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Table 34 Sedimentation Volume (Hu/Ho) of Calcium Carbonate Suspensions Containing Modified Starches as Suspending Agent Evaluated Under Normal Condition Over 28 days

Sus.Agent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
MCS 0.13 1%	0.90	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MCS 0.13 2%	0.96	0.96	0.24	0.12	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MCS 0.13 3%	0.96	0.96	0.94	0.90	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MCS 0.26 1%	0.96	0.96	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MCS 0.26 2%	0.90	0.80	0.20	0.16	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.12	0.12	0.12	0.12	0.12	0.12	0.10	0.10	0.10	0.10
MCS 0.26 3%	0.96	0.96	0.84	0.34	0.34	0.32	0.30	0.30	0.30	0.28	0.28	0.28	0.28	0.28	0.28	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.24	0.24	0.24	0.24	0.24	0.24
MCS 0.39 1%	0.90	0.90	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MCS 0.39 2%	0.96	0.96	0.94	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MCS 0.39 3%	0.96	0.94	0.80	0.28	0.28	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
MGS 0.16 1%	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.74	0.70	0.70	0.68	0.68	0.68	0.64	0.64	0.64	0.64	0.64	0.60	0.60	0.60	0.58	0.58	0.58	0.58	0.58	0.58	0.58
MGS 0.16 2%	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82	0.82	0.80	0.78	0.78	0.76	0.76	0.76	0.74	0.74	0.74	0.72	0.72	0.72	0.72	0.72	0.70	0.70	0.70	0.70	0.70
MGS 0.16 3%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
MGS 0.26 1%	0.86	0.86	0.84	0.84	0.82	0.50	0.50	0.50	0.50	0.48	0.48	0.48	0.48	0.48	0.48	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.44	0.44	0.44	0.44	0.44	0.44
MGS 0.26 2%	1.00	1.00	0.98	0.98	0.98	0.98	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
MGS 0.26 3%	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
MGS 0.39 1%	0.96	0.94	0.20	0.20	0.20	0.20	0.18	0.18	0.16	0.16	0.16	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
MGS 0.39 2%	0.84	0.84	0.82	0.80	0.78	0.78	0.78	0.70	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.46	0.46	0.44	0.44	0.40	0.40	0.40	0.40	0.40	0.40	0.40
MGS 0.39 3%	1.00	1.00	1.00	0.88	0.86	0.82	0.80	0.78	0.76	0.74	0.72	0.72	0.70	0.70	0.68	0.68	0.68	0.66	0.66	0.66	0.64	0.64	0.62	0.60	0.60	0.60	0.60	0.60
MRS 0.15 1%	0.92	0.90	0.74	0.70	0.40	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
MRS 0.15 2%	0.96	0.94	0.92	0.76	0.70	0.58	0.58	0.58	0.54	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
MRS 0.15 3%	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92
MRS 0.26 1%	0.80	0.78	0.78	0.78	0.78	0.40	0.40	0.40	0.40	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.36	0.36	0.36	0.36	0.34	0.34	0.34	0.34	0.34	0.34	0.34
MRS 0.26 2%	1.00	0.98	0.96	0.84	0.64	0.60	0.58	0.58	0.58	0.58	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
MRS 0.26 3%	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
MRS 0.39 1%	0.88	0.82	0.74	0.72	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.32	0.32	0.30	0.30	0.30	0.30
MRS 0.39 2%	0.94	0.92	0.90	0.56	0.54	0.52	0.52	0.50	0.50	0.50	0.50	0.48	0.48	0.48	0.48	0.48	0.48	0.46	0.46	0.46	0.46	0.46	0.46	0.44	0.44	0.44	0.44	0.44
MRS 0.39 3%	0.88	0.86	0.84	0.84	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
MTS 0.13 1%	0.98	0.98	0.86	0.56	0.50	0.46	0.46	0.44	0.44	0.42	0.42	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.38	0.38	0.38	0.38	0.38	0.36	0.36	0.36	0.36
MTS 0.13 2%	0.98	0.80	0.72	0.68	0.64	0.58	0.56	0.54	0.52	0.52	0.50	0.50	0.50	0.50	0.50	0.50	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
MTS 0.13 3%	0.98	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
MTS 0.20 1%	0.98	0.98	0.90	0.66	0.62	0.60	0.56	0.54	0.52	0.50	0.48	0.46	0.46	0.46	0.46	0.44	0.44	0.44	0.44	0.42	0.42	0.42	0.42	0.40	0.40	0.40	0.40	0.40
MTS 0.20 2%	0.82	0.80	0.78	0.78	0.78	0.60	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.56	0.56	0.56	0.56	0.56	0.54	0.54	0.54	0.52	0.50	0.50	0.50	0.48	0.48	0.48
MTS 0.20 3%	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
MTS 0.38 1%	0.72	0.72	0.70	0.70	0.68	0.66	0.62	0.62	0.62	0.60	0.60	0.60	0.58	0.56	0.56	0.54	0.52	0.50	0.50	0.50	0.50	0.46	0.40	0.40	0.40	0.40	0.40	0.40
MTS 0.38 2%	0.90	0.90	0.88	0.88	0.86	0.84	0.84	0.80	0.80	0.80	0.80	0.80	0.78	0.76	0.74	0.70	0.68	0.66	0.64	0.64	0.64	0.64	0.62	0.62	0.60	0.60	0.60	0.60
MTS 0.38 3%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98

Table 35 Sedimentation Volume (Hu/Ho) of Ibuprofen Suspensions Containing Different Concentrations of Suspending Agent Evaluated Under Normal Condition Over 84 days

