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APPENDICES

Appendix I

Average Cumulative Permeation Amount of Nifedipine from Nifedipine Saturated Solution by in-vitro Skin Permeation Experiment. [Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT[mcg]				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	0.9391	0.3011	0.3021	0.5141	0.3425
1	1.7036	0.7373	0.5701	1.0037	0.6132
2	1.9070	1.0110	0.4353	1.1178	0.7136
3	1.2862	1.5795	1.2194	1.3617	0.6050
4	1.4221	1.5132	0.6117	1.1823	0.6207
5	1.3769	1.3431	0.6697	1.1299	0.5647
6	1.6896	1.4923	1.3731	1.5183	0.6671
8	1.0227	1.2216	0.7785	1.0076	0.4636
10	1.0047	1.9294	0.8849	1.2730	0.6835
12	1.2227	1.9948	1.0238	1.4138	0.7115
15	1.2234	1.7673	0.9745	1.3217	0.6401
18	1.4785	2.7451	1.0597	1.7611	0.9831
21	1.3671	2.6346	1.1091	1.7036	0.9367
24	1.3606	2.9490	1.1595	1.8230	1.0505

SD = STANDARD DEVIATION

Appendix II

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs Using Pluronic F-127 Gel as Drug Carrier by in-vitro Skin Permeation Experiment. [Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

me	Average Cumulative Amount(mcg)									
.r]	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
0	0	0	0	0	0	0	0	0	0	0
.5	3.2615	2.2793	23.452	12.611	7.7518	3.8050	7.4442	6.4055	8.6867	3.8199
1	4.8443	3.2852	31.759	14.281	10.008	4.4693	11.347	7.8730	18.471	5.1734
2	11.638	3.5139	37.585	15.746	12.139	4.9628	13.642	10.266	33.706	5.7048
3	13.809	6.4364	51.095	17.242	14.948	5.5245	15.597	10.916	35.151	6.6066
4	17.830	17.178	78.216	20.607	23.908	5.7319	16.607	13.462	41.635	7.5487
5	27.701	21.849	112.70	25.806	32.890	6.3095	19.375	14.197	49.864	8.3393
6	35.858	28.166	172.68	28.048	38.716	6.4986	22.196	15.742	61.523	8.6405
8	65.329	57.013	346.78	31.356	51.412	7.0581	25.196	16.844	66.682	9.1217
10	101.64	94.893	554.42	36.492	61.402	7.5925	27.254	18.738	76.978	9.9147
12	154.68	107.85	662.27	39.336	70.201	8.1780	30.285	21.659	86.485	11.762
15	232.11	184.69	876.36	40.210	79.045	9.3078	34.549	24.075	105.09	12.456
18	286.40	304.79	1143.0	50.767	84.748	10.850	41.106	25.064	141.43	13.390
21	326.53	356.62	1468.0	61.561	91.912	39.736	42.926	31.354	148.15	14.590
24	403.06	428.68	1804.2	90.142	109.76	75.029	51.103	34.250	165.71	19.178

Appendix III

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P01 [PF-127 50 %w/w Ae-200 3 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	3.23053	2.82185	3.73214	3.2615	0.3722
1	7.10017	3.65845	3.77450	4.8443	1.5957
2	8.92380	8.81159	17.1802	11.638	3.9188
3	7.15111	13.7412	20.5351	13.809	5.4642
4	5.00234	11.9678	36.5211	17.830	13.518
5	7.60312	11.9175	63.5841	27.701	25.433
6	7.08998	12.1378	88.3486	35.858	37.173
8	6.84264	7.23755	181.906	65.329	82.433
10	7.61790	6.88904	290.430	101.64	133.49
12	11.8772	8.51367	443.662	154.68	204.34
15	17.0095	8.89384	670.441	232.11	309.96
18	15.2410	12.9078	831.067	286.40	385.13
21	17.5827	13.6715	948.357	326.53	439.69
24	17.1957	9.69201	1182.29	403.06	551.00

