

LAMPIRAN A

HASIL RANDEMEN AMILUM KULIT PISANG

	Berat kulit pisang (setelah disortasi)	Berat amilum	% Perolehan amilum
A1	50 kg	0,61 kg	1,22
A2	75 kg	0,90 kg	1,20
A3	44 kg	0,59 kg	1,34
	Rata-rata ± SD		1,25 ± 0,07

LAMPIRAN B

HASIL KARAKTERISASI AMILUM KULIT PISANG

Hasil Uji Kualitatif Amilum

Replikasi	Uji/Pemeriksaan	Hasil Pemeriksaan
A1	Uji Kualitatif	Warna Ungu Kebiruan
A2	(Identifikasi Amilum dengan	Warna Ungu Kebiruan
A3	Iodin)	Warna Ungu Kebiruan

Hasil Uji Mutu Fisik dan Kimia Amilum

Replikasi	Uji/Pemeriksaan	Hasil Pemeriksaan
A1	Organoleptik	
	Bentuk	Serbuk
	Warna	Kecokelatan
	Bau	Tidak berbau
	Rasa	Tidak berasa
	Mikroskopik	Terdapat hilus dan lamela
	Pengukuran pH	6,3
A2	Kelembaban Amilum	6,79
	Organoleptik	
	Bentuk	Serbuk
	Warna	Kecokelatan
	Bau	Tidak berbau
	Rasa	Tidak berasa
	Mikroskopik	Terdapat hilus dan lamela
A3	Pengukuran pH	6,4
	Kelembaban Amilum	7,56
	Organoleptik	
	Bentuk	Serbuk
	Warna	Kecokelatan
	Bau	Tidak berbau
	Rasa	Tidak berasa
	Mikroskopik	Terdapat hilus dan lamela
	Pengukuran pH	5,6
	Kelembaban Amilum	8,02

Hasil Uji Mikroskopis Amilum

Uji distribusi ukuran partikel :

ditimbang A1 = 100,070 gram

ditimbang A2 = 100,030 gram

ditimbang A3 = 100,010 gram

Zat diayak selama 10 menit

Hasil distribusi ukuran partikel amilum A1

No. Ayakan	Diameter (µm)	Berat Ayakan Kosong	Berat Ayakan + Zat A1	Berat Zat A1	% Berat	% FKA	FKA	Nilai Z	% FKB	FKB	Nilai Z	ln diameter
20	850	351,69	353,07	1,38	1,38	1,38	0,014	-2,20	98,62	0,9862	2,20	6,75
40	425	313,36	316,38	3,02	3,02	4,40	0,044	-1,71	95,60	0,9560	1,71	6,05
60	250	289,58	293,56	3,98	3,98	8,38	0,084	-1,38	91,62	0,9162	1,38	5,52
80	180	290,92	297,62	6,70	6,70	15,08	0,151	-1,03	84,92	0,8492	1,03	5,19
100	150	284,23	296,20	11,97	11,97	27,05	0,270	-0,61	72,95	0,7295	0,61	5,01
120	125	291,08	319,43	28,35	28,35	55,39	0,554	0,14	44,61	0,4461	-0,14	4,83
Pan	-	252,32	296,93	44,61	44,61	100,00	1,000	3,09	0,00	0,0000	-3,09	-
Jumlah				100,01	100,00							

% kehilangan = 0,060 (<0.5%)

ln d vs nilai Z dari FKA

a = 4,781

b = -1.064

r = -0.930

distribusi berat :

diameter geometris

SD geometris

dg 50% = 4,494

σg = 0,791

Hasil distribusi ukuran partikel amilum A2

No. Ayakan	Diameter (µm)	Berat Ayakan Kosong	Berat Ayakan + Zat A2	Berat Zat A2	% berat	% FKA	FKA	Nilai Z	% FKB	FKB	Nilai Z	ln diameter
20	850	351,69	352,67	0,98	0,98	0,98	0,0098	-2,33	99,02	0,9902	2,33	6,75
40	425	313,36	316,17	2,81	2,81	3,79	0,0379	-1,78	96,21	0,9621	1,78	6,05
60	250	289,58	293,46	3,88	3,88	7,67	0,0767	-1,43	92,33	0,9233	1,43	5,52
80	180	290,92	297,06	6,14	6,14	13,81	0,1381	-1,09	86,19	0,8619	1,09	5,19
100	150	284,23	296,40	12,17	12,17	25,99	0,2599	-0,64	74,01	0,7401	0,64	5,01
120	125	291,08	318,92	27,84	27,85	53,84	0,5384	0,10	46,16	0,4616	-0,10	4,83
Pan	-	252,32	298,47	46,15	46,16	100,00	1,0000	3,09	0,00	0,0000	-3,09	-
Jumlah				99,97	100,00							

% kehilangan = 0,060 (<0.5%)

ln d vs nilai Z dari FKA

a = 4,970

b = -1.109

r = -0.937

distribusi berat :

diameter geometris

SD geometris

dg 50% = 4,481

σg = 0,799

Hasil distribusi ukuran partikel A3

No. Ayakan	Diameter (µm)	Berat Ayakan Kosong	Berat Ayakan + Zat A3	Berat Zat A3	% berat	FKA	FKA	Nilai Z	% FKB	FKB	Nilai Z	ln diameter
20	850	351,69	353,20	1,51	1,51	1,51	0,0151	-2,17	98,49	0,9849	2,17	6,75
40	425	313,36	316,80	3,44	3,44	4,95	0,0495	-1,65	95,05	0,9505	1,65	6,05
60	250	289,58	293,44	3,86	3,86	8,82	0,0882	-1,35	91,18	0,9118	1,35	5,52
80	180	290,92	297,84	6,92	6,93	15,74	0,1574	-1,01	84,26	0,8426	1,01	5,19
100	150	284,23	294,42	10,19	10,20	25,94	0,2594	-0,65	74,06	0,7406	0,65	5,01
120	125	291,08	303,72	12,64	12,65	38,59	0,3859	-0,29	61,41	0,6141	0,29	4,83
Pan	-	252,32	313,68	61,36	61,41	100,00	1,0000	3,09	0,00	0,0000	-3,09	-
Jumlah				99,92	100,00							

% kehilangan = 0,090 (<0.5%) distribusi berat :
 ln d vs nilai Z dari FKA a = 3,898 diameter geometris
 b = -0.915 SD geometris
 r = -0.972 σ_g 50% = 4,261
 σ_g = 0,743

Hasil Uji Viskositas Muchilago Amilum Kulit Pisang

Hari	C (%)	W (g/300ml)	Muchilago Amilum Kulit Pisang Agung			Muchilago Amilum Manihot			Viskositas Musilago Amilum Kulit Pisang : Manihot
			rpm	% torque	Cp	rpm	% torque	Cp	
1	2,5	7,5	1,5	34,5	1380	1,5	12,2	686,9	2,01 : 1
	5,0	15	1,5	85,0	3399	1,5	43,9	1756	1,94 : 1
2	2,5	7,5	1,5	39,3	1572	1,5	14,0	731,8	2,15 : 1
	5,0	15	1,5	94,0	3759	1,5	45,2	2008	1,87 : 1
3	2,5	7,5	1,5	41,9	1676	1,5	16,7	758,2	2,21 : 1
	5,0	15	1,5	98,8	3951	1,5	50,2	2210	1,79 : 1

Hasil Kadar Abu, Kadar Amilosa, Derajat Putih dan Susut Pengeringan Amilum Kulit Pisang

	Kadar abu	Kadar amilosa	Derajat putih	Susut pengeringan
A1	1,40	36,43	46,05	9,36
A2	1,06	34,38	50,63	13,30
A3	1,56	34,20	45,71	13,14
Rata-rata	1,34	35,00	47,46	11,93
SD	0,26	1,24	2,75	2,23

LAMPIRAN C
HASIL UJI MUTU FISIK GRANUL

Hasil Uji Kelembaban Granul

Replikasi	Kelembaban (%)							
	F1	F2	F3	F4	F5	F6	F7	F8
1	3,05	3,8	3,56	3,74	3,14	3,57	3,22	3,61
2	3,09	3,88	3,61	3,79	3,18	3,53	3,28	3,66
3	3,01	3,91	3,52	3,68	3,11	3,51	3,29	3,63
Rata-rata	3,05	3,86	3,56	3,74	3,14	3,54	3,26	3,65
SD	0,04	0,06	0,04	0,05	0,03	0,03	0,04	0,02

Hasil Uji Carr's index

Formula	Replikasi	Carr's index (%)	Rata-rata $\pm$ SD	Persyaratan (%)
1	1	16,36	16,37 $\pm$ 0,07	16 - 20 = cukup
	2	16,30		
	3	16,45		
2	1	17,20	17,20 $\pm$ 0,07	16 - 20 = cukup
	2	17,13		
	3	17,27		
3	1	12,16	12,16 $\pm$ 0,04	11 - 15 = baik
	2	12,11		
	3	12,20		
4	1	14,35	14,34 $\pm$ 0,04	11 - 15 = baik
	2	14,29		
	3	14,38		
5	1	11,19	11,15 $\pm$ 0,10	11 - 15 = baik
	2	11,04		
	3	11,22		
6	1	11,54	11,54 $\pm$ 0,06	11 - 15 = baik
	2	11,48		
	3	11,60		
7	1	9,60	9,23 $\pm$ 0,40	< 10 = sangat baik
	2	8,80		
	3	9,30		
8	1	13,73	13,71 $\pm$ 0,02	11 - 15 = baik
	2	13,68		
	3	13,71		

Hasil Uji Hausner ratio

Formula	Replikasi	Hausner ratio	Rata-rata $\pm$ SD	Persyaratan
1	1	1,26	1,25 $\pm$ 0,01	1,19 - 1,25 = cukup
	2	1,24		
	3	1,25		
2	1	1,22	1,20 $\pm$ 0,02	1,19 - 1,25 = cukup
	2	1,18		
	3	1,20		
3	1	1,17	1,17 $\pm$ 0,01	1,12 - 1,18 = baik
	2	1,18		
	3	1,17		
4	1	1,12	1,13 $\pm$ 0,01	1,12 - 1,18 = baik
	2	1,13		
	3	1,14		
5	1	1,19	1,18 $\pm$ 0,01	1,12 - 1,18 = baik
	2	1,17		
	3	1,18		
6	1	1,18	1,17 $\pm$ 0,01	1,12 - 1,18 = baik
	2	1,17		
	3	1,17		
7	1	1,10	1,10 $\pm$ 0,01	1,00 - 1,11 = sangat baik
	2	1,11		
	3	1,10		
8	1	1,14	1,14 $\pm$ 0,01	1,12 - 1,18 = baik
	2	1,14		
	3	1,15		

Hasil Uji Sudut diam

Formula	Replikasi	Sudut diam ($^{\circ}$)	Rata-rata $\pm$ SD	Persyaratan
F1	1	37,27	37,18 $\pm$ 0,20	Cukup (36-40 $^{\circ}$)
	2	36,95		
	3	37,32		
F2	1	39,21	39,27 $\pm$ 0,06	Cukup (36-40 $^{\circ}$)
	2	39,28		
	3	39,33		
F3	1	33,60	33,61 $\pm$ 0,05	Baik (31-35 $^{\circ}$)
	2	33,67		
	3	33,56		
F4	1	35,03	34,98 $\pm$ 0,05	Baik (31-35 $^{\circ}$)
	2	34,96		
	3	34,94		
F5	1	31,43	31,38 $\pm$ 0,05	Baik (31-35 $^{\circ}$)
	2	31,33		
	3	31,37		
F6	1	32,44	32,49 $\pm$ 0,04	Baik (31-35 $^{\circ}$)
	2	32,50		
	3	32,52		
F7	1	29,33	29,39 $\pm$ 0,06	Baik (31-35 $^{\circ}$)
	2	29,40		
	3	29,45		
F8	1	34,73	34,58 $\pm$ 0,33	(Baik 31-35)
	2	34,81		
	3	34,20		

LAMPIRAN D

HASIL UJI KESERAGAMAN BOBOT TABLET METFORMIN HCl

Formula 1

No	Replikasi 1		Replikasi 2		Replikasi 3	
	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)
1	0,70	0,19	0,72	1,55	0,70	1,18
2	0,69	1,19	0,71	0,65	0,73	2,25
3	0,71	0,99	0,71	0,56	0,71	0,61
4	0,71	1,16	0,71	0,00	0,71	0,31
5	0,71	1,30	0,71	0,13	0,71	0,15
6	0,71	1,41	0,72	1,46	0,71	0,07
7	0,69	1,26	0,71	0,39	0,71	0,46
8	0,70	0,70	0,72	1,68	0,72	1,61
9	0,70	0,66	0,71	0,44	0,70	0,89
10	0,71	1,16	0,72	1,62	0,71	0,35
11	0,70	0,17	0,71	0,63	0,73	2,49
12	0,70	0,16	0,73	2,20	0,72	1,75
13	0,70	0,13	0,71	0,44	0,72	1,83
14	0,70	0,19	0,72	1,69	0,72	1,23
15	0,70	0,23	0,71	0,69	0,72	0,93
16	0,70	0,31	0,70	1,34	0,72	1,97
17	0,70	0,07	0,71	0,20	0,72	2,10
18	0,70	0,00	0,73	2,39	0,71	0,56
19	0,70	0,00	0,72	1,35	0,71	0,31
20	0,70	0,00	0,72	1,97	0,71	0,63
Rata-rata	0,70	0,25	0,71	0,66	0,71	0,68
SD	0,01	0,74	0,01	1,13	0,01	1,16

