

BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

1. Kombinasi *superdisintegrant* berupa *crospovidone* dan *croscarmellose sodium* memberikan pengaruh terhadap sifat fisik FDT amlodipin besilat yaitu mempercepat waktu pembasahan dan waktu disintegrasi dari FDT amlodipin besilat. Perbedaan konsentrasi kombinasi *superdisintegrant* yang digunakan juga memberikan pengaruh yang bermakna terhadap waktu pembasahan dan waktu disintegrasi.
2. Penggunaan kombinasi *superdisintegrant* berupa *crospovidone* dan *croscarmellose sodium* pada konsentrasi sebanding (50%:50%) menghasilkan FDT amlodipin besilat dengan waktu pembasahan serta waktu disintegrasi *in vivo* dan waktu disintegrasi *in vitro* yang singkat.

B. Saran

1. Perlu dilakukan penelitian lebih lanjut terhadap profil disolusi dan farmakokinetik dari FDT amlodipin besilat.
2. Perlu dilakukan penelitian lebih lanjut dengan mengoptimasi formulasi FDT amlodipin besilat untuk mengetahui formula optimum yang dapat meningkatkan mutu sifat fisik sediaan FDT amlodipin besilat.

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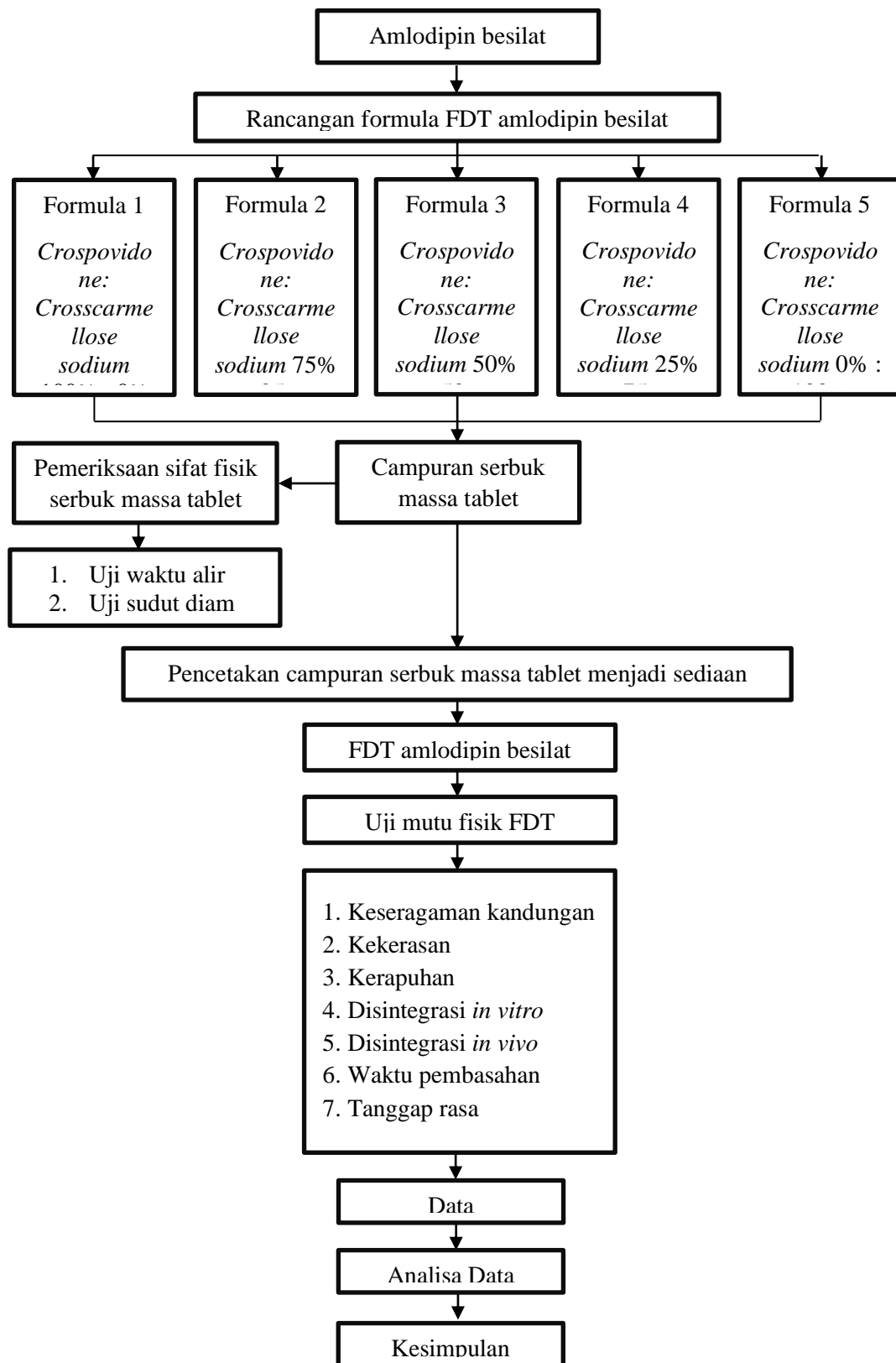
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Lampiran 1. Skema penelitian FDT amlodipin besilat



