DAFTAR PUSTAKA

Abate, M. and Abel, S. 2006. Remington: The Science and Practice of Pharmacy. 21st ed. Edited by L.Williams and Wilkins. University of The Sciences, Philadelphia. Available as PDF file. Hal: 349.

Allen, L.V., Popovich, N.G., and Ansel, H.C. 2014. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery System.* 10th ed. pp. 316-318, 323-324. *Available as PDF file.*

Anisa, A.N.I., Nour, A.H. 2015. Affect of Viscosity and Droplet Diameter on Water-in-oil (w/o) Emulision: An Experimental Study. *World Academy of Science, Engineering and Technology.* (4): 598. *Available as PDF file.*

Baki, G. and Alexander, K.S. 2015. *Introduction to Cosmetic Formulation and Technology.* John Wiley and Sons. Canada. pp. 128-135. *Available as PDF file.*

Desbats, M. A., Lunardi, G., Doimo, M., Trevisson, E. and Salviati, L. 2015. Genetic Bases and Clinical Manifestations of Coenzyme Q_{10} (CoQ_{10}) *Deficincy. J Inherit Metab Dis*. 38:146.

Dewi, R., Anwar, E. dan Yunita, K. S. 2014. Uji Stabilitas Fisik Krim yang Mengandung Ekstrak Kacang Kedelai *(glycine max). Pharm Sci Res.*1.(3):198.

Elcistia, R. dan Zulkarnain, A. K. 2018. Optimasi Formula Sediaan Krim O/W Kombinasi Oksibenzon dan Titanium Dioksida serta Uji Aktivitas Tabir Suryanya secara In Vivo. Majalah Farmasetik 14. (2):67.

Kementerian Kesehatan RI. 2015. Farmakope Indonesia. Edisi V. Direktorat Jendral Bina Kefarmasian dan Alat Kesehatan. Jakarta.

Kerscher, M. and Buntrock H. 2010. Update on Cosmeceuticals. JDDG. 9. 318-319.

Knott, A., Achterberg, V., Smuda, C., Mielke, H., Sperling, G., Dunckelmann, K., Vogelsang, A., Kruger, A. et al. 2015. Topical Treatment with coenzyme Q10-containing formulas improves skin's Q10 level and provides antioxidative effects. *PMC*. 41 (6):383-390.

Lee, BJ., Tseng, YF., Yen, CH. And Lin, PT. 2013. Effects of coenzyme Q10 supplementation (300 mg/day) on antioxidation and anti-imflammation in colonary artery disease patients during statins therapy: a randomized, placebo-controlled trial. *Nutrition Journal*. 12. 142.

Maulina, I. D. 2011. Uji Stabilitas Fisik dan Aktivitas Antioksidan Sediaan Krim yang Mengandung Ekstrak Umbi Wortel (Daucus carota L.). Skripsi Diterbitkan. Depok. Fakultas MIPA. UI. Hal: 30-32.

McMullen, R.L. 2018. *Antioxidants and The Skin.* CRC Press. New York. pp. 21-25. *Available as PDF file.*

Michalun, N. and Michalun, M. 2010. Milady's Skin Care and Cosmetic Ingredients Dictionary. *Milady/Cengage Learning. Clifton Park. NY*.

Montenegro, L. 2014. Nanocarrirs for Skin Delivery of Cosmetic Antioxidants. *JPPRes*. 2. (4): 73-92.

Pham-Huy, L.A, He H, Pham-Huy C. 2008. Free Radicals, Antioxidants in Disease and Health. *International Journal of Biomedical Science*. Faculty of Pharmacy, University of Paris 5, Paris, France. 4: 89-96.

Pichot., Roman. 2010. *Stability and Characterisation of Emulsion in the Presence of Colloidal Particles and Surfactants*. Thesis. Inggris: The University of Birmingham

Rahse, W. 2019. *COSMETIC CREAMS: Development and Formulation of Effective Skin Care Products.* WILEY-VCH. English. 284-287. *Available as PDF File*.

Rinnerthaler, M., Bischof, J., Struebel, M. K., Trost A. and Richter K. 2015. *Oxidative Stress in Aging Human Skin*. Biomolecules. 5. 546.

Rowe, R. C., Sheskey, P. J. and Quinee, M. E. 2009. *Handbook of Pharmaceutical Excipient.* 6th ed. New York. Available as PDF file. Hal: 31-33, 245-778.

