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APPENDICES

Appendix I

Calibration Curve of Strain Guages bounded on
Instrumented Upper Punch.

Force (pounds)	Strain (cm)
600	0.52
900	0.77
1200	1.01
1500	1.29
1800	1.55
2100	1.80
2400	2.02
2700	2.32
3000	2.61
3300	2.89
3600	3.15

Correlation coefficient : 0.9994

$$Y = 0.00087X - 0.0202$$

Appendix II

Absorbance of Paracetamol Standard Solution in Phosphate
Buffer pH 5.8 at 249 nm.

Concentration (ug/ml)	Absorbance
3	0.200
4	0.256
6	0.379
8	0.518
10	0.625
12	0.741
14	0.866

Correlation coefficient : 0.9992

$$Y = 0.0614X + 0.0102$$

Appendix III

Absorbance of Pyridoxine Hydrochloride Standard Solution
in 0.1 N HCl at 290 nm.

Concentration (ug/ml)	Absorbance
5	0.216
6	0.236
8	0.338
10	0.423
12	0.501
14	0.590
16	0.680
18	0.759

Correlation coefficient : 0.9993

$$Y = 0.0424X - 0.0033$$

Appendix IV

Absorbance of Paracetamol Standard Solution in 0.1 M NaOH at 257 nm.

Concentration (ug/ml)	Absorbance
3	0.217
4	0.289
5	0.359
6	0.442
8	0.585
10	0.723
12	0.864

Correlation coefficient : 0.9997

$$Y = 0.0722x + 0.0014$$

Appendix V

Statistics

A. Analysis of Variance (ANOVA)

Source of Variation	d.f.	SS	MS	F
Among groups (Treatment)	k-1	SS _{among}	MS _{among} = SS _{among} / (k-1)	F = $\frac{MS_{among}}{MS_{within}}$
Within groups (Error)	N-k	SS _{within}	MS _{within} = SS _{within} / (N-k)	
Total	N-1	SS _{total}		

d.f. = degree of freedom

SS = Sum of Squares

$$SS_{among} = \sum_{j=1}^k n_j (X_{.j} - X_{..})^2$$

$$SS_{within} = \sum_{j=1}^k \sum_{i=1}^k (X_{ij} - X_j)^2$$

$$SS_{total} = \sum_{j=1}^k \sum_{i=1}^k (X_{ij} - X_{..})^2$$

MS = Mean Square

F = Variance Ratio

where X_{ij} = Observed Value at Treatment j

$$i = 1, 2, \dots, n$$

$$j = 1, 2, \dots, k$$

$$T_{.j} = \sum_{i=1}^{n_j} X_{ij}$$

$$X_{.j} = \frac{T_{.j}}{n_j}$$

$$T_{..} = \sum_{j=1}^k T_{.j}$$

$$X_{..} = \frac{T_{..}}{N}$$

$$N = \sum_{j=1}^k n_j$$

Comparing the F value with the critical value F obtained from table at degree of freedom $(k-1)$ and $(N-k)$:

- If $F > F_{(table)}$: reject the null hypothesis that $\mu_1 = \mu_2 = \mu_3 = \dots = \mu_k$ and accept the alternative hypothesis.

- If $F < F_{(table)}$: accept the null hypothesis.

B. Honestly Significant Difference Test (HSD Test)

$$\text{HSD} = q_{\alpha, k, N-k} \sqrt{\frac{\text{MSE}}{n}}$$

= significant level

k = number of treatments

n = sample sizes of each treatment

MSE = mean square of error from ANOVA table

q value obtained from table at degree of freedom k and (N-k).

If the difference between treatment means (absolute value) of each pair is more than HSD value, therefore, it indicates that the tested pair is significantly different.

Appendix VI

Analysis of Variance for Paracetamol Tablet Hardness Prepared with Various Binders at 1% Concentration by Solution Incorporation Method.

Source of Variation	DF	SS	MS	F
Among Groups	6	137.4353	22.9059	89.6162
Within Groups	63	16.1028	0.2556	
Total	69	153.5381		

$$F_{0.05(6,63)} = 2.25$$

Appendix VII

Analysis of Variance for Paracetamol Tablet Hardness Prepared with Various Binders at 2% Concentration by Solution Incorporation Method.

