.0553	0.0554	0.0056
B	0.1321	0.1385	0.1128	0.1388	0.1430	0.1377	0.1338	0.0109

Table 488 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	K(E+3)				
	1	2	3	AVG	SD
24	3.8780	4.2039	4.9420	4.3413	0.5451
48	2.7827	2.3359	2.2597	2.4594	0.2825
72	2.0816	1.9544	1.9090	1.9817	0.0895
120	1.5240	2.3970	1.8227	1.9146	0.4437
168	1.2559	1.3927	1.3337	1.3274	0.0686

Table 489 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(min)	K(E+3)				
	1	2	3	AVG	SD
24	7.9253	8.6931	8.6930	8.4371	0.4433
48	7.5980	7.2540	7.7170	7.5230	0.2404
72	7.7575	6.7930	7.4200	7.3235	0.4894
120	5.7778	5.2600	4.6799	5.2392	0.5492
168	3.3430	3.5300	4.1508	3.6746	0.4229

Table 490 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	K(E+3)				
	1	2	3	AVG	SD
24	4.9290	4.8990	5.5239	5.1173	0.3524
48	3.5921	3.3912	4.0760	3.6864	0.3520
72	3.8248	3.8248	3.4105	3.6867	0.2392
120	2.7643	2.7519	2.6707	2.7290	0.0508
168	1.2559	2.1440	2.4059	1.9353	0.6027

Table 491 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(min)	K(E+3)				
	1	2	3	AVG	SD
24	11.0830	6.7810	6.3585	8.0742	2.6143
72	3.3782	4.5778	4.0295	3.9952	0.6005
120	4.3546	4.7725	4.1074	4.4115	0.3362

Table 492 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	K(E+3)				
	1	2	3	AVG	SD
24	2.2150	2.2090	2.2187	2.2142	0.0049
72	1.5445	2.3117	1.5664	1.8075	0.4368
120	1.1854	1.1432	1.1266	1.1517	0.0303

Table 493 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(min)	K(E+3)				
	1	2	3	AVG	SD
24	5.3360	5.2150	5.5730	5.3750	0.1817
72	3.4148	4.4637	4.0073	3.9619	0.5259
120	1.3480	1.8650	1.8385	1.6838	0.2912

Table 494 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	K(E+3)				
	1	2	3	AVG	SD
24	1.5210	1.4166	1.3354	1.4243	0.0930
72	1.1435	1.0395	1.2322	1.1384	0.0964
120	0.6443	0.7920	0.6953	0.7105	0.0750

Table 495 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(min)	K(E+3)				
	1	2	3	AVG	SD
24	6.9485	6.7390	6.9913	6.8929	0.1350
48	4.7806	6.1207	5.6113	5.5042	0.6764
72	3.0998	3.9334	5.0805	4.0379	0.9945
120	2.6670	2.5682	2.3933	2.5428	0.1386
168	3.3020	2.6145	2.7553	2.8906	0.3632

Table 496 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	K(E+3)				
	1	2	3	AVG	SD
24	2.5156	2.6980	3.3551	2.8562	0.4416
48	1.8880	1.8650	1.7619	1.8383	0.0672
72	1.7524	1.2620	1.3529	1.4558	0.2609
120	0.8489	0.9725	0.8751	0.8988	0.0651
168	0.9361	0.9547	1.0610	0.9839	0.0674

Table 497 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in glucose solution with different molality

Conc(m)	K(E+3)				
	1	2	3	AVG	SD
0.00	3.6525	4.7823	4.3404	4.2584	0.5693
1.22	1.9037	1.6397	1.6404	1.7279	0.1522
2.06	1.0221	1.0046	1.1710	1.0659	0.0914
3.13	0.6869	0.7150	0.6441	0.6820	0.0357

Table 498 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 24 hrs in glucose solution with different molality

Conc(m)	K(E+3)				
	1	2	3	AVG	SD
0.00	2.6980	4.1680	3.7197	3.5286	0.7534
1.22	1.4839	1.5976	1.5780	1.5532	0.0608
2.06	0.8042	0.8236	0.8461	0.8246	0.0210
3.13	0.6134	0.5922	0.5688	0.5915	0.0223

Table 499 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C and at different %RH for 24 hrs in pH change system