Formula 2

No	Replikasi 1		Replikasi 2		Replikasi 3	
	Bobot Tablet	Pb (%)	Bobot Tablet	Pb(%)	Bobot Tablet	Pb (%)
1	0,71	0,32	0,71	0,46	0,71	0,45
2	0,73	2,37	0,71	0,69	0,70	0,85
3	0,71	0,44	0,71	0,39	0,71	0,49
4	0,72	1,63	0,70	1,01	0,70	1,14
5	0,70	0,97	0,70	0,82	0,70	0,72
6	0,71	0,21	0,71	0,31	0,71	0,37
7	0,71	0,20	0,71	0,37	0,71	0,14
8	0,70	0,83	0,70	0,73	0,70	0,94
9	0,72	0,72	0,71	0,32	0,72	0,70
10	0,70	0,79	0,70	0,93	0,71	0,69
11	0,73	2,54	0,72	1,39	0,72	1,27
12	0,72	1,39	0,70	1,73	0,70	0,76
13	0,72	0,99	0,71	0,17	0,71	0,24
14	0,71	0,62	0,70	1,83	0,72	1,65
15	0,71	0,44	0,71	0,42	0,70	1,15
16	0,71	0,65	0,71	0,49	0,72	1,56
17	0,72	0,96	0,69	2,20	0,70	1,20
18	0,71	0,69	0,70	0,76	0,70	1,01
19	0,70	1,24	0,71	0,17	0,70	0,80
20	0,70	1,03	0,71	0,55	0,70	0,73
Rata-rata	0,71	0,14	0,71	0,48	0,71	1,16
SD	0,01	1,12	0,01	0,47	0,01	0,59

Formula 3

No	Replikasi I		Replikasi 2		Replikasi 3	
	Bobot Tablet	Pb(%)	Bobot Tablet	Pb(%)	Bobot Tablet	Pb(%)
1	0,70	1,20	0,70	1,10	0,70	1,01
2	0,70	0,92	0,71	0,62	0,72	1,83
3	0,72	1,59	0,70	0,86	0,70	0,96
4	0,71	0,49	0,72	1,65	0,69	2,97
5	0,71	0,58	0,71	0,68	0,71	0,55
6	0,71	0,32	0,71	0,30	0,71	0,21
7	0,71	0,41	0,71	0,18	0,73	2,66
8	0,70	0,85	0,72	1,62	0,70	0,92
9	0,70	0,76	0,70	0,83	0,70	0,92
10	0,70	0,94	0,70	0,94	0,70	1,03
11	0,72	2,03	0,72	1,56	0,72	1,97
12	0,71	0,18	0,72	0,79	0,72	1,86
13	0,72	1,55	0,71	0,66	0,72	1,96
14	0,71	0,08	0,71	0,31	0,72	1,63
15	0,71	0,56	0,72	0,92	0,72	1,82
16	0,72	0,79	0,72	1,58	0,73	2,11
17	0,72	1,25	0,72	1,77	0,72	1,55
18	0,71	0,46	0,72	1,55	0,72	1,93
19	0,71	0,49	0,72	1,52	0,71	0,66
20	0,71	0,58	0,71	0,31	0,72	0,93
Rata-rata	0,71	0,04	0,71	0,41	0,71	0,62
SD	0,01	0,78	0,01	1,02	0,01	1,59

Formula 4

No	Replikasi 1		Replikasi 2		Replikasi 3	
	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)
1	0,71	1,16	0,71	1,11	0,71	1,03
2	0,71	1,03	0,71	0,94	0,71	1,06
3	0,71	0,90	0,71	1,01	0,71	0,93
4	0,71	1,57	0,71	1,37	0,71	1,61
5	0,70	0,40	0,70	0,43	0,70	0,31
6	0,70	0,63	0,70	0,57	0,70	0,46
7	0,70	0,00	0,70	0,44	0,72	3,09
8	0,70	0,69	0,71	0,73	0,73	4,26
9	0,70	0,47	0,70	0,53	0,70	0,61
10	0,70	0,63	0,70	0,69	0,70	0,57
11	0,71	1,43	0,69	1,43	0,71	1,60
12	0,69	1,43	0,69	1,43	0,71	2,10
13	0,70	0,00	0,70	0,00	0,71	1,00
14	0,70	0,00	0,71	1,43	0,70	0,44
15	0,69	1,43	0,70	0,00	0,69	1,26
16	0,70	0,00	0,71	1,43	0,69	1,71
17	0,69	1,43	0,69	1,43	0,69	1,71
18	0,70	0,00	0,71	1,43	0,68	2,69
19	0,70	0,00	0,71	1,43	0,70	0,03
20	0,70	0,00	0,69	1,43	0,70	0,17
Rata-rata	0,70	0,75	0,70	0,78	0,70	1,39
SD	0,01	0,44	0,01	0,32	0,01	1,29

Formula 5

No	Replikasi 1		Replikasi 2		Replikasi 3	
	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)
1	0,70	0,21	0,70	1,11	0,70	1,87
2	0,72	2,83	0,72	1,65	0,72	4,20
3	0,70	0,47	0,70	0,85	0,70	1,72
4	0,71	0,71	0,71	0,55	0,71	3,25
5	0,71	1,40	0,70	0,87	0,71	2,71
6	0,70	0,31	0,72	1,77	0,72	4,61
7	0,70	0,21	0,70	1,15	0,70	1,83
8	0,70	0,67	0,70	0,86	0,70	1,58
9	0,70	0,54	0,70	0,97	0,71	3,09
10	0,70	0,40	0,70	1,10	0,72	4,93
11	0,72	3,00	0,73	2,80	0,72	4,97
12	0,70	0,17	0,69	3,10	0,71	3,04
13	0,69	1,27	0,68	4,04	0,73	5,94
14	0,68	2,84	0,70	1,54	0,73	5,61
15	0,69	1,01	0,69	2,61	0,72	4,93
16	0,72	3,00	0,70	1,38	0,71	2,32
17	0,71	1,59	0,70	1,52	0,70	1,67
18	0,70	0,33	0,72	1,58	0,70	1,46
19	0,68	2,29	0,70	1,32	0,70	1,38
20	0,69	1,19	0,71	0,15	0,71	3,09
Rata-rata	0,70	0,78	0,71	0,29	0,71	2,98
SD	0,01	0,80	0,01	1,17	0,01	1,26
SD	0,01	0,44	0,01	0,32	0,01	1,29

Formula 6

No	Replikasi 1		Replikasi 2		Replikasi 3	
	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)
1	0,70	0,30	0,70	2,42	0,70	0,97
2	0,71	0,87	0,71	1,51	0,71	0,42
3	0,71	1,07	0,71	1,79	0,71	0,28
4	0,71	1,20	0,71	0,99	0,71	0,11
5	0,71	1,63	0,72	0,47	0,71	0,13
6	0,72	2,71	0,71	1,19	0,70	1,03
7	0,70	0,64	0,73	1,11	0,72	1,68
8	0,70	0,33	0,72	0,14	0,70	0,93
9	0,70	0,59	0,71	0,78	0,71	0,68
10	0,70	0,70	0,73	1,11	0,71	0,62
11	0,72	3,50	0,73	1,15	0,73	2,68
12	0,69	1,26	0,72	0,14	0,72	0,73
13	0,69	1,26	0,72	0,58	0,70	1,24
14	0,71	1,57	0,72	0,17	0,72	1,25
15	0,69	1,21	0,72	0,56	0,72	1,55
16	0,69	1,59	0,71	1,86	0,71	0,42
17	0,69	1,26	0,71	0,81	0,72	1,68
18	0,68	2,66	0,70	2,50	0,73	2,80
19	0,73	4,10	0,71	1,67	0,74	3,66
20	0,71	1,71	0,72	0,14	0,71	0,28
Rata-rata	0,70	1,00	0,72	0,61	0,71	0,29
SD	0,01	0,72	0,01	1,22	0,01	0,81

Formula 7

No	Replikasi 1		Replikasi 2		Replikasi 3	
	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)
1	0,70	0,41	0,70	1,10	0,70	1,18
2	0,72	2,84	0,70	0,77	0,70	1,00
3	0,71	0,99	0,72	1,27	0,71	0,69
4	0,71	1,16	0,71	0,20	0,71	0,20
5	0,70	0,21	0,70	1,11	0,70	1,01
6	0,70	0,27	0,70	1,10	0,70	0,79
7	0,70	0,41	0,72	1,69	0,72	1,27
8	0,71	1,41	0,72	1,55	0,72	1,59
9	0,71	1,70	0,72	1,32	0,71	0,46
10	0,71	1,84	0,70	1,07	0,71	0,17
11	0,69	0,94	0,71	0,70	0,71	0,46
12	0,69	1,26	0,70	1,11	0,70	0,79
13	0,68	2,71	0,71	0,17	0,70	1,13
14	0,69	0,99	0,71	0,54	0,70	0,87
15	0,70	0,17	0,72	1,52	0,71	0,18
16	0,70	0,16	0,72	1,27	0,70	1,35
17	0,71	2,10	0,71	0,49	0,73	2,68
18	0,73	3,57	0,70	1,39	0,73	2,90
19	0,71	1,71	0,71	0,46	0,72	1,97
20	0,71	1,91	0,72	1,59	0,73	2,83
Rata-rata	0,70	1,13	0,71	0,05	0,71	0,26
SD	0,01	0,85	0,01	1,25	0,01	0,96

Formula 8

No	Replikasi 1		Replikasi 2		Replikasi 3	
	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)	Bobot Tablet	Pb (%)
1	0,70	0,79	0,70	0,92	0,70	0,79
2	0,70	1,07	0,70	1,14	0,70	1,01
3	0,71	0,49	0,71	0,56	0,71	0,59
4	0,71	0,27	0,71	0,17	0,71	0,11
5	0,71	0,08	0,71	0,14	0,71	0,20
6	0,70	0,96	0,70	1,01	0,71	0,45
7	0,70	1,06	0,72	1,55	0,70	0,90
8	0,70	1,24	0,70	0,75	0,71	0,70
9	0,70	0,86	0,70	0,96	0,70	0,79
10	0,70	0,83	0,70	0,75	0,70	0,86
11	0,71	0,31	0,72	1,27	0,72	1,55
12	0,71	0,27	0,72	1,55	0,72	2,10
13	0,73	2,25	0,71	0,20	0,72	1,25
14	0,72	1,54	0,72	1,06	0,71	0,32
15	0,70	2,11	0,72	1,41	0,70	1,61
16	0,70	1,32	0,72	1,35	0,69	2,25
17	0,71	0,03	0,72	1,06	0,69	2,65
18	0,70	1,23	0,72	1,17	0,71	0,42
19	0,72	1,97	0,72	1,27	0,71	0,65
20	0,71	0,03	0,72	1,61	0,70	0,79
Rata-rata	0,71	0,76	0,71	-0,48	0,71	0,55
SD	0,00	0,37	0,01	0,79	0,01	0,46

LAMPIRAN E
HASIL UJI KEKERASAN TABLET METFORMIN HCl

Replikasi 1

No	Kekerasan Tablet (kp)							
	F1	F2	F3	F4	F5	F6	F7	F8
1	4,8	7,7	5,9	7,2	6,9	7,5	6,3	6,7
2	4,8	7,8	5,9	7,3	6,9	7,5	6,3	6,7
3	4,8	7,7	5,9	7,3	7,0	7,5	6,3	6,7
4	4,8	7,8	5,8	7,3	7,0	7,5	6,3	6,7
5	4,9	7,8	5,9	7,2	6,9	7,6	6,3	6,8
6	4,9	7,8	5,9	7,3	6,9	7,6	6,5	6,8
7	4,8	7,8	5,8	7,2	6,9	7,5	6,5	6,8
8	4,8	7,7	5,9	7,2	7,0	7,5	6,3	6,7
9	4,9	7,8	5,8	7,2	7,0	7,6	6,5	6,8
10	4,9	7,8	5,8	7,3	7,0	7,6	6,3	6,8
Rata-rata	4,84	7,77	5,86	7,25	6,95	7,54	6,36	6,75
SD	0,05	0,05	0,05	0,05	0,05	0,05	0,09	0,05

Replikasi 2

No.	Kekerasan Tablet (kp)							
	F1	F2	F3	F4	F5	F6	F7	F8
1	4,8	7,7	5,8	7,2	7,1	7,5	6,4	6,7
2	4,7	7,7	5,8	7,3	7,1	7,5	6,4	6,7
3	4,8	7,7	5,7	7,3	7,0	7,5	6,4	6,7
4	4,7	7,8	5,8	7,3	7,0	7,5	6,4	6,7
5	4,9	7,8	5,7	7,2	7,1	7,6	6,4	6,6
6	4,9	7,8	5,8	7,3	7,1	7,6	6,5	6,6
7	4,8	7,8	5,7	7,2	7,1	7,5	6,5	6,6
8	4,8	7,7	5,8	7,2	7,0	7,5	6,4	6,6
9	4,9	7,8	5,7	7,2	7,0	7,6	6,5	6,7
10	4,9	7,9	5,7	7,3	7,0	7,6	6,4	6,6
Rata-rata	4,82	7,77	5,70	7,25	7,05	7,54	6,43	6,65
SD	0,08	0,06	0,05	0,05	0,05	0,05	0,04	0,05