Source of Variation	DF	SS	MS	F
Among Groups	6	200.4851	33.4142	98.8316
Within Groups	63	21.2998	0.3381	
Total	69	221.7849		

$$F_{0.05(6,63)} = 2.25$$

Appendix VIII

Analysis of Variance for Paracetamol Tablet Hardness Prepared with Various Binders at 4% Concentration by Solution Incorporation Method.

Source of Variation	DF	SS	MS	F
Among Groups	6	191.9087	31.9848	115.3705
Within Groups	63	17.4658	0.2772	
Total	69	209.3745		

$$F_{0.05(6,63)} = 2.25$$

Appendix IX

Multiple Comparison (HSD Test) for Paracetamol Tablet Hardness Prepared with Various Binders at 1% Concentration by Solution Incorporation Method.

A	B	Corn starch	Starch 1500 ^(R)	D ₂	D ₁	Gelatin	PVPK30	Methocel E15LV ^(R)
Cornstarch	-	NS	NS	NS	S	S	S	
Starch 1500 ^(R)	-	NS	NS	S	S	S		
D ₂	-	NS	S	S	S			
D ₁	-	S	S	S				
Gelatin	-	S	S					
PVPK30	-	NS						
Methocel E15LV ^(R)	-							

$$q_{0.05,7,63} = 4.31$$

$$\text{HSD} = 0.6891$$

S B is significantly more than A

NS B is not significantly more than A

Appendix X

Multiple Comparison (HSD Test) for Paracetamol Tablet Hardness Prepared with Various Binders at 2% Concentration by Solution Incorporation Method.

A	B	Starch 1500 ^(R)	Corn starch	D ₂	D ₁	Gelatin	PVPK30	Methocel E15LV ^(R)
Starch 1500 ^(R)	-	NS	S	S	S	S	S	S
Corn starch	-	NS	S	S	S	S	S	S
D ₂	-	NS	S	S	S	S	S	S
D ₁	-	NS	S	S	S	S	S	S
Gelatin	-	NS	S	S	S	S	S	S
PVPK30	-	NS	S	S	S	S	S	S
Methocel E15LV ^(R)	-	NS	S	S	S	S	S	S

$$q_{0.05,7,63} = 4.31$$

$$\text{HSD} = 0.7295$$

S B is significantly more than A

NS B is not significantly more than A

Appendix XI

Multiple Comparison (HSD Test) for Paracetamol Tablet Hardness Prepared with Various Binders at 4% Concentration by Solution Incorporation Method.

A	B	Corn starch	D ₂	Starch 1500 ^(R)	Gelatin	D ₁	PVPK30	Methocel E15LV ^(R)
Corn starch	-		NS	NS	NS	S	S	S
D ₂			-	NS	NS	S	S	S
Starch 1500 ^(R)				-	NS	NS	S	S
Gelatin					-	NS	S	S
D ₁						-	S	S
PVPK30							-	S
Methocel E15LV ^(R)								-

$$q_{0.05,7,63} = 4.31$$

$$\text{HSD} = 0.7176$$

S B is significantly more than A

NS B is not significantly more than A

Appendix XII

Analysis of Variance for Pyridoxine Hydrochloride Tablet Hardness Prepared with Various Binders at 1 % Concentration by Solution Incorporation Method.

Source of Variation	DF	SS	MS	F
Among Groups	7	174.3271	24.9039	179.2554
Within Groups	72	10.0029	0.1389	
Total	79	184.3301		

$$F_{0.05(7,72)} = 2.15$$

Appendix XIII

Analysis of Variance for Tablet Pyridoxine Hydrochloride Hardness Prepared with Various Binders at 2 % Concentration by Solution Incorporation Method.

Source of Variation	DF	SS	MS	F
Among Groups	7	224.0283	32.0041	228.4658
Within Groups	72	10.0859	0.1401	
Total	79	234.1143		

$$F_{0.05(7,72)} = 2.15$$

Appendix XIV

Analysis of Variance for Pyridoxine Hydrochloride Tablet Hardness Prepared with Various Binders at 4 % Concentration by Solution Incorporation Method.

Source of Variation	DF	SS	MS	F
Among Groups	7	298.1597	42.5942	270.1409
Within Groups	72	11.3525	0.1577	
Total	79	309.5122		

$$F_{0.05(7,72)} = 2.15$$

Appendix XV

Multiple Comparison (HSD Test) for Pyridoxine Hydrochloride Tablet Hardness Prepared with Various Binders at 1% Concentration by Solution Incorporation Method.