Sus. agents	1	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	35	40	45	50	55	60	65	70	75	80	84
AC 1%	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
AC 2%	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
AC 3%	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
AV 1%	0.56	0.54	0.52	0.50	0.50	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
AV 2%	0.78	0.76	0.74	0.74	0.72	0.72	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
AV 3%	0.84	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
MGS 1%	1.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
MGS 2%	1.00	0.98	0.96	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
MGS 3%	1.00	1.00	0.98	0.98	0.98	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
MRS 1%	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
MRS 2%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MRS 3%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MTS 1%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
MTS 2%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MTS 3%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
SA 1%	0.06	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
SA 2%	0.96	0.94	0.90	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
SA 3%	1.00	0.90	0.86	0.84	0.60	0.40	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
SCMC 1%	1.00	0.98	0.90	0.80	0.78	0.76	0.74	0.72	0.70	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.56	0.56	0.54	0.52	0.50	0.50	0.50	0.50	0.50	0.50	0.50
SCMC 2%	1.00	1.00	0.98	0.98	0.98	0.98	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
SCMC 3%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
TG 1%	0.32	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
TG 2%	0.96	0.96	0.94	0.94	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.88	0.88	0.88	0.88	0.88	0.88	0.86	0.86	0.86	0.84	0.84	0.84	0.84	0.84	0.84
TG 3%	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
XG 1%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
XG 2%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
XG 3%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table 36 Absorbance of Ibuprofen Standard Solution in Phosphate Buffer pH 7.2 at 223 nm.

Concentration (mg/100 mL)	Absorbance
0.0	0.0000
0.4	0.1706
1.2	0.5092
2.0	0.8367
2.8	1.1811
3.6	1.5017

Correlation Coefficient : 0.9999

$Y = 0.41778X + 0.00352$

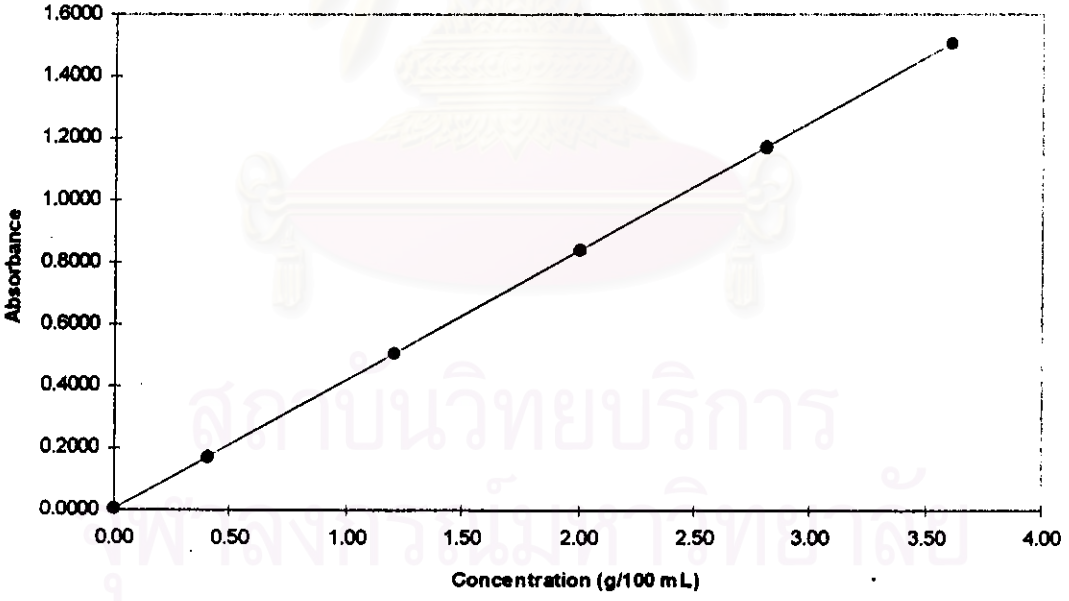


Figure 82 Standard Curve of Ibuprofen (223 nm, Buffer pH 7.2)