Lampiran 2. Certificate of analysis

PRUDENCE PHARMA CHEM.		QUALITY CONTROL DEPARTMENT	
CERTIFICATE OF ANALYSIS			
Product Name	Amlodipine Besilate BP 2018 / EP 9.2		
Batch No.	AMB/082/06/18	Mfg. Date	June - 2018
Batch Size	275.00 kgs	Exp. Date	May - 2023
A.R. No.	AMB/082/18	Release Date	18.06.2018
Storage Condition: Store in tightly closed containers, Protected from light.		CAS No.	[111470-99-6]

Sr. No.	TEST	SPECIFICATION	RESULT
1.	Description	White or almost White Powder.	Almost white Powder
2.	Solubility	Slightly soluble in water, Freely soluble in methanol, sparingly soluble in anhydrous ethanol, slightly soluble in 2-propanol.	Complies
3.	Identification By IR	The infrared absorption spectrum of the substance being examined in mulls should be concordant with the spectrum obtained from Amlodipine Besilate working standard.	Complies
4.	Sulphated Ash	Not more than 0.2 % w/w	0.032 %
5.	Optical Rotation	-0.10° to +0.10°	0.00°
6.	Related Substances By HPLC	Impurity A : Not More than 0.15 % Impurity D : Not More than 0.30 % Impurity E : Not More than 0.15 % Impurity F : Not More than 0.15 % Any other individual impurity : Not More than 0.10 % Total Impurities : Not More than 0.80 %	0.014 % 0.025 % Not detected 0.025 % 0.031 % 0.154 %
7.	Water	Not more than 0.5 % w/w	0.19 %
8.	Assay By HPLC on anhydrous basis	Not less than 97.0 % w/w and not more than 102.0% w/w on anhydrous basis	99.75 %
Additional test			
9.	Residual Solvents By HSGC*	1) Methanol : Not more than 3000 ppm 2) Ethyl Acetate : Not more than 5000 ppm 3) Toluene : Not more than 890 ppm	1) 619.78 ppm 2) 853.78 ppm 3) Not detected

The product Complies as per above Specification.

	Prepared By	Reviewed By	Approved By
Name	Ms. Vandana Gupta	Dr. B. B. Sutariya	Dr. H. A. Raj
Designation & Dept.	QC Executive	QC Head	QA Head
Signature	<i>Vandana</i>	<i>B. B. Sutariya</i>	<i>H. A. Raj</i>
Date	18.06.18	18.06.18	18.06.18

*Comes under reduce test policy base on the trend data.

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Lampiran 3. Kurva baku dan validasi metode analisis

- **Pembuatan larutan induk**

$$\begin{aligned} \text{Berat amlodipin besilat} &= 6,9 \text{ mg} \\ \text{Volume metanol p.a} &= 100 \text{ ml} \\ \text{Larutan stok} &= 6,9 \text{ mg/ 100 ml} \\ &= 69 \text{ mg/1000 ml} \\ &= 69 \text{ ppm} \end{aligned}$$

Dari larutan induk 69 ppm dilakukan pengenceran dibuat dalam 25 ml, dengan kadar 13,8 ppm, maka dari larutan stok yang di pipet =

$$\begin{aligned} V_1 \times C_1 &= V_2 \times C_2 \\ V_1 \times 69 \text{ ppm} &= 25 \text{ ml} \times 13,8 \text{ ppm} \\ V_1 &= \frac{345}{69} \\ V_1 &= 5 \text{ ml} \end{aligned}$$

Untuk melakukan pengenceran dengan konsentrasi 13,8 ppm, maka dipipet 5 ml dari larutan stok kemudian volume di ad kan hingga 25 ml dengan metanol.

- **Perhitungan dalam kurva baku**

Larutan induk amlodipin besilat dibuat seri konsentrasi 6,9, 9,66, 13,8, 15,18, 20,7, 22,08 dan 24,84 ppm dalam 25 ml.