B	Blank	Corn starch (Starch 1500 ^(R))	D ₁	D ₂	PVPK30	Gelatin	Methocel E15LV ^(R)
A							
Blank	-	S	S	S	S	S	S
Corn starch (Starch 1500 ^(R))		-	NS	S	S	S	S
D ₁			-	NS	S	S	S
D ₂				-	S	S	S
PVPK30					-	NS	S
Gelatin						-	S
Methocel E15LV ^(R)							-

$$q_{0.05,7,72} = 4.42$$

$$\text{HSD} = 0.5210$$

S B is significantly more than A

NS B is not significantly more than A

Appendix XVI

Multiple Comparison (HSD Test) for Pyridoxine Hydrochloride Tablet Hardness Prepared with Various Binders at 2% Concentration by Solution Incorporation Method.

A	B	Blank	Corn starch	D ₂	Starch 1500 ^(R)	PVPK30	Gelatin	Methocel E15LV ^(R)	D ₁
Blank	-	S	S	S	S	S	S	S	S
Corn starch	-	NS	S	S	S	S	S	S	S
D ₂	-	S	S	S	S	S	S	S	S
Starch 1500 ^(R)	-	NS	NS	S	S	S	S	S	S
PVPK30	-	NS	S	S	S	S	S	S	S
Gelatin	-	S	S	S	S	S	S	S	S
Methocel E15LV ^(R)	-	NS	S	S	S	S	S	S	S
D ₁	-	NS	S	S	S	S	S	S	S

$$q_{0.05, 7, 72} = 4.42$$

$$\text{HSD} = 0.5231$$

S B is significantly more than A

NS B is not significantly more than A

Appendix XVII

Multiple Comparison (HSD Test) for Pyridoxine Hydrochloride Tablet Hardness Prepared with Various Binders at 4% Concentration by Solution Incorporation Method.

A	B	Blank	D ₂	Corn starch	Starch 1500 ^(R)	PVPK30	Gelatin	Methocel E15LV ^(R)	D ₁
Blank	-	S	S	S	S	S	S	S	S
D ₂		-	NS	S	S	S	S	S	S
Corn starch			-	NS	S	S	S	S	S
Starch 1500 ^(R)				-	NS	S	S	S	S
PVPK30					-	NS	S	S	S
Gelatin						-	NS	S	S
D ₁							-	S	S
Methocel E15LV ^(R)								-	S

$$q_{0.05, 7, 72} = 4.41$$

$$\text{HSD} = 0.5550$$

S B is significantly more than A

NS B is not significantly more than A

Appendix XVIII

Dissolution of Paracetamol Tablet Prepared with Various Binders and Concentrations by Solution Incorporation Method.

Binders	%	% Drug Dissolved ^(a) (\pm S.D.)										
		Time (min)										
		10	20	30	60	90	120	150	180	240	300	360
D ₁	1	6.55	12.54	16.73	30.10	39.24	46.51	51.74	55.22	64.08	68.51	77.37
		(1.19)	(2.28)	(4.15)	(1.04)	(2.04)	(1.42)	(2.42)	(3.20)	(1.42)	(2.19)	(1.08)
	2	6.29	11.19	15.29	25.79	32.66	38.50	42.04	47.25	54.09	59.07	63.43
	(3.78)	(1.76)	(2.44)	(3.05)	(4.12)	(1.25)	(2.12)	(1.08)	(2.43)	(1.27)	(1.41)	
	4	5.04	8.32	11.22	19.93	24.26	28.69	32.33	37.13	43.11	50.32	58.38
	(4.71)	(1.40)	(3.05)	(1.71)	(2.63)	(3.54)	(1.76)	(3.71)	(1.10)	(2.39)	(1.59)	
D ₂	1	6.29	9.47	13.76	22.57	32.22	34.49	39.82	45.22	51.48	55.56	59.37
		(2.51)	(1.48)	(1.48)	(6.56)	(2.72)	(1.79)	(2.04)	(3.20)	(2.34)	(1.45)	(1.48)
	2	5.56	10.00	13.25	21.45	28.13	30.58	33.97	43.28	48.28	53.25	55.01
	(2.04)	(3.20)	(2.42)	(1.86)	(1.29)	(1.67)	(1.84)	(2.44)	(1.49)	(2.36)	(0.54)	
	4	5.74	9.32	11.29	20.73	25.39	28.88	32.92	34.67	45.98	51.61	53.37
	(1.58)	(3.17)	(2.69)	(1.06)	(2.78)	(1.88)	(3.60)	(1.46)	(0.34)	(1.70)	(1.13)	

(a) averaged from three determinations (Appendices XVIII-XXI).

