

Lampiran 1. Sertifikat Analisis (Certificate of Analysis CoA) Atorvastatin Kalsium

Quality Reliability Sustainability

QSM
QSM Sejahtera Pharmaceutical

Certificate of Analysis

ATORVASTATIN CALCIUM TRIHYDRATE ✓
GRADE: CRYSTALLINE

Batch / Lot No. MT19983

Mfg. Lic. No. 1879-DGP

Batch / Lot size: 300 kg

Mfg. Date: September 2017 Expiry/Best Date: August 2022 Release Date: 08.10.2017

Character: White or almost white powder, very slightly soluble in water, slightly soluble in ethanol (95%), practically insoluble in methylene chloride

Tests	Specifications	Units	Results
Identification	A. Atorvastatin Calcium salt B. Calcium C. IRD - Characteristic IR values (915, 847, 733, 703, 611, 602, 572) (1210, 1121, 940, 816, 620, 2790, 2710, 2331, 2310)	Complies with test	Complies
		Complies with test	Complies
	IRD - Characteristic IR values must be within ± 2% of the standard values		Complies
Assay (HPLC method)	97.0 to 102.0	%	99.0
Substance related impurities	Not more than 0.4	%	0.10
Heavy metals	Not more than 20	ppm	Less than 20
Specified impurities			
Desferal (Impurity A)	Not more than 0.2	%	0.05
3β-OH ester (Impurity B)	Not more than 0.2	%	0.05
Orlistat (Impurity C)	Not more than 0.15	%	Not detected
Orlistat (Impurity D)	Not more than 0.15	%	Not detected
Any unspecified impurity	Not more than 0.10	%	Less than 0.05
Other detectable			
Smile (Impurity F)	Not more than 0.10	%	0.05
3-O-methyl (Impurity G)	Not more than 0.15	%	0.05
Calcium (Impurity H)	Not more than 0.15	%	Less than 0.05
Total impurities (Impurity E) Not included	Not more than 1.0	%	0.20
Impurity E (in atorvastatin)	Not more than 0.2	%	0.05
Water	3.0 to 5.0	%	4.5
Residue solvent			
- Methyl acetate	Not more than 1000	ppm	400
- Methanol	Not more than 2000	ppm	Not detected
Particle Size Distribution (by Method)			
- D50	+ 20 µm	µm	0
- D10	+ 3 µm	µm	1
- D10	+ 3 µm	µm	1

Pharmaceutical quality: Complies with Ph. Eur. monograph 2181

Manufactured according to ICH Q7 GMP for APIs

Complies to GMP - 201-CFR210.36a (b)(1)

* Analysis performed as per GMP Method

Storage: Store less than 30°C

Approved by

Date of issue: 13.10.2017

Quality Assurance

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Lampiran 2. Hasil Uji Sifat Alir Serbuk *Liquisolid* Atorvastatin Kalsium

1. Kecepatan alir serbuk atorvastatin kalsium dalam sistem *liquisolid*

Form ula	Replikasi						Rata- rata±SD
	1		2		3		
	detik	g/detik	detik	g/detik	detik	g/detik	
LS 1	1,72	29,07	1,73	28,90	1,81	27,62	28,53±0,79
LS 2	1,28	37,06	1,39	34,13	1,36	34,88	35,36±1,52
LS 3	1,52	26,27	1,24	26,07	1,20	26,94	26,43±0,46
LS 4	1,40	16,98	1,22	16,48	1,84	16,92	16,79±0,27

Contoh perhitungan :

$$\begin{aligned}
 \text{Kecepatan alir} &= \frac{m(g)}{t(s)} \\
 &= \frac{50 \text{ g}}{1,72 \text{ detik}} \\
 &= 29,070 \text{ g/detik}
 \end{aligned}$$

2. Sudut diam serbuk atorvastatin kalsium dalam sistem *liquisolid*

	Replikasi									Rata- rata± SD
	1			2			3			
	h	r	Sudut diam (°)	h	r	Sudut diam (°)	h	r	Sudut diam (°)	
LS 1	2,5	6	22,62	2,4	6,2	21,16	2,8	6,5	23,31	22,36° ± 1,09
LS 2	2,3	6,4	19,76	2,2	6,25	19,39	2,1	6,25	19,39	19,51° ± 0,21
LS 3	1,5	5	16,70	1,8	5,5	18,12	1,8	5,75	17,38	17,40° ± 0,71
LS 4	2	5,2	21,04	1,9	5,2	20,07	2	5,3	20,67	20,59° ± 0,33

Contoh perhitungan :