Saladin, K. S. and McFarland, R. K. 2018. *Essentials of Anatomy and Physiology.* 2th ed. F.A. McGraw-Hill Education. New York. pp. 128-132. *Available as PDF file.*

Scanlon, V.C. and Sanders, T. 2007. *Essentials of Anatomy and Physiology.* 5th ed. F.A. David Company. New York. pp. 90-99. *Available as PDF file.*

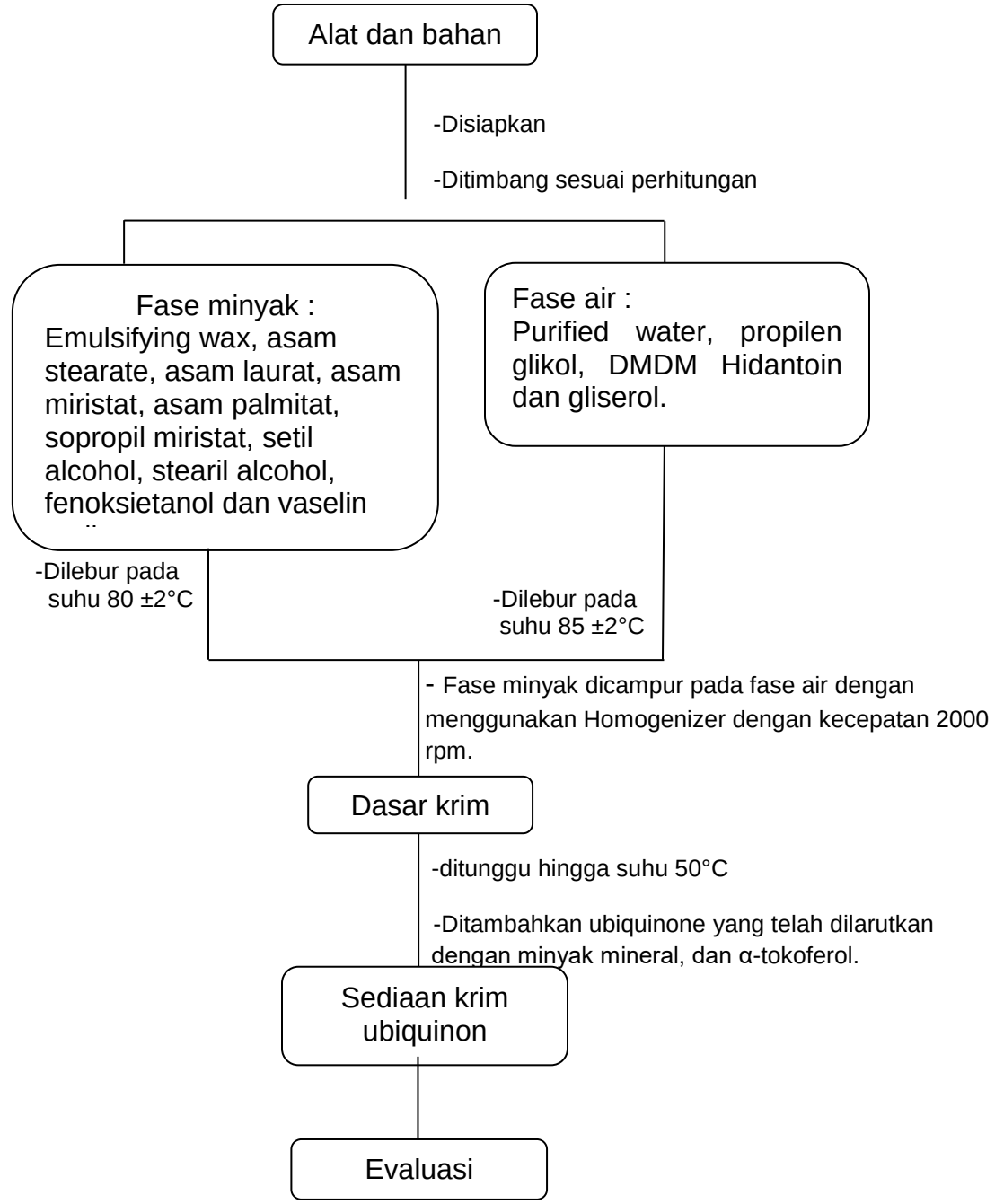
Sinko, Patrick J. 2006. *Farmasi Fisika dan Ilmu Farmasetika Martin*. Terjemahan oleh Joshita Djajadisastra. 2011. Jakarta : Penerbit Buku Kedokteran EGC. Hal: 641-642.