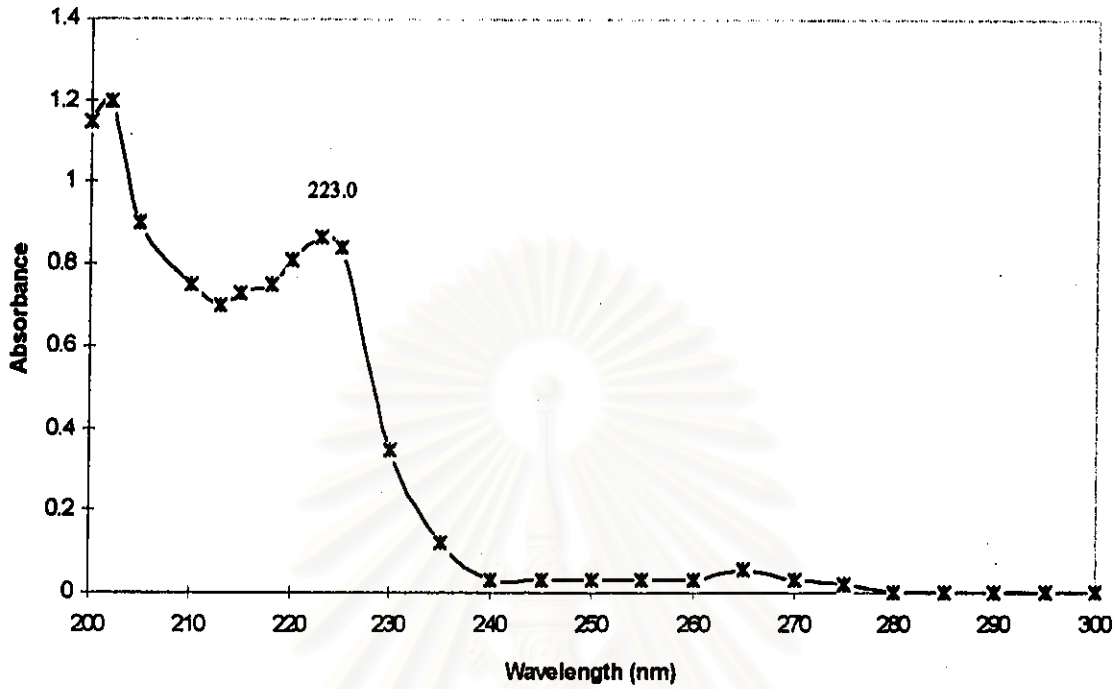


Figure 83 Ultraviolet Spectrogram of Ibuprofen (in Phosphate Buffer pH 7.2)

Table 37 Ibuprofen Contents (g/100 mL) Found at Different Locations of Test Tubes Containing Ibuprofen Suspension with 1% XG as Suspending Agent

Sampling Point	Ibuprofen Content (g/100mL)						
(Location-Tube)	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Top-1	1.9974	1.9256	1.9065	1.8921	1.8777	1.8825	1.8562
Middle-1	1.9759	1.9711	1.9854	1.9735	1.9615	1.9831	1.9878
Bottom-1	1.9735	1.9854	2.0214	2.0740	2.0860	2.1267	2.1291
Top-2	1.9902	1.9208	1.8993	1.8921	1.8825	1.8658	1.8634
Middle-2	1.9926	1.9902	1.9974	1.9831	1.9663	1.9974	1.9543
Bottom-2	1.9783	1.9926	2.0070	2.0860	2.0979	2.1219	2.1219
Top-3	1.9854	1.9065	1.9184	1.8897	1.8849	1.8777	1.8921
Middle-3	2.0046	1.9974	2.0046	1.9783	1.9471	1.9663	1.9495
Bottom-3	2.0142	1.9998	2.0142	2.0956	2.1267	2.1362	2.1171

Table 38 Ibuprofen Contents (g/100 mL) Found at Different Locations of Test Tubes Containing Ibuprofen Suspension with 2% XG as Suspending Agent

Sampling Point	Ibuprofen Content (g/100mL)						
(Location-Tube)	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Top-1	1.9759	1.9424	1.9256	1.9065	1.8945	1.9065	1.8825
Middle-1	1.9495	1.9902	1.9998	1.9783	1.9663	1.9543	1.9495
Bottom-1	1.9783	1.9974	2.0261	2.0214	1.9974	1.9998	2.0094
Top-2	1.9663	1.9495	1.9184	1.9184	1.8873	1.8777	1.9136
Middle-2	1.9591	1.9783	2.0070	1.9902	1.9711	1.9950	1.9591
Bottom-2	1.9831	2.0070	2.0094	2.0070	2.0190	2.0070	2.0405
Top-3	1.9687	1.9280	1.9304	1.9017	1.9017	1.8993	1.9041
Middle-3	1.9615	1.9831	1.9950	1.9735	1.9519	1.9448	1.9328
Bottom-3	1.9639	2.0142	2.0285	2.0381	2.0405	2.0237	2.0237

Table 39 Ibuprofen Contents (g/100 mL) Found at Different Locations of Test Tubes Containing Ibuprofen Suspension with 3% XG as Suspending Agent

Sampling Point	Ibuprofen Content (g/100mL)						
(Location-Tube)	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Top-1	1.9854	1.9759	1.9663	1.9615	1.9543	1.9615	1.9328
Middle-1	1.9687	1.9974	1.9831	1.9878	1.9759	1.9831	1.9854
Bottom-1	1.9591	2.0070	2.0046	2.0022	2.0118	2.0166	2.0309
Top-2	1.9878	1.9687	1.9735	1.9543	1.9400	1.9448	1.9495
Middle-2	1.9759	1.9902	1.9902	1.9950	1.9902	1.9950	2.0022
Bottom-2	1.9663	1.9974	2.0166	2.0142	2.0333	2.0381	2.0453
Top-3	1.9998	1.9711	1.9519	1.9495	1.9471	1.9711	1.9687
Middle-3	2.0022	1.9854	2.0022	1.9783	1.9974	1.9687	1.9711
Bottom-3	1.9878	2.0046	2.0070	2.0237	2.0237	2.0070	2.0214

Table 40 Ibuprofen Contents (g/100 mL) Found at Different Locations of Test Tubes Containing Ibuprofen Suspension with 3% TG as Suspending Agent

Sampling Point	Ibuprofen Content (g/100mL)						
(Location-Tube)	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Top-1	1.9902	1.9663	1.8945	1.9256	1.9352	1.9041	1.9136
Middle-1	2.0142	2.0046	1.9424	1.9543	1.9591	1.9495	1.9639
Bottom-1	1.9759	2.0261	1.9974	1.9759	1.9519	1.9926	2.0070
Top-2	2.0118	1.9448	1.9519	1.8945	1.9759	1.9232	1.9160
Middle-2	1.9974	2.0237	1.9735	1.9424	2.0070	1.9711	1.9807
Bottom-2	1.9926	1.9759	2.0070	1.9902	1.9950	1.9807	1.9854
Top-3	1.9998	1.9759	1.9615	1.9400	1.9878	1.9136	1.9256
Middle-3	1.9854	1.9783	1.9854	1.9783	1.9831	1.9878	2.0046
Bottom-3	1.9998	2.0046	2.0477	2.0214	1.9735	1.9974	1.9926