$$\tan \alpha = \frac{h}{r}$$

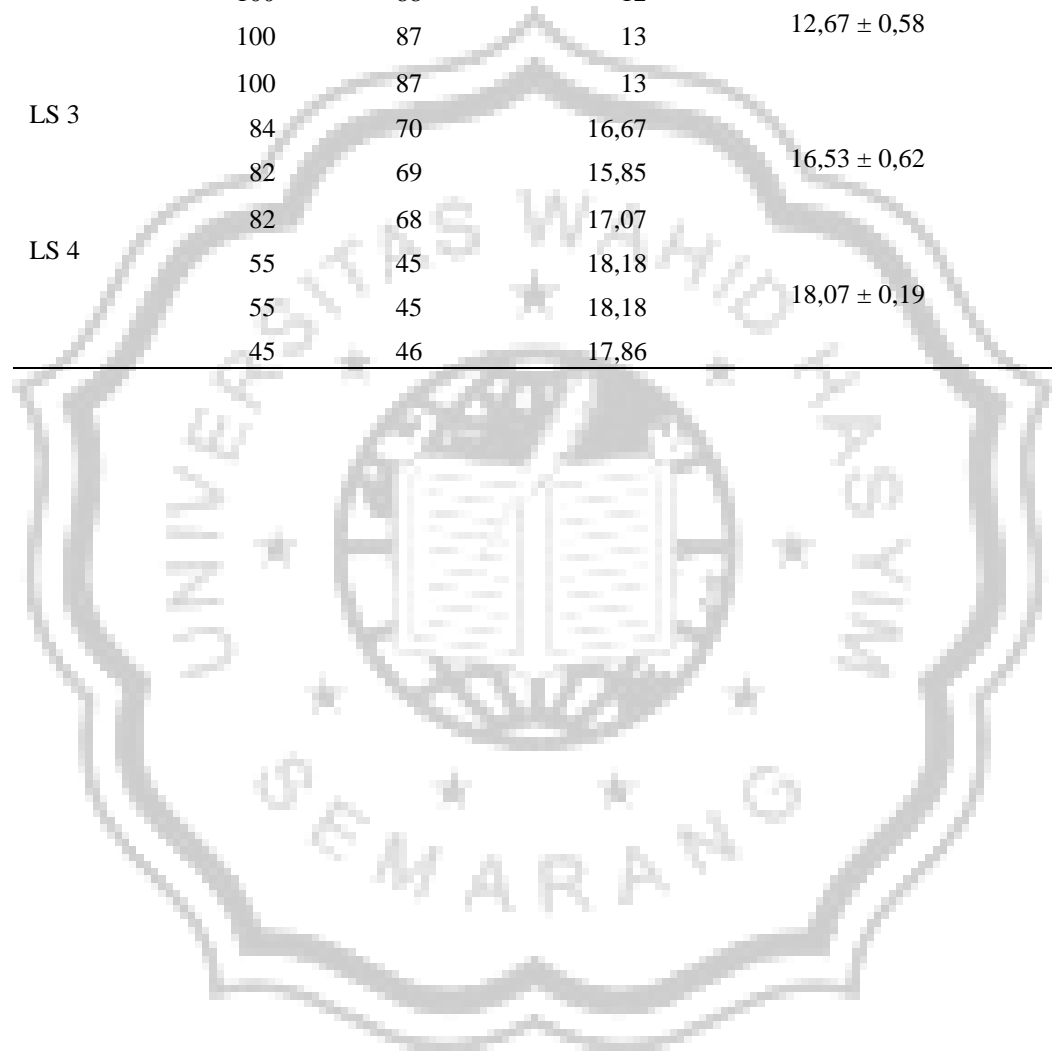
$$\tan \alpha = \frac{2,5}{6}$$

$$\tan \alpha = 0,417$$

$$\alpha = 22,62^\circ$$

3. Kompresibilitas serbuk atorvastatin kalsium dalam sistem *liquisolid*

Formula	Volume awal (ml)	Volume mampat (ml)	Indeks Kompresibilitas (%)	Rata-rata \pm SD Indeks Kompresibilitas (%)
LS 1	100	85	15	$14,67 \pm 0,58$
	100	85	15	
	100	86	14	
LS 2	100	88	12	$12,67 \pm 0,58$
	100	87	13	
	100	87	13	
LS 3	84	70	16,67	$16,53 \pm 0,62$
	82	69	15,85	
	82	68	17,07	
LS 4	55	45	18,18	$18,07 \pm 0,19$
	55	45	18,18	
	45	46	17,86	



Lampiran 3. Hasil Uji Sifat Fisik Tablet *Liquisolid* Atorvastatin Kalsium

1. Keseragaman bobot tablet *liquisolid* atorvastatin kalsium

LS 1

No tablet	Bobot (mg)		
	1	2	3
1	1073	1062	1066
2	1073	1070	1071
3	1058	1070	1074
4	1074	1073	1073
5	1074	1066	1057
6	1016	1071	1067
7	1070	1071	1067
8	1063	1073	1073
9	1071	1035	1075
10	1058	1073	1070
11	1070	1056	1070
12	1072	1058	1065
13	1071	1067	1057
14	1067	1072	1058
15	1064	1077	1063
16	1062	1062	1072
17	1070	1070	1072
18	1074	1074	1070
19	1076	1074	1076
20	1074	1071	1069
Rata rata	1065,56	1066,67	1067,78
SD	13,46	9,75	5,79
Penyimpangan Kolom A (5%)	1012,28-1118,84	1013,34-1120	1014,39-1121,17
Penyimpangan Kolom B (10%)	959,01-1172,11	960-1173,34	961-1174,56

Rata-rata \pm SD = 1066,67 \pm 9,66

Contoh perhitungan :

Penyimpangan Bobot Tablet

$$A = 5 \% \times 1065,56 = 53,28 \text{ mg}$$

Tidak boleh ada 2 tablet yang menyimpang antara rentang 1012,28 mg sampai 1118,84 mg.

$$B = 10 \% \times 1065,56 = 106,55 \text{ mg}$$

Tidak ada 1 tablet pun yang menyimpang antara rentang 959,01 mg sampai 1172,11 mg

LS 2

No tablet	Bobot (mg)		
	1	2	3
1	536	538	525
2	537	533	530
3	530	528	533
4	529	527	529
5	534	535	530
6	535	536	535
7	535	536	537
8	530	530	533
9	529	533	529
10	527	530	531
11	530	524	533
12	530	529	528
13	531	528	530
14	525	532	530
15	530	531	531
16	533	534	534
17	535	535	536
18	535	530	524
19	529	530	531
20	531	529	530
Rata rata	531,72	531,61	531
SD	3,37	3,70	3,46
Penyimpangan Kolom A (5%)	505,13-558,31	505,03-558,19	504,45-557,55
Penyimpangan Kolom B (10%)	478,55-584,89	478,45-584,77	477,9-584,1