Sutjahjokartio, S. 2017. Pengaruh Konsentrasi Pengawet DMDM Hydantoin terhadap Karakteristik, Stabilitas Fisika dan pH pada Water Based Pomade yang Mengandung Ekstrak Aloe Vera. *Calyptra.* 6. (2): 554-555.

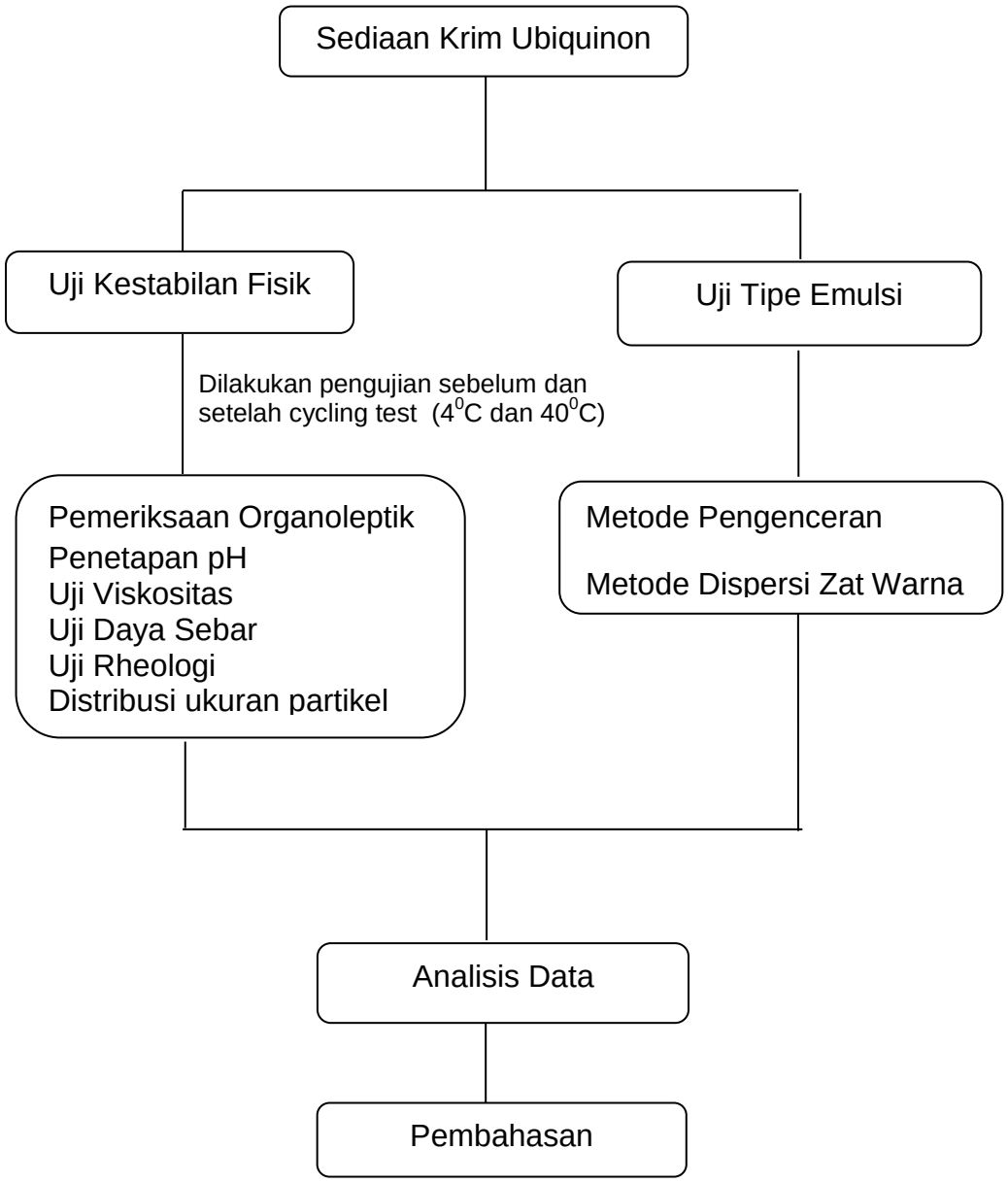
Yousef, H., Sharma, S. 2020. Anatomy, Skin (Integument), Epidermis. *NCBI Bookshelf. A service of the National Library of Medicine, National Institutes of Health*. *Available as PDF file.*

