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APPENDICES

APPENDIX I

P. emblica extract powder

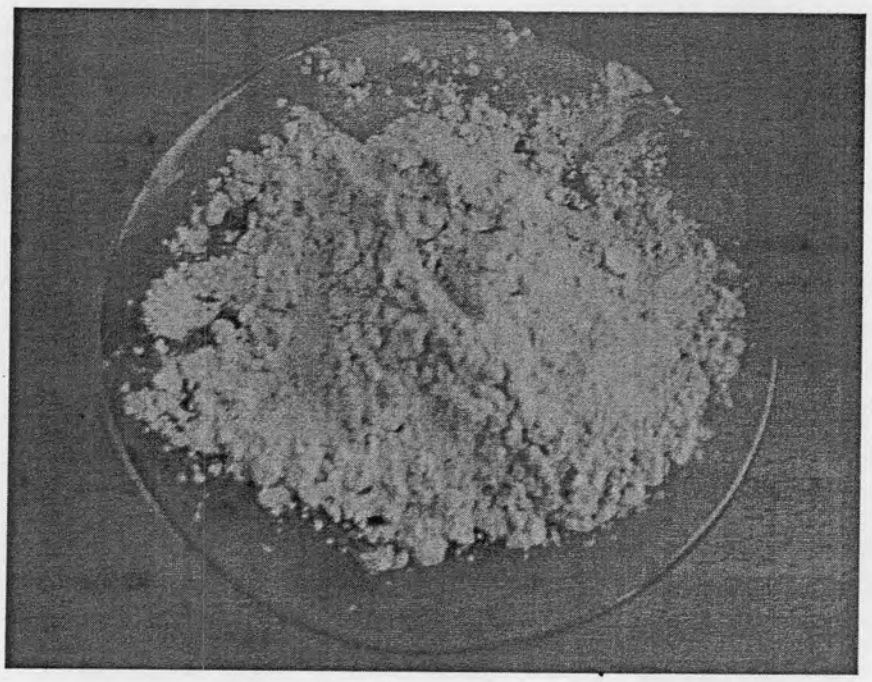

Figure 32 *P. emblica* extract powder from transparent juice

APPENDIX II

Validation of the HPLC method

Validation of the HPLC method

Analytical parameters validated were accuracy, precision, linearity, and specificity. The validation of an analytical method was the process by which shown the characteristics of the method were established to meet the USP 27, 2004 requirements for the intended analytical applications.

1. Accuracy

The accuracy of an analytical method was the closeness of test results obtained to the true value. The accuracy could be established across its range. The determination of accuracy of analysis of gallic acid by HPLC method was performed by analyzing the percentages of analytical recovery of three different concentrations. The percentages of analytical recovery of gallic acid were shown in Table 21. From Table 21, the % recoveries of gallic acid at individual concentration were 100.82, 100.87, and 99.93% and the % CV of gallic acid were 1.85, 0.20, and 0.17%, respectively.

Table 21 Accuracy of gallic acid

Samples	Actual Conc. (µg/ml)	Observed Conc. (µg/ml)	% Recovery	Average % recovery	% CV
A	0.10	0.0997	99.77	100.82	1.85
B	0.10	0.0997	99.72		
C	0.10	0.1029	102.97		
A	0.50	0.5055	101.09	100.87	0.20
B	0.50	0.5041	100.82		
C	0.50	0.5034	100.69		
A	1.20	1.2010	100.09	99.93	0.17
B	1.20	1.1992	99.93		
C	1.20	1.1971	99.76		

2. Precision

The precision of an analytical method was the degree of agreement between individual tests results when the method was applied repeated to multiple samplings of a homogenous sample. The precision of an analytical method was usually expressed as the standard deviation or relative standard deviation (coefficient of variation) of a series of measurements. The determination of precision of the analysis of gallic acid by the HPLC method was performed by analyzing the coefficient of variation of six replicates of three different concentrations.

2.1 Intraday precision

The determination of precision for analytical method of gallic acid was processed within one day by analysis of six replicates of three different concentrations. The results were shown in Table 22.

From Table 22, the % recoveries of gallic acid at individual concentration were 100.23, 101.58, and 100.19% and % CV were 1.39, 0.79, and 0.40%, respectively.