Rata-rata \pm SD = 531,44 \pm 3,51

LS 3

No tablet	Bobot (mg)		
	Replikasi		
	1	2	3
1	355	352	350
2	351	352	349
3	349	351	353
4	354	357	353
5	356	355	357
6	352	355	355
7	354	352	350
8	354	353	355
9	354	350	348
10	353	350	349
11	355	352	349
12	354	354	352
13	356	352	355
14	354	352	350
15	354	353	351
16	350	355	352
17	356	351	354
18	352	353	354
19	355	355	354
20	353	351	356
Rata rata	353,5	352,72	352
SD	2,00	1,87	2,63
Penyimpangan Kolom A (5%)	335,82-406,67	335,08-370,36	334,4-369,6
Penyimpangan Kolom B (10%)	318,15-388,85	317,45-387,99	316,8-387,2

Rata-rata \pm SD = 352,74 \pm 2,17

LS 4

No tablet	Bobot (mg)		
	Replikasi		
	1	2	3
1	265	264	266
2	265	270	273
3	267	270	271
4	267	268	269
5	271	265	266
6	271	268	267
7	267	265	266
8	270	266	273
9	264	268	271
10	269	265	263
11	270	265	267
12	271	270	265
13	265	271	271
14	268	267	268
15	268	271	268
16	271	268	266
17	271	265	271
18	269	266	265
19	264	265	265
20	268	269	268
Rata rata	268,27	267,33	268,11
SD	2,42	2,33	2,94
Penyimpangan Kolom A (7,5%)	248,15-288,39	247,28-287,38	248-288,22
Penyimpangan Kolom B (15%)	228,03-308,51	227,23-307,43	227,89-308,33
Rata-rata \pm SD = 267,91 \pm 2,57			

ATV[®]

No tablet	Bobot (mg)		
	Replikasi		
	1	2	3
1	306	307	309
2	306	308	305
3	302	307	303
4	309	309	305
5	306	304	305
6	300	306	306
7	304	306	306
8	304	302	302
9	308	309	309
10	307	306	306
11	309	300	300
12	305	304	304
13	303	304	304
14	305	308	308
15	303	307	307
16	307	309	307
17	308	305	308
18	307	303	305
19	309	305	309
20	304	308	305
Rata rata	305,6	305,85	305,65
SD	2,550526	2,476734	2,390221
Penyimpangan Kolom A (5%)	290,32-320,88	290,56-321,14	290,37-320,93
Penyimpangan Kolom B (10%)	275,04-336,16	275,26-336,44	275,08-336,22
Rata-rata ± SD = 305,7 ± 2,41			

2. Kekerasan tablet *liquisolid* atorvastatin kalsium

Formula	Replikasi (kg)					Rata-rata ± SD
	1	2	3	4	5	
LS 1	7,14	6,92	6,32	7,11	7,14	6,93 ± 0,35
LS 2	5,06	5,10	5,20	4,90	4,81	5,01 ± 0,16
LS 3	6,87	6,78	6,50	6,65	6,76	6,71 ± 0,14
LS 4	4,59	4,39	4,35	4,83	4,81	4,59 ± 0,23

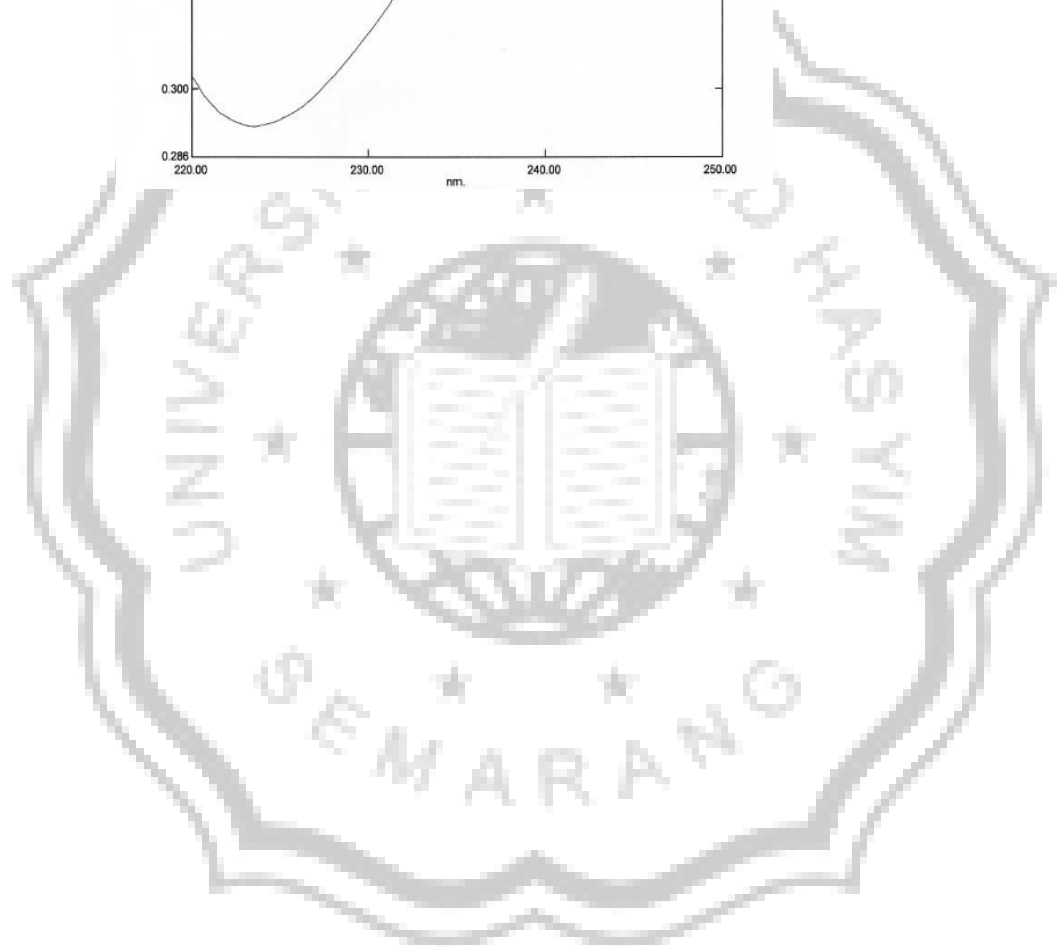
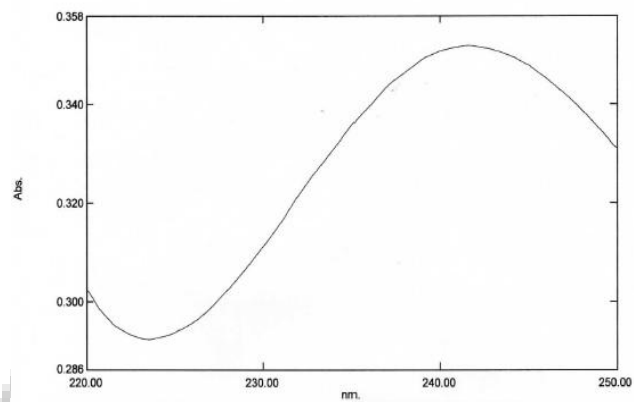
3. Kerapuhan tablet *liquisolid* atorvastatin kalsium

