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Lampiran 1. Perhitungan Formula Tablet Kunyah

Formula 1 PVP-K30 1% : avicel[®] PH 101 34,75%

$$\begin{aligned} \text{Parasetamol} &= \frac{30}{100} \times 400 \text{ mg} = 120 \text{ mg} \\ \text{PVP-K30} &= \frac{1}{100} \times 400 \text{ mg} = 4 \text{ mg} \\ \text{Explotab} &= \frac{4}{100} \times 400 \text{ mg} = 16 \text{ mg} \\ \text{Mg stearat} &= \frac{0,25}{100} \times 400 \text{ mg} = 1 \text{ mg} \\ \text{Talkum} &= \frac{1}{100} \times 400 \text{ mg} = 4 \text{ mg} \\ \text{Manitol} &= \frac{26}{100} \times 400 \text{ mg} = 104 \text{ mg} \\ \text{Aspartam} &= \frac{3}{100} \times 400 \text{ mg} = 12 \text{ mg} \\ \text{Avicel}^{\text{®}} \text{ PH 101} &= \frac{34,75}{100} \times 400 \text{ mg} = 139 \text{ mg} \end{aligned}$$

Formula 2 PVP-K30 2% : avicel[®] PH 101 33,75%

$$\begin{aligned} \text{Parasetamol} &= \frac{30}{100} \times 400 \text{ mg} = 120 \text{ mg} \\ \text{PVP-K30} &= \frac{2}{100} \times 400 \text{ mg} = 8 \text{ mg} \\ \text{Explotab} &= \frac{4}{100} \times 400 \text{ mg} = 16 \text{ mg} \\ \text{Mg stearat} &= \frac{0,25}{100} \times 400 \text{ mg} = 1 \text{ mg} \\ \text{Talkum} &= \frac{1}{100} \times 400 \text{ mg} = 4 \text{ mg} \\ \text{Manitol} &= \frac{26}{100} \times 400 \text{ mg} = 104 \text{ mg} \\ \text{Aspartam} &= \frac{3}{100} \times 400 \text{ mg} = 12 \text{ mg} \\ \text{Avicel}^{\text{®}} \text{ PH 101} &= \frac{33,75}{100} \times 400 \text{ mg} = 135 \text{ mg} \end{aligned}$$

Formula 3 PVP-K30 3% : avicel® PH 101 32,75%

$$\text{Parasetamol} = \frac{30}{100} \times 400 \text{ mg} = 120 \text{ mg}$$

$$\text{PVP-K30} = \frac{3}{100} \times 400 \text{ mg} = 12 \text{ mg}$$

$$\text{Explotab} = \frac{4}{100} \times 400 \text{ mg} = 16 \text{ mg}$$

$$\text{Mg stearat} = \frac{0,25}{100} \times 400 \text{ mg} = 1 \text{ mg}$$

$$\text{Talkum} = \frac{1}{100} \times 400 \text{ mg} = 4 \text{ mg}$$

$$\text{Manitol} = \frac{26}{100} \times 400 \text{ mg} = 104 \text{ mg}$$

$$\text{Aspartam} = \frac{3}{100} \times 400 \text{ mg} = 12 \text{ mg}$$

$$\text{Avicel® PH 101} = \frac{32,75}{100} \times 400 \text{ mg} = 131 \text{ mg}$$

Formula 4 PVP-K30 4% : avicel® PH 101 31,75%

$$\text{Parasetamol} = \frac{30}{100} \times 400 \text{ mg} = 120 \text{ mg}$$

$$\text{PVP-K30} = \frac{4}{100} \times 400 \text{ mg} = 16 \text{ mg}$$

$$\text{Explotab} = \frac{4}{100} \times 400 \text{ mg} = 16 \text{ mg}$$

$$\text{Mg stearat} = \frac{0,25}{100} \times 400 \text{ mg} = 1 \text{ mg}$$

$$\text{Talkum} = \frac{1}{100} \times 400 \text{ mg} = 4 \text{ mg}$$

$$\text{Manitol} = \frac{26}{100} \times 400 \text{ mg} = 104 \text{ mg}$$

$$\text{Aspartam} = \frac{3}{100} \times 400 \text{ mg} = 12 \text{ mg}$$

$$\text{Avicel® PH 101} = \frac{31,75}{100} \times 400 \text{ mg} = 127 \text{ mg}$$

Lampiran 2. Foto COA Parasetamol

安丘市鲁安药业有限责任公司
ANQIU LU'AN PHARMACEUTICAL CO., LTD.
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 Tel: 86-536-4386559 Fax: 86-536-4390885
 E-mail: huan@huanpharma.com Http://www.huan-pharma.com