SD = STANDARD DEVIATION

Appendix IV

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P02 [PF-127 50 %w/w Ae-200 6 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	1.2230	2.4932	3.1216	2.2793	0.7897
1	3.8299	3.4871	2.5386	3.2852	0.5461
2	4.9495	3.0241	2.5683	3.5139	1.0319
3	4.3535	11.959	2.9960	6.4364	3.9446
4	40.097	6.3286	5.1105	17.178	16.213
5	56.110	6.9540	2.4847	21.849	24.294
6	77.622	4.3463	2.5298	28.166	34.978
8	160.42	3.8128	6.8000	57.013	73.134
10	268.83	4.5986	11.242	94.893	123.02
12	306.14	8.7440	8.6577	107.85	140.21
15	535.88	7.0710	11.129	184.69	248.33
18	892.07	8.0129	14.291	304.79	415.28
21	1049.4	10.293	10.123	356.62	489.90
24	1240.5	17.334	28.188	428.68	574.08

SD = STANDARD DEVIATION

Appendix V

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P03 [PF-127 50 %w/w Ae-200 6 %w/w Gly 10 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	17.6089	21.7580	30.9899	23.4522	5.5925
1	20.3460	39.0964	35.8367	31.7597	8.1796
2	25.2486	47.9468	39.5619	37.5858	9.3712
3	37.3856	60.0710	55.8307	51.0958	9.8479
4	63.7340	72.3304	98.5844	78.2162	14.823
5	97.8537	81.6538	158.615	112.707	33.128
6	146.902	97.4780	273.659	172.680	74.199
8	373.774	136.854	529.712	346.780	161.51
10	773.464	148.917	740.895	554.425	287.04
12	1068.41	149.132	769.272	662.273	382.84
15	1644.78	165.635	818.678	876.367	605.23
18	2418.68	176.100	834.221	1143.00	941.20
21	3348.97	203.171	851.902	1468.01	1356.1
24	4356.14	214.433	842.270	1804.28	1822.5

SD = STANDARD DEVIATION

Appendix VI

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P04 [PF-127 50 %w/w Ae-200 6 %w/w Gly 7.5 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	10.6818	19.1734	7.9800	12.6117	7.1986
1	12.4472	21.8023	8.5950	14.2815	8.2099
2	13.3954	24.0026	9.8403	15.7461	9.0122
3	14.5855	25.0571	12.083	17.2421	9.5025
4	16.9288	29.5931	15.299	20.6070	11.243
5	19.7643	42.2100	15.446	25.8068	15.569
6	20.2044	46.8434	17.097	28.0486	17.197
8	21.2084	48.2088	24.651	31.3561	17.954
10	24.7655	55.6998	29.013	36.4928	20.786
12	25.9324	61.1585	30.919	39.3368	22.731
15	26.1179	62.5573	31.956	40.2104	23.265
18	26.4878	80.5013	45.312	50.7672	30.318
21	43.0378	92.7471	48.899	61.5614	34.709
24	92.2773	123.778	54.370	90.1421	49.328

SD = STANDARD DEVIATION

Appendix VII

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P05[PF-127 50 %w/w Ae-200 6 %w/w Gly 7.5 %w/w PEG 400 10 %w/w] by in-vitro Skin Permeation Experiment. [Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	6.1156	10.092	7.0469	7.7518	1.6984
1	12.491	10.442	7.0922	10.008	2.2254
2	18.335	10.926	7.1547	12.139	4.6443
3	25.939	10.991	7.9160	14.948	7.8721
4	51.008	11.155	9.5601	23.908	19.173
5	77.092	11.508	10.069	32.890	31.261
6	93.019	12.278	10.850	38.716	38.402
8	129.61	12.984	11.640	51.412	55.297
10	153.67	13.695	16.833	61.402	65.262
12	177.20	15.440	17.961	70.201	75.668
15	202.69	16.448	17.989	79.045	87.438
18	216.36	19.273	18.608	84.748	93.066
21	231.50	20.233	23.996	91.912	98.720
24	241.25	40.125	47.905	109.76	93.035