Formula	Bobot yang hilang (%)			Rata-rata ±SD (%)
	Replikasi			
	1	2	3	
LS 1	0,018	0,019	0,019	0,018 ± 0,0005
LS 2	0,028	0,028	0,037	0,031 ± 0,0052
LS 3	0,113	0,026	0,056	0,065 ± 0,0442
LS 4	0,149	0,354	0,167	0,223 ± 0,1135

4. Waktu hancur tablet *liquisolid* atorvastatin kalsium

Formula	(menit)			Rata-rata ±SD (menit)
	Replikasi			
	1	2	3	
LS 1	2,42	1,50	2,05	1,78 ± 0,389
LS 2	2,00	2,02	2,10	2,04 ± 0,053
LS 3	2,00	4,01	3,25	3,09 ± 1,015
LS 4	1,41	1,35	1,37	1,38 ± 0,0305

**Lampiran 4. Panjang Gelombang Atorvastatin Kalsium dalam Larutan
Dapar Fosfat pH 6,8**

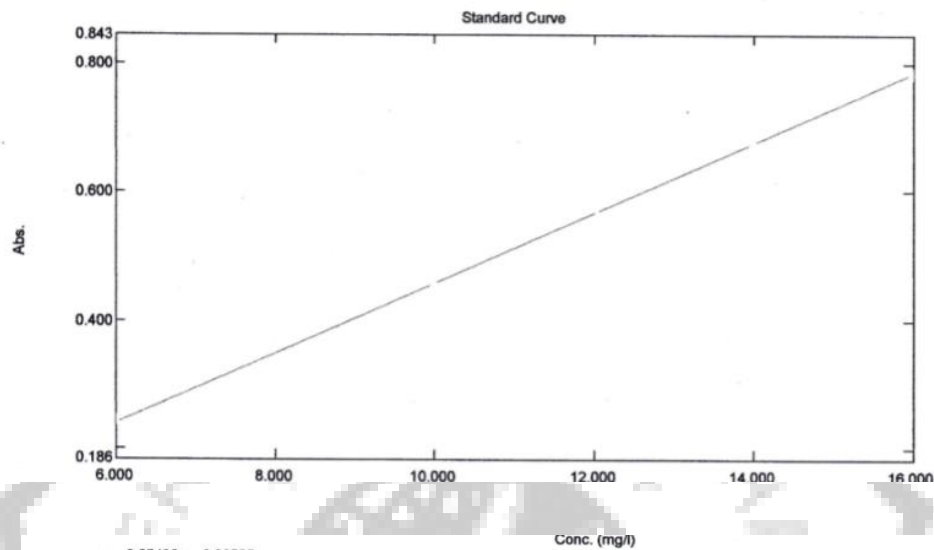


Lampiran 5. Kurva Baku Atorvastatin Kalsium

Standard Table Report

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Standard Table

	Sample ID	Type	Ex	Conc	WL240.6	Wgt.Factor	Comments
1	1	Standard		6.000	0.244	1.000	
2	2	Standard		8.000	0.339	1.000	
3	3	Standard		10.000	0.462	1.000	
4	4	Standard		12.000	0.575	1.000	
5	5	Standard		14.000	0.667	1.000	
6	6	Standard		16.000	0.780	1.000	
7	7	Standard		6.000	0.245	1.000	
8	8	Standard		8.000	0.337	1.000	
9	9	Standard		10.000	0.471	1.000	
10	10	Standard		12.000	0.574	1.000	
11	11	Standard		14.000	0.673	1.000	
12	12	Standard		16.000	0.780	1.000	
13	13	Standard		6.000	0.247	1.000	
14	14	Standard		8.000	0.339	1.000	
15	15	Standard		10.000	0.451	1.000	
16	16	Standard		12.000	0.580	1.000	
17	17	Standard		14.000	0.679	1.000	
18	18	Standard		16.000	0.789	1.000	