LAMPIRAN

Lampiran 1. Skema Pembuatan Krim Tipe M/A dari ubiquinone



Lampiran 2. Skema Kerja Evaluasi Tipe dan Kestabilan Fisik Krim



Lampiran 3. Hasil pengamatan sediaan krim tipe M/A dari ubiquinon

Tabel 4. Hasil Pengukuran pH sediaan krim sebelum dan sesudah uji siklus

Kondisi / Formula	pH	
	Sebelum Uji siklus	Sesudah Uji siklus
F1	4.48	4.54
F2	4.79	4.44
F3	4.51	4.39
F4	4.38	4.54
F5	4.78	4.68
F6	4.4	4.24

Tabel 5. Hasil pengukuran viskositas sediaan krim sebelum dan setelah uji siklus

Kondisi / Formula	Viskositas (cps)	
	Sebelum Uji siklus	Setelah Uji siklus
F1	7866.67	6466.67
F2	11933.33	11733.33
F3	12933.33	13866.67
F4	32133.33	28533.33
F5	6733.33	6200
F6	33200	32666.67

Tabel 6. Hasil uji daya sebar sebelum dan sesudah uji siklus

Kondisi	Sebelum uji siklus					Sesudah uji siklus				
	Diameter (mm)									
formula	100	200	300	400	500	100	200	300	400	500
F1	76.4	89.19	97.9	107.55	120.65	74.53	85.67	95.36	98.42	103.76
F2	63.77	77.3	88.39	96.32	106.57	59.58	69.95	75.35	77.82	81.09
F3	53.8	66.31	76.09	86.58	91.05	56.56	65.94	72.08	80.83	80.27
F4	47.24	55.71	63.34	68.78	76.32	46.28	57.46	67.76	78.2	82.93
F5	74.15	86.3	97.88	108.45	120.64	73.89	87.43	100.73	117.52	130.91
F6	59.08	66.71	79.55	84.91	88.04	43.92	53.61	61.61	70.95	58.5

Tabel 7. Hasil pengukuran diameter rata-rata sebelum dan sesudah uji siklus

Kondisi / Formula	Diameter rata-rata	
	Sebelum uji siklus	Setelah uji siklus
F1	6,773	13,779
F2	11,519	13,914
F3	9,958	15,621
F4	10,825	16,451
F5	7,751	23,868
F6	8,227	14,620

Tabel 8. Hasil perhitungan distribusi ukuran partikel sebelum uji siklus formula 1

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd_3$	$\%nd^3_{kml}$
1	3.962	67	22.3	22.3	265.478	1051.921	4168.091	16515.485	2.7	2.7
2	5.507	101	33.7	56.0	556.195	3062.895	16866.988	92884.434	11.1	13.8
3	7.051	60	20.0	76.0	423.084	2983.328	21036.618	148337.453	13.8	27.6
4	8.596	24	8.0	84.0	206.302	1773.351	15243.563	131032.267	10.0	37.6
5	10.140	20	6.7	90.7	202.808	2056.564	20854.426	211472.707	13.7	51.2
6	11.685	13	4.3	95.0	151.904	1774.991	20740.664	242353.386	13.6	64.8
7	13.229	6	2.0	97.0	79.377	1050.111	13892.391	183788.751	9.1	73.9
8	14.774	3	1.0	98.0	44.322	654.811	9674.150	142925.600	6.3	80.3
9	16.318	3	1.0	99.0	48.955	798.879	13036.492	212735.792	8.5	88.8
10	17.863	3	1.0	100.0	53.589	957.260	17099.541	305449.099	11.2	100
Σ		300	100	100	2032.014	16164.111	152612.926	1687494.974	100	100
d_{ln}		6.773379782		d_{sn}	7.340324899		d_{vn}	7.982826454		
d_{sl}		7.954724429		d_{vs}	9.441467385		d_{wm}	11.05735288		

Tabel 9. Hasil perhitungan distribusi ukuran partikel setelah uji siklus formula 1