Replikasi 3

No	Kekerasan Tablet (kp)							
	F1	F2	F3	F4	F5	F6	F7	F8
1	4,7	7,7	5,9	7,2	6,9	7,5	6,3	6,7
2	4,8	7,8	5,9	7,3	6,9	7,7	6,3	6,7
3	4,8	7,7	5,7	7,3	7,0	7,5	6,3	6,7
4	4,8	7,8	5,8	7,3	7,0	7,6	6,3	6,7
5	4,9	7,8	5,9	7,2	6,9	7,6	6,3	6,8
6	4,9	7,8	5,9	7,3	6,9	7,6	6,5	6,8
7	4,8	7,8	5,7	7,3	6,9	7,5	6,3	6,7
8	4,8	7,7	5,9	7,2	7,0	7,5	6,3	6,7
9	4,7	7,9	5,8	7,2	6,9	7,6	6,5	6,8
10	4,9	7,9	5,8	7,3	7,0	7,6	6,3	6,8
Rata-rata	4,81	7,79	5,83	7,26	6,94	7,55	6,34	6,74
SD	0,06	0,06	0,06	0,05	0,05	0,05	0,08	0,05

LAMPIRAN F

HASIL UJI KERAPUHAN TABLET METFORMIN HCl

Formula	Replikasi	Berat Awal (gram)	Berat Akhir (gram)	Kerapuhan (%)	Rata-rata ± SD
1	1	13,96	13,88	0,5731	0,57 ± 0,01
	2	13,92	13,84	0,5747	
	3	13,94	13,86	0,5739	
2	1	13,93	13,90	0,2154	0,21 ± 0,01
	2	13,95	13,92	0,2151	
	3	13,96	13,93	0,2149	
3	1	13,73	13,63	0,7283	0,73 ± 0,01
	2	13,77	13,67	0,7262	
	3	13,79	13,69	0,7252	
4	1	13,98	13,90	0,5722	0,57 ± 0,01
	2	13,89	13,81	0,5760	
	3	13,88	13,80	0,5764	
5	1	14,14	14,08	0,4243	0,42 ± 0,01
	2	14,17	14,11	0,4234	
	3	14,11	14,05	0,4252	
6	1	14,23	14,17	0,4216	0,42 ± 0,01
	2	14,28	14,22	0,4202	
	3	14,29	14,23	0,4199	
7	1	13,96	13,87	0,6447	0,64 ± 0,01
	2	13,94	13,85	0,6456	
	3	13,93	13,84	0,6461	
8	1	14,28	14,21	0,4902	0,49 ± 0,01
	2	14,26	14,19	0,4909	
	3	14,29	14,22	0,4899	

LAMPIRAN G

HASIL UJI WAKTU HANCUR TABLET METFORMIN HCL

Batch	Waktu Hancur (menit)							
	F1	F2	F3	F4	F5	F6	F7	F8
1	3,25	6,62	1,58	5,50	6,20	5,65	4,88	5,37
2	3,33	6,67	1,63	5,55	6,23	5,60	4,97	5,43
3	3,37	6,70	1,62	5,58	6,28	5,68	4,92	5,45
Rata-rata	3,32	6,66	1,61	5,54	6,24	5,64	4,92	5,42
SD	0,06	0,04	0,03	0,04	0,04	0,04	0,05	0,04

LAMPIRAN H

HASIL VALIDASI METODE PENETAPAN KADAR METFORMIN HCl

Hasil penentuan linieritas metformin HCl dalam larutan akuades

Hari	No.	C (µg/ml)	Absorbansi	Persamaan Regresi Linier
1	1	3,009	0,280	y= 0,078x + 0,039
	2	4,513	0,381	a= 0,039
	3	6,018	0,511	b= 0,078
	4	7,522	0,629	r= 0,999
	5	9,027	0,744	r hitung > r tabel
2	1	3,003	0,250	y= 0,080x + 0,031
	2	4,504	0,370	a= 0,031
	3	6,006	0,579	b= 0,080
	4	7,507	0,635	r= 0,978
	5	9,009	0,717	r hitung > r tabel
3	1	3,006	0,251	y= 0,081x + 0,024
	2	4,509	0,370	a= 0,024
	3	6,012	0,532	b= 0,081
	4	7,515	0,615	r= 0,983
	5	9,018	0,737	r hitung > r tabel

Hasil penentuan akurasi dan presisi

Replikasi	Konsentrasi (%)	Absorbansi	C (µg/ml)	C teoritis (µg/ml)	Perolehan kembali (%)	Rata-rata perolehan kembali (%) ± SD
1	80	0,408	4,726	4,804	98,38	98,73 ± 0,39
	80	0,411	4,764	4,805	99,16	
	80	0,409	4,739	4,804	98,65	
2	100	0,512	6,056	6,001	100,92	100,99 ± 0,71
	100	0,509	6,018	5,999	100,32	
	100	0,516	6,108	6,004	101,73	
3	120	0,609	7,297	7,204	101,30	101,24 ± 0,78
	120	0,604	7,233	7,202	100,43	
	120	0,613	7,348	7,206	101,98	

LAMPIRAN I

HASIL UJI PENETAPAN KADAR METFORMIN HCl

Formula	Replikasi	Absorbansi	C Sampel (µg/ml)	C Teoritis (µg/ml)	Kadar (%)	Rata-rata Kadar (%) ± SD
1	1	0,509	6,018	6,002	100,26	100,27 ± 0,43
	2	0,511	6,044	6,001	100,71	
	3	0,507	5,992	6,002	99,85	
2	1	0,517	6,120	6,003	101,96	101,42 ± 0,62
	2	0,515	6,095	6,002	101,55	
	3	0,511	6,044	5,999	100,74	
3	1	0,506	5,980	5,998	99,70	100,16 ± 0,41
	2	0,509	6,018	5,999	100,31	
	3	0,510	6,031	6,002	100,47	
4	1	0,503	5,941	5,997	99,06	99,73 ± 0,61
	2	0,507	5,992	6,001	99,86	
	3	0,509	6,018	6,002	100,27	
5	1	0,504	5,954	5,996	99,30	99,71 ± 0,54
	2	0,505	5,967	5,998	99,49	
	3	0,509	6,018	5,998	100,33	
6	1	0,510	6,031	5,999	100,53	101,20 ± 0,72
	2	0,513	6,070	6,002	101,12	
	3	0,517	6,120	6,002	101,96	
7	1	0,511	6,044	5,990	100,90	101,23 ± 0,51
	2	0,512	6,056	5,997	100,98	
	3	0,516	6,108	5,998	101,82	
8	1	0,517	6,120	6,003	101,95	101,28 ± 0,60
	2	0,513	6,069	6,002	101,12	
	3	0,511	6,044	5,997	100,77	

LAMPIRAN J
HASIL UJI F KURVA BAKU PENETAPAN KADAR

Replikasi	C (ppm)	Abs	X2	Y2	XY
1	3,009	0,280	9,054	0,079	0,843
	4,513	0,381	20,372	0,145	1,720
	6,018	0,511	36,216	0,261	3,075
	7,522	0,629	56,588	0,396	4,732
	9,027	0,744	81,487	0,553	6,716
Total			203,717	1,434	17,085
2	3,003	0,250	9,018	0,062	0,751
	4,504	0,370	20,290	0,137	1,667
	6,006	0,579	36,072	0,335	3,477
	7,507	0,635	56,363	0,403	4,767
	9,009	0,717	81,162	0,514	6,459
Total			202,905	1,452	17,122
3	3,006	0,251	9,0360	0,063	0,754
	4,509	0,370	20,331	0,137	1,668
	6,012	0,532	36,144	0,283	3,198
	7,515	0,615	56,475	0,378	4,622
	9,018	0,737	81,324	0,543	6,646
Total			203,311	1,404	16,889

	Jumlah X2	Jumlah XY	Jumlah Y2	n	Residual SS	Residual DF
Pers.Reg 1	203,717	17,085	1,434	5	1,0253E-03	4
Pers.Reg 2	202,905	17,122	1,452	5	7,2406E-03	4
Pers.Reg 3	203,312	16,889	1,404	5	1,2999E-03	4
Pooled reg.					9,5659E-03	12
Common reg.	609,933	51,096	4,290		9,7432E-03	11

SS1 0,0010
SS2 0,0072
SS3 0,0013
SSe 0,0097
F hitung 0,1112
F (0.05)(2,15) 3,68

$F_{hitung} < F_{tabel}$

LAMPIRAN K
HASIL VALIDASI METODE DISOLUSI TABLET METFORMIN
HCl

Hasil penentuan linieritas metformin HCl dalam larutan dapar fosfat pH 6,8

Hari	No.	C (µg/ml)	Absorbansi	Persamaan Regresi Linier	
1	1	3,009	0,273	y=	$0,087x - 6,333 \times 10^{-3}$
	2	4,513	0,328	a=	$-6,333 \times 10^{-3}$
	3	6,018	0,571	b=	0,087
	4	7,522	0,645	r=	0,981
	5	9,027	0,769	r hitung > r tabel	
2	1	3,006	0,250	y=	$0,080x + 0,031$
	2	4,509	0,370	a=	0,031
	3	6,012	0,579	b=	0,080
	4	7,515	0,635	r=	0,978
	5	9,018	0,717	r hitung > r tabel	
3	1	3,003	0,243	y=	$0,086x + 0,001$
	2	4,504	0,351	a=	0,001
	3	6,006	0,579	b=	0,086
	4	7,507	0,685	r=	0,972
	5	9,009	0,723	r hitung > r tabel	

Hasil penentuan akurasi dan presisi

Replikasi	Konsentrasi (%)	Absorbansi	C (µg/ml)	C teoritis (µg/ml)	Perolehan kembali (%)	Rata-rata perolehan kembali (%) ± SD
1	70	0,430	5,016	5,060	99,13	$99,95 \pm 0,73$
	70	0,436	5,085	5,075	100,19	
	70	0,438	5,108	5,080	100,54	
2	85	0,531	6,177	6,152	100,41	$100,76 \pm 0,45$
	85	0,533	6,200	6,162	100,61	
	85	0,537	6,246	6,167	101,27	
3	100	0,623	7,234	7,218	100,23	$99,67 \pm 0,54$
	100	0,618	7,176	7,202	99,65	
	100	0,614	7,131	7,192	99,15	

LAMPIRAN L

HASIL UJI DISOLUSI TABLET METFORMIN HCL

Formula 1

Replikasi	t	Absorbansi	C (µg/ml)	Wt (mg)	% Obat Terlarut	$\frac{AUC_{t_n}}{AUC_{t_{n-1}}}$	%ED
1	5	0,492	5,728	396,463	79,09	991,16	85,00
	10	0,503	5,855	405,211	80,83	2004,18	
	15	0,517	6,016	416,347	83,06	2053,89	
	20	0,522	6,073	420,326	83,85	2091,68	
	30	0,555	6,452	446,577	89,09	4334,52	
	45	0,584	6,786	469,645	93,69	6871,67	
	60	0,613	7,119	492,713	98,29	7217,69	
$\Sigma \frac{AUC_{t_n}}{AUC_{t_{n-1}}}$						25564,79	
2	5	0,496	5,774	399,639	79,36	999,10	84,76
	10	0,506	5,889	407,598	80,94	2018,09	
	15	0,519	6,039	417,938	83,00	2063,84	
	20	0,525	6,108	422,707	83,94	2101,61	
	30	0,551	6,406	443,394	88,05	4330,50	
	45	0,587	6,820	472,026	93,74	6865,65	
	60	0,612	7,108	491,917	97,69	7229,57	
$\Sigma \frac{AUC_{t_n}}{AUC_{t_{n-1}}}$						25608,37	
3	5	0,493	5,740	397,258	79,57	993,15	85,45
	10	0,507	5,901	408,394	81,80	2014,13	
	15	0,511	5,947	411,571	82,44	2049,91	
	20	0,521	6,062	419,530	84,04	2077,75	
	30	0,553	6,429	444,986	89,13	4322,58	
	45	0,588	6,832	472,822	94,71	6883,56	
	60	0,615	7,142	494,305	99,01	7253,45	
$\Sigma \frac{AUC_{t_n}}{AUC_{t_{n-1}}}$						25594,53	