2.2 Interday precision

The determination of precision for analytical method of gallic acid was processed in different three days by analysis of three replicates of three different concentrations. The results were shown in Table 23.

From Table 23, the % recoveries of gallic acid at individual concentration were 99.79, 100.85, and 100.48% and % CV were 1.54, 0.75, and 0.68%, respectively.

Table 22 Intraday precision of gallic acid

Samples	Actual Conc. (µg/ml)	Observed Conc. (µg/ml)	% Recovery	Average % recovery	% CV
A	0.10	0.0997	99.77	100.23	1.39
B	0.10	0.0997	99.72		
C	0.10	0.1029	102.97		
D	0.10	0.0990	99.01		
E	0.10	0.0997	99.75		
F	0.10	0.1001	100.13		
A	0.50	0.5055	101.09	101.58	0.79
B	0.50	0.5041	100.82		
C	0.50	0.5034	100.69		
D	0.50	0.5123	102.46		
E	0.50	0.5100	102.00		
F	0.50	0.5119	102.39		
A	1.20	1.2010	100.09	100.19	0.40
B	1.20	1.1992	99.93		
C	1.20	1.1971	99.76		
D	1.20	1.2001	100.01		
E	1.20	1.2097	100.81		
F	1.20	1.2064	100.53		

Table 23 Interday precision of gallic acid

Day	Samples	Actual Conc. (µg/ml)	Observed Conc. (µg/ml)	% Recovery	Average % recovery	% CV
Day 1	A	0.10	0.0990	99.01	99.79	1.54
	B	0.10	0.0997	99.75		
	C	0.10	0.1001	100.13		
Day 2	D	0.10	0.0973	97.28		
	E	0.10	0.9970	99.70		
	F	0.10	0.1030	103.05		
Day 3	G	0.10	0.1005	100.46		
	H	0.10	0.0989	98.91		
	I	0.10	0.0998	99.80		
Day 1	A	0.50	0.5055	101.09	100.85	0.75
	B	0.50	0.5041	100.82		
	C	0.50	0.5034	100.69		
Day 2	D	0.50	0.5110	102.21		
	E	0.50	0.5018	100.35		
	F	0.50	0.5064	101.27		
Day 3	G	0.50	0.5037	100.74		
	H	0.50	0.5057	101.13		
	I	0.50	0.4970	99.39		
Day 1	A	1.20	1.2010	100.09	100.48	0.68
	B	1.20	1.1992	99.93		
	C	1.20	1.1971	99.76		
Day 2	D	1.20	1.2099	100.83		
	E	1.20	1.2134	101.12		
	F	1.20	1.2148	101.23		
Day 3	G	1.20	1.2126	101.05		
	H	1.20	1.1929	99.41		
	I	1.20	1.2105	100.88		

3. Linearity

The linearity of an analytical method was the ability to elicit test results that were directly or by a well-defined mathematical transformation, proportional to the concentration of analyte in samples within a given range. The linearity could be established across the range of the analytical procedures. It should be established initially by visual examination of a plot of signals as a function of analyte concentration. If there appeared to be a linear relationship, test results could be established by calculation of regression line by the method of least squares. The determination of linearity for analytical method of gallic acid was processed at seven concentrations. The results were shown in Table 24 and Figure 33.

From Table 24 and Figure 33, the linearity study of gallic acid showed linear equation of y = 611030x - 2200.8 with r^2 of 0.9996