Certificate of Analysis

Product:	Paracetamol	COA No.:	20163512
Batch No.:	2150096	Manufacturing Date:	2021.14.01
Quantity:	3000kg	Expiry Date:	2025.14.01
Packaging:	25kg fibre drum	Standard:	USP35
Tests	Specification	Test Reference	Results
Appearance:	A white, crystalline powder; odorless; slightly bitterness.	USP monograph for Acetaminophen	Conforms
Solubility**:	1g of the specimen dissolves in 20ml boil water, 15ml 1mol/L sodium Hydroxide solution, freely soluble in alcohol.	USP monograph. Acetaminophen.	Conforms
Identification	IR spectrum conforms to that of the reference standard. UV spectrum conforms to that of the reference standard. TLC spectrum conforms to that of the reference standard.	USP Monograph Acetaminophen	Conforms Conforms Conforms
Melting point:	168-172°C	USP <741>	169-170°C
Free p-Aminophenol:	≤ 50ppm	EP monograph for Paracetamol, HPLC method	0.6ppm
Related Substances (4-Chloroacetanilide):	≤ 0.001%	EP monograph for Paracetamol, HPLC method	ND*
Chloride**:	≤ 0.014%	USP <221>	<0.014%
Sulfate**:	≤ 0.02%	USP <221>	<0.02%
Sulfide**:	No coloration or spotting of the test paper occurs.	USP Monograph for Acetaminophen	Conforms
Water Content:	≤ 0.5%	USP <731>	0.07%
Residue on Ignition:	≤ 0.1%	USP <281>	0.03%
Heavy Metals:	≤ 10ppm	USP <31> method II	<10ppm
Readily carbonizable substances:	This solution has no more color than Matching Fluid A.	USP <271>	Conforms
Assay: (on anhydrous basis)	98.0-101.0%	USP monograph for Acetaminophen, UV method	99.7%
Residual Solvents	Glacial acetic acid is used in Acetaminophen production, and it may be determined by Loss on Drying not more than 0.5%.		
Conclusion:	It conforms to USP35.		

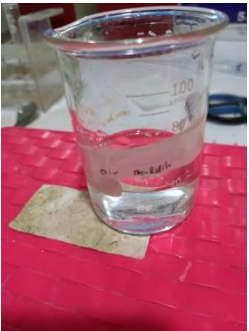
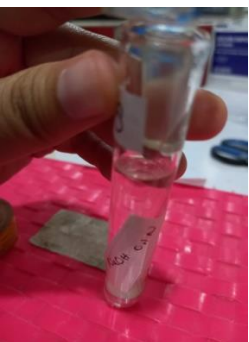
QA Manager: *[Signature]* Analyst: *[Signature]* Checker: *[Signature]*

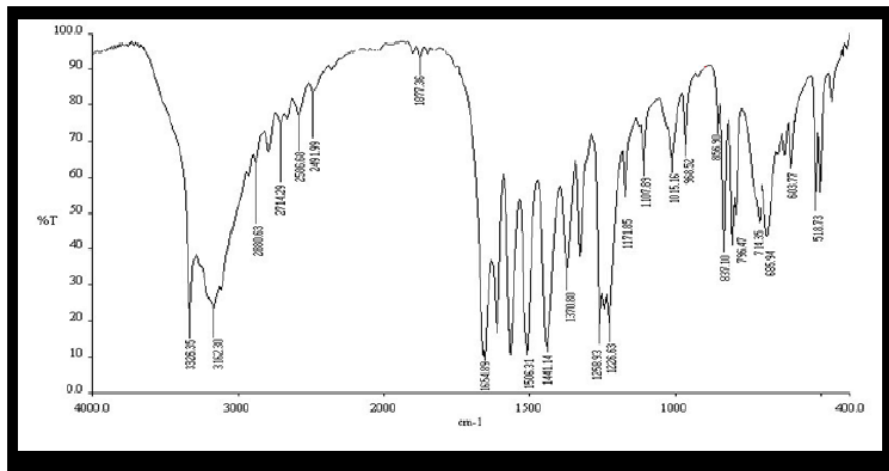
*: ND means not detected.
 **: Slip test.

Manufacturer: Anqiu Lu'an Pharmaceutical Co., Ltd.

ANQIU LU'AN
 PHARMACEUTICAL CO., LTD.

Lampiran 3. Uji Kelarutan Parasetamol

Foto	Pelarut	Keterangan
	Air mendidih	Larut
	NaOH 0,1 N	Larut

Lampiran 4. Gambar kromatogram infra merah baku parasetamol

Lampiran 5. Pemeriksaan Fisik Massa Granul

1. Waktu Alir

Replikasi	Waktu Alir (detik)			
	F1	F2	F3	F4
1	3,87	3,89	4,23	5,12
2	4,4	3,73	4,12	4,88
3	3,59	4,61	4,21	5,00
Rata-rata	3,95	4,08	4,19	5,00
SD	0,41	0,47	0,06	0,12

2. Sudut Diam

Replikasi	Sudut Diam (°)			
	F1	F2	F3	F4
1	24,32	25,68	25,97	25,87
2	23,27	24,32	25,21	26,57
3	22,98	23,32	26,34	26,84
Rata-rata	23,52	24,44	25,84	26,43
SD	0,71	1,18	0,58	0,50

3. Kandungan Lembab

Replikasi	Kandungan Lembab (%)			
	F1	F2	F3	F4
1	2,4	3	3,4	4
2	3	3,3	3	3,5
3	3,3	3,5	3,5	3
Rata-rata	2,9	3,3	3,3	3,5
SD	0,5	0,3	0,3	0,5