Appendix XVIII (Cont.)

Binders	%	% Drug Dissolved ^(a) (\pm S.D.)											
		(w/w)	Time (min)										
			10	20	30	60	90	120	150	180	240	300	360
PVPK30	1	9.76	21.31	30.59	47.25	57.84	65.73	70.42	72.63	78.21	83.71	86.91	(2.91)(1.30)(1.61)(2.81)(1.99)(1.99)(2.41)(1.74)(1.43)(2.11)(1.08)
	2	7.56	15.80	21.09	35.00	47.87	52.24	56.69	60.06	74.07	81.76	83.71	(1.21)(2.37)(1.93)(1.68)(3.12)(0.54)(1.48)(1.74)(1.12)(1.84)(1.91)
	4	7.04	14.31	19.51	32.90	39.89	45.18	51.01	56.54	61.44	66.10	66.94	(0.77)(2.99)(1.21)(1.50)(1.53)(1.48)(1.78)(1.11)(0.61)(2.41)(1.22)
Corn Starch	1	16.77	33.86	39.66	42.81	53.24	59.22	72.84	77.67	81.02	83.48	88.54	(2.33)(1.89)(1.01)(2.19)(1.25)(3.11)(2.94)(1.86)(1.34)(1.73)(2.04)
	2	5.03	12.55	15.20	19.99	23.31	31.64	35.52	40.56	47.79	52.37	53.37	(1.07)(1.48)(2.17)(1.40)(2.91)(1.67)(2.50)(1.11)(1.15)(3.01)(1.33)
	4	5.35	10.09	13.21	18.99	25.00	26.90	29.76	36.28	40.04	41.42	51.17	(0.77)(2.99)(1.21)(1.50)(1.53)(1.48)(1.78)(1.11)(0.61)(2.41)(1.22)

Appendix XVIII (Cont.)

Binders	%	% Drug Dissolved ^(*) (\pm S.D.)										
		Time (min)										
		(w/w)	10	20	30	60	90	120	150	180	240	300
Starch 1500 ^(R)	1	7.10	14.42	18.17	27.53	35.33	41.50	45.95	50.74	54.37	60.63	66.04
		(1.54)	(2.09)	(1.17)	(2.24)	(2.33)	(0.73)	(2.12)	(1.29)	(2.14)	(1.47)	(1.25)
	2	6.28	12.35	14.25	23.04	32.80	36.20	37.55	44.81	50.31	58.09	60.04
	(1.39)	(2.04)	(1.56)	(3.92)	(2.86)	(1.99)	(1.52)	(3.99)	(3.11)	(0.81)	(1.63)	
	4	5.07	9.71	11.95	16.99	24.26	31.44	33.41	38.37	45.40	53.47	58.16
	(1.05)	(2.51)	(3.11)	(1.52)	(2.08)	(0.61)	(2.73)	(1.27)	(2.08)	(1.47)	(1.34)	
Gelatin	1	9.45	18.42	25.66	39.78	46.67	52.57	56.41	65.35	70.01	72.80	74.87
		(2.40)	(1.17)	(2.44)	(0.85)	(1.65)	(1.48)	(2.59)	(2.07)	(0.85)	(2.28)	(1.34)
	2	7.72	15.38	19.86	31.30	39.04	41.22	50.51	53.11	66.22	68.21	70.11
	(1.27)	(1.67)	(2.55)	(3.02)	(1.32)	(1.34)	(5.31)	(1.59)	(1.43)	(2.17)	(1.18)	
	4	8.44	16.48	18.92	29.52	32.41	39.07	47.52	52.21	60.48	65.77	67.34
	(3.79)	(2.21)	(1.51)	(2.12)	(2.43)	(1.32)	(1.27)	(2.22)	(1.81)	(2.28)	(0.87)	
Methocel E15LV ^(R)	1	8.62	19.56	29.73	41.19	49.32	52.24	58.99	68.17	76.98	78.19	81.98
		(0.44)	(1.97)	(2.41)	(3.33)	(1.88)	(2.11)	(1.85)	(4.10)	(1.46)	(1.34)	(2.00)
	2	8.87	17.90	24.16	33.80	41.12	47.41	54.14	57.81	62.01	71.80	78.01
	(1.42)	(2.15)	(2.76)	(1.20)	(3.84)	(1.06)	(1.39)	(2.45)	(0.75)	(1.11)	(1.98)	
	4	6.44	14.02	19.51	30.43	37.13	42.96	47.87	52.12	55.58	58.16	63.34
	(1.44)	(3.52)	(1.20)	(3.27)	(2.71)	(1.62)	(0.92)	(1.46)	(1.39)	(1.64)	(0.52)	