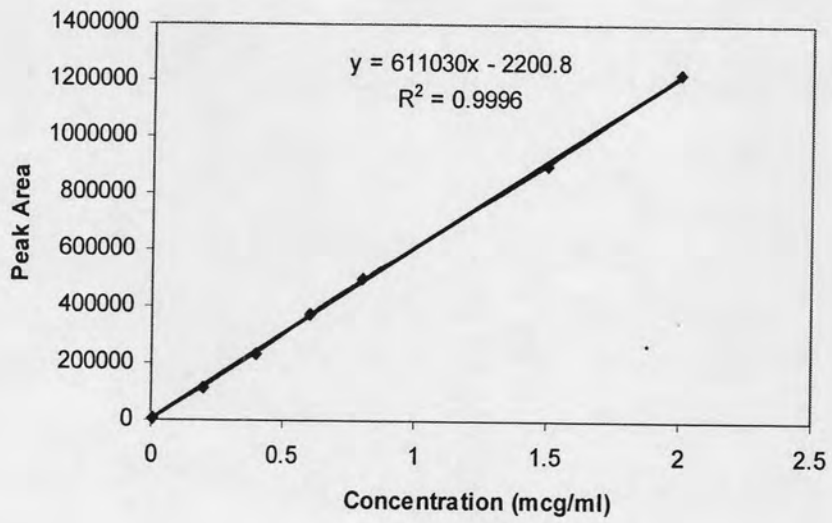

Figure 33 Calibration curve of gallic acid analysis using HPLC method

Table 24 Linearity of gallic acid

Samples	Actual Conc. (µg/ml)	Observed Conc. (µg/ml)	Average Observed Conc. (µg/ml)
A	0.01	0.01	0.01
B	0.01	0.01	
C	0.01	0.01	
A	0.20	0.19	0.19
B	0.20	0.19	
C	0.20	0.19	
A	0.40	0.39	0.39
B	0.40	0.39	
C	0.40	0.39	
A	0.60	0.62	0.61
B	0.60	0.60	
C	0.60	0.61	
A	0.80	0.83	0.82
B	0.80	0.82	
C	0.80	0.82	
A	1.50	1.47	1.48
B	1.50	1.48	
C	1.50	1.48	
A	2.00	2.01	2.01
B	2.00	2.02	
C	2.00	2.01	

4. Limit of quantification (LOQ) and the Limit of detection (LOD)

The limit of quantification and the limit of detection for analytical method of gallic acid were determined. The results of limit of quantification were shown in Table 25.

From Table 25, the limit of quantification of gallic acid was 103.18 µg/ml and % CV was 7.24%.

Limit of detection of gallic acid was 0.0075 µg/ml that was the concentration that provided signal-to-noise ratio of approximately 3:1.

Table 25 Limit of quantification of gallic acid

Samples	Actual Conc. (µg/ml)	Observed Conc. (µg/ml)	% Recovery	Average % recovery	% CV
A	0.01	0.0113	113.35	103.18	7.24
B	0.01	0.0100	99.96		
C	0.01	0.0093	93.00		
D	0.01	0.0110	109.68		
E	0.01	0.0099	98.89		
F	0.01	0.0104	104.20		

5. Specificity

Since the drug release study was performed in citrate-phosphate buffer pH 5.5, it was needed to ensure that the peak of buffer would not disturb the peak of gallic acid. The peak of buffer did not overlap the peak of gallic acid indicating the specificity of analytical method as shown in Figure 34.