1) 6,9 ppm

$$\begin{aligned} V_1 \times C_1 &= V_2 \times C_2 \\ 25 \text{ ml} \times 6,9 \text{ ppm} &= V_2 \times 69 \text{ ppm} \\ V_2 &= 2,5 \text{ ml} \end{aligned}$$

2) 9,66 ppm

$$\begin{aligned} V_1 \times C_1 &= V_2 \times C_2 \\ 25 \text{ ml} \times 9,66 \text{ ppm} &= V_2 \times 69 \text{ ppm} \\ V_2 &= 3,5 \text{ ml} \end{aligned}$$

3) 13,8 ppm

$$\begin{aligned} V_1 \times C_1 &= V_2 \times C_2 \\ 25 \text{ ml} \times 13,8 \text{ ppm} &= V_2 \times 69 \text{ ppm} \\ V_2 &= 5 \text{ ml} \end{aligned}$$

4) 15,18 ppm

$$\begin{aligned} V_1 \times C_1 &= V_2 \times C_2 \\ 25 \text{ ml} \times 15,18 \text{ ppm} &= V_2 \times 69 \text{ ppm} \\ V_2 &= 5,5 \text{ ml} \end{aligned}$$

5) 20,7 ppm

$$\begin{aligned} V_1 \times C_1 &= V_2 \times C_2 \\ 25 \text{ ml} \times 20,7 \text{ ppm} &= V_2 \times 69 \text{ ppm} \\ V_2 &= 7,5 \text{ ml} \end{aligned}$$

6) 22,08 ppm

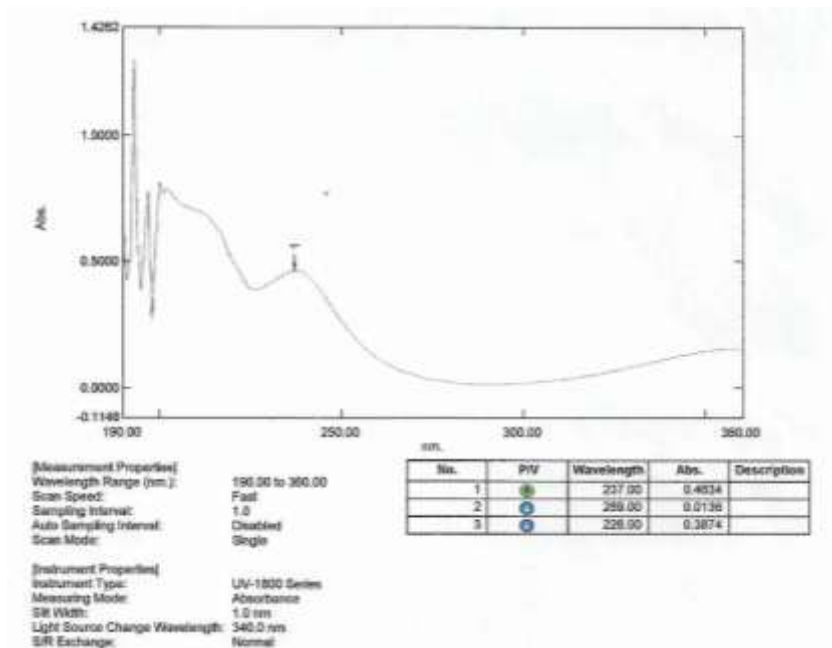
$$\begin{aligned} V_1 \times C_1 &= V_2 \times C_2 \\ 25 \text{ ml} \times 22,08 \text{ ppm} &= V_2 \times 69 \text{ ppm} \\ V_2 &= 8 \text{ ml} \end{aligned}$$

7) 24,84 ppm

$$\begin{aligned} V_1 \times C_1 &= V_2 \times C_2 \\ 25 \text{ ml} \times 24,84 \text{ ppm} &= V_2 \times 69 \text{ ppm} \\ V_2 &= 9 \text{ ml} \end{aligned}$$

a. Penetapan panjang gelombang maksimum

Panjang gelombang maksimum diperoleh dari *scanning* larutan baku amlodipin besilat dalam konsentrasi 13,8 ppm yaitu panjang gelombang maksimum sebesar 237 nm serapan 0,463 dengan pelarut metanol.