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	7.221	130	43.3	43.3	938.745	6778.786	48950.400	353476.495	3.4	3.4
2	11.953	103	34.3	77.7	1231.203	14717.096	175919.743	2102843.889	12.2	15.7
3	16.686	30	10.0	87.7	500.572	8352.417	139366.254	2325428.992	9.7	25.4
4	21.418	14	4.7	92.3	299.853	6422.261	137552.314	2946102.526	9.6	34.9
5	26.150	8	2.7	95.0	209.203	5470.732	143061.629	3741113.557	10.0	44.9
6	30.883	7	2.3	97.3	216.179	6676.177	206178.217	6367334.912	14.4	59.3
7	35.615	4	1.3	98.7	142.460	5073.709	180700.088	6435631.311	12.6	71.8
8	40.347	1	0.3	99.0	40.347	1627.905	65681.551	2650073.180	4.6	76.4
9	45.080	1	0.3	99.3	45.080	2032.171	91609.492	4129720.274	6.4	82.8
10	49.812	2	0.7	100.0	99.624	4962.455	247189.441	12312981.360	17.2	100
Σ		300	100	100	3723.265	62113.710	1436209.129	43364706.496	100	100
d_{ln}		12.41088432		d_{sn}	14.38908269		d_{vn}	16.85383778		
d_{sl}		16.68259049		d_{vs}	23.12225632		d_{wm}	30.19386635		

Tabel 10. Hasil perhitungan distribusi ukuran partikel sebelum uji siklus formula 2

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	6.203	75	25.0	25.0	465.223	2885.765	17900.325	111035.232	2.1	2.1
2	9.836	117	39.0	64.0	1150.827	11319.691	111341.982	1095174.470	13.2	15.3
3	13.469	56	18.7	82.7	754.280	10159.622	136842.911	1843177.083	16.2	31.6
4	17.102	28	9.3	92.0	478.869	8189.827	140066.122	2395473.999	16.6	48.2
5	20.736	8	2.7	94.7	165.885	3439.724	71324.784	1478962.943	8.5	56.7
6	24.369	9	3.0	97.7	219.319	5344.533	130239.683	3173780.866	15.5	72.2
7	28.002	4	1.3	99.0	112.008	3136.432	87826.152	2459301.696	10.4	82.6
8	31.635	0	0.0	99.0	0.000	0.000	0.000	0.000	0.0	82.6
9	35.268	2	0.7	99.7	70.536	2487.699	87736.773	3094322.271	10.4	93.0
10	38.901	1	0.3	100.0	38.901	1513.320	58870.259	2290135.917	7.0	100
Σ		300	100	100	3455.849	48476.613	842148.991	17941364.479	100	100
d_{ln}		11.51949617		d_{sn}	12.71175483		d_{vn}	14.10660674		
d_{sl}		14.02741131		d_{vs}	17.37227363		d_{wm}	21.30426407		

Tabel 11. Hasil perhitungan distribusi ukuran partikel setelah uji siklus formula 2

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	8.749	139	46.3	46.3	1216.057	10638.813	93074.858	814275.894	3.2	3.2
2	15.145	94	31.3	77.7	1423.608	21560.210	326524.340	4945134.729	11.2	14.4
3	21.541	30	10.0	87.7	646.228	13920.336	299856.838	6459191.943	10.3	24.6
4	27.937	15	5.0	92.7	419.056	11707.200	327064.906	9137236.023	11.2	35.9
5	34.333	9	3.0	95.7	308.999	10608.934	364238.912	12505496.839	12.5	48.3
6	40.729	5	1.7	97.3	203.647	8294.412	337826.235	13759452.808	11.6	59.9
7	47.126	4	1.3	98.7	188.502	8883.263	418628.508	19728091.310	14.3	74.3
8	53.522	3	1.0	99.7	160.565	8593.713	459949.979	24617298.203	15.8	90.0
9	59.918	0	0.0	99.7	0.000	0.000	0.000	0.000	0.0	90.0
10	66.314	1	0.3	100.0	66.314	4397.546	291618.802	19338406.949	10.0	100
Σ		300	100	100	4632.976	98604.427	2918783.378	111304584.698	100	100
d_{ln}		15.44325319		d_{sn}	18.12957313		d_{vn}	21.34814791		
d_{sl}		21.2831725		d_{vs}	29.6009366		d_{wm}	38.13389699		

Tabel 12. Hasil perhitungan distribusi ukuran partikel sebelum uji siklus formula 3