4. Uji Pengetapan

		Replikasi			
			1	2	3
Volume (mL)	F1	V ₀	100	100	100
		V ₁₀	98	99	97
		V ₅₀₀	88	91	86
		V ₁₂₅₀	89	90	88
	F2	V ₀	100	100	100
		V ₁₀	99	98	96
		V ₅₀₀	97	94	93
		V ₁₂₅₀	95	92	91
	F3	V ₀	100	100	100
		V ₁₀	100	99	99
		V ₅₀₀	96	96	95
		V ₁₂₅₀	95	94	93
	F4	V ₀	100	100	100
		V ₁₀	99	98	100
		V ₅₀₀	98	95	98
		V ₁₂₅₀	98	93	97

Replikasi	F1			F2			F3			F4		
	V ₀	V _t	%K	V ₀	V _t	%K	V ₀	V _t	%K	V ₀	V _t	%K
1	100	89	11	100	95	5	100	95	5	100	98	2
2	100	90	10	100	92	8	100	94	6	100	93	7
3	100	88	12	100	91	9	100	93	7	100	97	3

Replikasi	Kompresibilitas (%)			
	F1	F2	F3	F4
1	11	5	5	2
2	10	8	6	7
3	12	9	7	3
Rata-rata	11,00	7,33	6,00	4,00
SD	1,00	2,08	1,00	2,65

$$\text{Rumus : \% Kompresibilitas} = \frac{V_0 - V}{V_0} \times 100\%$$

Contoh perhitungan :

Formula 1 replikasi 1

$$\begin{aligned} \% \text{ Kompresibilitas} &= \frac{V_0 - V}{V_0} \times 100\% \\ &= \frac{100 - 89}{100} \times 100\% \\ &= 11\% \end{aligned}$$

Lampiran 6. Pemeriksaan Mutu Fisik Tablet

1. Keragaman Bobot

Replikasi Pengujian	Keragaman Bobot (mg)			
	F1	F2	F3	F4
1	402	404	400	403
2	403	401	403	404
3	401	399	402	399
4	402	402	400	403
5	402	403	401	398
6	404	400	402	404
7	403	400	402	400
8	400	400	400	402
9	401	403	400	403
10	404	401	402	400
11	404	402	403	404
12	402	402	401	402
13	400	405	403	400
14	402	402	404	403
15	401	404	404	402
16	401	405	398	401
17	400	401	403	403
18	399	404	402	404
19	403	399	403	402
20	402	402	401	401
Rata-rata	401,8	401,95	401,7	401,9
SD	1,44	1,85	1,56	1,77

Batas Penyimpangan Tablet 5% (mg)

Formula	Bobot rata-rata	Batas Penyimpangan	Minimum	Maksimum
1	401,8	20,09	381,71	421,89
2	401,95	20,10	381,85	422,05
3	401,78	20,09	381,69	421,87
4	401,9	20,10	381,81	422,00

Batas Penyimpangan Tablet 10% (mg)

Formula	Bobot rata-rata	Batas Penyimpangan	Minimum	Maksimum
1	401,8	40,18	361,62	441,98
2	401,95	40,20	361,76	442,15
3	401,78	40,18	361,60	441,96
4	401,9	40,19	361,71	442,09

2. Keseragaman Ukuran

Replikasi uji	Keseragaman Ukuran (cm)							
	F1		F2		F3		F4	
	Tebal	Diameter	Tebal	Diameter	Tebal	Diameter	Tebal	Diameter
1	0,41	1,20	0,41	1,20	0,43	1,20	0,41	1,20
2	0,42	1,21	0,42	1,21	0,42	1,21	0,42	1,21
3	0,41	1,20	0,41	1,20	0,41	1,20	0,41	1,20
4	0,42	1,21	0,42	1,21	0,42	1,21	0,42	1,21
5	0,42	1,21	0,42	1,21	0,42	1,21	0,42	1,21
6	0,42	1,21	0,42	1,21	0,42	1,21	0,41	1,21
7	0,41	1,22	0,41	1,22	0,41	1,22	0,41	1,21
8	0,40	1,21	0,43	1,21	0,39	1,21	0,43	1,21
9	0,41	1,21	0,41	1,21	0,41	1,21	0,41	1,21
10	0,42	1,21	0,42	1,21	0,42	1,21	0,42	1,21
Rata-rata	0,41	1,21	0,42	1,21	0,41	1,21	0,41	1,21
SD	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,00

Batas Ukuran Diameter Tablet

Formula	Tebal rata-rata	Diameter rata-rata	Minimum ($1\frac{1}{3}$ tebal)	Maksimum (3x tebal)
1	0,41	1,21	0,55	1,23
2	0,42	1,21	0,56	1,26
3	0,41	1,21	0,55	1,23
4	0,41	1,21	0,55	1,23

3. Kekerasan

Replikasi	Kekerasan			
	F1	F2	F3	F4
1	4,1	5,6	7,9	12,1
2	4,6	6,1	7,6	12,9
3	4	5,3	7,2	12,5
4	4,2	6,3	7,5	12,3
5	4,70	5,90	7,30	12,70
6	4,30	5,30	7,10	12,40
Rata-rata	4,32	5,83	7,30	12,47
SD	0,28	0,50	0,20	0,21