Didapatkan persamaan linier yaitu

$$Y = 0,05438x - 0,08525$$

$$R^2 = 0,99519$$

$$R = 0,99909$$

Lampiran 6. Hasil Keseragaman Kandungan Tablet *Liquisolid* Atorvastatin Kalsium

Persamaan regresi linier $y = 0,05438x - 0,08525$

$R = 0,99909$

Formula	Replikasi	Konsentrasi sampel (ppm)	Faktor pengenceran	Absorbansi	Kadar (mg)	Rata-rata \pm SD	CV
LS 1	1	9,817	10x	0,449	9,817	9,9283 \pm 0,3409	3,43 %
	2	10,311	10x	0,475	10,311		
	3	9,657	10x	0,440	9,657		
LS 2	1	10,337	10x	0,477	10,337	10,186 \pm 0,3550	3,46 %
	2	9,781	10x	0,447	9,781		
	3	10,440	10x	0,482	10,440		
LS 3	1	10,634	10x	0,493	10,634	10,400 \pm 0,2025	1,95 %
	2	10,298	10x	0,475	10,298		
	3	10,270	10x	0,473	10,270		
LS 4	1	9,957	10x	0,456	9,957	10,186 \pm 0,1995	1,96 %
	2	10,282	10x	0,474	10,282		
	3	10,320	10x	0,476	10,320		
ATV [®]	1	9,9899	10x	0,458	9,9899	10,266 \pm 0,2594	2,53 %
	2	10,5048	10x	0,486	10,5048		
	3	10,3025	10x	0,475	10,3025		

Contoh perhitungan :

1) Kadar Atorvastatin Kalsium

$$y = 0,05438 x - 0,08525$$

$$0,449 = 0,05438 x - 0,08525$$

$$0,449 + 0,08525 = 0,05438 x$$

$$\frac{0,53425}{0,05438} = x$$

$$0,05438$$

$$x = 9,817 \text{ ppm} \times \text{Faktor Pengenceran} \times \text{Volume awal}$$

$$x = 9,817 \mu\text{g/ml} \times 10 \times 100 \text{ ml}$$

$$x = 9817 \mu\text{g}$$

$$x = 9,817 \text{ mg}$$

2) Rata rata kadar

$$x \square = \frac{\text{Kadar R1} + \text{Kadar R2} + \text{Kadar R3}}{3}$$

$$= \frac{9,817 \text{ mg} + 10,311 \text{ mg} + 9,658 \text{ mg}}{3}$$

$$= 9,9283 \text{ mg}$$

3) CV (Koefisien Variasi)

$$\text{CV} = \frac{\text{SD}}{x \square} \times 100 \%$$

$$= \frac{0,3409}{9,9283} \times 100\%$$

$$= 3,43 \%$$

Lampiran 7. Hasil Uji Perolehan Kembali Tablet *Liquisolid* Atorvastatin Calcium

Formula	Replikasi	Kadar yang diperoleh (mg)	Kadar sesungguhnya (mg)	Perolehan kembali (%)	Rata-rata (%)
LS1	1	9,817	10	98,17	99,28
	2	10,311	10	103,11	
	3	9,657	10	96,57	
LS2	1	10,337	10	103,37	101,86
	2	9,781	10	97,81	
	3	10,440	10	104,40	
LS 3	1	10,634	10	106,34	104,00
	2	10,298	10	102,98	
	3	10,270	10	102,70	
LS 4	1	9,957	10	99,57	101,86
	2	10,282	10	102,82	
	3	10,320	10	103,20	
ATV®	1	9,989	10	99,89	102,66
	2	10,505	10	105,05	
	3	10,303	10	103,03	

Contoh perhitungan :

$$\text{Perolehan Kembali} = \frac{\text{Kadar yang diperoleh (mg)}}{\text{Kadar sesungguhnya (mg)}} \times 100\%$$

$$= \frac{9,817 \text{ mg}}{10 \text{ mg}} \times 100\%$$

$$= 98,17 \%$$

Lampiran 8. Hasil Uji Disolusi Tablet *Liquisolid* Atorvastatin Calsium

Formula LS 1 Replikasi 1

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	0.9919	0
5	0.209	5.4110	0.0054	4.8699	0.0000	4.8699	0.9919	48.6520
15	0.301	7.1028	0.0071	6.3925	0.0271	6.4196	0.9919	64.1338
30	0.418	9.2543	0.0093	8.3289	0.0355	8.3644	0.9919	83.5633
45	0.468	10.1738	0.0102	9.1564	0.0463	9.2027	0.9919	91.9379
60	0.512	10.9829	0.0110	9.8846	0.0509	9.9355	0.9919	99.2589

Formula LS 1 Replikasi 2

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	1.0031	0
5	0.202	5.2823	0.0053	4.7540	0.0000	4.7540	1.0031	48.0333
15	0.376	8.4820	0.0085	7.6338	0.0264	7.6602	1.0031	77.3960
30	0.409	9.0888	0.0091	8.1799	0.0424	8.2223	1.0031	83.0758
45	0.456	9.9531	0.0100	8.9578	0.0454	9.0032	1.0031	90.9657
60	0.506	10.8726	0.0109	9.7853	0.0498	9.8351	1.0031	99.3702

Formula LS 1 Replikasi 3

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	1.0003	0
5	0.238	5.9443	0.0059	5.3499	0.0000	5.3499	1.0003	53.9016
15	0.38	8.5555	0.0086	7.7000	0.0297	7.7297	1.0003	77.8793
30	0.418	9.2543	0.0093	8.3289	0.0428	8.3717	1.0003	84.3473
45	0.458	9.9899	0.0100	8.9909	0.0463	9.0372	1.0003	91.0525
60	0.51	10.9461	0.0109	9.8515	0.0499	9.9015	1.0003	99.7605

Formula LS 2 Replikasi 1

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	1.0105	0
5	0.203	5.3007	0.0053	4.7706	0.0000	4.7706	1.0105	47.3248
15	0.284	6.7902	0.0068	6.1112	0.0265	6.1377	1.0105	60.8863
30	0.331	7.6545	0.0077	6.8890	0.0340	6.9230	1.0105	68.6766
45	0.369	8.3533	0.0084	7.5179	0.0383	7.5562	1.0105	74.9583
60	0.437	9.6037	0.0096	8.6433	0.0418	8.6851	1.0105	86.1572