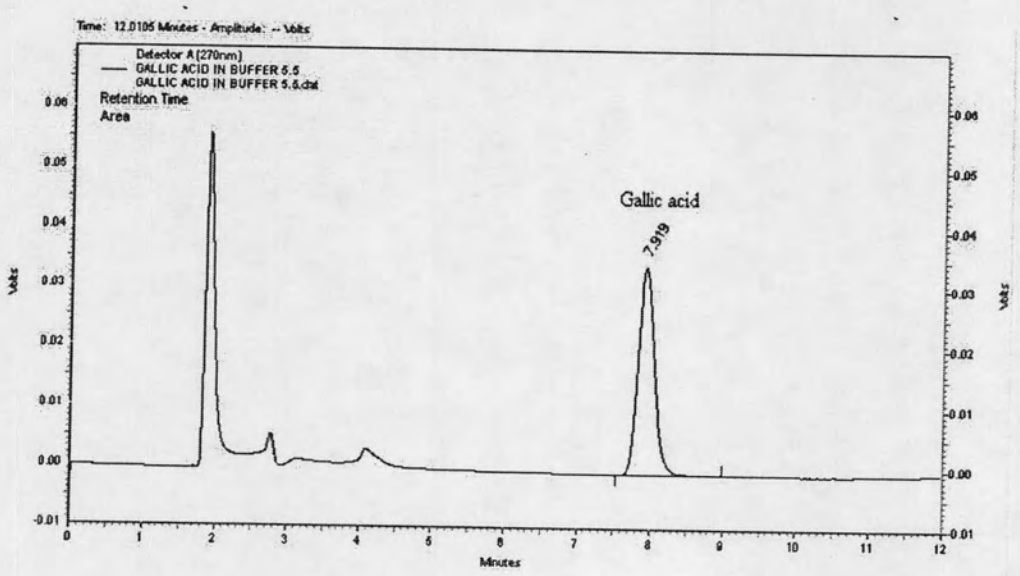

Figure 34 HPLC chromatogram of gallic acid in citrate-phosphate buffer pH 5.5

APPENDIX III

Statistical Analysis Data

Table 26 The statistical data of skin hydration

Group	No.	Week 0					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	61	14	23	43	29	20
	2	36	46	44	58	53	43
	3	25	12	0	10	0	0
	4	28	37	33	30	22	6
	5	8	0	0	10	2	0
	6	43	49	49	48	46	47
	7	21	22	24	24	26	16
Group	No.	Week 0					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	51	64	30	64	60	58
	9	35	30	16	28	39	19
	10	42	18	19	47	18	39
	11	41	21	0	29	0	2
	12	42	13	28	31	36	32
	13	0	0	0	0	1	5
	14	46	50	52	46	49	34
Group	No.	Week 0					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	27	17	11	23	25	8
	16	57	59	36	47	55	38
	17	8	0	0	12	2	9
	18	21	0	0	19	12	8
	19	11	12	13	18	16	9
	20	50	50	24	44	20	23
	21	41	16	0	28	4	0

Group	No.	Week 1					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	43	44	48	46	20	38
	2	44	45	49	59	58	56
	3	30	28	9	17	36	30
	4	20	19	11	22	29	29
	5	20	33	37	22	36	16
	6	46	47	52	25	59	63
	7	14	48	63	35	33	50
Group	No.	Week 1					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	39	56	24	46	56	60
	9	35	33	39	33	34	47
	10	43	48	45	58	59	51
	11	34	24	0	36	4	0
	12	22	50	30	27	31	50
	13	16	4	6	22	26	8
	14	53	55	50	53	52	52
Group	No.	Week 1					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	31	37	30	34	32	41
	16	53	52	56	62	53	65
	17	11	14	23	34	22	34
	18	21	27	18	32	15	17
	19	11	14	12	22	10	18
	20	39	53	33	42	45	41
	21	20	14	40	35	25	11

Group	No.	Week 2					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	46	52	34	37	20	32
	2	48	51	46	58	69	59
	3	23	20	42	27	30	27
	4	21	26	31	28	36	31
	5	27	34	30	20	30	34
	6	42	39	35	47	47	45
	7	49	44	45	36	35	30
Group	No.	Week 2					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	39	44	49	46	36	37
	9	48	35	39	36	39	51
	10	50	19	26	55	58	53
	11	31	13	9	36	32	20
	12	22	47	53	23	43	53
	13	21	23	3	36	24	27
	14	51	54	53	59	61	67
Group	No.	Week 2					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	35	38	40	34	38	45
	16	40	55	62	62	60	63
	17	27	20	25	34	31	37
	18	27	26	23	30	39	38
	19	10	13	22	20	25	26
	20	35	50	55	58	56	52
	21	31	10	27	36	29	42

Group	No.	Week 3					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	47	49	49	40	34	24
	2	58	52	53	66	67	59
	3	22	39	32	33	30	28
	4	28	18	25	31	39	35
	5	20	35	32	32	38	33
	6	43	47	55	48	57	40
	7	43	47	50	33	37	40
Group	No.	Week 3					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	50	59	62	63	67	70
	9	52	32	35	47	42	57
	10	49	42	50	62	58	63
	11	28	38	40	35	37	39
	12	32	51	51	43	51	61
	13	20	29	25	40	40	39
	14	43	45	46	65	73	51
Group	No.	Week 3					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	35	38	48	49	46	48
	16	51	54	63	67	64	66
	17	28	28	31	38	38	32
	18	27	33	23	44	33	36
	19	16	23	22	27	35	34
	20	55	57	58	60	65	63
	21	30	32	35	44	46	42

Group	No.	Week 4					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	39	57	54	47	49	43
	2	59	52	56	65	69	72
	3	41	34	34	30	32	30
	4	34	22	33	40	41	38
	5	30	33	35	30	35	30
	6	47	47	47	45	59	47
	7	46	47	46	40	41	44
Group	No.	Week 4					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	63	57	54	74	67	68
	9	47	45	48	58	60	63
	10	47	52	50	68	67	68
	11	38	34	39	42	40	44
	12	48	43	56	58	62	59
	13	30	30	39	45	47	43
	14	49	49	52	76	79	70
Group	No.	Week 4					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	33	40	39	52	54	46
	16	50	55	54	72	75	76
	17	32	29	24	51	46	55
	18	25	34	31	52	48	46
	19	17	20	30	40	46	30
	20	47	56	66	58	68	65
	21	27	37	31	58	47	49