SD = STANDARD DEVIATION

Appendix VIII

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P06[PF-127 50 %w/w Ae-200 6 %w/w Gly 7.5 %w/w PEG 400 15 %w/w] by in-vitro Skin Permeation Experiment. [Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	2.8054	2.7711	5.8384	3.8050	2.1714
1	3.5453	3.5535	6.3091	4.4693	2.4102
2	3.5907	4.9124	6.3852	4.9628	2.5870
3	4.2699	5.8158	6.4878	5.5245	2.8004
4	4.3973	6.2323	6.5662	5.7319	2.9035
5	5.7611	6.3267	6.8407	6.3095	3.1098
6	5.7799	6.5497	7.1662	6.4986	3.2138
8	5.9917	7.4379	7.7449	7.0581	3.5081
10	6.2262	7.6238	8.9277	7.5925	3.8164
12	7.7116	7.7317	9.0905	8.1780	4.0374
15	9.0128	9.5401	9.3704	9.3078	4.5630
18	13.271	9.6310	9.6494	10.850	5.4787
21	31.015	11.507	76.687	39.736	28.750
24	44.133	12.133	168.81	75.029	63.972

SD = STANDARD DEVIATION

Appendix IX

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P07 [PF-127 50 %w/w Ae-200 6 %w/w PG 10 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	7.2202	5.6015	9.5109	7.4442	1.6038
1	7.6704	7.4260	18.946	11.347	5.3740
2	11.169	9.6271	20.129	13.642	4.6305
3	14.240	10.268	22.282	15.597	4.9973
4	14.755	12.335	22.730	16.607	4.4411
5	16.593	15.731	25.800	19.375	4.5569
6	17.046	20.071	29.471	22.196	5.2905
8	18.181	23.665	33.742	25.196	6.4447
10	19.528	24.790	37.444	27.254	7.5191
12	23.748	25.090	42.017	30.285	8.3139
15	26.742	32.117	44.788	34.549	7.5653
18	32.931	42.913	47.473	41.106	6.0728
21	32.967	46.329	49.482	42.926	7.1587
24	36.603	50.540	66.166	51.103	12.075

SD = STANDARD DEVIATION

Appendix X

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P08 [PF-127 50 %w/w Ae-200 6 %w/w PG 7.5 %w/w] by in-vitro Skin Permeation Experiment. [Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	13.5505	3.3615	2.3045	6.4055	5.0706
1	15.1185	5.9070	2.5935	7.8730	5.2989
2	20.1237	7.1657	3.5094	10.266	7.1282
3	21.7250	7.3688	3.6541	10.916	7.7921
4	28.7289	7.7526	3.9045	13.462	10.909
5	28.8424	9.2322	4.5183	14.197	10.532
6	32.0450	10.550	4.6312	15.742	11.778
8	34.2569	11.251	5.0253	16.844	12.572
10	39.4375	11.472	5.3042	18.738	14.851
12	42.8096	12.815	9.3544	21.659	15.021
15	45.2020	14.378	12.646	24.075	14.955
18	46.7696	15.311	13.111	25.064	15.374
21	48.4861	25.521	20.054	31.354	12.318
24	49.4786	31.169	22.101	34.250	11.386

SD = STANDARD DEVIATION

Appendix XI

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P09[PF-127 50 %w/w Ae-200 6 %w/w PG 7.5 %w/w PEG 400 10 %w/w] by in-vitro Skin Permeation Experiment. [Surface Area = 9.2941 cm^2 Thickness 9.2941 cm^2 n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	11.3238	8.1654	6.5709	8.6867	1.9750
1	19.9902	23.167	12.255	18.471	4.5823
2	47.3711	40.859	12.890	33.706	14.957
3	49.8292	42.482	13.141	35.151	15.849
4	57.1108	53.738	14.055	41.635	19.549
5	69.7724	63.627	16.192	49.864	23.941
6	83.9644	82.327	18.279	61.523	30.585
8	87.9110	92.951	19.185	66.682	33.648
10	91.9715	118.25	20.711	76.978	41.208
12	95.6990	142.88	20.871	86.485	50.236
15	123.647	168.75	22.883	105.09	60.978
18	144.136	250.84	29.327	141.43	90.453
21	145.761	260.10	38.599	148.15	90.445
24	155.293	282.75	59.099	165.71	91.604