4. Kerapuhan

Formula	Replikasi			
		1	2	3
F1	W1 (g)	6,345	6,325	6,315
	W2 (g)	6,3024	6,2848	6,2755
	Kerapuhan (%)	0,67	0,64	0,63
F2	W1 (g)	6,353	6,368	6,371
	W2 (g)	6,3251	6,3410	6,3450
	Kerapuhan (%)	0,44	0,42	0,41
F3	W1 (g)	6,332	6,345	6,365
	W2 (g)	6,3072	6,3207	6,3450
	Kerapuhan (%)	0,39	0,38	0,31
F4	W1 (g)	6,5464	6,5310	6,4890
	W2 (g)	6,5340	6,5201	6,4760
	Kerapuhan (%)	0,19	0,17	0,20
	Syarat kerapuhan	< 1%		

Replikasi	Kerapuhan (%)			
	F1	F2	F3	F4
1	0,67	0,44	0,39	0,19
2	0,64	0,42	0,38	0,17
3	0,63	0,41	0,31	0,20
Rata-rata	0,64	0,42	0,36	0,19
SD	0,02	0,02	0,04	0,02

$$\text{Rumus : \% kerapuhan} = \frac{\text{bobot sebelum uji} - \text{bobot sesudah uji}}{\text{bobot sebelum uji}} \times 100\%$$

Contoh perhitungan :

Formula 1 replikasi 1

$$\begin{aligned} \% \text{ kerapuhan} &= \frac{\text{bobot sebelum uji} - \text{bobot sesudah uji}}{\text{bobot sebelum uji}} \times 100\% \\ &= \frac{6,345 \text{ gram} - 6,3024 \text{ gram}}{6,345} \times 100\% \\ &= 0,67\% \end{aligned}$$

5. Uji Tanggap Rasa

Keterangan :

1. Tekstur :
 - a. Tidak suka = 1
 - b. Suka = 2
 - c. Sangat suka = 3
2. Rasa :
 - a. Tidak suka = 1
 - b. Suka = 2
 - c. Sangat suka = 3
3. Aroma :
 - a. Tidak suka = 1
 - b. Suka = 2
 - c. Sangat suka = 3

Formula 1

No.	Nama Responden	Respon yang diberikan		
		Tekstur	Rasa	Aroma
1	Amel	2	1	1
2	Anis	2	2	2
3	Asih	3	3	3
4	Bagus	2	2	2
5	Delfi	3	3	3
6	Diane	1	1	1
7	Ergia	3	2	2
8	Erika	2	2	1
9	Geulis	1	1	1
10	Giyan	2	2	2
11	Handrian	2	3	3
12	Hervina	2	2	2
13	Intan	2	3	3
14	Disa	2	2	2
15	Nadhia	2	2	2
16	Sekar	2	2	2
17	Syiva	2	2	2
18	Wahyu	2	2	2
19	Wiwi	2	3	2
20	Yunia	2	4	3
Rata-rata				

Formula 2

No.	Nama Responden	Respon yang diberikan		
		Tekstur	Rasa	Aroma
1	Amel	3	3	3
2	Anis	1	1	1
3	Asih	1	3	2
4	Bagus	1	1	1
5	Delfi	3	3	3
6	Diane	1	1	2
7	Ergia	2	2	2
8	Erika	2	3	3
9	Geulis	2	2	1
10	Giyan	2	2	2
11	Handrian	2	3	3
12	Hervina	2	2	2
13	Intan	2	3	3
14	Disa	3	2	2
15	Nadhia	2	2	2
16	Sekar	2	2	2
17	Syiva	2	2	2
18	Wahyu	2	2	2
19	Wiji	2	2	2
20	Yunia	2	2	2

Formula 3

No.	Nama Responden	Respon yang diberikan		
		Tekstur	Rasa	Aroma
1	Amel	1	1	1
2	Anis	1	3	3
3	Asih	1	2	2
4	Bagus	1	3	3
5	Delfi	3	3	3
6	Diane	2	2	2
7	Ergia	2	2	3
8	Erika	1	1	1
9	Geulis	2	2	2
10	Giyan	1	2	3
11	Handrian	2	3	2
12	Hervina	1	1	1
13	Intan	1	3	3
14	Disa	2	2	2
15	Nadhia	2	2	2
16	Sekar	2	2	2
17	Syiva	2	2	2
18	Wahyu	2	2	2
19	Wiji	2	2	2
20	Yunia	2	2	2

Formula 4

No.	Nama Responden	Respon yang diberikan		
		Tekstur	Rasa	Aroma
1	Amel	2	2	2
2	Anis	2	2	2
3	Asih	1	2	2
4	Bagus	1	3	3
5	Delfi	1	2	2
6	Diane	1	3	3
7	Ergia	2	2	2
8	Erika	2	2	2
9	Geulis	2	2	3
10	Giyani	2	2	2
11	Handrian	2	2	2
12	Hervina	2	2	2
13	Intan	2	2	2
14	Disa	1	1	1
15	Nadhia	1	3	3
16	Sekar	1	1	1
17	Syiva	1	2	2
18	Wahyu	1	1	1
19	Wiwi	1	3	3
20	Yunia	1	1	1