Formula 2

Replikasi	t	Absorbansi	C (µg/ml)	Wt (mg)	% Obat Terlarut	$\frac{AUC_{0-12}}{AUC_{0-12}} \cdot 100$	% ED
1	5	0,480	5,590	386,912	75,89	967,28	80,18
	10	0,491	5,717	395,667	77,61	1956,45	
	15	0,508	5,912	409,190	80,26	2012,14	
	20	0,511	5,947	411,571	80,73	2051,90	
	30	0,525	6,108	422,707	82,91	4171,39	
	45	0,553	6,429	444,986	87,28	6507,70	
	60	0,584	6,786	469,645	92,12	6859,73	
$\Sigma \frac{AUC_{0-12}}{AUC_{0-12}} \cdot 100$						24526,59	
2	5	0,484	5,636	390,095	76,83	975,24	80,77
	10	0,495	5,763	398,843	78,55	1972,35	
	15	0,501	5,832	403,619	79,49	2006,16	
	20	0,514	5,981	413,959	81,53	2043,94	
	30	0,528	6,142	425,095	83,72	4195,27	
	45	0,555	6,452	446,577	87,95	6537,54	
	60	0,585	6,797	470,434	92,65	6877,59	
$\Sigma \frac{AUC_{0-12}}{AUC_{0-12}} \cdot 100$						24608,08	
3	5	0,487	5,671	392,483	77,92	981,21	81,60
	10	0,499	5,809	402,027	79,81	1986,28	
	15	0,505	5,878	406,802	80,76	2022,07	
	20	0,518	6,027	417,142	82,82	2059,86	
	30	0,529	6,154	425,891	84,55	4215,17	
	45	0,551	6,406	443,394	88,03	6519,63	
	60	0,589	6,843	473,618	94,03	6877,59	
$\Sigma \frac{AUC_{0-12}}{AUC_{0-12}} \cdot 100$						24661,81	

Formula 3

Replikasi	t	Absorbansi	C(µg/ml)	Wt (mg)	% Obat Terlarut	$\frac{AUC_{0-12}}{AUC_{0-12}} \cdot 100$	%ED
1	5	0,499	5,809	402,027	80,65	1005,07	85,60
	10	0,501	5,832	403,619	80,97	2014,11	
	15	0,519	6,039	417,938	83,84	2053,89	
	20	0,526	6,119	423,503	84,95	2103,60	
	30	0,553	6,429	444,986	89,26	4342,44	
	45	0,582	6,763	468,053	93,89	6847,79	
	60	0,618	7,176	496,686	99,63	7235,54	
$\Sigma \frac{AUC_{0-12}}{AUC_{0-12}} \cdot 100$						25602,46	
2	5	0,496	5,774	399,639	79,68	999,10	85,51
	10	0,507	5,901	408,394	81,42	2020,08	
	15	0,513	5,970	413,163	82,37	2053,89	
	20	0,529	6,154	425,891	84,91	2097,63	
	30	0,557	6,475	448,162	89,35	4370,27	
	45	0,583	6,774	468,849	93,48	6877,59	
	60	0,617	7,165	495,897	98,87	7235,59	
$\Sigma \frac{AUC_{0-12}}{AUC_{0-12}} \cdot 100$						25654,16	
3	5	0,497	5,786	400,435	79,71	1001,09	85,01
	10	0,509	5,924	409,986	81,61	2026,05	
	15	0,511	5,947	411,571	81,93	2053,89	
	20	0,527	6,131	424,299	84,46	2089,67	
	30	0,551	6,406	443,394	88,26	4338,46	
	45	0,585	6,797	470,441	93,65	6853,76	
	60	0,619	7,188	497,481	99,03	7259,42	
$\Sigma \frac{AUC_{0-12}}{AUC_{0-12}} \cdot 100$						25622,36	

Formula 4

Replikasi	t	Absorbansi	C (µg/ml)	Wt (mg)	% Obat Terlarut	$\left[\frac{AUC}{C} \right]_{t_n-1}^{t_n}$	% ED
1	5	0,493	5,740	397,258	80,20	993,15	86,29
	10	0,506	5,889	407,598	82,29	2012,14	
	15	0,517	6,016	416,347	84,06	2059,86	
	20	0,528	6,142	425,094	85,82	2103,60	
	30	0,559	6,498	449,754	90,80	4374,25	
	45	0,582	6,763	468,053	94,50	6883,56	
	60	0,615	7,142	494,305	99,80	7217,69	
$\Sigma \left[\frac{AUC}{C} \right]_{t_n-1}^{t_n}$						25644,24	
2	5	0,495	5,763	398,843	78,99	997,11	84,92
	10	0,509	5,924	409,986	81,20	2022,07	
	15	0,517	6,016	416,347	82,46	2065,83	
	20	0,523	6,085	421,122	83,41	2093,67	
	30	0,558	6,487	448,958	88,92	4350,40	
	45	0,589	6,843	473,618	93,80	6919,32	
	60	0,618	7,176	496,686	98,37	7277,28	
$\Sigma \left[\frac{AUC}{C} \right]_{t_n-1}^{t_n}$						25725,69	
3	5	0,492	5,705	394,871	78,76	987,18	85,33
	10	0,506	5,843	404,415	80,66	1998,21	
	15	0,519	6,039	417,938	83,36	2055,88	
	20	0,525	6,096	421,918	84,15	2099,64	
	30	0,55	6,452	446,577	89,07	4342,48	
	45	0,589	6,843	473,618	94,47	6901,47	
	60	0,619	7,188	497,481	99,23	7283,25	
$\Sigma \left[\frac{AUC}{C} \right]_{t_n-1}^{t_n}$						25668,10	

Formula 5

Replikasi	T	Absorbansi	C (µg/ml)	Wt (mg)	% Obat Terlepas	$\left[\frac{AUC}{C} \right]_{t_n-1}^{t_n}$	%ED
1	5	0,493	5,740	397,258	78,74	993,15	84,70
	10	0,503	5,855	405,211	80,32	2006,17	
	15	0,514	5,981	413,959	82,05	2047,92	
	20	0,521	6,062	419,530	83,16	2083,72	
	30	0,559	6,498	449,754	89,15	4346,42	
	45	0,587	6,820	472,026	93,56	6913,35	
	60	0,615	7,142	494,305	97,98	7247,48	
$\Sigma \left[\frac{AUC}{C} \right]_{t_n-1}^{t_n}$						25638,22	
2	5	0,495	5,763	398,843	78,99	997,11	84,92
	10	0,509	5,924	409,986	81,20	2022,07	
	15	0,517	6,016	416,347	82,46	2065,83	
	20	0,523	6,085	421,122	83,41	2093,67	
	30	0,558	6,487	448,958	88,92	4350,40	
	45	0,589	6,843	473,618	93,80	6919,32	
	60	0,618	7,176	496,6856	98,37	7277,28	
$\Sigma \left[\frac{AUC}{C} \right]_{t_n-1}^{t_n}$						25725,69	
3	5	0,492	5,728	496,463	77,87	991,16	83,96
	10	0,506	5,889	407,598	80,06	2010,15	
	15	0,519	6,039	417,938	82,09	2063,84	
	20	0,525	6,108	422,707	83,03	2101,61	
	30	0,557	6,475	448,162	88,03	4354,35	
	45	0,584	6,786	469,645	92,25	6883,56	
	60	0,617	7,165	495,897	97,40	7241,56	
$\Sigma \left[\frac{AUC}{C} \right]_{t_n-1}^{t_n}$						25646,23	

Formula 6

Replikasi	t	Absorbansi	C (µg/ml)	Wt (mg)	% Obat Terlarut	$\frac{[AUC]_n}{[AUC]_{n-1}}$	% ED
1	5	0,474	5,521	382,143	76,03	955,36	80,34
	10	0,492	5,728	396,463	78,88	1946,51	
	15	0,506	5,889	407,598	81,09	2010,15	
	20	0,512	5,958	412,367	82,04	2049,91	
	30	0,523	6,085	421,122	83,78	4167,45	
	45	0,544	6,326	437,822	87,11	6442,08	
	60	0,559	6,498	449,754	89,48	6656,83	
$\Sigma \frac{[AUC]_n}{[AUC]_{n-1}}$						24228,29	
2	5	0,471	5,487	379,755	75,11	949,39	80,03
	10	0,495	5,763	398,843	78,88	1946,50	
	15	0,503	5,855	405,211	80,14	2010,14	
	20	0,517	6,016	416,347	82,34	2053,89	
	30	0,525	6,108	422,707	83,60	4195,27	
	45	0,546	6,349	439,414	86,91	6465,91	
	60	0,557	6,475	448,162	88,64	6656,83	
$\Sigma \frac{[AUC]_n}{[AUC]_{n-1}}$						24277,92	
3	5	0,477	5,556	384,531	75,43	961,33	79,24
	10	0,496	5,774	399,639	78,39	1960,43	
	15	0,501	5,832	403,619	79,17	2008,15	
	20	0,515	5,993	414,755	81,35	2045,93	
	30	0,528	6,142	425,095	83,38	4199,25	
	45	0,541	6,291	435,435	85,41	6453,97	
	60	0,554	6,441	445,775	87,44	6609,07	
$\Sigma \frac{[AUC]_n}{[AUC]_{n-1}}$						24238,12	

Formula 7

Replikasi	t	Absorbansi	C (µg/ml)	Wt (mg)	% Obat Terlarut	$\frac{[AUC]_n}{[AUC]_{n-1}}$	% ED
1	5	0,497	5,786	400,435	80,65	1001,09	85,82
	10	0,504	5,866	406,007	81,77	2016,10	
	15	0,511	5,947	411,571	82,89	2043,94	
	20	0,527	6,131	424,299	85,45	2089,67	
	30	0,557	6,475	448,162	90,26	4362,31	
	45	0,581	6,751	467,257	94,11	6865,65	
	60	0,611	7,096	491,121	98,91	7187,84	
$\Sigma \frac{[AUC]_n}{[AUC]_{n-1}}$						25566,61	
2	5	0,495	5,763	398,843	80,18	997,11	85,71
	10	0,501	5,832	403,619	81,14	2006,16	
	15	0,513	5,970	413,163	83,06	2041,95	
	20	0,529	6,154	425,891	85,62	2097,65	
	30	0,558	6,487	448,958	90,25	4374,25	
	45	0,580	6,740	466,162	93,77	6865,65	
	60	0,614	7,131	493,509	99,21	7199,78	
$\Sigma \frac{[AUC]_n}{[AUC]_{n-1}}$						25582,52	
3	5	0,497	5,786	400,435	79,83	1001,09	84,99
	10	0,502	5,843	404,415	80,62	2012,13	
	15	0,515	5,993	414,755	82,68	2047,92	
	20	0,525	6,108	422,707	84,27	2093,65	
	30	0,551	6,406	443,394	88,39	4330,50	
	45	0,585	6,797	470,441	93,78	6853,76	
	60	0,616	7,154	495,101	98,70	7241,56	
$\Sigma \frac{[AUC]_n}{[AUC]_{n-1}}$						25580,62	

Formula 8

Replikasi	t	Absorbansi	C (µg/ml)	Wt (mg)	% Obat Terlepas	$\sum \left[\frac{AUC_t}{C_{t=0}} \right]_{t=0}^{t_n}$	% ED
1	5	0,494	5,751	398,054	78,09	995,136	83,76
	10	0,502	5,843	404,415	79,34	2006,17	
	15	0,518	6,027	417,142	81,84	2053,89	
	20	0,527	6,131	424,299	83,24	2103,60	
	30	0,551	6,406	443,394	86,99	4338,46	
	45	0,586	6,809	471,237	92,45	6859,73	
	60	0,618	7,176	496,686	97,44	7259,42	
$\sum \left[\frac{AUC_t}{C_{t=0}} \right]_{t=0}^{t_n}$						25616,4	
2	5	0,496	5,774	399,639	79,04	999,098	84,60
	10	0,507	5,901	408,394	80,77	2020,08	
	15	0,516	6,004	415,551	82,19	2059,86	
	20	0,524	6,096	421,918	83,45	2093,67	
	30	0,554	6,441	445,782	88,17	4338,50	
	45	0,587	6,820	472,026	93,36	6883,56	
	60	0,619	7,188	497,481	98,39	7271,31	
$\sum \left[\frac{AUC_t}{C_{t=0}} \right]_{t=0}^{t_n}$						25666,1	
3	5	0,490	5,705	394,871	77,47	987,177	84,65
	10	0,504	5,866	406,007	79,65	2002,19	
	15	0,519	6,039	417,938	81,99	2059,86	
	20	0,525	6,108	422,707	82,93	2101,61	
	30	0,556	6,464	447,366	87,77	4350,37	
	45	0,582	6,763	468,053	91,82	6865,65	
	60	0,616	7,154	495,101	97,13	7223,66	
$\sum \left[\frac{AUC_t}{C_{t=0}} \right]_{t=0}^{t_n}$						25590,5	

LAMPIRAN M
HASIL UJI F KURVA BAKU DISOLUSI

Replikasi	C (ppm)	Abs	X2	Y2	XY
1	3,009	0,273	9,054	0,074	0,821
	4,513	0,328	20,372	0,108	1,480
	6,018	0,571	36,216	0,326	3,436
	7,522	0,645	56,588	0,416	4,852
	9,027	0,769	81,487	0,591	6,942
Total			203,717	1,515	17,531
2	3,006	0,270	9,036	0,073	0,812
	4,509	0,328	20,331	0,108	1,479
	6,012	0,564	36,144	0,318	3,391
	7,515	0,635	56,475	0,403	4,772
	9,018	0,717	81,324	0,514	6,466
Total			203,311	1,416	16,919
3	3,003	0,243	9,018	0,059	0,730
	4,504	0,351	20,290	0,123	1,581
	6,006	0,579	36,072	0,335	3,477
	7,507	0,685	56,363	0,469	5,143
	9,009	0,723	81,162	0,523	6,513
Total			202,905	1,509	17,444