SD = STANDARD DEVIATION

Appendix XII

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : P10[PF-127 50 %w/w Ae-200 6 %w/w PG 7.5 %w/w PEG 400 15 %w/w] by in-vitro Skin Permeation Experiment. [Surface Area = 9.2941 cm^2 Thickness 9.2941 cm^2 n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	2.4910	4.8638	4.1047	3.8199	0.9894
1	4.0805	6.4295	5.0102	5.1734	0.9658
2	4.5778	7.3135	5.2233	5.7048	1.1676
3	5.0280	8.3767	6.4150	6.6066	1.3737
4	5.1800	8.5134	8.9526	7.5487	1.6844
5	6.2783	9.2886	9.4511	8.3393	1.4588
6	6.3114	9.7055	9.9048	8.6405	1.6489
8	6.3986	10.291	10.674	9.1217	1.9318
10	6.6061	12.379	10.759	9.9147	2.4312
12	6.6223	16.070	12.593	11.762	3.9018
15	7.1049	16.981	13.283	12.456	4.0744
18	7.6216	19.256	13.293	13.390	4.7502
21	7.7951	20.651	15.326	14.590	5.2740
24	11.231	27.649	18.653	19.178	6.7129

SD = STANDARD DEVIATION

Appendix XIII

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs Using Aerosil A-200 Gel as Drug Carrier by in-vitro Skin Permeation Experiment. [Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time [hr]	Average Cumulative Amount(mcg)					
	A01	A02	A03	A04	A05	A06
0	0	0	0	0	0	0
0.5	7.4471	12.670	46.0974	12.5145	4.6820	14.8260
1	11.231	13.080	79.5398	27.0230	4.6881	24.8795
2	21.612	25.275	144.972	27.1865	8.0201	37.7032
3	30.518	23.872	208.084	35.0827	11.829	53.2959
4	41.022	24.025	243.572	45.2214	15.196	67.8428
5	52.990	29.014	299.249	55.6666	16.734	87.1643
6	69.899	31.049	368.177	76.3338	17.117	120.352
8	140.88	42.394	438.161	95.8432	21.327	183.810
10	206.61	51.460	476.103	153.011	23.415	207.840
12	251.44	55.499	573.788	221.767	36.691	238.855
15	311.76	76.896	714.361	239.274	39.034	299.449
18	356.42	90.273	820.118	252.179	47.764	330.249
21	423.66	94.365	888.308	345.192	62.493	384.285
24	487.28	103.12	893.506	370.195	73.303	437.684
	A07	A08	A09	A10	A11	A12
0	0	0	0	0	0	0
0.5	12.421	5.0376	32.3501	143.509	7.8836	18.7136
1	13.301	4.6888	43.4757	224.400	9.8767	37.9282
2	30.209	4.1657	63.9713	368.592	11.908	50.4739
3	57.556	4.8632	72.9870	508.212	18.579	67.8752
4	68.397	8.8453	94.7212	585.314	19.309	78.9378
5	85.221	9.3955	134.353	729.070	23.411	94.6830
6	110.14	10.487	187.181	832.680	35.962	115.729
8	163.55	15.100	357.026	843.090	46.201	181.991
10	188.47	20.763	389.485	900.422	58.763	248.162
12	252.73	28.212	500.625	1063.66	84.186	298.159
15	325.94	29.348	611.485	1226.20	104.02	376.910
18	400.54	48.127	734.976	1212.33	143.83	449.477
21	472.02	42.832	785.349	1305.81	176.20	658.569
24	516.25	48.294	944.973	1450.91	222.30	669.242

SD : STANDARD DEVIATION.

Appendix XIV

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A01 [Ae-200 30 %w/w GLY 27 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	3.2735	2.9584	16.1093	7.4471	6.1264
1	5.7956	4.6685	23.2314	11.231	8.4974
2	16.975	7.0855	40.7765	21.612	14.139
3	28.042	10.038	53.4747	30.518	17.818
4	41.330	13.391	68.3456	41.022	22.435
5	50.912	26.617	81.4416	52.990	22.430
6	79.159	34.225	96.3137	69.899	28.179
8	187.67	55.328	179.649	140.88	60.585
10	280.00	71.902	267.933	206.61	95.382
12	311.55	95.828	346.935	251.44	110.97
15	340.16	140.58	454.525	311.76	129.72
18	367.36	156.32	545.568	356.42	159.09
21	421.19	185.95	663.853	423.66	195.10
24	468.42	217.22	776.223	487.28	228.59