Table 27 The statistical data of skin hydration using SPSS program

Group	diffmwk1	diffmwk2	diffmwk3	diffmwk4
0	12.33333	11.33333	15.66667	17.33333
0	4	6.333333	12.33333	13.66667
0	10	16	18.66667	24
0	-16	-6.66667	-9	-3
0	27.33333	27.66667	26.33333	30
0	1.333333	-8.33333	1.333333	0
0	19.33333	23.66667	24.33333	24
0	-8.66667	-4.33333	8.666667	9.666667
0	8.666667	13.66667	12.66667	19.66667
0	19	5.333333	20.66667	23.33333
0	-1.33333	-3	14.66667	16.33333
0	6.333333	13	17	21.33333
0	8.666667	15.66667	24.66667	33
0	3.333333	3.333333	-4.66667	0.666667
0	14.33333	19.33333	22	19
0	3	1.666667	5.333333	2.333333
0	13.33333	21.33333	26.33333	25.66667
0	15	18.33333	20.66667	23
0	0.333333	3	8.333333	10.33333
0	0.333333	5.333333	15.33333	15
0	5.666667	3.666667	13.33333	12.66667
1	4.000003	-1	2.000003	15.66666
1	6.333333	10.66667	12.66667	17.33333
1	24.33333	24.66667	27	27.33334
1	7.333333	12.33333	15.66667	20.33333
1	20.66667	24	30.33333	27.66667
1	2	-0.66667	1.333333	3.333333
1	17.33333	11.66667	14.66667	19.66667
2	-6.66667	-21	6	9
2	9.333333	13.33333	20	31.66667
2	21.33333	20.66667	26.33333	33
2	3	19	26.66667	31.66667
2	3	6.666667	18.66667	26.66667
2	16.66667	27	37.66667	43
2	9.333333	19.33333	20	32
3	17	20.33333	29	32
3	13.33333	15	19	27.66666
3	22.33333	26.33333	28.33333	43
3	8.333333	22.66667	24.66667	35.66667
3	2.333333	9.333333	17.66667	24.33333
3	13.66667	26.33333	33.66667	34.66667
3	13	25	33.33333	40.66667

Table 28 The statistical data of Young's modulus

Group	No.	Week 0					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	14.81	11.01	10.08	12.72	9.24	10.66
	2	9.29	10.04	11.47	10.99	10.79	10.64
	3	13.26	12.24	10.93	13.06	11.72	10.95
	4	12.45	11.14	10.95	12.2	10.49	10.6
	5	13.28	9.31	8.81	11.99	10.83	9.45
	6	10.76	9.74	7.04	10.45	8.64	10.93
	7	12.31	10.39	8.2	10.61	8.49	9.2
Group	No.	Week 0					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	11.37	10.89	10.16	10.76	11.06	9.39
	9	11.08	8.98	8.56	10.31	11.7	10.22
	10	12.66	11.47	11.24	12.93	12.91	11.18
	11	13.22	11.66	10.22	13.14	10.62	11.51
	12	12.74	10.12	11.16	10.2	12.95	6.7
	13	13.18	8.89	9.68	10.78	10.24	8.39
	14	12.08	11.12	8.35	12.53	10.93	8.6
Group	No.	Week 0					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	11.47	9.74	10.18	11.12	11.18	11.66
	16	12.76	11.51	10.08	12.16	11.18	10.22
	17	13.83	12.95	11.6	13.35	13.51	12.85
	18	12.31	9.26	7.2	13.12	10.64	7.89
	19	13.18	9.83	10.51	12.39	9.54	10.97
	20	10.87	11.39	9.97	11.14	11.24	11.87
	21	13.37	13.87	11.72	12.31	12.33	12.54