Appendix XIX

Dissolution of Paracetamol Tablets Prepared with Various Binders at 2% Concentration by Dry Incorporation Method

Binders	% Drug Dissolved ^(%) (\pm S.D.)											
	Time (min)											
	10	20	30	60	90	120	150	180	240	300	360	
D ₁	5.58 (1.45)	9.55 (2.50)	12.87 (4.36)	21.04 (2.36)	29.64 (2.11)	33.68 (3.62)	39.08 (0.88)	43.39 (1.95)	51.68 (1.22)	58.49 (1.52)	66.00 (1.20)	
D ₂	9.21 (2.45)	18.87 (2.77)	28.11 (1.88)	42.61 (4.51)	68.73 (1.22)	77.07 (2.53)	83.78 (3.02)	91.70 (1.03)	92.34 (2.00)	93.42 (0.73)	95.17 (1.84)	
PVPK30	9.93 (3.11)	22.25 (2.18)	30.69 (1.97)	44.00 (1.43)	51.05 (1.37)	56.10 (1.95)	61.73 (2.08)	66.04 (2.44)	71.68 (1.18)	75.63 (2.09)	80.42 (0.97)	
Starch 1500 ^(R)	7.42 (2.74)	12.31 (1.47)	16.14 (1.06)	24.74 (1.93)	31.13 (3.22)	33.08 (4.74)	36.68 (2.11)	39.79 (3.08)	40.73 (0.45)	52.86 (1.68)	59.18 (2.45)	

Appendix XX

Dissolution of Pyridoxine Hydrochloride Tablets Prepared with Various Binders and Concentrations by Solution Incorporation Method.

Binders	%	% Drug dissolved ^(*) (\pm S.D)							
		time (min)							
		2	5	10	15	20	30	40	60
D ₁	1	8.12	26.08	36.54	45.24	52.84	69.78	75.09	80.40
		(2.41)	(3.80)	(2.34)	(4.00)	(2.34)	(0.39)	(2.15)	(3.53)
	2	8.65	25.12	33.04	40.64	50.08	64.48	71.44	80.40
		(1.02)	(1.54)	(1.16)	2.700	(1.53)	(5.70)	(1.18)	(2.08)
	4	8.12	25.12	29.54	38.33	44.56	64.48	72.44	75.09
		(3.39)	(1.34)	(0.77)	(1.34)	(2.91)	(1.54)	(4.08)	(2.48)
D ₂	1	7.77	24.39	43.55	0.35	0.41	83.05	85.70	93.66
		(1.84)	(3.52)	(6.68)	(1.77)	(1.02)	(3.01)	(1.93)	(4.53)
	2	6.50	19.93	36.54	0.35	0.41	80.40	85.70	93.66
		(1.68)	(2.22)	(1.66)	(3.53)	(2.72)	(1.52)	(1.68)	(2.41)
	4	7.34	20.57	34.21	0.35	0.41	75.09	77.74	88.35
		(1.77)	(5.35)	(2.60)	(1.39)	(2.61)	(3.90)	(1.00)	(1.51)

Appendix XX (Cont.)