b. Penetapan *operating time*

Time (Minutes)	RawData
0.000	0.002
1.000	0.002
2.000	0.002
3.000	0.002
4.000	0.002
5.000	0.002
6.000	0.002
7.000	0.002
8.000	0.002
9.000	0.002
10.000	0.002
11.000	0.002
12.000	0.002
13.000	0.002
14.000	0.002
15.000	0.002
16.000	0.002
17.000	0.002
18.000	0.002
19.000	0.002
20.000	0.002
21.000	0.002
22.000	0.002
23.000	0.002
24.000	0.002
25.000	0.002
26.000	0.002
27.000	0.002
28.000	0.002
29.000	0.002
30.000	0.002
31.000	0.002
32.000	0.002
33.000	0.002
34.000	0.002
35.000	0.002
36.000	0.002
37.000	0.002
38.000	0.002
39.000	0.002
40.000	0.002
41.000	0.002
42.000	0.002
43.000	0.002
44.000	0.002
45.000	0.002
46.000	0.002
47.000	0.002
48.000	0.002
49.000	0.002
50.000	0.002

Scanning operating time menunjukkan bahwa sampel larutan amlodipin besilat pada seri konsentrasi 13,8 ppm stabil, ditunjukkan dengan nilai serapan yang stabil dari menit ke 0 hingga menit ke 30.

c. Kurva baku

konsentrasi (ppm)	serapan
6,9	0,226
9,66	0,319
13,8	0,454
15,18	0,517
20,7	0,677
22,08	0,709
24,84	0,816

Persamaan regresi linear kurva baku antara konsentrasi (ppm) dan serapan diperoleh nilai:

$$a = 0,0082$$

$$b = 0,0323$$

$$r = 0,999$$

$$y = 0,0082 + 0,0323 x$$

Keterangan : x = konsentrasi (ppm)

y = serapan

d. Validasi metode analisis

- Linearitas

konsentrasi (ppm)	serapan
6,9	0,226
9,66	0,319
13,8	0,454
15,18	0,517
20,7	0,677
22,08	0,709
24,84	0,816

$$a = 0,0082$$

$$b = 0,0323$$

$$r = 0,999$$

Hasil linearitas diperoleh $R = 0,999$, maka dapat disimpulkan bahwa data linier.

- Penentuan perolehan kembali (*Recovery*)

Konsentrasi	Replikasi	Serapan	Konsentrasi Terukur	Konsentrasi Sebenarnya	% Recovery	Rata-Rata
80 %	1	0,44	13,35	13,8	97%	96%
	2	0,439	13,32	13,8	96%	
	3	0,433	13,13	13,8	95%	
100 %	1	0,484	14,71	15,18	97%	98%
	2	0,488	14,83	15,18	98%	
	3	0,491	14,92	15,18	98%	
120 %	1	0,681	20,80	20,7	100%	100%
	2	0,678	20,71	20,7	100%	
	3	0,678	20,71	20,7	100%	
Rata – rata %						98%

Keterangan :

$$a = 0,0082$$

$$b = 0,0323$$

$$r = 0,999$$

$$\text{Konsentrasi terukur} = \frac{(\text{serapan}-a)}{b}$$

$$\% \text{ recovery} = \frac{\text{konsentrasi terukur}}{\text{konsentrasi sebenarnya}} \times 100 \%$$

- Penentuan presisi

Replikasi	Serapan	Konsentrasi Terukur
1	0,474	14,40
2	0,474	14,40
3	0,482	14,65
4	0,490	14,89
5	0,485	14,74
6	0,478	14,52
Rata-rata		14,60
SD		0,20
RSD		1,35%

Keterangan :

$$a = 0,0082$$

$$b = 0,0323$$

$$r = 0,999$$

$$\text{Konsentrasi terukur} = \frac{(\text{serapan}-a)}{b}$$

$$\text{RSD} = \frac{(SD)}{\text{Rata-rata}} \times 100\%$$

- Penetapan LOD dan LOQ

Konsentrasi (ppm)	Serapan (y)	\hat{y}	$ y-\hat{y} $	$ y-\hat{y} ^2$
6,9	0,226	0,2315	-0,00546	0,000029767
9,66	0,319	0,3207	-0,00172	0,000029735
13,8	0,454	0,4546	-0,00063	0,000039319
15,18	0,517	0,4993	0,017739	0,00031466
20,7	0,677	0,6778	-0,0008	0,0000063705
22,08	0,709	0,7224	-0,01343	0,00018043
24,84	0,816	0,8117	0,004299	0,000018483
Jumlah total ($\sum y - \hat{y} ^2$)				0,00054735

$$S_{y/x} = \sqrt{\frac{\sum |y-\hat{y}|^2}{n-2}}$$

$S_{y/x}$ = simpangan baku residual

n = jumlah data $\sum |y - \hat{y}|^2$

$\sum |y - \hat{y}|^2$ = jumlah kuadrat total residual

$$S_{y/x} = \sqrt{\frac{0,00054735}{5-2}} = \sqrt{0,00018245} = 0,01046275$$

$$\begin{aligned} \text{LOD} &= 3 \times \frac{S_{y/x}}{b} \\ &= 3 \times \frac{0,01046275}{0,0323} \\ &= 1,06750705 \mu\text{g/ml} \end{aligned}$$

$$\begin{aligned} \text{LOQ} &= 10 \times \frac{S_{y/x}}{b} \\ &= 10 \times \frac{0,01046275}{0,0323} \\ &= 3,23486986 \mu\text{g/ml} \end{aligned}$$