Lampiran 7. Pembuatan Kurva Kalibrasi

1. Pembuatan kurva kalibrasi

a. Pembuatan larutan induk parasetamol 100 ppm

$$\text{Kertas timbang + zat} = 0,2724 \text{ g}$$

$$\text{Kertas timbang + sisa} = 0,2625 \text{ g}$$

$$\text{Zat parasetamol} = 0,0099 \text{ g} = 9,9 \text{ mg}$$

$$9,9 \text{ mg}/100 \text{ mL} = 99 \text{ mg}/1000 \text{ mL} = 99 \text{ ppm}$$

Dilartukan dalam larutan dapar fosfat pH 5,8 sebanyak 100 mL sehingga didapatkan konsentrasi 99 mg/L atau 99 ppm

b. Pengenceran

Larutan baku dipipet sebanyak 2,3,4,5,6, dan 7 ml kemudian dilarutkan dalam dapar fosfat pH 5,8 hingga 50 ml

$$V_1 \times C_1 = V_2 \times C_2$$

- Konsentrasi 3,96 ppm

$$2 \text{ mL} \times 99 \text{ ppm} = 50 \text{ mL} \times C_2$$

$$C_2 = 3,96 \text{ ppm}$$

- Konsentrasi 5,94 ppm

$$3 \text{ mL} \times 99 \text{ ppm} = 50 \text{ mL} \times C_2$$

$$C_2 = 5,94 \text{ ppm}$$

- Konsentrasi 7,92 ppm

$$4 \text{ mL} \times 99 \text{ ppm} = 50 \text{ mL} \times C_2$$

$$C_2 = 7,92 \text{ ppm}$$

- Konsentrasi 9,9 ppm

$$5 \text{ mL} \times 99 \text{ ppm} = 50 \text{ mL} \times C_2$$

$$C_2 = 9,9 \text{ ppm}$$

- Konsentrasi 11,88 ppm

$$6 \text{ mL} \times 99 \text{ ppm} = 50 \text{ mL} \times C_2$$

$$C_2 = 11,88 \text{ ppm}$$

- Konsentrasi 13,86 ppm

$$7 \text{ mL} \times 99 \text{ ppm} = 50 \text{ mL} \times C_2$$

$$C_2 = 13,86 \text{ ppm}$$

Konsentrasi (ppm)	Abs
3,96	0,262
5,94	0,383
7,92	0,53
9,9	0,619
11,88	0,756
13,86	0,85

Persamaan *regresi linier* antara konsentrasi (ppm) dan absorbansi diperoleh :

$$a = 0,0334$$

$$b = 0,0599$$

$$R^2 = 0,9961$$

$$r = 0,9980$$

$$y = a + bx$$

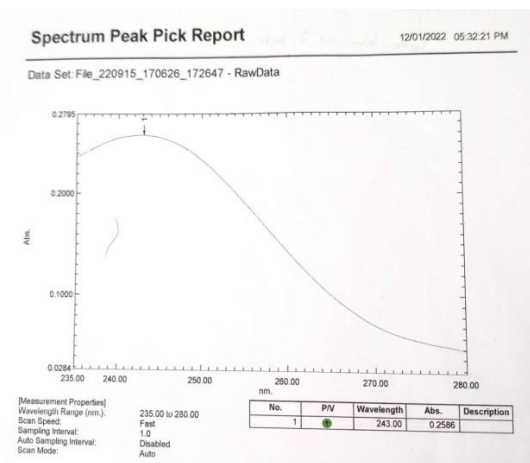
$$= 0,0599x + 0,0334$$

Keterangan :

x = konsentrasi (ppm)

y = absorbansi

2. Penentuan Panjang Gelombang



3. Operating Time

Kinetics Data Print Report

Time (Minute)	RawData ...
0.000	0.619
1.000	0.619
2.000	0.620
3.000	0.619
4.000	0.620
5.000	0.621
6.000	0.619
7.000	0.619
8.000	0.618
9.000	0.617
10.000	0.618
11.000	0.618
12.000	0.619
13.000	0.619
14.000	0.619
15.000	0.618

14 2+
15 2+

4. Hasil data validasi

a. Presisi

C	Abs	Konsentrasi Real	% Kons	X rata2	SD	RSD
9,9	0,619	9,776293823	98,75%	98,72%	0,001269	0,13%
9,9	0,618	9,759599332	98,58%			
9,9	0,619	9,776293823	98,75%			
9,9	0,619	9,776293823	98,75%			
9,9	0,618	9,759599332	98,58%			
9,9	0,620	9,792988314	98,92%			

b. Akurasi

C	Abs	Kadar (ppm)	% Recovery	X rata2	X rata2 keseluruhan
3,96	0,268	3,916528	98,90%	98,76%	101,76%
3,96	0,265	3,866444	97,64%		
3,96	0,27	3,949917	99,75%		
7,92	0,53	8,290484	104,68%	105,03%	
7,92	0,535	8,373957	105,73%		
7,92	0,53	8,290484	104,68%		
11,88	0,756	12,06344	101,54%	101,50%	
11,88	0,756	12,06344	101,54%		
11,88	0,755	12,04674	101,40%		