Table 41 Ibuprofen Contents (g/100 mL) Found at Different Locations of Test Tubes Containing Ibuprofen Suspension with 2% SCMC as Suspending Agent

Sampling Point	Ibuprofen Content (g/100mL)						
(Location-Tube)	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Top-1	2.0261	2.0142	1.9998	2.0142	1.9735	1.9926	1.9663
Middle-1	2.0381	2.0261	2.0046	2.0405	2.0190	2.0094	2.0214
Bottom-1	2.0477	2.0381	2.0549	2.0668	2.0788	2.0788	2.0620
Top-2	2.0309	2.0046	2.0118	1.9759	2.0190	2.0070	1.9759
Middle-2	2.0405	2.0190	2.0309	2.0477	2.0309	2.0261	2.0046
Bottom-2	2.0309	2.0668	2.0453	2.0405	2.0477	2.0405	2.0644
Top-3	2.0429	1.9974	1.9831	1.9998	2.0309	1.9759	1.9854
Middle-3	2.0429	2.0453	2.0620	2.0764	1.9950	2.0190	2.0309
Bottom-3	2.0357	2.0237	2.0956	2.0812	2.0692	2.0596	2.0836

Table 42 Ibuprofen Contents (g/100 mL) Found at Different Locations of Test Tubes Containing Ibuprofen Suspension with 3% SCMC as Suspending Agent

Sampling Point	Ibuprofen Content (g/100mL)						
(Location-Tube)	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Top-1	1.9711	1.9615	1.9543	1.9471	1.9663	1.9591	1.9495
Middle-1	1.9831	1.9831	1.9783	1.9663	1.9711	1.9687	1.9783
Bottom-1	1.9711	1.9759	1.9759	1.9783	1.9878	1.9807	1.9854
Top-2	1.9807	1.9854	1.9471	1.9184	1.9471	1.9735	1.9687
Middle-2	1.9639	1.9519	1.9376	1.9759	1.9591	1.9543	1.9567
Bottom-2	1.9807	1.9854	1.9878	1.9854	1.9950	1.9591	1.9950
Top-3	1.9663	1.9926	1.9304	1.9543	1.9567	1.9519	1.9591
Middle-3	1.9687	1.9687	1.9519	1.9495	1.9807	1.9854	1.9639
Bottom-3	1.9663	1.9926	1.9471	1.9711	1.9759	1.9926	1.9735

APPENDIX II

Table 43 Analysis of Variance for Viscosity of Pure Modified Corn Starches

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Among DS	430.079	2	215.039	20.7699	0.00772	6.94428
Among Concentration	1472.81	2	736.405	71.1269	0.00075	6.94428
Error	41.4136	4	10.3534			
Total	1944.3	8				

Table 44 Analysis of Variance for Viscosity of Pure Modified Glutinous Rice Starches

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Among DS	11149	2	5574.51	19.4683	0.00868	6.94428
Among Concentration	13421.2	2	6710.59	23.4359	0.00618	6.94428
Error	1145.35	4	286.338			
Total	25715.5	8				

Table 45 Analysis of Variance for Viscosity of Pure Modified Rice Starches

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Among DS	678.045	2	339.023	22.0343	0.00692	6.94428
Among Concentration	20064.6	2	10032.3	652.035	9.4E-06	6.94428
Error	61.5445	4	15.3861			
Total	20804.2	8				

Table 46 Analysis of Variance for Viscosity of Pure Modified Tapioca Starches

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Among DS	1137.56	2	568.78	3.96393	0.11246	6.94428
Among Concentration	17439.5	2	8719.73	60.7694	0.00102	6.94428
Error	573.956	4	143.489			
Total	19151	8				

Table 47 Analysis of Variance for Sedimentation Volume of Ibuprofen Suspension - Final 12 weeks

Source of Variation	SS	df	MS	F	P-value	F crit
Rows	4.3288	8	0.5411	28.549	5E-08	2.5911
Columns	0.1938	2	0.0969	5.1127	0.0192	3.6337
Error	0.3033	16	0.019			
Total	4.8259	26				

Table 48 Dependent Comparison (Dunca's New Multiple Range Test) for Sedimentation Volume of Ibuprofen Suspensions - Normal 12 weeks

	XG	MRS	MTS	SCMC	TG	AV	SA	AC	MGS
XG	-	NS	NS	NS	S	S	S	S	S
MRS		-	NS	NS	S	S	S	S	S
MTS			-	NS	S	S	S	S	S
SCMC				-	NS	NS	S	S	S
TG					-	NS	S	S	S
AV						-	S	S	S
SA							-	NS	NS
AC								-	NS
MGS									-

S = Significant
NS = Non-significant

Table 49 Analysis of Variance for Sedimentation Volume of Ibuprofen Suspension - Freeze-Thaw Condition

Source of Variation	SS	df	MS	F	P-value	F crit
Rows	3.346	8	0.4183	26.635	8E-08	2.5911
Columns	0.2174	2	0.1087	6.9209	0.0068	3.6337
Error	0.2512	16	0.0157			
Total	3.8146	26				

Table 50 Dependent Comparison (Dunca's New Multiple Range Test) for Sedimentation Volume of Ibuprofen Suspensions - FT Condition