Group	No.	Week 1					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	14.03	11.39	10.81	11.26	8.95	11.68
	2	9.58	9.04	10.14	10.22	6.74	8.56
	3	13.93	11.93	11.83	13.76	9.16	10.22
	4	12.47	11.56	11.08	11.64	9.47	10.06
	5	14.33	11.41	9.51	12.33	8.31	9.22
	6	9.37	7.14	7.2	7.64	9.39	7.16
	7	11.81	10.93	8.2	10.43	8.41	8.93
Group	No.	Week 1					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	11.19	10.31	8.12	11.01	8.83	8.91
	9	10.83	10.97	9.94	11.22	10.1	10.31
	10	12.93	10.66	11.22	12.99	11.68	11.01
	11	13.81	10.77	8.29	12.33	10.58	8.93
	12	11.95	6.45	7.91	9.87	8.47	6.39
	13	13.22	8.99	9.04	9.89	9.43	9.16
	14	9.24	9.24	9.6	11.22	8.6	8.26
Group	No.	Week 1					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	11.89	11.56	8.99	11.56	8.87	11.56
	16	13.01	10.22	10.41	12.87	9.12	10.22
	17	13.28	12.28	11.51	13.24	12.85	10.08
	18	12.33	8.87	8.29	11.33	9.99	9.97
	19	12.93	10.7	9.62	12.1	9.45	10.39
	20	10.12	10.16	10.64	10.51	9.99	9.64
	21	13.33	12.87	11.01	12.04	11.72	11.06

Group	No.	Week 2					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	11.95	11.85	10.95	10.41	10.93	10.49
	2	9.81	8.24	8.37	7.46	8.04	10.01
	3	14.03	10.49	10.22	12.1	12.51	8.06
	4	11.58	10.22	10.74	11.12	9.7	12.18
	5	13.66	8.93	9.14	12.29	9.43	10.62
	6	8.54	7.58	5.06	10.51	8.56	7.68
	7	10.87	10.64	7.99	11.43	7.41	11.12
Group	No.	Week 2					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	8.95	10.06	8.97	8.66	8.56	8.43
	9	10.39	7.74	7.6	9.74	9.77	9.1
	10	11.38	11.33	11.22	11.87	8.18	11.28
	11	12.58	11.1	9.04	11.22	8.93	8.87
	12	11.74	8.45	11.14	10.37	8.85	10.08
	13	13.83	7.51	7.97	9.45	8.68	8.26
	14	11.45	10.97	9.39	11.95	6.91	5.47
Group	No.	Week 2					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	11.43	10.31	9.43	10.7	8.91	8.54
	16	13.12	10.01	8.93	10.99	10.37	8.68
	17	12.47	10.45	11.2	12.49	8.1	11.31
	18	11.97	9.68	8.56	11.6	6.99	10.37
	19	11.85	10.76	8.81	10.39	8.88	9.2
	20	10.06	10.22	9.31	10.15	9.12	8.7
	21	12.7	11.49	11.37	11.58	7.33	9.62

Group	No.	Week 3					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	12.78	11.18	11.53	10.41	11.26	9.06
	2	10.81	9.72	9.16	9.64	10.1	5.7
	3	13.16	10.45	9.18	12.78	10.53	10.72
	4	11.62	9.6	10.91	12.68	9.66	10.41
	5	13.31	9.68	8.93	10.95	11.35	6.58
	6	8.04	8.68	7.22	10.68	8.76	8.14
	7	10.64	9.85	7.93	13.16	6.62	7.95
Group	No.	Week 3					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	10.22	7.79	8.14	8.54	8.41	6.35
	9	11.89	10.04	9.6	9.01	8.87	8.54
	10	12.08	9.99	8.91	11.45	10.45	9.95
	11	11.87	11.31	10.01	11.03	9.66	8.49
	12	10.7	10.2	8.99	12.18	9.43	8.12
	13	13.45	9.85	6.72	10.04	9.87	7.35
	14	9.66	8.6	9.68	8.99	8.91	6.39
Group	No.	Week 3					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	11.01	11.93	8.12	11.14	8.04	9.27
	16	12.28	11.41	9.37	9.51	9.81	6.89
	17	13.14	11.64	11.78	10.81	10.16	6.72
	18	12.58	6.89	8.7	8.79	6.95	9.31
	19	10.63	10.72	7.74	10.45	8.43	7.62
	20	9.22	9.37	9.7	9.81	9.56	8.76
	21	11.12	11.08	11.95	10.38	8.56	9.01