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	6.110	27	9.0	9.0	164.980	1008.094	6159.841	37639.003	1.7	1.7
2	7.920	91	30.3	39.3	720.727	5708.209	45209.434	358062.054	12.1	13.8
3	9.730	81	27.0	66.3	788.111	7668.130	74609.086	725928.680	20.0	33.8
4	11.539	57	19.0	85.3	657.749	7590.059	87585.113	1010684.124	23.5	57.3
5	13.349	26	8.7	94.0	347.078	4633.188	61849.070	825631.868	16.6	73.9
6	15.159	8	2.7	96.7	121.271	1838.321	27866.786	422427.821	7.5	81.3
7	16.969	6	2.0	98.7	101.811	1727.583	29314.528	497424.056	7.9	89.2
8	18.778	1	0.3	99.0	18.778	352.621	6621.590	124341.569	1.8	91.0
9	20.588	0	0.0	99.0	0.000	0.000	0.000	0.000	0.0	91.0
10	22.398	3	1.0	100.0	67.193	1504.955	33707.357	754963.313	9.0	100
Σ		300	100	100	2987.697	32031.160	372922.805	4757102.489	100	100
d_{ln}		9.958989604		d_{sn}	10.33298273		d_{vn}	10.75224692		
d_{sl}		10.72102055		d_{vs}	11.6425009		d_{wm}	12.75626597		

Tabel 13. Hasil perhitungan distribusi ukuran partikel setelah uji siklus formula 3

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	9.014	93	31.0	31.0	838.315	7556.695	68117.134	614017.628	2.5	2.5
2	14.999	126	42.0	73.0	1889.875	28346.264	425165.941	6377068.873	15.8	18.3
3	20.984	44	14.7	87.7	923.291	19374.221	406546.317	8530918.958	15.1	33.5
4	26.969	18	6.0	93.7	485.437	13091.640	353065.139	9521724.602	13.1	46.6
5	32.954	9	3.0	96.7	296.583	9773.467	322071.073	10613406.312	12.0	58.6
6	38.938	4	1.3	98.0	155.754	6064.822	236154.971	9195516.433	8.8	67.4
7	44.923	2	0.7	98.7	89.847	4036.215	181320.306	8145515.822	6.7	74.1
8	50.908	2	0.7	99.3	101.816	5183.294	263872.249	13433266.346	9.8	83.9
9	56.893	1	0.3	99.7	56.893	3236.823	184152.876	10477025.700	6.8	90.8
10	62.878	1	0.3	100.0	62.878	3953.637	248596.628	15631247.704	9.2	100
Σ		300	100	100	4900.690	100617.078	2689062.634	92539708.379	100	100
d_{ln}		16.3356321		d_{sn}	18.31366323		d_{vn}	20.77271301		
d_{sl}		20.53120802		d_{vs}	26.72570782		d_{wm}	34.41337037		

Tabel 14. Hasil perhitungan distribusi ukuran partikel sebelum uji siklus formula 4

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	6.739	49	16.3	16.3	330.225	2225.484	14998.183	101077.112	2.9	2.9
2	9.053	100	33.3	49.7	905.251	8194.789	74183.387	671545.653	14.3	17.2
3	11.366	85	28.3	78.0	966.087	10980.273	124798.753	1418428.190	24.1	41.3
4	13.679	40	13.3	91.3	547.158	7484.537	102380.535	1400457.272	19.8	61.1
5	15.992	8	2.7	94.0	127.937	2045.993	32719.839	523260.814	6.3	67.4
6	18.305	10	3.3	97.3	183.054	3350.867	61338.878	1122831.113	11.8	79.2
7	20.619	2	0.7	98.0	41.237	850.253	17531.010	361464.721	3.4	82.6
8	22.932	4	1.3	99.3	91.727	2103.471	48236.396	1106147.757	9.3	91.9
9	25.245	0	0.0	99.3	0.000	0.000	0.000	0.000	0.0	91.9
10	27.558	2	0.7	100.0	55.116	1518.913	41858.578	1153548.784	8.1	100
Σ		300	100	100	3247.792	38754.580	518045.559	7858761.417	100	100
d_{ln}		10.82597347		d_{sn}	11.36582299		d_{vn}	11.9972645		
d_{sl}		11.93259272		d_{vs}	13.36733784		d_{wm}	15.17001985		

Tabel 15. Hasil perhitungan distribusi ukuran partikel setelah uji siklus formula 4