	XG	MRS	MTS	SCMC	TG	AV	SA	AC	MGS
XG	-	NS	NS	NS	S	S	S	S	S
MRS		-	NS	NS	S	S	S	S	S
MTS			-	NS	S	S	S	S	S
SCMC				-	NS	NS	S	S	S
TG					-	NS	S	S	S
AV						-	S	S	S
SA							-	NS	S
AC								-	NS
MGS									-

S = Significant
NS = Non-significant

Table 51 Analysis of Variance for Thixotropic Quantity of Ibuprofen Suspension Containing Modified Rice Starch Evaluated in Different Conditions

Source of Variation	SS	df	MS	F	P-value	F crit
Rows	0.0847	2	0.0424	1.3620	0.3253	5.1432
Columns	0.1522	3	0.0507	1.6319	0.2788	4.7571
Error	0.1866	6	0.0311			
Total	0.4236	11				

Table 52 Dependent Comparison (Dunca's New Multiple Range Test) for Thixotropic Quantities of Ibuprofen Suspensions Containing Modified Rice Starch as Suspending Agent

	Pure	Initial	FT	Final
Pure	-	NS	NS	NS
Initial		-	NS	NS
FT			-	NS
Final				-

S = Significant
NS = Non-significant

Table 53 Analysis of Variance for Thixotropic Quantity of Ibuprofen Suspension Containing Modified Glutinous Rice Starch Evaluated in Different Conditions

Source of Variation	SS	df	MS	F	P-value	F crit
Rows	0.0226	2	0.0113	1.9573	0.2216	5.1432
Columns	0.5051	3	0.1684	29.1479	0.0006	4.7571
Error	0.0347	6	0.0058			
Total	0.5624	11				

Table 54 Dependent Comparison (Dunca's New Multiple Range Test) for Thixotropic Quantities of Ibuprofen Suspensions Containing Modified Glutinous Rice Starch as Suspending Agent

	Pure	Initial	FT	Final
Pure	-	NS	S	S
Initial		-	S	S
FT			-	NS
Final				-

S = Significant
NS = Non-significant

Table 55 Analysis of Variance for Thixotropic Quantity of Ibuprofen Suspension Containing Modified Tapioca Starch Evaluated in Different Conditions

Source of Variation	SS	df	MS	F	P-value	F crit
Rows	0.0667	2	0.0333	4.4594	0.0651	5.1432
Columns	0.2636	3	0.0879	11.7577	0.0063	4.7571
Error	0.0448	6	0.0075			
Total	0.3751	11				

Table 56 Dependent Comparison (Dunca's New Multiple Range Test) for Thixotropic Quantities of Ibuprofen Suspensions Containing Modified Tapioca Starch as Suspending Agent

	Pure	Initial	FT	Final
Pure	-	NS	S	NS
Initial		-	S	NS
FT			-	S
Final				-

S = Significant
NS = Non-significant

Table 57 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 1% Xanthan Gum as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.03763	6	0.00627	102.321	9.5E-11	2.84773
Within Groups	0.00086	14	6.1E-05			
Total	0.03849	20				

Table 58 Dependent Comparison (Dunca's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 1% Xanthan Gum as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	S	S	S	S	S	S
Week 2		-	S	S	S	S	S
Week 4			-	S	S	S	S
Week 6				-	S	S	S
Week 8					-	S	S
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 59 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 2% Xanthan Gum as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00695	6	0.00116	17.3714	9.4E-06	2.84773
Within Groups	0.00093	14	6.7E-05			
Total	0.00788	20				

Table 60 Dependent Comparison (Dunca's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 2% Xanthan Gum as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	S	S	S	S	S	S
Week 2		-	S	S	S	S	S
Week 4			-	NS	S	S	S
Week 6				-	NS	NS	NS
Week 8					-	NS	NS
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 61 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 3% Xanthan Gum as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00237	6	0.0004	5.70684	0.00348	2.84773
Within Groups	0.00097	14	6.9E-05			
Total	0.00334	20				

Table 62 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 3% Xanthan Gum as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	NS	S	S	S	S	S
Week 2		-	NS	S	S	S	S
Week 4			-	NS	S	NS	S
Week 6				-	NS	NS	S
Week 8					-	NS	NS
Week 10						-	S
Week 12							-

S = Significant
NS = Non-significant

Table 63 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 3% Tragacanth as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00328	6	0.00055	6.76333	0.00158	2.84773
Within Groups	0.00113	14	8.1E-05			
Total	0.00441	20				

Table 64 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 3% Tragacnath as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	S	S	S	NS	S	S
Week 2		-	S	S	S	NS	S
Week 4			-	NS	S	NS	NS
Week 6				-	S	S	NS
Week 8					-	S	S
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 65 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 2% Sodium Carboxymethylcellulose as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00301	6	0.0005	2.75752	0.05527	2.84773
Within Groups	0.00255	14	0.00018			
Total	0.00556	20				

Table 66 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 2% Sodium Carboxymethylcellulose as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	S	S	S	S	S	S
Week 2		-	NS	NS	NS	NS	S
Week 4			-	NS	NS	NS	NS
Week 6				-	NS	NS	NS
Week 8					-	NS	NS
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 67 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 3% Sodium Carboxymethylcellulose as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00038	6	6.3E-05	1.01592	0.45398	2.84773
Within Groups	0.00086	14	6.2E-05			
Total	0.00124	20				

Table 68 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 2% Sodium Carboxymethylcellulose as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	S	S	S	S	S	S
Week 2		-	NS	NS	NS	NS	NS
Week 4			-	NS	NS	NS	NS
Week 6				-	NS	NS	NS
Week 8					-	NS	NS
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 69 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 1% Modified Tapioca Starch as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00531	6	0.00089	4.12322	0.01360	2.84773
Within Groups	0.00301	14	0.00021			
Total	0.00832	20				