Group	No.	Week 4					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes	1	12.18	11.41	10.24	11.87	8.24	8.08
	2	9.89	10.4	8.37	9.31	9.01	9.68
	3	12.45	10.54	10.37	10.12	10.54	10.81
	4	11.45	11.89	10.97	10.29	10.81	8.31
	5	12.53	10.64	9.39	12.89	9.83	6.06
	6	8.6	8.81	8.49	7.85	8.08	6.2
	7	8.41	10.6	6.08	10.95	7.95	6.01
Group	No.	Week 4					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Emblica	8	10.06	8.47	8.91	8.43	8.12	6.64
	9	10.93	8.49	7.68	8.58	8.62	8.69
	10	11.85	9.93	8.28	10.35	9.26	8.97
	11	9.72	10.43	9.29	12.78	6.79	5.89
	12	10.1	10.81	7.51	9.6	9.68	7.14
	13	13.2	8.91	7.49	9.08	7.18	9.04
	14	11.68	10.22	7.81	8.24	7.89	8.72
Group	No.	Week 4					
		Right			Left		
		Control 1	Control 2	Control 3	Area 1	Area 2	Area 3
Liposomes + Emblica	15	10.53	9.12	9.98	7.89	7.81	8.24
	16	11.81	11.31	10.2	9.99	6.2	8.69
	17	11.91	11.22	11.64	10.64	10.23	6.7
	18	12.81	8.87	6.08	8.28	8.7	6.27
	19	10.41	10.18	10.26	8.81	7.29	8.16
	20	8.97	10.12	8.62	9.27	7.08	7.83
	21	11.53	11.58	10.41	10.37	8.45	8.22

Table 29 The statistical data of Young's modulus using SPSS program

Group	diffmwk1	diffmwk2	diffmwk3	diffmwk4
0	-0.15667	0.296667	-0.55667	0.863333
0	0.61	0.526667	-0.58667	0.706667
0	0.826667	-0.32667	-0.36	0.803333
0	0.853333	1.13	-0.68667	1.943333
0	0.73	-0.01333	-0.95333	0.176667
0	-1.03333	-1.81667	-1.85333	0.82
0	-1.00667	-1.73667	-1.91333	0.2
0	-1.45	-1.27666	-2.36667	0.446667
0	-0.94	-0.88667	-2.12667	1.143333
0	1.523333	1.666667	0.563333	1.706667
0	-0.69667	-0.40667	-1.06	0.31
0	-1.25	-1.26333	-1.07667	1.326667
0	-1.28	-1.18	-2.68333	0.656667
0	-0.72333	-2	-2.44333	0.45
0	-1.42333	-2.82667	-2.86667	1.18
0	-0.77667	-2.08	-2.68	0.12
0	-1:15667	-1.81333	-2.56	0.32
0	-0.72333	-0.67	-1.98667	1.370003
0	-2.09667	-2.29	-2.59333	0.786667
0	-0.49333	-0.24667	-0.8	-0.11
0	-0.78	0.31	-0.03333	0.68
1	-0.24333	-0.26333	-0.63	-1.47666
1	-2.3	-2.30334	-2.32667	-1.47334
1	-0.86333	-1.02	-0.56667	-1.42
1	-0.70667	-0.09667	-0.18	-1.29333
1	-0.80333	0.023333	-1.13	-1.16333
1	-1.94333	-1.09	-0.81333	-2.63
1	-0.17667	0.553333	-0.19	-1.13
2	-0.82	-1.85333	-2.63667	-2.67333
2	-0.2	-1.20667	-1.93667	-2.11333
2	-0:44667	-1.89667	-1.72333	-2.81333
2	-1.14333	-2.08333	-2.03	-3.27
2	-1.70667	-0.18333	-0.04	-1.14333
2	-0.31	-1.00667	-0.71667	-1.37
2	-1.32667	-2.57667	-2.59	-2.40333
3	-0.65667	-1.93667	-1.83667	-3.34
3	-0.45	-1.17333	-2.45	-2.89333
3	-1.18	-2.60333	-4.00667	-4.04667
3	-0.12	-0.89667	-2.2	-2.8
3	-0.32	-1.47667	-2.13333	-2.88
3	-1.37	-2.09334	-2.04	-3.35667
3	-0.78667	-2.88333	-3.07667	-3.38

VITA

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