SD = STANDARD DEVIATION

Appendix XV

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A02 [Ae-200 30 %w/w GLY 35 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	16.2407	5.5239	16.2470	12.6705	5.0534
1	14.3899	9.3394	15.5115	13.0802	2.6845
2	45.8994	14.781	15.1455	25.2754	14.584
3	24.1504	28.630	18.8353	23.8720	4.0035
4	29.0969	27.133	15.8457	24.0252	5.8391
5	33.9595	36.051	17.0315	29.0141	8.5159
6	38.9258	37.844	16.3795	31.0499	10.382
8	66.6932	44.101	16.3883	42.3943	20.572
10	79.5653	57.502	17.3127	51.4603	25.771
12	80.2431	64.263	21.9919	55.4995	24.575
15	106.099	86.823	37.7664	76.8965	28.766
18	133.806	102.19	34.8163	90.2731	41.282
21	131.728	113.68	37.6838	94.3650	40.751
24	140.058	127.82	41.4768	103.121	43.874

SD = STANDARD DEVIATION

Appendix XVI

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A03[Ae-200 30 %w/w GLY 27 %w/w PEG 400 15 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	76.8308	25.9598	35.5015	46.0974	22.0781
1	136.748	42.1957	59.6749	79.5398	41.0774
2	261.243	80.3311	93.3431	144.972	82.3873
3	387.535	124.168	112.548	208.084	126.979
4	467.719	138.866	124.132	243.572	158.609
5	592.248	172.793	132.705	299.249	207.827
6	738.052	202.636	163.844	368.177	262.019
8	890.900	233.636	189.947	438.161	320.631
10	923.554	285.652	219.103	476.103	317.560
12	1205.36	287.242	228.763	573.788	447.226
15	1392.50	440.057	310.521	714.361	482.427
18	1590.86	532.903	336.585	820.118	550.862
21	1633.66	590.916	440.345	888.308	530.617
24	1566.82	618.069	495.628	893.506	478.722

SD = STANDARD DEVIATION

Appendix XVII

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A04[Ae-200 30 %w/w GLY 27 %w/w PEG 400 25 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	11.7381	16.6433	9.1620	12.5145	3.1031
1	10.9470	24.9827	45.139	27.0230	14.033
2	19.3070	22.0142	40.238	27.1865	9.2949
3	33.2683	24.7832	47.196	35.0827	9.2397
4	44.2323	33.2209	58.211	45.2214	10.226
5	58.4023	32.0783	76.519	55.6666	18.245
6	85.3598	61.3828	82.258	76.3338	10.647
8	115.014	58.3843	114.13	95.8432	26.489
10	209.990	73.3414	175.70	153.011	58.048
12	278.218	90.2992	296.78	221.767	93.270
15	310.033	140.932	266.85	239.274	71.737
18	333.534	160.996	262.00	252.179	70.780
21	441.377	302.029	292.16	345.192	68.132
24	434.336	329.391	346.85	370.195	45.911

SD = STANDARD DEVIATION

Appendix XVIII

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A05[Ae-200 30 %w/w GLY 27 %w/w PEG 400 15 %w/w HPMC 1 %w/w] by in-vitro Skin Permeation Experiment.
[Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	4.6182	8.2793	1.1484	4.6820	2.9115
1	3.0259	8.0774	2.9611	4.6881	2.3967
2	6.0453	13.241	4.7738	8.0201	3.7282
3	16.672	14.287	4.5297	11.829	5.2529
4	18.310	14.537	12.741	15.196	2.3209
5	22.982	20.808	6.4121	16.734	7.3528
6	22.617	19.363	9.3723	17.117	5.6356
8	23.362	22.238	18.381	21.327	2.1330
10	33.401	25.090	11.753	23.415	8.9168
12	64.528	30.507	15.037	36.691	20.672
15	53.558	41.834	21.710	39.034	13.151
18	73.418	39.187	30.687	47.764	18.469
21	94.970	49.810	42.698	62.493	23.147
24	126.38	37.713	55.817	73.303	38.251

SD = STANDARD DEVIATION

Appendix XIX

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A06 [Ae-200 30 %w/w GLY 27 %w/w PEG 400 25 %w/w HPMC 1 %w/w] by in-vitro Skin Permeation Experiment.
[Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	2.5818	35.2100	6.6861	14.8260	14.5107
1	2.6164	64.2071	7.8150	24.8795	27.8896
2	10.400	90.4323	12.277	37.7032	37.2929
3	13.911	130.145	15.831	53.2959	54.3466
4	22.532	159.276	21.719	67.8428	64.6545
5	27.715	205.492	28.284	87.1643	83.6709
6	34.958	287.234	38.862	120.352	118.014
8	70.335	423.750	57.344	183.810	169.746
10	81.696	470.173	71.652	207.840	185.542
12	122.45	466.490	127.62	238.855	160.975
15	158.11	580.377	159.85	299.449	198.647
18	199.94	581.888	208.91	330.249	177.973
21	255.35	623.663	273.83	384.285	169.433
24	306.62	644.197	362.23	437.684	147.781