Table 70 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 1% Modified Tapioca Starch as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	NS	NS	S	S	S	S
Week 2		-	NS	S	S	S	S
Week 4			-	NS	NS	S	S
Week 6				-	NS	NS	S
Week 8					-	NS	S
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 71 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 2% Modified Tapioca Starch as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00662	6	0.00110	10.9876	0.00013	2.84773
Within Groups	0.00141	14	0.00010			
Total	0.00802	20				

Table 72 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 2% Modified Tapioca Starch as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	NS	S	S	S	S	S
Week 2		-	S	S	S	S	S
Week 4			-	NS	S	S	S
Week 6				-	S	S	NS
Week 8					-	S	S
Week 10						-	S
Week 12							-

S = Significant
NS = Non-significant

Table 73 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 3% Modified Tapioca Starch as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00105	6	0.00017	1.55623	0.23159	2.84773
Within Groups	0.00157	14	0.00011			
Total	0.00262	20				

Table 74 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 3% Modified Tapioca Starch as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	NS	NS	NS	NS	S	S
Week 2		-	NS	NS	NS	NS	NS
Week 4			-	NS	NS	S	S
Week 6				-	NS	S	S
Week 8					-	NS	S
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 75 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 1% Modified Rice Starch as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00661	6	0.0011	10.6400	0.0002	2.8477
Within Groups	0.00145	14	0.0001			
Total	0.00806	20				

Table 76 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 1% Modified Rice Starch as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	S	S	S	S	S	S
Week 2		-	S	S	S	S	S
Week 4			-	NS	S	S	NS
Week 6				-	NS	S	NS
Week 8					-	NS	S
Week 10						-	S
Week 12							-

S = Significant
NS = Non-significant

Table 77 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 2% Modified Rice Starch as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00300	6	0.00050	3.30952	0.03046	2.84773
Within Groups	0.00212	14	0.00015			
Total	0.00512	20				

Table 78 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 2% Modified Rice Starch as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	NS	S	S	S	S	S
Week 2		-	S	S	S	S	S
Week 4			-	NS	S	NS	S
Week 6				-	S	NS	S
Week 8					-	NS	NS
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 79 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 3% Modified Rice Starch as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.00149	6	0.00025	3.98954	0.01544	2.84773
Within Groups	0.00087	14	6.2E-05			
Total	0.00237	20				

Table 80 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 3% Modified Rice Starch as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	NS	S	S	S	S	S
Week 2		-	S	S	S	S	S
Week 4			-	NS	NS	NS	S
Week 6				-	NS	NS	S
Week 8					-	S	NS
Week 10						-	S
Week 12							-

S = Significant
NS = Non-significant

Table 81 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 2% Modified Glutinous Rice Starch as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	11.4005	6	1.90008	218.341	5.2E-13	2.84773
Within Groups	0.12183	14	0.0087			
Total	11.5223	20				

Table 82 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 2% Modified Glutinous Rice Starch as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	NS	S	S	S	S	S
Week 2		-	S	S	S	S	S
Week 4			-	S	S	S	S
Week 6				-	S	S	S
Week 8					-	S	S
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 83 Analysis of Variance for Ibuprofen Content Deviation of Suspension Containing 3% Modified Glutinous Rice Starch as Suspending Agent

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	11.9760	6	1.9960	276.867	1.0 E-13	2.8477
Within Groups	0.1009	14	0.0072			
Total	12.0769	20				

Table 84 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspension Containing 3% Modified Glutinous Rice Starch as Suspending Agent

	Week 0	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Week 0	-	S	S	S	S	S	S
Week 2		-	S	S	S	S	S
Week 4			-	S	S	S	S
Week 6				-	S	S	S
Week 8					-	S	S
Week 10						-	NS
Week 12							-

S = Significant
NS = Non-significant

Table 85 Analysis of Variance for Ibuprofen Content Deviation of Suspensions Containing Different Type and Concentration of Suspending Agent

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	13.875	13	1.0673	15.235	5E-17	1.8385
Within Groups	5.8846	84	0.0701			
Total	19.76	97				

Table 86 Dependent Comparison (Duncan's New Multiple Range Test) for Ibuprofen Content Deviation of Suspensions Containing Different Type and Concentration of Suspending Agents

	XG 1%	XG 2%	XG 3%	TG 3%	SCMC 2%	SCMC 3%	MTS 1%	MTS 2%	MTS 3%	MRS 1%	MRS 2%	MRS 3%	MGS 2%	MGS 3%
XG 1%	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	S	S
XG 2%		-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	S	S
XG 3%			-	NS	NS	NS	NS	NS	NS	NS	NS	NS	S	S
TG 3%				-	NS	NS	NS	NS	NS	NS	NS	NS	S	S
SCMC 2%					-	NS	NS	NS	NS	NS	NS	NS	S	S
SCMC 3%						-	NS	NS	NS	NS	NS	NS	S	S
MTS 1%							-	NS	NS	NS	NS	NS	S	S
MTS 2%								-	NS	NS	NS	NS	S	S
MTS 3%									-	NS	NS	NS	S	S
MRS 1%										-	NS	NS	S	S
MRS 2%											-	NS	S	S
MRS 3%												-	S	S
MGS 2%													-	S
MGS 3%														-

S = Significant NS = Non-significant

APPENDIX III

Table 87 Viscosity Calculation of Ibuprofen Suspension Containing 1% MTS

Sample : Ibuprofen Suspension Containing 1% Modified Tapioca Starch (MTS)
Evaluated Condition : Room Temperature - After 12 weeks
Instrument : Haake Viscometer
Data :