	Jumlah X2	Jumlah XY	Jumlah Y2	n	Residual SS	Residual DF
Pers.Reg 1	203,7168	17,0531	1,5154	5	8,7888E-02	4
Pers.Reg 2	203,3108	16,9193	1,4159	5	7,8946E-03	4
Pers.Reg 3	202,9052	17,4444	1,5094	5	9,6499E-03	4
Pooled reg.					1,0543E-01	12
Common reg.	609,9328	51,4168	4,4407		1,0631E-01	11

SS1 0,0879
SS2 0,0079
SS3 0,0096
SSe 0,1063
F hitung 0,0499
F (0.05)(2,15) 3,68

$F_{hitung} < F_{tabel}$

LAMPIRAN N

CONTOH PERHITUNGAN

Contoh Perhitungan Akurasi Presisi

Replikasi	Konsentrasi (%)	Absorbansi	C (µg/ml)	C teoritis (µg/ml)	Perolehan kembali (%)	Rata-rata perolehan kembali (%) ± SD
1	80	0,408	4,726	4,804	98,38	98,73 ± 0,39
	80	0,411	4,764	4,805	99,16	
	80	0,409	4,739	4,804	98,65	

Replikasi 1:

Persamaan regresi yang digunakan: $y = 0,078x + 0,039$

Absorbansi (y) = 0,408

$C_{\text{sampel}} (x) = 4,726$ ppm (hasil dari substitusi y)

$W_{\text{bahan aktif}} = 400,3$ mg (baku induk = 4003 ppm)

$W_{\text{matriks}} = 300,5$ mg

$C_{\text{teoritis}} = (0,012 : 10) \times 4003$ ppm = 4,8036

Perolehan kembali (%) = $(C_{\text{sampel}} : C_{\text{teoritis}}) \times 100\%$
= $(4,726 : 4,8036) \times 100\%$
= 98,38%

KV (%) = $(SD : \bar{X}) \times 100\% = (0,39 : 98,73) \times 100\% = 0,39\%$

Contoh Perhitungan Penetapan Kadar

Formula	Replikasi	Absorbansi	C Sampel (µg/ml)	C Teoritis (µg/ml)	Kadar (%)	Rata-rata Kadar (%) ± SD
1	1	0,509	6,018	6,002	100,26	100,27 ± 0,43
	2	0,511	6,044	6,001	100,71	
	3	0,507	5,992	6,002	99,85	

Formula 1 replikasi 1:

Persamaan regresi yang digunakan: $y = 0,078x + 0,039$

Absorbansi (y) = 0,509

$C_{\text{sampel}} (x) = 6,018$ ppm (hasil dari substitusi y)

$C_{\text{teoritis}} = 700,3$ mg : 700 mg x 500 mg = 500,21 mg (jumlah metformin HCl dalam tablet)
= $0,012/10 \times 5002,1 = 6,002$ ppm

Kadar (%) = $(C_{\text{sampel}} : C_{\text{teoritis}}) \times 100\% = (6,018 : 6,002) \times 100\% = 100,26\%$

KV (%) = $(SD : \bar{X}) \times 100\% = (0,43 : 100,27) \times 100\% = 0,43\%$

Contoh Perhitungan % Obat Terlepas

Replikasi	t	Absorbansi	C (µg/ml)	Wt (mg)	% Obat Terlarut	$AUC_{t_n-t_{n-1}}$	% ED
1	5	0,492	5,728	396,463	79,09	991,16	85,00
	10	0,503	5,855	405,211	80,83	2004,18	
	15	0,517	6,016	416,347	83,06	2053,89	
	20	0,522	6,073	420,326	83,85	2091,68	
	30	0,555	6,452	446,577	89,09	4334,52	
	45	0,584	6,786	469,645	93,69	6871,67	
	60	0,613	7,119	492,713	98,29	7217,69	
$\Sigma AUC_{t_n-t_{n-1}}$						25564,79	

Formula 1 replikasi 1:

t = 60 menit

Persamaan regresi yang digunakan: $y = 0,087x - 0,006$

Absorbansi (y) = 0,613

$C_{\text{sampel}} (x) = 7,119$ ppm (hasil dari substitusi y)

Wt = $(900 : 1000) \times 76,9$ (FP) $\times 7,119$ ppm = 492,713 mg

Kadar (mg) hasil penetapan kadar = 501,29

Persen obat terlepas (%) = $(492,713 \text{ mg} : 501,29 \text{ mg}) \times 100\% = 98,29 \%$

Contoh Perhitungan Efisiensi Disolusi Pada t=60 Menit

Formula 1 replikasi 1:

$t_n = 60$ menit ; $t_{n-1} = 45$ menit

$W_{t_n} = 492,713$ mg ; $W_{t_{n-1}} = 469,645$ mg

$AUC_{t_n-t_{n-1}} = ((W_{t_n} + W_{t_{n-1}}) : 2) \times (t_n - t_{n-1}) = 2096,75$ µg menit/mL

= $((492,713 + 469,645) : 2) \times (60 - 45) = 7217,69$ µg menit/mL

Kadar (mg) pada PK = 501,29 mg

$\Sigma AUC_{t_n-t_{n-1}} = 25564,79$ µg menit/mL (hasil penjumlahan AUC t=5 hingga t=60)

$ED_{60} (\%) = (\Sigma AUC_{t_n-t_{n-1}} : L. \text{ persegi}) \times 100\%$

= $(25564,79 : (60 \text{ menit} \times 501,29 \text{ mg})) \times 100\% = 85\%$

LAMPIRAN O

HASIL UJI MUTU FISIK TABLET FORMULA OPTIMUM

Kekerasan Tablet

Replikasi 1			Replikasi 2			Replikasi 3		
No	Kekerasan tablet (kp)		No	Kekerasan Tablet (kp)		No	Kekerasan Tablet (kp)	
	F1	F2		F1	F2		F1	F2
1	6,8	3,2	1	6,8	3,2	1	6,8	3,3
2	6,9	3,4	2	6,9	3,3	2	6,7	3,4
3	6,8	3,4	3	6,8	3,4	3	6,7	3,3
4	6,6	3,2	4	6,8	3,4	4	6,7	3,3
5	6,8	3,2	5	6,9	3,3	5	6,8	3,4
6	6,6	3,2	6	6,9	3,2	6	6,9	3,3
7	6,9	3,2	7	6,8	3,3	7	6,7	3,2
8	6,8	3,3	8	6,9	3,3	8	6,9	3,2
9	6,7	3,4	9	6,9	3,3	9	6,7	3,3
10	6,7	3,2	10	6,9	3,3	10	6,8	3,2
Rata-rata	6,76	3,27	Rata-rata	6,86	3,30	Rata-rata	6,77	3,29
SD	0,11	0,09	SD	0,05	0,07	SD	0,08	0,07

Kerapuhan Tablet

Formula	Replikasi	Berat Awal (gram)	Berat Akhir (gram)	Kerapuhan (%)	Rata-rata ± SD
1	1	13,96	13,88	0,4994	0,4994 ± 0,01
	2	13,92	13,84	0,4991	
	3	13,94	13,86	0,4997	
2	1	13,93	13,90	0,9411	0,9427 ± 0,02
	2	13,95	13,92	0,9420	
	3	13,96	13,93	0,9449	

Waktu Hancur Tablet

Waktu hancur tablet (menit)		
Replikasi	F1	F2
1	4,89	1,15
2	4,92	1,14
3	4,95	1,16
Rata-rata ± SD	4,92 ± 0,03	1,15 ± 0,01

Keterangan : F1 : hasil uji mutu fisik tablet formula optimum

: F2 : hasil uji mutu fisik tablet formula pembanding dengan pengikat amilum singkong

LAMPIRAN P

HASIL UJI DISOLUSI TABLET FORMULA OPTIMUM

Tablet Formula Optimum

Replikasi	t (menit)	Absorbansi	C (µg/ml)	Wt (mg)	%wt	$\sum \frac{AUC_{0-t}}{C_{0-t}}$	%ED
1	5	0,492	5,728	396,463	79,12	991,16	84,97
	10	0,503	5,855	405,211	80,86	2004,18	
	15	0,517	6,016	416,347	83,08	2053,89	
	20	0,533	6,200	429,074	85,62	2113,55	
	30	0,584	6,786	469,645	93,72	4493,60	
	45	0,575	6,682	462,482	92,29	6990,95	
	60	0,569	6,613	457,713	91,34	6901,47	
$\Sigma \frac{AUC_{0-t}}{C_{0-t}}$						25548,80	
2	5	0,496	5,774	399,639	79,74	999,10	84,97
	10	0,505	5,878	406,802	81,17	2016,10	
	15	0,514	5,981	413,959	82,59	2051,90	
	20	0,539	6,269	433,850	86,56	2119,52	
	30	0,580	6,740	466,462	93,07	4501,56	
	45	0,579	6,728	465,666	92,91	6990,95	
	60	0,560	6,510	450,550	89,89	6871,62	
$\Sigma \frac{AUC_{0-t}}{C_{0-t}}$						25550,76	
3	5	0,497	5,786	400,435	79,89	1001,09	85,04
	10	0,508	5,912	409,190	81,63	2024,06	
	15	0,516	6,004	415,537	82,90	2061,82	
	20	0,538	6,257	433,054	86,39	2121,48	
	30	0,580	6,740	466,462	93,06	4497,58	
	45	0,576	6,694	463,278	92,42	6973,05	
	60	0,567	6,590	456,122	91,00	6895,50	
$\Sigma \frac{AUC_{0-t}}{C_{0-t}}$						25574,57	

Tablet Inovator Metformin HCl

Replikasi	t	Absorbansi	C (µg/ml)	Wt (mg)	% Obat Terlarut	$\frac{[AUC]_{n-1}^n}{[AUC]_{n-1}^n}$	% ED
1	5	0,288	3,384	234,186	46,64	585,46	70,05
	10	0,365	4,269	295,437	58,84	1324,06	
	15	0,408	4,763	329,640	65,65	1562,69	
	20	0,438	5,108	353,504	70,40	1707,86	
	30	0,509	5,924	409,986	81,65	3817,45	
	45	0,511	5,947	411,571	81,96	6161,68	
	60	0,473	5,510	381,340	75,94	5946,83	
						$\frac{[AUC]_{n-1}^n}{[AUC]_{n-1}^n}$	21106,04
2	5	0,283	3,326	230,206	45,85	575,52	69,83
	10	0,361	4,223	292,253	58,20	1306,15	
	15	0,402	4,694	324,865	64,70	1542,79	
	20	0,433	5,050	349,524	69,61	1685,97	
	30	0,509	5,924	409,986	81,65	3797,55	
	45	0,514	5,981	413,959	82,44	6179,59	
	60	0,471	5,487	379,755	75,63	5952,86	
						$\frac{[AUC]_{n-1}^n}{[AUC]_{n-1}^n}$	21040,43
3	5	0,285	3,349	231,798	46,15	579,50	69,78
	10	0,368	4,303	297,824	59,30	1324,06	
	15	0,405	4,728	327,253	65,16	1562,69	
	20	0,435	5,073	351,116	69,91	1695,92	
	30	0,502	5,843	404,415	80,52	3777,65	
	45	0,512	5,958	412,367	82,10	6125,86	
	60	0,474	5,521	382,143	76,08	5958,83	
						$\frac{[AUC]_{n-1}^n}{[AUC]_{n-1}^n}$	21024,51

Tablet Formula Pembanding

Replikasi	t (menit)	Absorbansi	C (µg/ml)	Wt (mg)	% wt	$\frac{[AUC]_{n-1}^n}{[AUC]_{n-1}^n}$	% ED
1	5	0,510	5,935	410,775	81,70	1026,94	83,78
	10	0,521	6,062	419,530	83,44	2075,76	
	15	0,552	6,418	444,183	88,34	2159,28	
	20	0,584	6,786	469,645	93,41	2284,57	
	30	0,57	6,625	458,502	91,19	4640,74	
	45	0,543	6,314	437,026	86,92	6716,47	
	60	0,512	5,958	412,367	82,02	6370,45	
						$\frac{[AUC]_{n-1}^n}{[AUC]_{n-1}^n}$	25274,21
2	5	0,513	5,970	413,163	82,24	1032,91	84,09
	10	0,529	6,154	425,891	84,77	2097,63	
	15	0,553	6,429	444,986	88,57	2177,19	
	20	0,586	6,809	471,237	93,80	2290,56	
	30	0,571	6,636	459,305	91,42	4652,71	
	45	0,541	6,291	435,435	86,67	6710,55	
	60	0,515	5,993	414,755	82,55	6376,42	
						$\frac{[AUC]_{n-1}^n}{[AUC]_{n-1}^n}$	25337,97
3	5	0,518	6,027	417,142	83,02	1042,86	84,01
	10	0,524	6,096	421,918	83,97	2097,65	
	15	0,551	6,406	443,394	88,25	2163,28	
	20	0,582	6,763	468,053	93,15	2278,62	
	30	0,573	6,659	460,890	91,73	4644,72	
	45	0,542	6,303	436,231	86,82	6728,41	
	60	0,511	5,947	411,571	81,91	6358,51	
						$\frac{[AUC]_{n-1}^n}{[AUC]_{n-1}^n}$	25314,04

LAMPIRAN Q

HASIL UJI ANAVA KEKERASAN TABLET

DESIGN EXPERT

Response	1	KEKERASAN			
ANOVA for selected factorial model					
Analysis of variance table [Partial sum of squares - Type III]					
	Sum of		Mean	F	p-value
Source	Squares	Df	Square	Value	Prob > F
Model	20,0492	7	2,8642	1324,476	< 0.0001
A-Konsentrasi AKP	10,5603	1	10,5603	4883,360	< 0.0001
B-Konsentrasi Ac-Di-Sol	0,3651	1	0,3651	168,817	< 0.0001
C-Konsentrasi MgS	1,4406	1	1,4406	666,173	< 0.0001
AB	1,1180	1	1,1180	517,002	< 0.0001
AC	4,6288	1	4,6288	2140,493	< 0.0001
BC	1,3348	1	1,3348	617,256	< 0.0001
ABC	0,6017	1	0,6017	278,227	< 0.0001
Pure Error	0,0346	16	0,0022		
Cor Total	20.0838	23			

The Model F-value of 1324.48 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.