Lampiran 4. Pemeriksaan mutu fisik massa serbuk FDT amlodipin besilat

1. Waktu alir

Replikasi	Waktu alir (detik)				
	Formula 1	Formula 2	Formula 3	Formula 4	Formula 5
1	8,53	7,95	8,65	7,66	6,61
2	9,18	7,74	8,74	7,53	7,14
3	8,92	7,43	8,43	7,64	6,86
Rata-rata	8,88	7,7	8,61	7,61	6,87
SD	0,33	0,26	0,16	0,07	0,27

2. Sudut diam

Replikasi	Sudut diam ($^{\circ}$)				
	Formula 1	Formula 2	Formula 3	Formula 4	Formula 5
1	26,12	26,12	26,49	25,58	25,05
2	27,38	26,12	27,02	26,12	27,02
3	28,43	27,91	27,91	27,91	26,49
Rata-rata	27,31	26,72	27,14	26,54	26,19
SD	1,16	1,03	0,72	1,22	1,02

Contoh perhitungan F1 replikasi 1:

$$\text{Tinggi} = 2,200$$

$$\text{Diameter} = 4,850$$

$$\text{Tan } \alpha = \frac{2,200}{4,850} = 0,49$$

$$\alpha = 26,12^{\circ}$$

Lampiran 5. Pemeriksaan mutu fisik FDT amlodipin besilat

1. Kekerasan tablet

Replikasi	Kekerasan				
	Formula 1	Formula 2	Formula 3	Formula 4	Formula 5
1	4,5	4,6	3,7	3,8	3,7
2	4,3	4,5	4,1	4,3	3,5
3	4,2	4,7	3,9	4,5	3,8
Rata-rata	4,33	4,60	3,90	4,20	3,67
SD	0,15	0,10	0,20	0,36	0,15

2. Kerapuhan tablet

Replikasi	Kerapuhan				
	Formula 1	Formula 2	Formula 3	Formula 4	Formula 5
1	0,14%	0,09%	0,18%	0,12%	0,24%
2	0,14%	0,12%	0,15%	0,12%	0,15%
3	0,14%	0,12%	0,15%	0,12%	0,18%
Rata-rata	0,14%	0,11%	0,16%	0,12%	0,19%

Contoh perhitungan F1 replikasi 1:

$$\begin{aligned}
 \% \text{ kerapuhan} &= \frac{\text{bobot awal} - \text{bobot setelah uji}}{\text{bobot awal}} \times 100 \% \\
 &= \frac{2875 \text{ mg} - 2871 \text{ mg}}{2875 \text{ mg}} \times 100\% \\
 &= 0,14\%
 \end{aligned}$$

3. Waktu pembasahan

Replikasi	Waktu pembasahan (detik)				
	Formula 1	Formula 2	Formula 3	Formula 4	Formula 5
1	25	13	9	11	32

2	29	11	8	13	35
3	27	12	10	14	33
Rata-rata	27	12	9	12,67	33,33
SD	2	1	1	1,53	1,53

4. Waktu disintegrasi *in vitro*

Replikasi	Waktu disintegrasi <i>in vitro</i> (detik)				
	Formula 1	Formula 2	Formula 3	Formula 4	Formula 5
1	26	24	21	24	30
2	25	27	19	25	31
3	27	26	23	26	33
Rata-rata	26	25,67	21	25	31,33
SD	1	1,53	1	1	1,53

5. Uji tanggap rasa

LEMBAR KUISIONER TANGGAPAN RASA, TEKSTUR dan WAKTU HANCUR FAST DISINTEGRATING TABLET AMLODIPIN BESILAT

Nama :

Usia :

Tablet	Rasa Tablet			Tekstur Tablet			Waktu Hancur
	Manis	Netral	Pahit	Halus	Berpasir	Kasar	
F1							
F2							
F3							

F4							
F5							

Keterangan nilai rasa:

1 = Manis

2 = Netral

3 = Pahit

Keterangan nilai tekstur:

1 = Halus

2 = Berpasir

3 = Kasar

a. Formula 1

Nomor	Responden	Respon yang diteliti		
		Rasa	Waktu hancur (detik)	Tekstur
1	Yua	1	29	1
2	Riswan	2	27	3
3	Juju	1	30	2
4	Rivaldy	2	26	2
5	Kiki	2	27	2
6	Sakti	1	30	2
7	Mutia	1	29	1
8	Vey	1	30	1
9	Ana	1	28	2
10	Pipin	1	27	2
11	Anggun	1	30	2
12	Ghiyats	1	27	1

13	Ledya	2	26	2
14	Fitri	2	27	2
15	Afif	1	29	2
16	Dono	1	31	2
17	Wendy	1	28	1
18	Novi	1	26	1
19	Wardoyo	2	27	3
20	Dewangga	1	29	2
Rata-rata			28,15	

b. Formula 2

Nomor	Responden	Respon yang diteliti		
		Rasa	Waktu hancur (detik)	Tekstur
1	Yua	1	27	1
2	Riswan	2	25	2
3	Juju	1	27	1
4	Rivaldy	1	26	1
5	Kiki	1	26	1
6	Sakti	1	25	2
7	Mutia	1	27	1
8	Vey	1	26	1
9	Ana	2	26	1
10	Pipin	2	25	2
11	Anggun	1	25	2
12	Ghiyats	1	29	1
13	Ledya	2	26	1
14	Fitri	2	25	1
15	Afif	1	27	1
16	Dono	1	25	1
17	Wendy	2	25	2

18	Novi	2	26	1
19	Wardoyo	1	28	1
20	Dewangga	1	26	1
Rata-rata			26,1	

c. Formula 3

Nomor	Responden	Respon yang diteliti		
		Rasa	Waktu hancur (detik)	Tekstur
1	Yua	1	22	1
2	Riswan	2	23	2
3	Juju	1	23	2
4	Rivaldy	2	22	2
5	Kiki	1	25	1
6	Sakti	2	22	2
7	Mutia	1	23	2
8	Vey	1	23	2
9	Ana	1	24	1
10	Pipin	2	23	2
11	Anggun	1	22	2
12	Ghiyats	2	21	2
13	Ledya	1	24	1
14	Fitri	1	23	2
15	Afif	1	25	1
16	Dono	2	22	2
17	Wendy	1	23	2
18	Novi	2	21	2
19	Wardoyo	1	24	1
20	Dewangga	1	25	1
Rata-rata			23	

d. Formula 4

Nomor	Responden	Respon yang diteliti		
		Rasa	Waktu hancur (detik)	Tekstur
1	Yua	1	26	1
2	Riswan	2	27	1
3	Juju	1	25	1
4	Rivaldy	2	24	2
5	Kiki	1	28	1
6	Sakti	1	26	1
7	Mutia	1	26	1
8	Vey	1	25	1
9	Ana	2	24	2
10	Pipin	2	25	2
11	Anggun	1	27	1
12	Ghiyats	1	26	1
13	Ledya	2	25	2
14	Fitri	1	26	1
15	Afif	1	27	1
16	Dono	1	28	1
17	Wendy	1	26	2
18	Novi	2	26	1
19	Wardoyo	2	25	2
20	Dewangga	1	26	1
Rata-rata			25,9	

e. Formula 5

Nomor	Responden	Respon yang diteliti		
		Rasa	Waktu hancur (detik)	Tekstur
1	Yua	1	27	2
2	Riswan	1	29	1
3	Juju	1	29	1

4	Rivaldy	1	28	1
5	Kiki	2	27	2
6	Sakti	2	27	2
7	Mutia	1	30	1
8	Vey	2	27	2
9	Ana	1	29	1
10	Pipin	2	28	2
11	Anggun	1	30	1
12	Ghiyats	1	32	1
13	Ledya	1	30	1
14	Fitri	1	29	1
15	Afif	2	28	2
16	Dono	2	27	2
17	Wendy	2	26	2
18	Novi	2	28	2
19	Wardoyo	1	29	1
20	Dewangga	2	28	1
Rata-rata			28,4	

6. Keseragaman kandungan

a. Formula 1

Tablet	Bobot tablet (mg)	Absorbansi	Jumlah terukur (mg)	Persentase (%)
1	153	0,412	6,69	96,46
2	151	0,409	6,64	95,76
3	152	0,411	6,67	96,23
4	146	0,386	6,27	90,37
5	145	0,385	6,25	90,14
6	147	0,404	6,56	94,59
7	150	0,407	6,61	95,29