Point	Time (min)	Shear rate (1/s)	Shear stress (Pa)	Apparent Viscosity (mPas)
1	0.394	97.920	23.430	239.277
2	0.800	196.500	34.570	175.929
3	1.199	297.600	43.020	144.556
4	1.594	396.700	49.470	124.704
5	1.999	498.300	54.610	109.593
6	2.398	599.300	60.430	100.834
7	2.798	698.400	64.950	92.998
8	3.197	800.000	70.090	87.613
9	3.596	898.200	74.700	83.166
10	3.996	999.400	78.900	78.947
11	4.398	902.600	73.180	81.077
12	4.796	802.100	67.200	83.780
13	5.196	703.600	61.800	87.834
14	5.595	601.800	56.290	93.536
15	5.994	502.800	49.990	99.423
16	6.398	403.900	44.120	109.235
17	6.798	302.500	37.140	122.777
18	7.199	202.600	28.840	142.349
19	7.599	102.800	18.800	182.879
20	7.996	1.582	1.123	709.861

Viscosity of Suspension = Average Viscosity of Point 1-19
= 117.921 mPa
Standard Deviation = 42.659

APPENDIX IV

Phosphate Buffer pH 7.2 (USP XXIII)

Preparation : place 50 mL of 0.2 M monobasic potassium phosphate solution (prepared by dissolving 27.22 g of KH_2PO_4 in 1,000 mL water) in a 200 mL volumetric flask, add 34.7 mL of 0.2 M sodium hydroxide solution, then add water to volume

Storage : in chemically resistant, tight containers such as Type I glass bottles. Use the solution within three months

APPENDIX V

Acacia

Chemical Name	:	Acacia
CAS Registry Number	:	9000-01-5
Empirical Formula	:	Acacia is a complex
Molecular Weight	:	~240,000 - 580,000
Appearance	:	Acacia occurs as white or yellowish-whitecolored thin flakes, spheroidal tears, granules or powders. It is odorless and has bland taste.
Solubility	:	soluble 1 in 20 of glycerin, propylene glycol, 1 in 2.7 of water practically insoluble in ethanol (95%)
Specific gravity	:	1.35-1.49
Stability	:	Aqueous solutions are subjected to bacterial and enzymatic degradation but may be preserved by initially boiling the solution for a short time to inactivate any enzymes present.
Incompatibility	:	Acacia is incompatible with a number of substances including amidopyrine, cresol, 95% ethanol, ferric salts, morphine, phenol, physostigmine, tannins, thymol, and vanillin.

Avicel RC-591

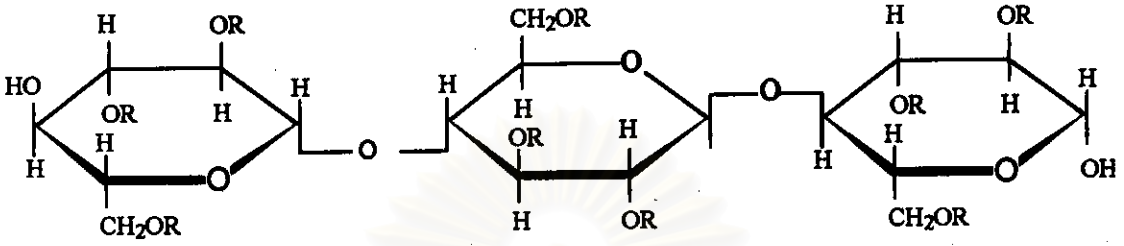
Chemical Name	:	Microcrystalline Cellulose and Sodium Carboxymethylcellulose
Composition	:	Avicel RC-591 is a modified microcrystalline cellulose product with a composition, on a dry basis, of 89% microcrystalline cellulose and 11% Sodium carboxymethylcellulose.
Appearance	:	Microsrystalline cellulose is a purified, partially depolymerized cellulose that occurs as a white-colored, odorless, tasteless, crystalline powder composed of porous particles. It is commercially available in different particle size grades which have different properties and applications.
Solubility	:	slightly soluble in 5% w/v sodium hydroxide practically insoluble in water, dilute acids and most organic solvents
Stability	:	Microcrystalline cellulose is stable, though hygroscopic material. Avicel RC-591 is stable over a pH range of 3.5 - 11. The bulk material should be stored in a well-closed container in a cool, dry place.
Incompatibility	:	Incompatible with strong oxidizing agents. Avicel RC-591 dispersions are flocculated by small amounts of electrolyte and cationic polymers and surfactants

Sodium Carboxymethylcellulose (SCMC)

Chemical Name : Cellulose, carboxymethyl ether, sodium salt

CAS Registry Number : 9004-32-4

Structural Formula :



R = -CH_2COOH

Molecular Weight : 90,000 - 700,000

Appearance : a white to almost white colored, odorless, granular powder

Solubility : easily dispersed in water at all temperatures, forming clear, colloidal solutions. The aqueous solubility varies with the degree of substitution.
practically insoluble in acetone, ethanol, ether and toluene

Stability : Sodium carboxymethylcellulose is stable, though hygroscopic material. Under high humidity conditions sodium carboxymethylcellulose can absorp a large quantity (>50%) of water. Aqueous solutions are stable between pH 2-10; below pH 2 precipitation can occur while above pH 10 solution viscosity rapidly decreases. Generally, solutions exhibit maximum viscosity and stability at pH 7-9.