%RH	K(E+3)						AVG	SD
	1	2	3	4	5	6		
0	7.1890	8.6020	8.9556	2.1992	8.2434	2.3122	6.2502	3.1503
75	2.3766	2.0879	2.2718	2.1992	2.2966	2.3122	2.2574	0.1011
85	2.1555	1.6808	2.1832	1.8660	2.0379	1.9806	1.9840	0.1886
96	1.4583	1.0770	1.3220	1.4428	1.3587	1.6500	1.3848	0.1889

Table 500 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	K(E+3)				
	1	2	3	AVG	SD
A	4.3405	4.4774	3.8632	4.2270	0.3224
B	1.8900	1.7910	1.8807	1.8539	0.0547

Table 501 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	K(E+3)				
	1	2	3	AVG	SD
A	4.7925	4.5781	3.5533	4.3080	0.6623
B	1.3419	1.4276	1.6872	1.4856	0.1798

Table 502 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	K(E+3)						AVG	SD
	1	2	3	4	5	6		
A	3.3007	3.2893	3.5979	3.4317	3.6069	3.6306	3.4762	0.1571
B	1.3559	1.3050	1.3451	1.4899	1.2325	1.3251	1.3422	0.0845

Table 503 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 film without or containing different additives at coating levels of 15% in pH change system

Coated Tablet	K(E+3)						AVG	SD
	1	2	3	4	5	6		
CA M45 Cas15	3.5516	3.3878	3.5182	3.8139	3.8501	3.4248	3.5911	0.1963
CA M45 Cas15 HPMC45	4.2453	5.0617	3.9618	4.1779	3.5912	4.0492	4.1812	0.4885
CA M45 Cas15 U5	5.5143	6.2319	5.7776	5.5166	6.5494	6.4606	6.0084	0.4661

Table 504 Release rate (K) from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 film at different coating levels of 15% in pH change system

Coating level(%)	K(E+3)						AVG	SD
	1	2	3	4	5	6		
9	17.9225	11.2375	10.2598	12.1381	16.3980	20.3201	14.7127	4.0773
12	12.0052	12.1236	12.2650	14.5087	13.5691	12.9515	12.9039	0.9844
15	8.8746	7.9018	7.9462	8.7469	6.8986	8.0268	8.0658	0.7104
18	9.5627	6.8469	7.8162	7.0633	6.9110	8.5913	7.7986	1.0932

Table 505 Lag time from curve fitting with first order equation of drug release from core tablet in HCl buffer pH 1.2 (A) and in phosphate buffer pH 6.8 (B)

Tablet	t _l (min)						AVG	SD
	1	2	3	4	5	6		
A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table 506 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(min)	t _l (min)				
	1	2	3	AVG	SD
24	45.04	35.71	36.72	39.16	5.12
48	39.73	42.84	48.12	43.56	4.24
72	-1.95	37.04	41.12	25.40	23.78
120	19.78	17.61	15.20	17.53	2.2 ^o
168	40.31	24.92	17.71	27.65	11.54

Table 507 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	t _l (min)				
	1	2	3	AVG	SD
24	56.71	42.31	52.19	50.40	7.36
48	36.65	83.04	53.52	57.74	23.48
72	65.70	101.37	64.71	77.26	20.89
120	-8.80	-0.46	-47.00	-18.75	24.82
168	-63.98	1.34	14.34	-15.93	42.15

Table 508 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	t _l (min)				
	1	2	3	AVG	SD
24	21.20	19.90	25.40	22.17	2.87
48	43.01	39.87	43.72	42.20	2.05
72	34.69	45.21	35.95	38.62	5.74
120	20.32	69.49	6.94	32.25	32.94
168	43.63	-21.62	48.49	23.50	39.15

Table 509 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(min)	t _l (min)				
	1	2	3	AVG	SD
24	36.02	-7.62	11.77	13.39	21.87
72	-2.47	19.45	16.51	11.16	11.90
120	19.56	10.15	9.91	13.21	5.50

Table 510 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M60 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	t _l (min)				
	1	2	3	AVG	SD
24	-37.52	-4.79	-31.21	-24.51	17.36
72	-65.05	27.70	-41.97	-26.44	48.29
120	18.26	17.53	14.07	16.62	2.24

Table 511 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(min)	Tl(min)				
	1	2	3	AVG	SD
24	48.52	35.68	51.36	45.19	8.35
72	16.09	37.09	19.52	24.23	11.27
120	-11.19	25.84	28.47	14.37	22.18