In this case A, B, C, AB, AC, BC, ABC are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0,0465	R-Squared	0,9983
Mean	6,6575	Adj R-Squared	0,9975
C.V. %	0,6985	Pred R-Squared	0,9961
PRESS	0,0778	Adeq Precision	110,0006

The "Pred R-Squared" of 0.9961 is in reasonable agreement with the "Adj R-Squared" of 0.9975.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 110.001 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	Df	Standard Error	95% CI Low	95% CI High
Intercept	6,6575	1	0,0095	6,6374	6,6776
A-Konsentrasi AKP	0,6633	1	0,0095	0,6432	0,6835
B-Konsentrasi Ac-Di-Sol	-0,1233	1	0,0095	-0,1435	-0,1032
C-Konsentrasi MgS	0,2450	1	0,0095	0,2249	0,2651
AB	-0,2158	1	0,0095	-0,2360	-0,1957
AC	-0,4392	1	0,0095	-0,4593	-0,4190
BC	-0,2358	1	0,0095	-0,2560	-0,2157
ABC	0,1583	1	0,0095	0,1382	0,1784

Final Equation in Terms of Coded Factors:

$$\begin{aligned} \text{KEKERASAN} = & 6,6575 \\ & 0,6633 * A \\ & -0,1233 * B \\ & 0,2450 * C \\ & -0,21583 * A * B \\ & -0,4392 * A * C \\ & -0,2358 * B * C \\ & 0,1583 * A * B * C \end{aligned}$$

Final Equation in Terms of Actual Factors:

$$\begin{aligned} \text{KEKERASAN} = & 6,6575 \\ & 0,6633 * \text{Konsentrasi AKP} \\ & -0,1233 * \text{Konsentrasi Ac-Di-Sol} \\ & 0,2450 * \text{Konsentrasi MgS} \\ & -0,2158 * \text{Konsentrasi AKP} * \text{Konsentrasi Ac-Di-Sol} \\ & -0,4392 * \text{Konsentrasi AKP} * \text{Konsentrasi MgS} \\ & -0,2358 * \text{Konsentrasi Ac-Di-Sol} * \text{Konsentrasi MgS} \\ & 0,1583 * \text{Konsentrasi AKP} * \text{Konsentrasi Ac-Di-Sol} * \text{Konsentrasi MgS} \end{aligned}$$

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node.

In the Diagnostics Node, Select Case Statistics from the View Menu.

Proceed to Diagnostic Plots (the next icon in progression). Be sure to look at the:

- 1) Normal probability plot of the studentized residuals to check for normality of residuals.
- 2) Studentized residuals versus predicted values to check for constant error.
- 3) Externally Studentized Residuals to look for outliers, i.e., influential values.
- 4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN R

HASIL UJI ANAVA KERAPUHAN TABLET

DESIGN EXPERT

Response	2	KERAPUHAN				
ANOVA for selected factorial model						
Analysis of variance table [Partial sum of squares - Type III]						
	Sum of		Mean	F	p-value	
Source	Squares	Df	Square	Value	Prob > F	
Model	0,5286	7	0,0755	55022,43	< 0.0001	significant
A-Konsentrasi AKP	0,1680	1	0,1680	122406,30	< 0.0001	
B-Konsentrasi Ac-Di-Sol	0,2420	1	0,2420	176323,60	< 0.0001	
C-Konsentrasi MgS	0,0045	1	0,0045	3294,00	< 0.0001	
AB	0,0011	1	0,0011	846,66	< 0.0001	
AC	0,0463	1	0,0463	33776,66	< 0.0001	
BC	0,0183	1	0,0184	13400,95	< 0.0001	
ABC	0,0482	1	0,0482	35108,84	< 0.0001	
Pure Error	2,2E-05	16	1,37E-06			
Cor Total	0,52865	23				

The Model F-value of 55022.43 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.

In this case A, B, C, AB, AC, BC, ABC are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0,0012	R-Squared	0,9999
Mean	0,5089	Adj R-Squared	0,9999
C.V. %	0,2302	Pred R-Squared	0,9999
PRESS	4,94E-05	Adeq Precision	756,1248

The "Pred R-Squared" of 0.9999 is in reasonable agreement with the "Adj R-Squared" of 0.9999.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 756.125 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	Df	Standard Error	95% CI Low	95% CI High
Intercept	0,5089	1	0,000239	0,5084	0,5094
A-Konsentrasi AKP	-0,0837	1	0,000239	-0,0842	-0,0832
B-Konsentrasi Ac-Di-Sol	0,1004	1	0,000239	0,0999	0,1009
C-Konsentrasi MgS	-0,0137	1	0,000239	-0,0142	-0,0132
AB	0,0069	1	0,000239	0,0064	0,0075
AC	0,0439	1	0,000239	0,0434	0,0444
BC	-0,0277	1	0,000239	-0,0282	-0,0272
ABC	-0,0448	1	0,000239	-0,0453	-0,0443

Final Equation in Terms of Coded Factors:

$$\begin{aligned} \text{KERAPUHAN} = & 0,5089 \\ & -0,0837 * A \\ & 0,1004 * B \\ & -0,0137 * C \\ & 0,0069 * A * B \\ & 0,0439 * A * C \\ & -0,0277 * B * C \\ & -0,0448 * A * B * C \end{aligned}$$

Final Equation in Terms of Actual Factors:

$$\begin{aligned} \text{KERAPUHAN} = & 0,5089 \\ & -0,0837 * \text{Konsentrasi AKP} \\ & 0,1004 * \text{Konsentrasi Ac-Di-Sol} \\ & -0,0137 * \text{Konsentrasi MgS} \\ & 0,0069 * \text{Konsentrasi AKP} * \text{Konsentrasi Ac-Di-Sol} \\ & 0,0439 * \text{Konsentrasi AKP} * \text{Konsentrasi MgS} \\ & -0,0277 * \text{Konsentrasi Ac-Di-Sol} * \text{Konsentrasi MgS} \\ & -0,0448 * \text{Konsentrasi AKP} * \text{Konsentrasi Ac-Di-Sol} * \text{Konsentrasi MgS} \end{aligned}$$

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node.

In the Diagnostics Node, Select Case Statistics from the View Menu.

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- 4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN S

HASIL UJI ANAVA WAKTU HANCUR TABLET

DESIGN EXPERT

Response	3		WAKTU HANCUR		
ANOVA for selected factorial model					
Analysis of variance table [Partial sum of squares - Type III]					
	Sum of		Mean	F	p-value
Source	Squares	Df	Square	Value	Prob > F
Model	58,3741	7	8,3392	4528,05	< 0.0001
A-Konsentrasi AKP	19,3321	1	19,3321	10497,10	< 0.0001
B-Konsentrasi Ac-Di-Sol	7,1504	1	7,1504	3882,57	< 0.0001
C-Konsentrasi MgS	9,7028	1	9,7028	5268,50	< 0.0001
AB	1,0500	1	1,0500	570,14	< 0.0001
AC	20,4241	1	20,4241	11090,04	< 0.0001
BC	0,6208	1	0,6208	337,09	< 0.0001
ABC	0,0937	1	0,0937	50,90	< 0.0001
Pure Error	0,0295	16	0,0018		
Cor Total	58,4036	23			

The Model F-value of 4528.05 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.

In this case A, B, C, AB, AC, BC, ABC are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0,0429	R-Squared	0,9994
Mean	4,9192	Adj R-Squared	0,9993
C.V. %	0,8724	Pred R-Squared	0,9989
PRESS	0,0663	Adeq Precision	203,9544

The "Pred R-Squared" of 0.9989 is in reasonable agreement with the "Adj R-Squared" of 0.9993.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 203.954 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient		Standard Error	95% CI	
	Estimate	Df		Low	High
Intercept	4,9192	1	0,00876	4,9006	4,9377
A-Konsentrasi AKP	0,8975	1	0,00876	0,8789	0,9161
B-Konsentrasi Ac-Di-Sol	-0,5458	1	0,00876	-0,5644	-0,5273
C-Konsentrasi MgS	0,6358	1	0,00876	0,6173	0,6544
AB	0,2092	1	0,00876	0,1906	0,2277
AC	-0,9225	1	0,00876	-0,9411	-0,9039
BC	0,1608	1	0,00876	0,1423	0,1794
ABC	0,0625	1	0,00876	0,0439	0,0811

Final Equation in Terms of Coded Factors:

$$\begin{aligned} \text{WAKTU HANCUR} = & 4,9192 \\ & 0,8975 * A \\ & -0,5458 * B \\ & 0,6358 * C \\ & 0,2092 * A * B \\ & -0,9225 * A * C \\ & 0,1608 * B * C \\ & 0,0625 * A * B * C \end{aligned}$$

Final Equation in Terms of Actual Factors:

$$\begin{aligned} \text{WAKTU HANCUR} = & 4,9192 \\ & 0,8975 * \text{Konsentrasi AKP} \\ & -0,5458 * \text{Konsentrasi Ac-Di-Sol} \\ & 0,6358 * \text{Konsentrasi MgS} \\ & 0,2092 * \text{Konsentrasi AKP} * \text{Konsentrasi Ac-Di-Sol} \\ & -0,9225 * \text{Konsentrasi AKP} * \text{Konsentrasi MgS} \\ & 0,1608 * \text{Konsentrasi Ac-Di-Sol} * \text{Konsentrasi MgS} \\ & 0,0625 * \text{Konsentrasi AKP} * \text{Konsentrasi Ac-Di-Sol} * \text{Konsentrasi MgS} \end{aligned}$$

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node.

In the Diagnostics Node, Select Case Statistics from the View Menu.

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If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN T

HASIL UJI ANAVA EFISIENSI DISOLUSI

DESIGN EXPERT

Response 4 ED 60

ANOVA for selected factorial model

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	Df	Mean Square	F Value	p-value Prob > F	Significant
Model	106,7158	7	15,2451	60,5726	< 0.0001	
A-Konsentrasi AKP	35,2595	1	35,2595	140,0947	< 0.0001	
B-Konsentrasi Ac-Di-Sol	42,3207	1	42,3207	168,1506	< 0.0001	
C-Konsentrasi MgS	2,8912	1	2,8912	11,4875	0.0037	
AB	24,3412	1	24,3412	96,7136	< 0.0001	
AC	1,4357	1	1,4357	5,7044	0.0296	
BC	0,0273	1	0,0273	0,1086	0.7460	
ABC	0,44010	1	0,4401	1,7486	0.2046	
Pure Error	4,0269	16	0,2517			
Cor Total	110,7427	23				

The Model F-value of 60.57 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.