Formula LS 2 Replikasi 2

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	0.9954	0
5	0.187	5.0064	0.0050	4.5058	0.0000	4.5058	0.9954	44.0321
15	0.272	6.5695	0.0066	5.9126	0.0250	5.9376	0.9954	58.0241
30	0.307	7.2131	0.0072	6.4918	0.0328	6.5247	0.9954	63.7611
45	0.349	7.9855	0.0080	7.1869	0.0361	7.2230	0.9954	70.5854
60	0.437	9.6037	0.0096	8.6433	0.0399	8.6833	0.9954	84.8557

Formula LS 2 Replikasi 3

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	0.9954	0
5	0.192	5.0984	0.0051	4.5885	0.0000	4.5885	0.9954	44.7327
15	0.261	6.3672	0.0064	5.7305	0.0255	5.7560	0.9954	56.2495
30	0.343	7.8751	0.0079	7.0876	0.0318	7.1195	0.9954	69.5737
45	0.377	8.5004	0.0085	7.6503	0.0394	7.6897	0.9954	75.1463
60	0.451	9.8612	0.0099	8.8750	0.0425	8.9175	0.9954	87.1451

Formula LS 3 Replikasi 1

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	0.9979	0
5	0.152	4.3628	0.0044	3.9265	0.0000	3.9265	0.9979	37.6759
15	0.208	5.3926	0.0054	4.8533	0.0218	4.8752	0.9979	46.7782
30	0.258	6.3121	0.0063	5.6809	0.0270	5.7078	0.9979	54.7677
45	0.289	6.8821	0.0069	6.1939	0.0316	6.2255	0.9979	59.7347
60	0.332	7.6729	0.0077	6.9056	0.0344	6.9400	0.9979	66.5906

Formula LS 3 Replikasi 2

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	0.9922	0
5	0.142	4.1789	0.0042	3.7610	0.0000	3.7610	0.9922	35.8829
15	0.253	6.2201	0.0062	5.5981	0.0209	5.6190	0.9922	53.6092
30	0.288	6.8637	0.0069	6.1774	0.0311	6.2085	0.9922	59.2331
45	0.292	6.9373	0.0069	6.2436	0.0343	6.2779	0.9922	59.8954
60	0.338	7.7832	0.0078	7.0049	0.0347	7.0396	0.9922	67.1623

Formula LS 3 Replikasi 3

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	0.9894	0
5	0.143	4.1973	0.0042	3.7776	0.0000	3.7776	0.9894	35.9378
15	0.234	5.8707	0.0059	5.2837	0.0210	5.3046	0.9894	50.4653
30	0.276	6.6431	0.0066	5.9788	0.0294	6.0081	0.9894	57.1578
45	0.296	7.0108	0.0070	6.3098	0.0332	6.3430	0.9894	60.3435
60	0.327	7.5809	0.0076	6.8228	0.0351	6.8579	0.9894	65.2420

Formula LS 4 Replikasi 1

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	1.0078	0
5	0.167	4.6387	0.0046	4.1748	0.0000	4.1748	1.0078	41.3300
15	0.18	4.8777	0.0049	4.3899	0.0232	4.4131	1.0078	43.6896
30	0.198	5.2087	0.0052	4.6878	0.0244	4.7122	1.0078	46.6506
45	0.224	5.6868	0.0057	5.1182	0.0260	5.1442	1.0078	50.9270
60	0.224	5.6868	0.0057	5.1182	0.0284	5.1466	1.0078	50.9506

Formula LS 4 Replikasi 2

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	0.9705	0
5	0.149	4.3076	0.0043	3.8769	0.0000	3.8769	0.9705	36.9372
15	0.162	4.5467	0.0045	4.0920	0.0215	4.1136	0.9705	39.1923
30	0.196	5.1719	0.0052	4.6547	0.0227	4.6775	0.9705	44.5649
45	0.207	5.3742	0.0054	4.8368	0.0259	4.8627	0.9705	46.3291
60	0.237	5.9259	0.0059	5.3333	0.0269	5.3602	0.9705	51.0693

Formula LS 4 Replikasi 3

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	1.0003	0
5	0.154	4.3996	0.0044	3.9596	0.0000	3.9596	1.0003	38.8864
15	0.181	4.8961	0.0049	4.4065	0.0220	4.4285	1.0003	43.4908
30	0.202	5.2823	0.0053	4.7540	0.0245	4.7785	1.0003	46.9284
45	0.228	5.7604	0.0058	5.1844	0.0264	5.2108	1.0003	51.1733
60	0.231	5.8156	0.0058	5.2340	0.0288	5.2628	1.0003	51.6844

ATV[®] Replikasi 1

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	1.0011	0
5	0.273	6.5879	0.0066	5.9291	0.0000	5.9291	1.0011	57.8266
15	0.291	6.9189	0.0069	6.2270	0.0329	6.2600	1.0011	61.0533
30	0.293	6.9557	0.0070	6.2601	0.0346	6.2947	1.0011	61.3923
45	0.347	7.9487	0.0079	7.1538	0.0348	7.1886	1.0011	70.1104
60	0.445	9.7508	0.0098	8.7757	0.0397	8.8155	1.0011	85.9774

ATV[®] Replikasi 2

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	1.0011	0
5	0.235	5.8891	0.0059	5.3002	0.0000	5.3002	1.0011	51.6929
15	0.278	6.6798	0.0067	6.0119	0.0294	6.0413	1.0011	58.9208
30	0.295	6.9925	0.0070	6.2932	0.0334	6.3266	1.0011	61.7034
45	0.332	7.6729	0.0077	6.9056	0.0350	6.9405	1.0011	67.6910
60	0.402	8.9601	0.0090	8.0641	0.0384	8.1025	1.0011	79.0232