c. Penentuan LOD dan LOQ

C	Abs	Y'	Y-Y'	Y-Y'^2	X rata2
3,96	0,262	0,270604	-0,008604	7,4E-05	7,92
5,94	0,383	0,389206	-0,006206	3,85E-05	
7,92	0,53	0,507808	0,022192	0,000492	
9,9	0,619	0,62641	-0,00741	5,49E-05	
11,88	0,756	0,745012	0,010988	0,000121	
13,86	0,85	0,863614	-0,013614	0,000185	
a	0,0334			Total Y-Y'^2	0,000966
b	0,0599			Sigma Y-Y'^2	6,18E-05
r	0,9997			SY/X	0,00786
				LOD	0,433024
				LOQ	1,312195
				Vx0	1,66%

Lampiran 8. Perhitungan Disolusi Tablet

1. Hasil data disolusi

Formula 1 replikasi 1

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,646	10	10,23	92,04	0,00	92,04	76,70
30	0,673	10	10,68	96,10	1,02	97,12	80,94
45	0,748	10	11,93	107,37	2,09	109,46	91,22

Formula 1 replikasi 2

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,654	10	10,02	90,17	0,00	90,17	75,14
30	0,699	10	10,72	96,48	1,00	97,48	81,23
45	0,766	10	11,76	105,87	2,07	107,94	89,95

Formula 1 replikasi 3

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,656	10	10,05	90,45	0,00	90,45	75,37
30	0,681	10	10,44	93,95	1,00	94,96	79,13
45	0,754	10	11,58	104,19	2,05	106,24	88,53

Formula 2 replikasi 1

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,635	10	10,04	90,39	0,00	90,39	75,33
30	0,679	10	10,78	97,00	1,00	98,01	81,67
45	0,715	10	11,38	102,41	2,08	104,49	87,08

Formula 2 replikasi 2

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,637	10	10,08	90,69	0,00	90,69	75,58
30	0,673	10	10,68	96,10	1,01	97,11	80,92
45	0,688	10	10,93	98,35	2,08	100,43	83,69

Formula 2 replikasi 3

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,637	10	10,08	90,69	0,00	90,69	75,58
30	0,672	10	10,66	95,95	1,01	96,96	80,80
45	0,718	10	11,43	102,86	2,07	104,94	87,45

Formula 3 replikasi 1

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,629	10	9,94	89,49	0,00	89,49	74,57
30	0,669	10	10,61	95,50	0,99	96,49	80,41
45	0,704	10	11,20	100,76	2,06	102,81	85,68

Formula 3 replikasi 2

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,625	10	9,88	88,89	0,00	88,89	74,07
30	0,657	10	10,41	93,70	0,99	94,68	78,90
45	0,698	10	11,10	99,86	2,03	101,89	84,90

Formula 3 replikasi 3

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,632	10	9,99	89,94	0,00	89,94	74,95
30	0,649	10	10,28	92,49	1,00	93,49	77,91
45	0,689	10	10,94	98,50	2,03	100,53	83,78

Formula 4 replikasi 1

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,626	10	9,89	89,04	0,00	89,04	74,20
30	0,651	10	10,31	92,79	0,99	93,78	78,15
45	0,682	10	10,82	97,38	2,02	99,40	82,83

Formula 4 replikasi 2

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,630	10	9,96	89,64	0,00	89,64	74,70
30	0,647	10	10,24	92,19	1,00	93,19	77,66
45	0,685	10	10,88	97,90	2,02	99,92	83,27

Formula 4 replikasi 3

Diketahui

Menit	Abs	FP	Kadar per menit (ppm)	Kadar (mg)	Faktor koreksi	Jumlah obat terkoreksi	Kadar terdisolusi (%)
0	0,00	0,00	0,00	0,00	0,00	0,00	0,00
15	0,625	10	9,88	88,89	0,00	88,89	74,07
30	0,655	10	10,38	93,40	0,99	94,38	78,65
45	0,673	10	10,68	96,10	2,03	98,13	81,77

2. Rata-rata data disolusi

Menit	Formula			
	F1	F2	F3	F4
0	0,00	0,00	0,00	0,00
15	75,74	75,49	74,53	74,32
30	80,43	81,13	79,08	78,15
45	89,90	86,07	84,79	82,62

3. Contoh perhitungan

Formula 1 replikasi 1

Berat tablet percobaan = 400 mg

Jumlah zat parasetamol = 120 mg

Faktor pengenceran = 10

Volume medium disolusi = 900 mL

Perhitungan =

- Menit ke-15

Kadar (mg) menit ke-15

$$y = 0,0599x + 0,0334$$

$$0,646 - 0,0334 = 0,0599x$$

$$x = 10,23 \text{ ppm}$$

$$\begin{aligned} \text{Kadar (mg)} &= 10,23 \text{ ppm} \times \text{FP} \times 0,9 \text{ L} \\ &= 10,23 \text{ ppm} \times 10 \times 0,9 \text{ L} \\ &= 92,04 \text{ mg} \end{aligned}$$