Incompatibility : Sodium carboxymethylcellulose is incompatible with strongly acidic solutions with the soluble salts of iron and some other metals, such as aluminum, mercury and zinc; it is also incompatible with xanthan gum. Precipitation can occur at pH < 2 and when mixed with 95% ethanol.

Sodium Alginate

Chemical Name	:	Sodium alginate
CAS Registry Number	:	9005-38-3
Empirical Formula	:	Sodium alginate consists chiefly of the sodium salt of alginic acid, a linear glycuronan polymer consisting of a mixture of β-(1->4)-D-mannosyluronic acid and α-(1->4)-L-gulosyluronic acid residues.
Appearance	:	an odorless and tasteless, white to pale yellowish-brown colored powder
Solubility	:	slowly soluble in water, forming a viscous colloidal solution practically insoluble in ethanol, ether and ethanol/water mixtures in which the ethanol content is greater than 30%, organic solvents and acids
Stability	:	Sodium alginate is a hygroscopic material although it is very stable if stored at low relative humidities and a cool temperature. Aqueous solutions of sodium alginate are most stable between pH 4-10.
Incompatibility	:	Sodium alginate is incompatible with acridine derivatives, crystal violet, phenylmercuric acetate and nitrate, calcium salts, heavy metals and ethanol in concentrations greater than 5%. High concentrations of electrolytes cause an increase in viscosity until salting-out occurs if more than 4% of sodium chloride is presented.

Xanthan Gum

Chemical Name	:	Xanthan gum
CAS Registry Number	:	11138-66-2
Empirical Formula	:	Each xanthan gum repeat unit contains five sugar residues: two glucose; two mannose and one glucuronic acid. The polymer backboneconsists of four β-D-glucose units linked at the 1 and 4 positions, and is therefore identical in structure to cellulose.
Molecular Weight	:	2×10^6
Appearance	:	a cream or white-colored, odorless, free-flowing, fine powder
Solubility	:	soluble in cold or warm water practically insoluble in ethanol and ether
Specific gravity	:	1.600 at 25 C
Stability	:	Xanthan gum is a stable material. Aqueous solutions are stable over a wide pH range (pH 3-12) and temperature between 10-60 C.
Incompatibility	:	Xanthan gum is an anionic material and is not usually compatible with cationic surfactant, polymers and preservatives since precipitation occurs.

Tragacanth

Chemical Name	:	Tragacanth gum
CAS Registry Number	:	9000-65-1
Molecular Weight	:	~840,000
Appearance	:	flattened, lamellated, frequently curved fragments or straight or spirally twisted linear pieces from 0.5-2.5 mm in thickness; it may also be obtained in a powder form. White

to yellowish in color, tragacanth is a translucent, odorless substance, with an insipid mucilaginous taste.

Solubility : practically insoluble in water, 95% ethanol and other organic solvents. Although insoluble in water, tragacanth gum swell rapidly in 10 times its own weight of cold water to produce viscous colloidal sols or semi-gels.

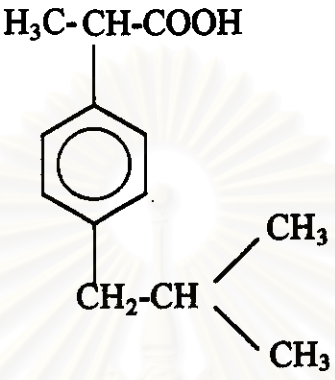
Specific gravity : 1.250-1.385

Stability : Flaked and powdered forms of tragacanth are stable. Tragacanth gels are liable to microbial contamination with enterobacterial species, stock solutions should contain suitable antimicrobial preservatives. Tragacanth dispersions are most stable at pH 4-8 although stability is satisfactory at low pH. For this reason, it is often chosen as the thickener for low pH food products such as salad dressings and sauces.

Incompatibility : At pH 7, tragacanth reduces the efficacy of the antimicrobial preservatives benzalkonium chloride, chlorobutanol and methylparaben, and to the lesser extent phenol and phenylmercuric acetate. At pH < 5, tragacanth has no adverse effects on the preservative efficacy of benzoic acid, chlorobutanol or methylparaben. The addition of strong mineral and organic acids can reduce the viscosity of tragacanth dispersions.

Ibuprofen

Chemical Name	:	α-methyl-4(2-methylpropyl)-benzeneacetic acid 2-(4-Isobutylphenyl)propionic acid
Chemical Formula	:	$C_{13}H_{18}O_2$
Structural Formula	:	



CAS No.	:	15687-27-1
Molecular Weight	:	206.29
Description	:	white crystalline powder or colorless crystals
Solubility	:	practically insoluble in water soluble in 1.5 parts of ethanol and of acetone, 2 parts of ether freely soluble in dichloroethane readily soluble in most organic solvents soluble in dilute solution of alkali hydroxides and carbonates
Melting Range	:	75-78 °c
Dissociation Constant	:	pKa 5.3 pKa (ethanol 60%) 5.2
Stability	:	In the absence of oxygen, Ibuprofen was found to be stable, even at high temperatures (105-110 C) for at least four days.

VITA

Miss Ornanong Suwannapakul was born in Chiangmai, Thailand on May 18, 1971. She has received her Bachelor of Pharmacy degree (B.Pharm) with second class honour from the Faculty of Pharmacy, Chiangmai University, Chiangmai in March 1994. In June of 1994, she was accepted to the Graduate School in Pharmaceutical Science of Chulalongkorn University. Miss Suwannapakul was a recipient of the University Developing Council (UDC) scholarship in the area of Manufacturing Pharmacy as required by the Faculty of Pharmacy, Chiangmai University.