In this case A, B, C, AB, AC are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0,5017	R-Squared	0,9636
Mean	83,9071	Adj R-Squared	0,9477
C.V. %	0,5979	Pred R-Squared	0,9182
PRESS	9,0606	Adeq Precision	20,2086

The "Pred R-Squared" of 0.9182 is in reasonable agreement with the "Adj R-Squared" of 0.9477.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 20.209 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	Df	Standard Error	95% CI Low	95% CI High
Intercept	83,9071	1	0,102405	83,6899	84,1242
A-Konsentrasi AKP	-1,2121	1	0,102405	-1,4291	-0,9949
B-Konsentrasi Ac-Di-Sol	1,3279	1	0,102405	1,11083	1,5450
C-Konsentrasi MgS	-0,3471	1	0,102405	-0,5642	-0,1299
AB	1,0070	1	0,102405	0,7899	1,2242
AC	-0,2446	1	0,102405	-0,4617	-0,0275
BC	0,0337	1	0,102405	-0,1833	0,2508
ABC	-0,1354	1	0,102405	-0,3525	0,0817

Final Equation in Terms of Coded Factors:

$$\begin{aligned} \text{ED 60} = & 83,9071 \\ & -1,2121 * A \\ & 1,3279 * B \\ & -0,3471 * C \\ & 1,0070 * A * B \\ & -0,2446 * A * C \\ & 0,0337 * B * C \\ & -0,1354 * A * B * C \end{aligned}$$

Final Equation in Terms of Actual Factors:

$$\begin{aligned} \text{ED 60} = & 83,9071 \\ & -1,2121 * \text{Konsentrasi AKP} \\ & 1,3279 * \text{Konsentrasi Ac-Di-Sol} \\ & -0,3471 * \text{Konsentrasi MgS} \\ & 1,0070 * \text{Konsentrasi AKP} * \text{Konsentrasi Ac-Di-Sol} \\ & -0,2446 * \text{Konsentrasi AKP} * \text{Konsentrasi MgS} \\ & 0,0337 * \text{Konsentrasi Ac-Di-Sol} * \text{Konsentrasi MgS} \\ & -0,1354 * \text{Konsentrasi AKP} * \text{Konsentrasi Ac-Di-Sol} * \text{Konsentrasi MgS} \end{aligned}$$

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node.

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If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN U

HASIL UJI ANAVA KEKERASAN TABLET METFORMIN HCl

ANOVA

Kekerasan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.027	7	2.861	1398.470	.000
Within Groups	.033	16	.002		
Total	20.060	23			

Keterangan :

$F_{hitung} (1398,470) > F_{tabel (0,05)(7,16)} (2,66)$ maka H_0 ditolak dan ada perbedaan bermakna antar formula. Rata-rata kekerasan dari kedelapan formula tablet metformin HCl menunjukkan ada perbedaan yang signifikan antar formula.

Kekerasan

Tukey HSD^a

formula	N	Subset for alpha = 0.05							
		1	2	3	4	5	6	7	8
1	3	4.8233							
3	3		5.7967						
7	3			6.3900					
8	3				6.7100				
5	3					6.9800			
4	3						7.2533		
6	3							7.5433	
2	3								7.7767
Sig.		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Keterangan :

Berdasarkan hasil HD Tukey dari kedelapan formula, diketahui bahwa ada perbedaan yang signifikan antar formula yaitu masing-masing formula menunjukkan adanya perbedaan yang bermakna

LAMPIRAN V

HASIL UJI ANAVA KERAPUHAN TABLET METFORMIN HCl

ANOVA

Kerapuhan

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.529	7	.076	55022.434	.000
Within Groups	.000	16	.000		
Total	.529	23			

Keterangan :

$F_{hitung} (55022,434) > F_{tabel} (0,05)(7,16) (2,66)$ maka H_0 ditolak dan ada perbedaan bermakna antar formula. Rata-rata kerapuhan dari kedelapan formula tablet metformin HCl menunjukkan ada perbedaan yang signifikan antar formula.

Kerapuhan

Tukey HSD^a

formula	N	Subset for alpha = 0.05						
		1	2	3	4	5	6	7
2	3	.215133						
6	3		.420567					
5	3			.424300				
8	3				.490333			
1	3					.573900		
4	3					.574867		
7	3						.645467	
3	3							.726567
Sig.		1.000	1.000	1.000	1.000	.966	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Keterangan :

Berdasarkan dari HD Tukey dari kedelapan formula, diketahui bahwa ada perbedaan yang signifikan antar formula yaitu formula 1 berbeda bermakna dengan formula 2, 3, 5, 6, 7 dan 8; formula 2 berbeda bermakna dengan formula 1, 3, 4, 5, 6, 7 dan 8; formula 3 berbeda bermakna dengan formula 1, 2, 4, 5, 6, 7, 8; formula 4 berbeda bermakna dengan formula 2, 3, 5, 6, 7 dan 8; formula 5 berbeda bermakna dengan formula 1, 2, 3, 4, 6, 7 dan 8; formula 6 berbeda bermakna dengan formula 1, 2, 3, 4, 5, 7 dan 8; formula 7 berbeda bermakna dengan formula 1, 2, 3, 4, 5, 6 dan 8 sedangkan formula 8 berbeda bermakna dengan formula 1, 2, 3, 4, 5, 6 dan 7.

LAMPIRAN W

HASIL UJI ANAVA WAKTU HANCUR TABLET METFORMIN HCl

ANOVA
waktu_hancur

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	51.458	7	7.351	21.630	.000
Within Groups	5.438	16	.340		
Total	56.895	23			

Keterangan :

$F_{hitung} (21,630) > F_{tabel (0,05)(7,16)} (2,66)$ maka H_0 ditolak dan ada perbedaan bermakna antar formula. Rata-rata waktu hancur dari kedelapan formula tablet metformin HCl menunjukkan ada perbedaan yang signifikan antar formula.

waktu_hancur
Tukey HSD^a

formula	N	Subset for alpha = 0.05			
		1	2	3	4
3	3	1.6100			
1	3		4.3000		
7	3		4.9233	4.9233	
8	3		5.4167	5.4167	5.4167
4	3		5.5433	5.5433	5.5433
6	3		5.6433	5.6433	5.6433
5	3			6.2367	6.2367
2	3				6.6633
Sig.		1.000	.157	.174	.218

Keterangan :

Berdasarkan dari HD Tukey dari kedelapan formula, diketahui bahwa ada perbedaan yang signifikan antar formula yaitu formula 1 berbeda bermakna dengan formula 2, 3 dan 5; formula 2 berbeda bermakna dengan formula 1, 3 dan 7; formula 3 berbeda bermakna dengan formula 1, 2, 4, 5, 6, 7, 8; formula 4 berbeda bermakna dengan formula 3; formula 5 berbeda bermakna dengan formula 1 dan 3; formula 6 berbeda bermakna dengan formula 3; formula 7 berbeda bermakna dengan formula 2 dan 3 sedangkan formula 8 berbeda bermakna dengan formula 3.

LAMPIRAN X

HASIL UJI ANAVA EFISIENSI DISOLUSI TABLET METFORMIN HCl

ANOVA

ED_60

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	105.243	7	15.035	60.534	.000
Within Groups	3.974	16	.248		
Total	109.217	23			

Keterangan :

$F_{hitung} (60,534) > F_{tabel (0,05)(7,16)} (2,66)$ maka H_0 ditolak dan ada perbedaan bermakna antar formula. Rata-rata efisiensi disolusi dari kedelapan formula tablet metformin HCl menunjukkan ada perbedaan yang signifikan antar formula.

ED_60

Tukey HSD^a

formula	N	Subset for alpha = 0.05	
		1	2
6	3	79.8700	
2	3	80.8500	
8	3		84.3367
5	3		84.5267
1	3		85.0700
3	3		85.1967
7	3		85.5067
4	3		85.7233
Sig.		.300	.055

Means for groups in homogeneous subsets are displayed.

Keterangan :

Berdasarkan dari HD Tukey dari kedelapan formula, diketahui bahwa ada perbedaan yang signifikan antar formula yaitu formula 1 berbeda bermakna dengan formula 2, dan 6; formula 2 berbeda bermakna dengan formula 1, 3, 4, 5, 7 dan 8; formula 3 berbeda bermakna dengan formula 2 dan 6; formula 4 berbeda bermakna dengan formula 2 dan 6; formula 5 berbeda bermakna dengan formula 2 dan 6; formula 6 berbeda bermakna dengan formula 1, 3, 4, 5, 7 dan 8; formula 7 berbeda bermakna dengan formula 2 dan 6 sedangkan formula 8 berbeda bermakna dengan formula 2 dan 6.

LAMPIRAN Y
SURAT KETERANGAN DETERMINASI TANAMAN PISANG
AGUNG



UNIT LAYANAN JASA DAN PENGUJIAN
FAKULTAS FARMASI
UNIVERSITAS KATOLIK WIDYA MANDALA SURABAYA

SURAT KETERANGAN IDENTIFIKASI
No. 001/LJ-FF/I/2015

Bersama ini menerangkan bahwa bahan yang dibawa oleh:

Nama : DR. Lannie Hadisoewigno, M.Si., Apt
Instansi : Fakultas Farmasi Unika Widya Mandala Surabaya
Tanggal : 17 Desember 2014
Jenis bahan : Bahan segar (batang, daun dan buah)

Adalah memiliki klasifikasi sebagai berikut:

Divisi : Spermatophyta
Sub Divisi : Angiospermae
Kelas : Monocotyledoneae
Bangsa : Zingiberales
Suku : Musaceae
Marga : Musa
Jenis : *Musa paradisiaca* L.

Berdasarkan pustaka:

1. Backer, C.A, Vol 3. 1968. *Flora of Java*. Hal.36
2. Bailey, L.H, Jilid I. 1950. *The Standard Cyclopedia of Horticulture*. Hal 2.

Demikian surat keterangan ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Surabaya, 7 Januari 2015

Mengetahui
Koordinator Layanan Jasa

Lisa Soegianto, S.Si., M.Sc., Apt
NIK. 241.07.0609



Pemeriksa,

Sumi Wijaya, Ph.D., Apt
NIK. 241.03.0588

Jl. Kalisari selatan No.7, telp. (031) 99005299 ext. 10705 Fax. 99005288

"a-life improving service"

LAMPIRAN Z

**HASIL PENGUJIAN SUSUT PENGERINGAN AMILUM KULIT
PISANG**

Hasil Pengujian Susut Pengeringan Amilum A1



**UNIT LAYANAN PENGUJIAN
FAKULTAS FARMASI UNIVERSITAS AIRLANGGA**

**ASSESSMENT SERVICE UNIT
FACULTY OF PHARMACY AIRLANGGA UNIVERSITY**

Jl. Dharmawangsa Dalam, Surabaya 60286, Indonesia. Telp./Fax: +62 31 5036779; email: ulpfua@yahoo.com

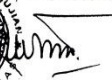
SERTIFIKAT PENGUJIAN

No. 1519/SA/X/2014*

1. No. Surat Permohonan : -
2. Tanggal Surat Permohonan : 13 Oktober 2014
3. Tanggal sampel dikerjakan : 13 Oktober 2014
4. Nama Pemilik Sampel : RIZKA MUHITA P
S1 Farmasi Widya Mandala Surabaya
5. Jenis>Nama Sampel/Kode : AMILUM KULIT PISANG
6. Keperluan Uji : -
7. Parameter yang diuji : Kadar Air
8. Hasil :

Jenis pemeriksaan	Metode	Hasil
Kadar Air	Farmakope Indonesia IV	(9,36 ± 0,3) % b/b

Surabaya, 17 Oktober 2014


Dr. Perhat M. Yuwono, MS.

Hasil Pengujian Susut Pengeringan Amilum A2 dan A3



UNIT LAYANAN PENGUJIAN
FAKULTAS FARMASI
UNIVERSITAS AIRLANGGA

1/1

SERTIFIKAT PENGUJIAN

No. 0002/SA/II/2015*

1. No. Surat Permohonan : -
2. Tanggal Surat Permohonan : 5 Januari 2015
3. Tanggal sampel dikerjakan : 5 Januari 2015
4. Nama Pemilik Sampel : RIZKA MUHITA P
S1 Farmasi Widya Mandala Surabaya
5. Jenis>Nama Sampel/Kode : AMILUM KULIT PISANG
6. Keperluan Uji
7. Parameter yang diuji : Kadar Air
8. Hasil

Kode Sampel	Jenis pemeriksaan	Metode	Hasil
A2	Kadar Air	Farmakope Indonesia IV	(13,30 ± 0,16) % b/b
A3			(13,14 ± 0,01) % b/b

Surabaya, 8 Januari 2015
Direktur


Dr. rer. nat. M. Yuwono, MS.

LAMPIRAN AB

HASIL PENGUJIAN KADAR ABU, KADAR AMILOSA DAN DERAJAT PUTIH AMILUM KULIT PISANG



LABORATORIUM PENGUJIAN MUTU dan KEAMANAN PANGAN

(Testing Laboratory of Food Quality and Food Safety)

JURUSAN TEKNOLOGI HASIL PERTANIAN

FAKULTAS TEKNOLOGI PERTANIAN

UNIVERSITAS BRAWIJAYA

Jl. Veteran, Malang 65145, Telp/Fax. (0341) 573358

E-mail : labtejpangan_thpsb@yahoo.com

KEPADA : Anastasia Caroline D.R.
TO UWM
SURABAYA

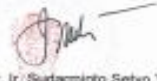
LAPORAN HASIL UJI REPORT OF ANALYSIS

Nomor / Number : 4827/THP/LAB/2014
Nomor Analisis / Analysis Number : 4827
Tanggal penerbitan / Date of issue : 15 Oktober 2014
Yang bertanda tangan di bawah ini menerangkan, bahwa hasil pengujian
The undersigned ratifies that examination
Dari contoh / of the sample (s) of : Amilum Kulit Pisang
Untuk analisis : / For analysis
Keterangan contoh / Description of sample
Diambil dari / Taken from
Oleh / By
Tanggal penerimaan contoh / Received : 01 Oktober 2014
Tanggal pelaksanaan analisis / Date of analysis : 01 Oktober 2014
Hasil adalah sebagai berikut / Resulted as follows

Kode	Amilosa (%)	Abu (%)	Warna		
			L*	a*	b*
A1	38,43	1,40	50,3	13,6	16,0
A2	34,38	1,08	55,6	13,8	16,6
A3	34,20	1,56	51,6	20,3	13,9
A4	29,88	1,8	57,6	17,5	17,3

HASIL PENGUJIAN INI HANYA BERLAKU UNTUK
CONTOH-CONTOH TERSEBUT DI ATAS. PENGAMBIL
CONTOH BERTANGGUNG JAWAB ATAS KEBENARAN
TANDING SARANG.