Table 512 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M75 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	Tl(min)				
	1	2	3	AVG	SD
24	-94.26	-41.23	-116.89	-84.13	38.83
72	-5.72	-42.05	23.13	-8.21	32.66
120	1.32	6.62	-22.65	-4.91	15.59

Table 513 Lag time from curve fitting with first order equation of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 45°C for different time intervals in pH change system

Time(min)	Tl(min)				
	1	2	3	AVG	SD
24	28.76	35.62	35.62	33.33	3.96
48	50.28	61.42	54.47	55.39	5.63
72	49.55	37.77	44.18	43.83	5.90
120	59.20	57.89	65.22	60.77	3.91
168	53.25	52.16	59.22	54.88	3.80

Table 514 Lag time from curve fitting with first order equation of drug release from tablets coated with CA Ta45 at coating levels of 15% after moist heat treatment at 60°C for different time intervals in pH change system

Time(min)	Tl(min)				
	1	2	3	AVG	SD
24	70.04	67.23	61.25	66.17	4.49
48	64.00	70.97	70.19	68.39	3.82
72	73.09	73.09	72.15	72.78	0.54
120	98.58	96.41	71.98	88.99	14.77
168	43.63	40.73	69.31	51.22	15.73

Table 515 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in glucose solution with different molality

Conc(m)	Tl(min)				
	1	2	3	AVG	SD
0.00	7.85	26.77	19.36	17.99	9.53
1.22	89.29	55.89	60.37	68.52	18.13
2.06	118.83	108.02	166.51	131.12	31.12
3.13	321.44	374.76	333.39	343.20	27.98

Table 516 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 24 hrs in glucose solution with different molality

Conc(m)	Tl(min)				
	1	2	3	AVG	SD
0.00	-10.65	15.20	37.99	14.18	24.34
1.22	104.03	107.13	111.36	107.51	3.68
2.06	220.48	242.81	208.21	223.83	17.54
3.13	423.23	531.89	463.84	472.99	54.90

Table 517 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C and at different %RH for 24 hrs in pH change system

%RH	Tl(min)						AVG	SD
	1	2	3	4	5	6		
0	12.03	-2.89	44.69	42.99	25.43	49.63	28.65	20.90
75	50.36	46.30	54.46	42.99	52.25	49.63	49.33	4.13
85	45.33	19.83	41.00	40.70	38.83	43.57	38.21	9.29
96	35.85	-13.47	44.15	51.40	57.18	41.58	36.12	25.42

Table 518 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	Tl(min)				
	1	2	3	AVG	SD
A	76.13	81.66	74.36	77.38	3.81
B	167.73	160.15	174.88	167.59	7.37

Table 519 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	Tl(min)				
	1	2	3	AVG	SD
A	94.18	83.87	73.69	83.91	10.25
B	195.79	180.24	236.03	204.02	28.79

Table 520 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 U5 at coating levels of 15% after moist heat treatment at 60°C for 48 hrs in HCl buffer pH 1.2 (A) and phosphate buffer pH 6.8 (B)

Medium	Tl(min)						AVG	SD
	1	2	3	4	5	6		
A	76.540	72.610	71.400	81.250	71.410	67.470	73.447	4.800
B	63.320	64.770	96.910	69.980	110.540	71.330	79.475	19.508

Table 521 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 film without or containing different additives at coating levels of 15% in pH change system

Coated Tablet	Tl(min)						AVG	SD
	1	2	3	4	5	6		
CA M45 Cas15	72.59	48.13	69.88	67.60	64.61	61.06	63.98	8.74
CA M45 CAS15 HPMC45	85.52	79.03	82.47	82.33	81.96	99.04	85.06	7.15
CA M45 Cas15 U5	41.51	30.94	34.77	42.69	34.36	45.42	38.28	5.70

Table 522 Lag time from curve fitting with first order equation of drug release from tablets coated with CA M45 Cas15 film at different coating levels of 15% in pH change system

Coating level(%)	Tl(min)						AVG	SD
	1	2	3	4	5	6		
9	70.12	58.89	49.36	50.72	69.67	71.09	61.64	10.03
12	81.65	72.47	84.03	89.71	84.56	84.76	82.86	5.73
15	87.26	92.73	92.48	97.61	82.57	82.05	89.12	6.21
18	130.21	112.42	130.26	112.66	111.48	127.70	120.79	9.48

VITA

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