Faktor koreksi = 0 mg

Jumlah obat terkoreksi = kadar (mg) + faktor koreksi

$$= 92,04 \text{ mg} + 0 \text{ mg}$$

$$= 92,04 \text{ mg}$$

$$\begin{aligned} \text{Kadar terdisolusi} &= \left(\frac{92,04 \text{ mg}}{120 \text{ mg}} \times 100\% \right) \\ &= 76,70 \% \end{aligned}$$

- Menit ke-30

Kadar (mg) menit ke-30

$$y = 0,0599x + 0,0334$$

$$0,673 - 0,0334 = 0,0599x$$

$$x = 10,68 \text{ ppm}$$

$$\begin{aligned} \text{Kadar (mg)} &= 10,68 \text{ ppm} \times \text{FP} \times 0,9 \text{ L} \\ &= 10,68 \text{ ppm} \times 10 \times 0,9 \text{ L} \\ &= 96,10 \text{ mg} \end{aligned}$$

Faktor koreksi =

$$\left(\frac{10 \text{ mL}}{900} \times \text{kadar sebelumnya} \right) + \text{faktor koreksi sebelumnya}$$

$$= \left(\frac{10 \text{ mL}}{900} \times 92,04 \text{ mg} \right) + 0 \text{ mg}$$

$$= 1,02 \text{ mg}$$

Jumlah obat terkoreksi= kadar (mg) + faktor koreksi

$$= 96,10 \text{ mg} + 1,02 \text{ mg}$$

$$= 97,12 \text{ mg}$$

Kadar terdisolusi = $\left(\frac{97,12 \text{ mg}}{120 \text{ mg}} \times 100\% \right)$

$$= 80,94 \%$$

- Menit ke-45

Kadar (mg) menit ke-45

$$y = 0,0599x + 0,0334$$

$$0,748 - 0,0334 = 0,0599x$$

$$x = 11,93 \text{ ppm}$$

Kadar (mg) = $11,93 \text{ ppm} \times \text{FP} \times 0,9 \text{ L}$

$$= 11,93 \text{ ppm} \times 10 \times 0,9 \text{ L}$$

$$= 107,37 \text{ mg}$$

Faktor koreksi =

$$\left(\frac{10 \text{ mL}}{900} \times \text{kadar sebelumnya} \right) + \text{faktor koreksi sebelumnya}$$

$$= \left(\frac{10 \text{ mL}}{900} \times 96,10 \text{ mg} \right) + 1,02 \text{ mg}$$

$$= 2,09 \text{ mg}$$

Jumlah obat terkoreksi= kadar (mg) + faktor koreksi

$$= 107,37 \text{ mg} + 2,09 \text{ mg}$$

$$= 109,46 \text{ mg}$$

Kadar terdisolusi = $\left(\frac{109,46 \text{ mg}}{120 \text{ mg}} \times 100\% \right)$

$$= 91,22 \%$$

Lampiran 9. SPSS

1. Waktu alir

Tests of Normality							
	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Waktu alir	F1	.247	3	.	.969	3	.663
	F2	.321	3	.	.881	3	.328
	F3	.321	3	.	.881	3	.328
	F4	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Waktu alir	Based on Mean	4.035	3	8	.051
	Based on Median	.928	3	8	.470
	Based on Median and with adjusted df	.928	3	3.820	.508
	Based on trimmed mean	3.690	3	8	.062

ANOVA					
Waktu alir					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.018	3	.673	6.616	.015
Within Groups	.814	8	.102		
Total	2.832	11			

Waktu alir			
Tukey HSD ^a			
Formula	N	Subset for alpha = 0.05	
		1	2
F1	3	3.9533	
F2	3	4.0767	
F3	3	4.1867	4.1867
F4	3		5.0000
Sig.		.807	.056

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

2. Sudut Diam

Tests of Normality							
	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Sudut_diam	F1	.307	3	.	.903	3	.396
	F2	.207	3	.	.992	3	.832
	F3	.256	3	.	.962	3	.624
	F4	.279	3	.	.939	3	.521

a. Lilliefors Significance Correction

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Sudut_diam	Based on Mean	.889	3	8	.487
	Based on Median	.492	3	8	.698
	Based on Median and with adjusted df	.492	3	6.079	.701
	Based on trimmed mean	.860	3	8	.500

ANOVA					
Sudut_diam					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.666	3	5.222	8.413	.007
Within Groups	4.966	8	.621		
Total	20.631	11			

Sudut_diam			
Tukey HSD ^a			
Formula	N	Subset for alpha = 0.05	
		1	2
F1	3	23.5233	
F2	3	24.4400	24.4400
F3	3		25.8400
F4	3		26.4267
Sig.		.519	.059
Means for groups in homogeneous subsets are displayed.			
a. Uses Harmonic Mean Sample Size = 3,000.			