SD = STANDARD DEVIATION

Appendix XX

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A07 [Ae-200 30 %w/w PG 27 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	5.9184	4.4581	26.8869	12.4212	10.2461
1	10.322	8.1667	21.4160	13.3017	5.80477
2	35.447	18.291	36.8892	30.2092	8.44790
3	74.965	41.558	56.1473	57.5568	13.6747
4	96.033	50.167	58.9914	68.3975	19.8705
5	129.37	51.316	74.9773	85.2219	32.6786
6	153.44	76.301	100.696	110.146	32.1935
8	232.15	116.03	142.482	163.559	49.6916
10	257.00	138.76	169.646	188.473	50.0734
12	316.99	216.68	224.514	252.733	45.5535
15	372.06	337.90	267.877	325.948	43.3650
18	426.53	449.68	325.414	400.545	53.9601
21	476.61	568.93	370.536	472.029	81.0597
24	511.13	618.11	419.513	516.255	81.1608

SD = STANDARD DEVIATION

Appendix XXI

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A08 [Ae-200 30 %w/w PG 35 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	6.5258	7.2845	1.3025	5.0376	2.6592
1	4.2660	7.5101	2.2903	4.6888	2.1518
2	7.7065	2.3867	2.4038	4.1657	2.5037
3	5.4611	4.2234	4.9052	4.8632	0.5061
4	19.205	6.4271	0.9034	8.8453	7.6648
5	19.509	6.9794	1.6973	9.3955	7.4699
6	22.343	7.4998	1.6203	10.487	8.7198
8	29.684	12.603	3.0135	15.100	11.030
10	44.059	12.725	5.5051	20.763	16.734
12	46.642	31.407	6.5873	28.212	16.507
15	54.641	26.291	7.1123	29.348	19.523
18	67.474	30.332	46.574	48.127	15.202
21	79.729	37.972	10.796	42.832	28.350
24	86.476	49.550	8.8556	48.294	31.701

SD = STANDARD DEVIATION

Appendix XXII

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A09 [Ae-200 30 %w/w PG 27 %w/w PEG 400 15 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	6.3879	60.0233	30.6390	32.3501	21.9299
1	11.066	80.4310	38.9296	43.4757	28.4997
2	25.542	102.306	64.0654	63.9713	31.3387
3	27.557	94.0942	97.3093	72.9870	32.1502
4	35.883	130.216	118.063	94.7212	41.8991
5	41.464	211.830	149.766	134.353	70.4003
6	50.601	335.681	175.262	187.181	116.688
8	89.197	734.028	247.854	357.026	274.336
10	86.102	796.943	285.409	389.485	299.385
12	98.722	1054.16	348.989	500.625	404.525
15	120.61	1296.20	417.634	611.485	499.120
18	143.55	1546.08	515.285	734.976	593.279
21	148.15	1637.12	570.770	785.349	626.518
24	1566.8	618.069	495.628	893.506	478.722

SD = STANDARD DEVIATION

Appendix XXIII

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A10 [Ae-200 30 %w/w PG 27 %w/w PEG 400 25 %w/w] by in-vitro Skin Permeation Experiment.[Surface Area = 9.2941 cm2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	63.7151	241.2860	125.5264	143.5092	73.5997
1	113.440	411.4913	148.2699	224.4007	133.055
2	324.724	600.2785	180.7750	368.5926	174.048
3	424.063	931.0594	169.5147	508.2126	316.542
4	531.431	1004.112	220.4008	585.3149	322.209
5	891.482	1072.095	223.6338	729.0706	364.924
6	793.669	1470.360	234.0121	832.6809	505.490
8	983.778	1300.622	244.8717	843.0908	442.339
10	1083.51	1306.321	311.4297	900.4222	426.297
12	1179.26	1608.965	402.7632	1063.664	499.168
15	1333.02	1832.608	512.9646	1226.200	544.012
18	1182.41	1934.097	520.5017	1212.337	577.485
21	1397.65	1941.496	578.2973	1305.816	560.299
24	1646.71	2065.833	640.1806	1450.911	598.262