ATV[®] Replikasi 3

Menit	Absorbansi	Kadar (mcg/ml)	Kadar (mg)	Jumlah (mg)	Faktor koreksi	Jumlah terkoreksi	Bobot tablet	Disolusi (%)
0	0	0	0	0	0	0	1.0011	0
5	0.248	6.1282	0.0061	5.5154	0.0000	5.5154	1.0011	53.7912
15	0.263	6.4040	0.0064	5.7636	0.0306	5.7942	1.0011	56.5113
30	0.304	7.1580	0.0072	6.4422	0.0320	6.4742	1.0011	63.1427
45	0.328	7.5993	0.0076	6.8394	0.0358	6.8752	1.0011	67.0534
60	0.443	9.7140	0.0097	8.7426	0.0380	8.7806	1.0011	85.6376

Lampiran 9. Data Perhitungan DE₆₀ Uji Disolusi Tablet *Liquisolid* Atorvastatin Kalsium

Formula LS 1 Replikasi 1

Jarak menit		Luas area
0	1	121.629937
5	2	563.9287
10	3	1107.7280
15	4	1316.2591
15	5	1433.9760
15	Y.dt	4543.5217
	y100.t	6000
	DE60	0.7572536
	% DE60	75.725%

Formula LS 1 Replikasi 2

Jarak menit		Luas area
0	1	120.083174
5	2	627.1463
10	3	1203.5386
15	4	1305.3114
15	5	1427.5196
15	Y.dt	4683.5991
	y100.t	6000
	DE60	0.7805999
	% DE60	78.060%

Formula LS 1 Replikasi 3

Jarak menit		Luas area
0	1	134.753885
5	2	658.9045
10	3	1216.7001
15	4	1315.4988
15	5	1431.0974
15	Y.dt	4756.9546
	y100.t	6000
	DE60	0.7928258
	% DE60	79.283%

Formula LS 2 Replikasi 1

Jarak menit		Luas area
0	1	118.312057
5	2	541.0556
10	3	971.7220
15	4	1077.2622
15	5	1208.3666
15	Y.dt	3916.7185
	y100.t	6000
	DE60	0.6527864
	% DE60	65.279%

Formula LS 2 Replikasi 2

Jarak menit		Luas area
0	1	110.080138
5	2	510.2806
10	3	913.3888
15	4	1007.5988
15	5	1165.8083
15	Y.dt	3707.1567
	y100.t	6000
	DE60	0.6178595
	% DE60	61.786%

Formula LS 2 Replikasi 3

Jarak menit		Luas area
0	1	111.831729
5	2	504.9109
10	3	943.6735
15	4	1085.3996
15	5	1217.1858
15	Y.dt	3863.0015
	y100.t	6000
	DE60	0.6438336
	% DE60	64.383%

Formula LS 3 Replikasi 1

Jarak menit		Luas area
0	1	94.1898596
5	2	422.2708
10	3	761.5947
15	4	858.7687
15	5	947.4401
15	Y.dt	3084.2641
	y100.t	6000
	DE60	0.514044
	% DE60	51.404%

Formula LS 3 Replikasi 2

Jarak menit		Luas area
0	1	89.7071793
5	2	447.4602
10	3	846.3167
15	4	893.4631
15	5	952.9324
15	Y.dt	3229.8795
	y100.t	6000
	DE60	0.5383133
	% DE60	53.831%

Formula LS 3 Replikasi 3

Jarak menit		Luas area
0	1	89.8444963
5	2	432.0157
10	3	807.1736
15	4	881.2600
15	5	941.8911
15	Y.dt	3152.1849
	y100.t	6000
	DE60	0.5253642
	% DE60	52.536%

Formula LS 4 Replikasi 1

Jarak menit		Luas area
0	1	103.263219
5	2	424.8438
10	3	677.1468
15	4	731.3949
15	5	763.6259
15	Y.dt	2700.2746
	y100.t	6000
	DE60	0.4500458
	% DE60	45.005%

Formula LS 4 Replikasi 2

Jarak menit		Luas area
0	1	92.3429334
5	2	380.6471
10	3	628.1783
15	4	681.7050
15	5	730.4881
15	Y.dt	2513.3616
	y100.t	6000
	DE60	0.4188936
	% DE60	41.889%

Formula LS 4 Replikasi 3

Jarak menit		Luas area
0	1	97.2159354
5	2	411.8861
10	3	678.1446
15	4	735.7631
15	5	771.4327
15	Y.dt	2694.4424
	y100.t	6000
	DE60	0.4490737
	% DE60	44.907%