Binders	%	% Drug dissolved ^(*) (\pm S.D)							
		time (min)							
		2	5	10	15	20	30	40	60
PVPK30	1	0.16 (2.24)	28.37 (1.58)	53.24 (3.77)	68.61 (4.82)	77.40 (0.73)	89.42 (2.11)	89.95 (3.62)	89.68 (1.02)
	2	10.77 (3.61)	27.99 (4.01)	50.08 (1.24)	67.34 (2.61)	76.71 (0.52)	86.76 (2.44)	88.35 (6.18)	90.74 (0.43)
	4	9.87 (2.04)	27.70 (1.31)	50.43 (2.61)	65.96 (1.67)	74.92 (0.34)	85.70 (1.2)	86.23 (4.41)	90.48 (0.94)
	1	9.92 (3.68)	24.17 (2.04)	35.49 (0.77)	45.05 (2.38)	49.81 (4.33)	60.76 (1.54)	70.84 (3.68)	90.21 (2.25)
	2	10.45 (1.67)	21.49 (2.15)	31.29 (5.85)	42.02 (3.09)	46.08 (2.06)	61.56 (1.95)	64.48 (3.26)	88.35 (1.58)
	4	10.77 (4.94)	20.15 (1.78)	30.24 (4.61)	41.56 (1.78)	46.91 (2.16)	59.17 (3.01)	64.74 (0.81)	90.48 (2.71)
Starch 1500 ^(R)	1	9.50 (2.90)	22.26 (1.72)	36.31 (1.68)	43.97 (3.53)	52.29 (2.00)	68.99 (2.91)	81.99 (4.78)	93.66 (1.52)
	2	9.87 (3.70)	22.06 (2.10)	36.07 (0.98)	41.79 (1.15)	48.98 (0.54)	62.35 (4.33)	71.37 (2.09)	89.42 (1.05)
	4	10.56 (3.15)	20.35 (1.20)	33.27 (2.34)	38.33 (4.60)	44.01 (2.18)	54.39 (2.12)	62.88 (1.51)	79.07 (2.02)

Appendix XX (Cont.)

Binders	%	% Drug dissolved ^(*) (\pm S.D)							
		time (min)							
		2	5	10	15	20	30	40	60
Gelatin	1	14.38 (6.89)	34.67 (2.05)	64.79 (2.95)	75.17 (4.17)	84.71 (3.01)	92.87 (1.16)	96.85 (0.88)	97.11 (3.78)
	2	12.21 (1.78)	28.27 (4.62)	52.07 (2.44)	64.00 (5.14)	74.64 (1.00)	88.89 (2.22)	90.48 (3.13)	95.25 (2.04)
	4	13.53 (2.27)	23.31 (1.87)	49.38 (5.17)	62.51 (2.06)	73.54 (2.16)	83.84 (3.16)	84.91 (0.89)	91.01 (4.21)
	1	7.91 (4.02)	21.59 (2.29)	51.02 (2.93)	69.42 (3.81)	83.75 (0.38)	85.70 (1.74)	85.70 (3.68)	91.01 (1.82)
	2	8.92 (1.93)	21.49 (4.60)	47.17 (2.01)	59.63 (2.34)	73.54 (3.68)	86.76 (6.05)	87.57 (2.70)	88.35 (2.16)
	4	9.39 (3.53)	21.11 (1.60)	47.05 (2.77)	59.17 (3.13)	69.40 (2.22)	85.70 (1.80)	81.99 (4.11)	89.42 (1.99)
BLANK		6.99 (1.77)	21.91 (5.53)	64.35 (2.60)	42.59 (1.39)	48.57 (2.61)	91.31 (3.90)	93.92 (0.99)	93.92 (1.51)

Appendix XXI

Dissolution of Pyridoxine Hydrochloride Tablets Prepared with Various Binders at 2% Concentration by Dry Incorporation Method.

Binders	% Drug dissolved ^(m) (+ S.D)							
	time (min)							
	2	5	10	15	20	30	40	60
D ₁	13.92 (1.77)	20.57 (0.46)	33.04 (1.23)	40.04 (1.66)	58.36 (2.08)	77.74 (0.82)	83.05 (0.54)	82.78 (1.01)
D ₂	13.29 (1.25)	9.297 (0.97)	38.29 (0.65)	50.08 (0.98)	57.53 (1.24)	67.13 (1.86)	74.56 (2.00)	86.23 (1.00)
PVPK30	17.96 (1.25)	27.13 (1.68)	49.97 (0.68)	64.91 (1.04)	74.64 (0.54)	82.52 (2.03)	91.54 (1.11)	91.27 (1.22)
Starch 1500 ^(R)	9.47 (0.89)	21.78 (0.21)	33.86 (1.33)	41.21 (0.46)	48.70 (1.34)	58.90 (0.26)	66.86 (1.09)	82.78 (0.99)



Appendix XXII

List of Abbreviations.

cm	centrimeter
g	gram
kg	kilogram
kp	kilopound
m	meter
mg	milligram
ml	milliliter
min	minute
N	Newton
rpm	revolution per minute
S.D.	Standard deviation
sec	second
ug	microgram
um	micrometer
%	percent
° C	degree celcius

**VITAE**

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