SD = STANDARD DEVIATION

Appendix XXIV

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A11 [Ae-200 30 %w/w PG 27 %w/w PEG 400 15 %w/w HPMC 1 %w/w] by in-vitro Skin Permeation Experiment.
[Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	63.7151	241.2860	125.5264	143.5092	73.5997
1	113.440	411.4913	148.2699	224.4007	133.055
2	324.724	600.2785	180.7750	368.5926	174.048
3	424.063	931.0594	169.5147	508.2126	316.542
4	531.431	1004.112	220.4008	585.3149	322.209
5	891.482	1072.095	223.6338	729.0706	364.924
6	793.669	1470.360	234.0121	832.6809	505.490
8	983.778	1300.622	244.8717	843.0908	442.339
10	1083.51	1306.321	311.4297	900.4222	426.297
12	1179.26	1608.965	402.7632	1063.664	499.168
15	1333.02	1832.608	512.9646	1226.200	544.012
18	1182.41	1934.097	520.5017	1212.337	577.485
21	1397.65	1941.496	578.2973	1305.816	560.299
24	1646.71	2065.833	640.1806	1450.911	598.262

SD = STANDARD DEVIATION

Appendix XXV

Average Cumulative Permeation Amount of Nifedipine from Nifedipine TDDs : A12 [Ae-200 30 %w/w PG 27 %w/w PEG 400 25 %w/w HPMC 1 %w/w] by in-vitro Skin Permeation Experiment.
[Surface Area = 9.2941 cm^2 Thickness = 0.15 cm n = 3]

Time (hr)	PERMEATION AMOUNT(mcg)				
	CELL A	CELL B	CELL C	AVERAGE	SD
0	0	0	0	0	0
0.5	13.9139	23.5132	18.7136	18.7136	3.9189
1	29.1759	70.9777	13.6310	37.9282	24.215
2	41.9213	85.5299	23.9707	50.4739	25.848
3	64.8356	101.128	37.6616	67.8752	25.999
4	90.1635	104.338	42.3118	78.9378	26.537
5	112.295	151.890	50.0768	104.754	41.905
6	130.946	121.676	64.3514	105.658	29.452
8	228.767	212.488	104.719	181.991	55.042
10	316.267	293.824	134.395	248.162	80.965
12	377.410	350.682	166.386	298.159	93.814
15	465.704	432.707	232.318	376.910	103.12
18	523.213	523.213	302.006	449.477	104.27
21	818.266	760.160	397.282	658.569	186.27
24	824.762	766.519	416.444	669.242	180.32

SD = STANDARD DEVIATION

Appendix XXVI

Diffusion experent (n) and Release Mechanism from various geometry control release system

Table 26 Interpretation of diffusion release mechanism from drug relase data from thin polymer film.

Release exponent(n)	Drug transport mechanism	Rate as a function of time
0.5	Fickian diffusion	$t^{-0.5}$
0.5 < n < 1.0	Anomalous (non-Fickian)transport	t^{n-1}
1.0	Case-II transport	Zero-order(time-independent)release
n > 1.0	Super-Case-II transport	t^{n-1}

Table 27 Diffusion exponent and mechanism of diffusional release from various non-swellable controlled release systems.

Diffusional Exponent, n			Drug Release Mechanism
Thin Film	Cylindrical Sample	Spherical Sample	
0.5	0.45	0.43	Fickian Diffusion
0.5 <n< 1.00	0.45 <n< 1.00	0.43 <n< 1.00	Anomalous (non-Fickian) Transport
1.0	1.0	1.0	Zero-Order Release

Table 28 Diffusion exponent and mechanism of drug from various swellable controlled relase systems.

Diffusional Exponent, n			Drug Release Mechanism
Thin Film	Cylindrical Sample	Spherical Sample	
0.5	0.45	0.43	Fickian Diffusion
0.5 <n< 1.00	0.45 <n< 0.89	0.43 <n< 0.85	Anomalous (non-Fickian) Transport
1.0	0.89	0.85	Case-II Transport

VITAE

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