ATV® Replikasi 1

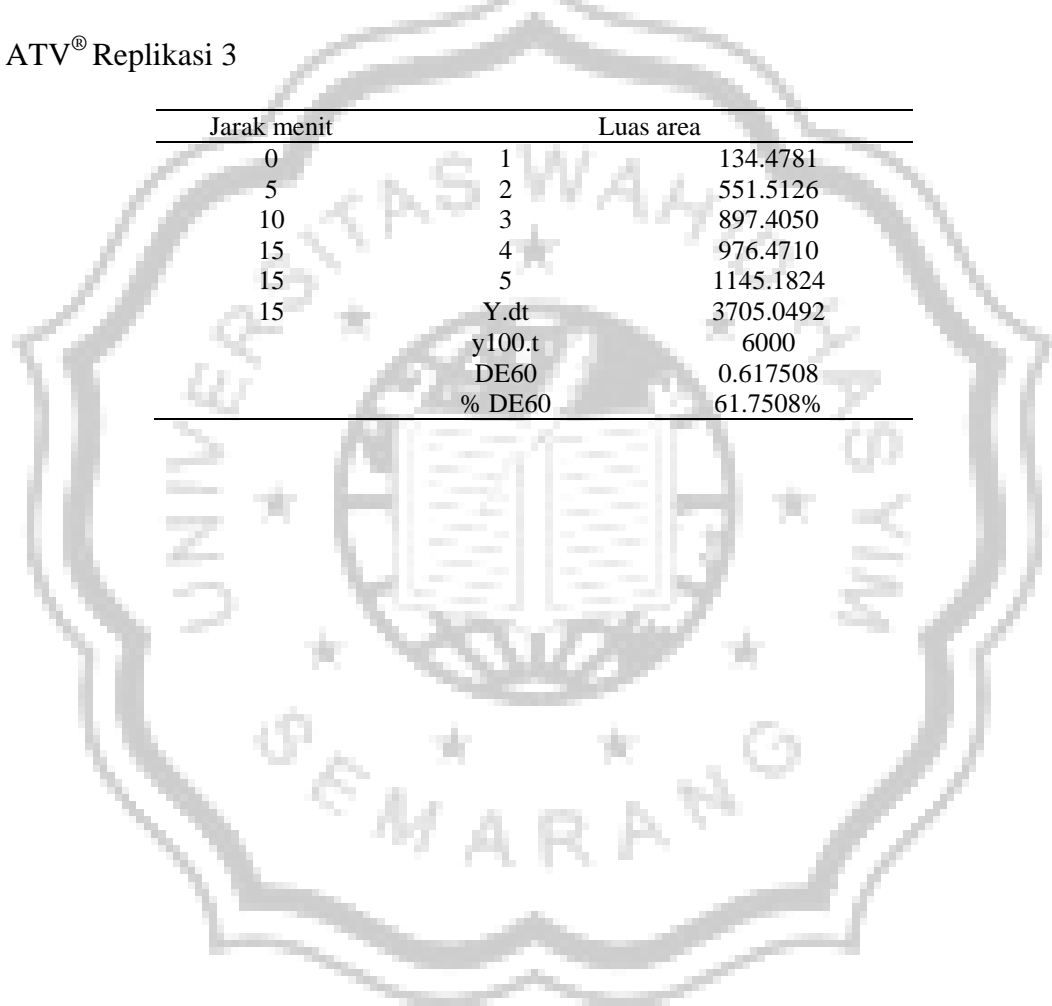
Jarak menit		Luas area
0	1	144.5665
5	2	594.3995
10	3	918.3418
15	4	986.2702
15	5	1170.6589
15	Y.dt	3814.2368
	y100.t	6000
	DE60	0.635706
	% DE60	63.5706%

ATV[®] Replikasi 2

Jarak menit		Luas area
0	1	129.2321
5	2	553.0685
10	3	904.6821
15	4	970.4584
15	5	1100.3563
15	Y.dt	3657.7974
	y100.t	6000
	DE60	0.609633
	% DE60	60.9633%

ATV[®] Replikasi 3

Jarak menit		Luas area
0	1	134.4781
5	2	551.5126
10	3	897.4050
15	4	976.4710
15	5	1145.1824
15	Y.dt	3705.0492
	y100.t	6000
	DE60	0.617508
	% DE60	61.7508%



Lampiran 10. Hasil Uji Statistika Homogenitas dan Normalitas

Uji Homogenitas Data

Tests of Normality

Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
% DE60 formula 1	.206	3	.	.993	3	.838
formula 2	.248	3	.	.969	3	.660
formula 3	.241	3	.	.974	3	.688
formula 4	.330	3	.	.868	3	.288

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

% DE 60

Levene Statistic	df1	df2	Sig.
.383	4	10	.816

Uji Normalitas Data

ANOVA

% DE 60					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1934.670	4	483.668	186.596	.000
Within Groups	25.921	10	2.592		
Total	1960.591	14			

Lampiran 11. Hasil Uji LSD DE₆₀

Multiple Comparisons

% DE 60
LSD

(I) FOR MUL A	(J) FOR MUL A	Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
LS 1	LS 2	13.8733333'	1.3145E0	.000	10.944339	16.802328
	LS 3	25.0990000'	1.3145E0	.000	22.170005	28.027995
	LS 4	33.7556667'	1.3145E0	.000	30.826672	36.684661
	ATV®	15.5944333'	1.3145E0	.000	12.665439	18.523428
LS 2	LS 1	-13.8733333'	1.3145E0	.000	-16.802328	-10.944339
	LS 3	11.2256667'	1.3145E0	.000	8.296672	14.154661
	LS 4	19.8823333'	1.3145E0	.000	16.953339	22.811328
	ATV®	1.7211000	1.3145E0	.220	-1.207895	4.650095
LS 3	LS 1	-25.0990000'	1.3145E0	.000	-28.027995	-22.170005
	LS 2	-11.2256667'	1.3145E0	.000	-14.154661	-8.296672
	LS 4	8.6566667'	1.3145E0	.000	5.727672	11.585661
	ATV®	-9.5045667'	1.3145E0	.000	-12.433561	-6.575572
LS 4	LS 1	-33.7556667'	1.3145E0	.000	-36.684661	-30.826672
	LS 2	-19.8823333'	1.3145E0	.000	-22.811328	-16.953339
	LS 3	-8.6566667'	1.3145E0	.000	-11.585661	-5.727672
	ATV®	-18.1612333'	1.3145E0	.000	-21.090228	-15.232239
ATV®	LS 1	-15.5944333'	1.3145E0	.000	-18.523428	-12.665439
	LS 2	-1.7211000	1.3145E0	.220	-4.650095	1.207895
	LS 3	9.5045667'	1.3145E0	.000	6.575572	12.433561
	LS 4	18.1612333'	1.3145E0	.000	15.232239	21.090228

*. The mean difference is significant at the 0.05 level.