Ketua,


Dr. Ir. Sudarminto Setyo Yuwono, M.Sc.
NIP. 19631218 198503 1 002

LAMPIRAN AC

TABEL F

Titik Persentase Distribusi F untuk Probabilita = 0,05															
df untuk penyebut (N2)	df untuk pembilang (N1)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	161	199	216	225	230	234	237	239	241	242	243	244	245	245	246
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.40	19.41	19.42	19.42	19.43
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.76	8.74	8.73	8.71	8.70
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.94	5.91	5.89	5.87	5.86
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.70	4.68	4.66	4.64	4.62
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.03	4.00	3.98	3.96	3.94
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.60	3.57	3.55	3.53	3.51
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.31	3.28	3.26	3.24	3.22
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.10	3.07	3.05	3.03	3.01
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.94	2.91	2.89	2.86	2.85
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.82	2.79	2.76	2.74	2.72
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.72	2.69	2.66	2.64	2.62
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.63	2.60	2.58	2.55	2.53
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.57	2.53	2.51	2.48	2.46
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.51	2.48	2.45	2.42	2.40
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.46	2.42	2.40	2.37	2.35
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.41	2.38	2.35	2.33	2.31
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.37	2.34	2.31	2.29	2.27
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.34	2.31	2.28	2.26	2.23
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.31	2.28	2.25	2.22	2.20
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.28	2.25	2.22	2.20	2.18
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.26	2.23	2.20	2.17	2.15
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.24	2.20	2.18	2.15	2.13
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.22	2.18	2.15	2.13	2.11
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.20	2.16	2.14	2.11	2.09
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22	2.18	2.15	2.12	2.09	2.07
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.20	2.17	2.13	2.10	2.08	2.06
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.19	2.15	2.12	2.09	2.06	2.04
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.18	2.14	2.10	2.08	2.05	2.03

LAMPIRAN AD
TABEL T

cum. prob	t _{.50}	t _{.75}	t _{.80}	t _{.85}	t _{.90}	t _{.95}	t _{.975}	t _{.99}	t _{.995}	t _{.999}	t _{.9995}
one-tail	0.50	0.25	0.20	0.15	0.10	0.05	0.025	0.01	0.005	0.001	0.0005
two-tails	1.00	0.50	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.002	0.001
df											
1	0.000	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62
2	0.000	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.000	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.000	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.000	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	0.000	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	0.000	0.711	0.896	1.119	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	0.000	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	0.000	0.703	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	0.000	0.700	0.879	1.093	1.372	1.812	2.228	2.784	3.169	4.144	4.587
11	0.000	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	0.000	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	0.000	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	0.000	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	0.000	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	0.000	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	0.000	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	0.000	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	0.000	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	0.000	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	0.000	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	0.000	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	0.000	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485	3.768
24	0.000	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	0.000	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	0.000	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	0.000	0.684	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	0.000	0.683	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	0.000	0.683	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	0.000	0.683	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385	3.646
40	0.000	0.681	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.307	3.551
60	0.000	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232	3.480
80	0.000	0.678	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195	3.416
100	0.000	0.677	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174	3.390

LAMPIRAN AE

SERTIFIKAT ANALISIS BAHAN

METFORMIN HCL



Certificate of Analysis			
Product : Metformin Hydrochloride BP/EP		Batch No. : MT02600213	
Mfg. Date : Feb, 2013		Exp. Date : Jan, 2018	
Quantity : 1000 Kg		No. of Containers : 40	
Art No. / Specification: KF 03			
Customer name: PT. GLOBAL CHEMINDO MEGATRADING, INDONESIA			

S. No	Test	Result	Specification
01.	Description	White Crystals	White Crystals
02.	Solubility	Freely soluble in water, slightly soluble in alcohol, practically insoluble in acetone and in methylene chloride.	Freely soluble in water, slightly soluble in alcohol, practically insoluble in acetone and in methylene chloride.
03.	Identification B. IR	Positive	Concordant with Ref. Spectra obtained with Metformin Hydrochloride working standard
04.	E. Reaction of Chlorides	Positive	Positive
	Appearance of solution	Solution S is clear and colourless	Solution S (2g in 20 ml water) should be clear and colourless.
05.	Related substances (By HPLC)	Below quantification limit	Not more than 0.02%
	a) Cyanoguanidine	0.02%	Not more than 0.10%
	b) Other Impurity	Less than 10 ppm	Not more than 10 ppm
06.	Heavy metals	0.20%	Not more than 0.5%
07.	Loss on drying	0.03%	Not more than 0.1%
08.	Sulphated Ash	99.4%	Between 98.5% and 101.0% of C ₄ H ₁₂ N ₄
09.	Assay on dry basis		
10.	Additional Test:		
	Particle size	100%	100.0% material shall pass through 20 mesh screen
11.	Residual Solvents		
	Methanol	Below quantification limit	Not more than 1000 ppm
	Xylene	Below Detectable Limit	Not more than 500 ppm

Remarks : The product Complies with B.P-260/EP-3-Vth Edition and in house specifications.
Declaration: Product is free from animal derived materials and is manufactured from synthetic sources only.

Prepared by
Soke
Executive QC
Date: 22/02/13

Reviewed by
EL
Dy. Manager-QC
Date: 22/02/13

Approved by
Q
Head - QA
Date: 22/02/13



Works: Wanbury Limited, API Division Taruniku, K. Jirindalapur - 534 217, Ingavaram Mandal, West Godavari District, Andhra Pradesh, India.
Tel: 91-8819-284 249, 284 349, Fax: 91-8819-284 350
Roga Office : 10th Floor, B-Wing, BSEL Tech Park, Sector-30A, Opp. Vashi Railway Stn., Vashi, Navi Mumbai-400 705, (INDIA).
Tel : 91-22-6794 2222, Fax : 91-22-6794 2111/333



GLOBAL CHEMINDO MEGATRADING
reliable partner in raw material business

AVICEL PH-101



GUJARAT MICROWAX PRIVATE LIMITED

FLOCEL® 101

Microcrystalline cellulose NF, Ph. Eur.

CERTIFICATE OF ANALYSIS

Batch No: E0849

Manufacturing Date: November-2012

Manufacturing Site: Nandasan, India.

Re-evaluation Date: November-2017

Analysis	Specifications	Reference	Batch Results
Colour	White	ph. Eur.	White
Identification A	Have to correspond	NF, ph. Eur.	Complies
Identification B	Have to correspond	NF, ph. Eur.	Complies
Degree of Polymerisation	Max. 350	NF, ph. Eur.	Complies
Solubility	Have to correspond	ph. Eur.	Complies
pH	5.0-7.0	USP, ph. Eur.	6.32
Residue on Ignition	Max. 0.05 %	USP, ph. Eur.	0.03%
Loss on Drying	Max. 6.0 %	USP, ph. Eur.	3.42%
Heavy Metals	Max. 10 ppm	USP	Complies
Conductivity	Max. 75 µs/cm	USP, ph. Eur.	44 µs/cm
Water Soluble Substances	Max. 0.24 %	USP, ph. Eur.	0.12%
Ether Soluble Substances	Max. 0.05 %	USP, ph. Eur.	0.01%
Bulk Density	0.26 to 0.33 g/ml	NF	0.32 g/ml
Sieve Analysis(% Retention)			
60 Mesh (250 µm)	< 1.0 %	Inhouse method	Nil
200 Mesh (75 µm)	< 30.0 %		23.36%
Microbial Analysis			
Total Aerobic Microbial Plate Count	Max. 100 CFU/g	USP, ph. Eur.	20
Total Yeast and Molds Count	Max. 20 CFU/g	USP, ph. Eur.	< 10
Escherichia Coli	Should be Absent	USP, ph. Eur.	Absent
Staphylococcus Aureus	Should be Absent	USP, ph. Eur.	Absent
Salmonella Species	Should be Absent	USP, ph. Eur.	Absent
Pseudomonas Aeruginosa	Should be Absent	USP, ph. Eur.	Absent

The raw materials, manufacturing process and product do not contain any of the solvents listed in Residual Solvents (Ph. Eur. < 5.4 >, USP < 467 >)

For GUJARAT MICROWAX PVT. LTD.

Chemist Quality Control / Jayesh prajapati / DATE : 06/11/2012

megAsetia

PT. MEGASETIA AGING K...

Manufacturer:
INDIA
Gujarat Corporate Office

Sales + Marketing:
WORLDWIDE
JRS PHARMA GMBH+CO.KG

USA + CANADA
JRS PHARMA LP

AC-DI-SOL



GUJARAT MICROWAX PRIVATE LIMITED

UNIT - II

Croscarmellose Sodium Ph.Eur., NF, JP

CERTIFICATE OF ANALYSIS**BATCH NO : 7110907008****Mfg.Dt : JULY-2009****Manufacturing site : Mehsana, India****Exp.Dt : JUNE-2014****Description**

Almost White, very hygroscopic powder; practically insoluble in acetone ethanol, ether and toluene.

Characteristics	Specification Reference		Result
Colour	White		White
Particle size (retained on air jet sieve)			
> 75 µm	max. 2 %	In house	1.73
> 45 µm	max. 20 %		9.50
Identification (A, B, C), (1, 2, 3)	passes	Ph.Eur., NF, JP	passes
Degree of Substitution	0.60 - 0.85	Ph.Eur., NF, JP	0.66
Loss on drying	max. 10 %	Ph.Eur., NF, JP	9.730%
PH	5.0 - 7.0	Ph.Eur., USP, NF, JP	6.76
Content of water-soluble material	1.0 - 10.0 %	Ph.Eur., NF, JP	5.310%
Sulphated ash	14.0 - 28.0 %	Ph.Eur., JP	19.28%
Settling volume	10.0 - 30.0 ml	Ph.Eur., NF, JP	12 ml
Sodium chloride	max. 0.5 %	Ph. Eur. USP	0.350%
Heavy metals	max. 10 ppm	Ph. Eur. USP	Passes
Iron	< 10 ppm	Ph. Eur. USP	Passes

Microbial Analysis:

Total aerobic microbial count	< 100 C F U/g	Ph. Eur. USP	55
Fungi / molds and Yeasts	< 20 C F U/g	Ph. Eur. USP	10
E. coli, Pseudomonas aeruginosa	absent in 10 g	Ph. Eur. USP	Absent
Staph. Aureus, Salmonella spec.	absent in 10 g	Ph. Eur. USP	Absent

The batch described by this certificate meets the requirements of Ph. Eur., NF, and JP monographs for "Croscarmellose Sodium" current edition.

The raw materials, manufacturing process, and product do not contain any of the solvents listed in Residual Solvents (Ph. Eur. <5.4>, USP <467>) except for Ethanol limited to max. 1.0%.

Storage recommendation: Protect from excessive heat and moisture. Keep containers closed

For GUJARAT MICROWAX PVT. LTD. (Unit-2)

Chemist Quality Control / Jayesh prajapati / DATE : 29/08/2009

Manufacturer:
IA
arat Corporate Office

Sales + Marketing:
WORLDWIDE
JRS PHARMA GMBH+CO.KG

USA + CANADA
JRS PHARMA LP

MAGNESIUM STEARAT

Magnesium stearat:



SUN PLAN DEVELOPMENT LTD.

CERTIFICATE OF ANALYSIS

INVOICE NO. 1514

TO: PT BRATACO JL. KELENTENG NO. 8
BANDUNG QQ PT BRATACO JL. MANGGA
BESAR V/5 JAKARTA, INDONESIA
NPWP.01.130.689.1-032.001

RE: 48 MT TALC POWDER HAICHEN SHIPPED PER V.SI "HUANDAO" V3192 FROM BAYUQUAN,
CHINA SEAPORT TO TG.PRIOK PORT, JAKARTA, INDONESIA ON/ABOUT 18 OCT 2003
DRAWN UNDER IRREVOCABLE DC NO.02/03U/0645 DD 19SEPT03 OF BANK NISP PT (SWIFT
ADDRESS : NISPIDJA)

COMMODITY : TALC POWDER HAICHEN
QUANTITY : 48 MT

SiO ₂ :	60.1%
MgO :	30.8%
WHITENESS :	92.8%
CaO :	0.4%
Fe ₂ O ₃ :	0.26%
Al ₂ O ₃ :	0.3%
LOI :	6.0%
FINENESS :	98.5% PASSING THROUGH 325 MESH
PH :	7.9
MOISTURE :	0.38%
ASBESTOS :	FREE

 **BRATACO**
IMPORTER
MANUFACTURER
DISTRIBUTOR

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