8	151	0,410	6,66	95,99
9	149	0,406	6,59	95,06
10	155	0,416	6,75	97,40
Rata-rata			6,57	94,73

Contoh perhitungan F1:

Absorbansi baku = 0,425

Konsentrasi baku = 0,0138

Volume awal = 100 ml

Faktor pengenceran = 5

$$\begin{aligned} \text{Jumlah terukur} &= \left(\frac{\text{absorbansi sampel}}{\text{absorbansi baku}} \right) \times \text{konsentrasi baku} \times \text{faktor pengenceran} \times \text{volume awal} \\ &= \left(\frac{0,412}{0,425} \right) \times 0,0138 \times 5 \times 100 \text{ ml} \\ &= 6,69 \text{ mg} \end{aligned}$$

b. Formula 2

Tablet	Bobot tablet (mg)	Absorbansi	Jumlah terukur (mg)	Persentase (%)
1	151	0,417	6,77	97,63
2	150	0,410	6,66	95,99
3	146	0,401	6,51	93,89
4	146	0,398	6,46	93,18
5	144	0,381	6,19	89,20
6	155	0,419	6,80	98,10
7	147	0,406	6,59	95,06
8	151	0,418	6,79	97,87
9	150	0,408	6,62	95,53
10	149	0,407	6,61	95,29
Rata-rata			6,60	95,17

c. Formula 3

Tablet	Bobot tablet (mg)	Absorbansi	Jumlah terukur (mg)	Persentase (%)
1	149	0,407	6,61	95,29

2	150	0,411	6,67	96,23
3	154	0,413	6,71	96,70
4	152	0,411	6,67	96,23
5	153	0,411	6,67	96,23
6	155	0,421	6,84	98,57
7	145	0,388	6,30	90,84
8	153	0,412	6,69	96,46
9	149	0,411	6,67	96,23
10	148	0,409	6,64	95,76
Rata-rata			6,65	95,85

d. Formula 4

Tablet	Bobot tablet (mg)	Absorbansi	Jumlah terukur (mg)	Persentase (%)
1	154	0,418	6,79	97,87
2	151	0,414	6,72	96,93
3	150	0,411	6,67	96,23
4	155	0,422	6,85	98,80
5	152	0,416	6,75	97,40
6	152	0,415	6,74	97,16
7	147	0,396	6,43	92,72
8	149	0,411	6,67	96,23
9	155	0,419	6,80	98,10
10	152	0,412	6,69	96,46
Rata-rata			6,71	96,79

e. Formula 5

Tablet	Bobot tablet (mg)	Absorbansi	Jumlah terukur (mg)	Persentase (%)
1	147	0,405	6,77	94,82
2	154	0,414	6,66	96,93

3	150	0,411	6,51	96,23
4	154	0,421	6,46	98,57
5	152	0,417	6,19	97,63
6	148	0,406	6,80	95,06
7	146	0,405	6,59	94,82
8	150	0,419	6,79	98,10
9	150	0,420	6,62	98,33
10	146	0,404	6,61	94,59
Rata-rata			6,69	96,51

Lampiran 6. Data SPSS metode *one way anova*

1. Waktu alir

		WaktuAlir
N		15
Normal Parameters ^{a,b}	Mean	7,9340
	Std. Deviation	,77652
Most Extreme Differences	Absolute	,139
	Positive	,132
	Negative	-,139
Test Statistic		,139
Asymp. Sig. (2-tailed)		,200 ^{c,d}

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

Dari data uji *Kolmogorov-Smirnov* diperoleh signifikansi waktu alir 0,200 > 0,05. Data terdistribusi normal sehingga dapat dilakukan analisis *one way Anova*.

Test of Homogeneity of Variances

WaktuAlir			
Levene Statistic	df1	df2	Sig.
,999	4	10	,452

2. Sudut diam

		SudutDiam
N		15
Normal Parameters ^{a,b}	Mean	26,7780
	Std. Deviation	,97731
Most Extreme Differences	Absolute	,150
	Positive	,150
	Negative	-,143
Test Statistic		,150
Asymp. Sig. (2-tailed)		,200 ^{c,d}

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

Dari data uji *Kolmogorov-Smirnov* diperoleh signifikansi sudut diam 0,200 > 0,05. Data terdistribusi normal sehingga dapat dilakukan analisis *one way Anova*.