3. Kandungan lembab

Tests of Normality							
	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Hasil_ka darair	Formula 1	.253	3	.	.964	3	.637
	Formula 2	.219	3	.	.987	3	.780
	Formula 3	.314	3	.	.893	3	.363
	Formula 4	.175	3	.	1.000	3	1.000
a. Lilliefors Significance Correction							

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Hasil_ka darair	Based on Mean	.553	3	8	.660
	Based on Median	.384	3	8	.767
	Based on Median and with adjusted df	.384	3	6.595	.768
	Based on trimmed mean	.543	3	8	.666

ANOVA					
Hasil_kadarair					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.563	3	.188	1.264	.350
Within Groups	1.187	8	.148		
Total	1.749	11			

4. Indeks penetapan

Tests of Normality							
	Formul a	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Indeks_penetapan	F1	.314	3	.	.893	3	.363
	F2	.175	3	.	1.000	3	1.000
	F3	.292	3	.	.923	3	.463
	F4	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Indeks_penetapan	Based on Mean	2.250	3	8	.160
	Based on Median	.409	3	8	.751
	Based on Median and with adjusted df	.409	3	4.400	.755
	Based on trimmed mean	2.038	3	8	.187

ANOVA					
Indeks_penetapan					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	78.250	3	26.083	7.825	.009
Within Groups	26.667	8	3.333		
Total	104.917	11			

Indeks_penetapan			
Tukey HSD ^a			
Formula	N	Subset for alpha = 0.05	
		1	2
F1	3	4.00	
F2	3	6.00	
F3	3	7.33	7.33
F4	3		11.00
Sig.		.193	.142

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

5. Keragaman bobot

Tests of Normality							
	Formul a	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Keragaman_bobot	F1	.155	20	.200*	.943	20	.268
	F2	.139	20	.200*	.947	20	.323
	F3	.176	20	.104	.933	20	.179
	F4	.182	20	.080	.914	20	.077

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Keragaman_bobot	Based on Mean	.498	3	76	.685
	Based on Median	.527	3	76	.665
	Based on Median and with adjusted df	.527	3	74.688	.665
	Based on trimmed mean	.468	3	76	.705

ANOVA					
Keragaman_bobot					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.737	3	.246	.089	.966
Within Groups	210.150	76	2.765		
Total	210.887	79			

6. Kekerasan

Tests of Normality							
	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Kekerasan	F1	.191	6	.200*	.925	6	.540
	F2	.192	6	.200*	.913	6	.459
	F3	.175	6	.200*	.958	6	.804
	F4	.143	6	.200*	.989	6	.987

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Kekerasan	Based on Mean	1.035	3	20	.399
	Based on Median	.956	3	20	.433
	Based on Median and with adjusted df	.956	3	19.882	.433
	Based on trimmed mean	1.033	3	20	.399

ANOVA					
Kekerasan					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	228.205	3	76.068	722.738	.000
Within Groups	2.105	20	.105		
Total	230.310	23			

Kekerasan					
Tukey HSD ^a					
Formula	N	Subset for alpha = 0.05			
		1	2	3	4
F1	6	4.3167			
F2	6		5.7500		
F3	6			7.4333	
F4	6				12.4833
Sig.		1.000	1.000	1.000	1.000
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 6,000.					

7. Kerapuhan

Tests of Normality							
	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Kerapuhan	F1	.292	3	.	.923	3	.463
	F2	.253	3	.	.964	3	.637
	F3	.343	3	.	.842	3	.220
	F4	.253	3	.	.964	3	.637
a. Lilliefors Significance Correction							

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Kerapuhan	Based on Mean	3.358	3	8	.076
	Based on Median	.405	3	8	.754
	Based on Median and with adjusted df	.405	3	3.273	.760
	Based on trimmed mean	2.910	3	8	.101

ANOVA					
Kerapuhan					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.325	3	.108	154.901	.000
Within Groups	.006	8	.001		
Total	.331	11			

Kerapuhan				
Tukey HSD ^a				
Formula	N	Subset for alpha = 0.05		
		1	2	3
F4	3	.1867		
F3	3		.3600	
F2	3		.4233	
F1	3			.6467
Sig.		1.000	.073	1.000
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 3,000.				

8. Disolusi

Tests of Normality							
	Formul a	Kolmogorov- Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Persen_disolusi_45me nit	F1	.181	3	.	.999	3	.939
	F2	.353	3	.	.823	3	.171
	F3	.214	3	.	.989	3	.803
	F4	.272	3	.	.946	3	.553
a. Lilliefors Significance Correction							

Test of Homogeneity of Variances						
		Levene Statistic	df1	df2	Sig.	
Persen_disolusi_45m enit	Based on Mean	1.788	3	8	.227	
	Based on Median	.283	3	8	.837	
	Based on Median and with adjusted df	.283	3	3.4 99	.836	
	Based on trimmed mean	1.610	3	8	.262	

ANOVA					
Persen_disolusi_45menit					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	83.983	3	27.994	14.711	.001
Within Groups	15.224	8	1.903		
Total	99.207	11			

Persen_disolusi_45menit			
Tukey HSD ^a			
Formula	N	Subset for alpha = 0.05	
		1	2
F4	3	82.6233	
F3	3	84.7867	
F2	3	86.0733	
F1	3		89.9000
Sig.		.061	1.000
Means for groups in homogeneous subsets are displayed.			
a. Uses Harmonic Mean Sample Size = 3.000.			