ANOVA

SudutDiam

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2,477	4	,619	,568	,692
Within Groups	10,895	10	1,089		
Total	13,372	14			

3. Kekerasan tablet

One-Sample Kolmogorov-Smirnov Test

		Kekerasan
N		15
Normal Parameters ^{a,b}	Mean	4,1400
	Std. Deviation	,38322
Most Extreme Differences	Absolute	,160
	Positive	,146
	Negative	-,160
Test Statistic		,160
Asymp. Sig. (2-tailed)		,200 ^{c,d}

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

Dari data uji *Kolmogorov-Smirnov* diperoleh signifikansi kekerasan tablet 0,200 > 0,05. Data terdistribusi normal sehingga dapat dilakukan analisis *one way Anova*.

ANOVA

Kekerasan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,603	4	,401	8,838	,003
Within Groups	,453	10	,045		
Total	2,056	14			

4. Kerapuhan tablet

One-Sample Kolmogorov-Smirnov Test

		Kerapuhan
N		15
Normal Parameters ^{a,b}	Mean	,1440
	Std. Deviation	,03562
Most Extreme Differences	Absolute	,233
	Positive	,233
	Negative	-,184
Test Statistic		,233
Asymp. Sig. (2-tailed)		,028 ^c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Dari data uji *Kolmogorov-Smirnov* diperoleh signifikansi kerapuhan tablet $0,028 < 0,05$. Data terdistribusi normal sehingga dapat dilakukan analisis *one way Anova*.

ANOVA

Kerapuhan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,012	4	,003	5,722	,012
Within Groups	,005	10	,001		
Total	,018	14			

5. Waktu pembasahan

One-Sample Kolmogorov-Smirnov Test

		Waktu Pembasahan
N		15
Normal Parameters ^{a,b}	Mean	18,80
	Std. Deviation	9,987
Most Extreme Differences	Absolute	,285
	Positive	,285
	Negative	-,140
Test Statistic		,285
Asymp. Sig. (2-tailed)		,002 ^c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Dari data uji *Kolmogorov-Smirnov* diperoleh signifikansi waktu pembasahan $0,002 < 0,05$. Data terdistribusi normal sehingga dapat dilakukan analisis *one way Anova*.

ANOVA

Waktu Pembasahan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1375,067	4	343,767	161,141	,000
Within Groups	21,333	10	2,133		
Total	1396,400	14			

6. Waktu disintegrasi *in vitro*

One-Sample Kolmogorov-Smirnov Test

		InVitro
N		15
Normal Parameters ^{a,b}	Mean	25,80
	Std. Deviation	3,629
Most Extreme Differences	Absolute	,170
	Positive	,170
	Negative	-,110
Test Statistic		,170
Asymp. Sig. (2-tailed)		,200 ^{c,d}

- Test distribution is Normal.
- Calculated from data.
- Lilliefors Significance Correction.
- This is a lower bound of the true significance.

Dari data uji *Kolmogorov-Smirnov* diperoleh signifikansi waktu disintegrasi *in vitro* $0,200 > 0,05$. Data terdistribusi normal sehingga dapat dilakukan analisis *one way Anova*.

ANOVA

InVitro

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	163,067	4	40,767	19,109	,000
Within Groups	21,333	10	2,133		
Total	184,400	14			

7. Tanggap rasa

One-Sample Kolmogorov-Smirnov Test

		Rasa
N		100
Normal Parameters ^{a,b}	Mean	1,36
	Std. Deviation	,482
Most Extreme Differences	Absolute	,412
	Positive	,412
	Negative	-,268
Test Statistic		,412
Asymp. Sig. (2-tailed)		,000 ^c

- Test distribution is Normal.
- Calculated from data.
- Lilliefors Significance Correction.

Dari data uji *Kolmogorov-Smirnov* diperoleh signifikansi tanggap rasa $0,000 < 0,05$. Data terdistribusi normal sehingga dapat dilakukan analisis *one way Anova*.

ANOVA

Rasa

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,240	4	,060	,250	,909
Within Groups	22,800	95	,240		
Total	23,040	99			

8. Keseragaman kandungan

One-Sample Kolmogorov-Smirnov Test

		KeseragamanK andungan
N		50
Normal Parameters ^{a,b}	Mean	6,6440
	Std. Deviation	,15050
Most Extreme Differences	Absolute	,155
	Positive	,086
	Negative	-,155
Test Statistic		,155
Asymp. Sig. (2-tailed)		,004 ^c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Dari data uji *Kolmogorov-Smirnov* diperoleh signifikansi keseragaman kandungan $0,004 < 0,05$. Data terdistribusi normal sehingga dapat dilakukan analisis *one way Anova*.

ANOVA

KeseragamanKandungan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,145	4	,036	1,685	,170
Within Groups	,965	45	,021		
Total	1,110	49			