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	9.348	100	33.3	33.3	934.759	8737.744	81676.854	763481.768	2.7	2.7
2	14.713	93	31.0	64.3	1368.280	20131.089	296182.530	4357642.537	9.9	12.6
3	20.078	49	16.3	80.7	983.812	19752.775	396592.167	7962696.255	13.2	25.8
4	25.443	19	6.3	87.0	483.415	12299.480	312934.399	7961957.834	10.4	36.2
5	30.808	25	8.3	95.3	770.200	23728.321	731022.124	22521329.523	24.4	60.6
6	36.173	8	2.7	98.0	289.385	10467.947	378658.105	13697238.356	12.6	73.2
7	41.538	1	0.3	98.3	41.538	1725.422	71670.951	2977082.631	2.4	75.6
8	46.903	2	0.7	99.0	93.807	4399.840	206367.067	9679297.932	6.9	82.5
9	52.268	1	0.3	99.3	52.268	2731.987	142796.596	7463750.966	4.8	87.2
10	57.634	2	0.7	100.0	115.267	6643.243	382873.447	22066341.394	12.8	100
Σ		300	100	100	5132.732	110617.849	3000774.240	99450819.196	100	100
d_{ln}		17.10910508		d_{sn}	19.20224372		d_{vn}	21.54620013		
d_{sl}		21.55145825		d_{vs}	27.12739637		d_{wm}	33.14171984		

Tabel 16. Hasil perhitungan distribusi ukuran partikel sebelum uji siklus formula 5

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	5.690	144	48.0	48.0	819.316	4661.653	26523.367	150909.774	12.3	12.3
2	8.245	103	34.3	82.3	849.258	7002.324	57735.733	476044.080	26.8	39.1
3	10.801	39	13.0	95.3	421.230	4549.598	49139.107	530739.578	22.8	61.9
4	13.356	6	2.0	97.3	80.138	1070.343	14295.812	190939.018	6.6	68.6
5	15.912	3	1.0	98.3	47.735	759.558	12085.959	192309.649	5.6	74.2
6	18.467	3	1.0	99.3	55.402	1023.130	18894.503	348931.516	8.8	83.0
7	21.023	0	0.0	99.3	0.000	0.000	0.000	0.000	0.0	83.0
8	23.578	1	0.3	99.7	23.578	555.942	13108.236	309071.524	6.1	89.0
9	26.134	0	0.0	99.7	0.000	0.000	0.000	0.000	0.0	89.0
10	28.689	1	0.3	100.0	28.689	823.087	23613.938	677471.817	11.0	100
Σ		300	100	100	2325.346	20445.635	215396.654	2876416.955	100	100
d_{ln}		7.7511548		d_{sn}	8.255429503		d_{vn}	8.954456532		
d_{sl}		8.792511314		d_{vs}	10.53509246		d_{wm}	13.35404661		

Tabel 17. Hasil perhitungan distribusi ukuran partikel setelah uji siklus formula 5

Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	11.301	178	59.3	59.3	2011.586	22733.034	256907.094	2903319.263	2.1	2.1
2	22.324	50	16.7	76.0	1116.180	24917.178	556241.349	12417314.802	4.6	6.7
3	33.346	30	10.0	86.0	1000.385	33359.016	1112395.477	37094130.976	9.2	15.9
4	44.369	22	7.3	93.3	976.112	43308.861	1921559.346	85257156.158	15.8	31.7
5	55.391	8	2.7	96.0	443.130	24545.566	1359610.726	75310601.031	11.2	42.9
6	66.414	5	1.7	97.7	332.069	22054.003	1464691.465	97275812.362	12.1	54.9
7	77.436	3	1.0	98.7	232.309	17989.198	1393019.115	107870415.020	11.5	66.4
8	88.459	2	0.7	99.3	176.918	15649.984	1384381.637	122460992.459	11.4	77.8
9	99.482	0	0.0	99.3	0.000	0.000	0.000	0.000	0.0	77.8
10	110.504	2	0.7	100.0	221.008	24422.316	2698766.231	298224755.494	22.2	100
Σ		300	100	100	6509.699	228979.155	12147572.440	838814497.566	100	100
d_{ln}		21.69899789		d_{sn}	27.62723021		d_{vn}	34.33913999		
d_{sl}		35.17507367		d_{vs}	53.05099694		d_{wm}	69.05202679		

Tabel 18. Hasil perhitungan distribusi ukuran partikel sebelum uji siklus formula 6

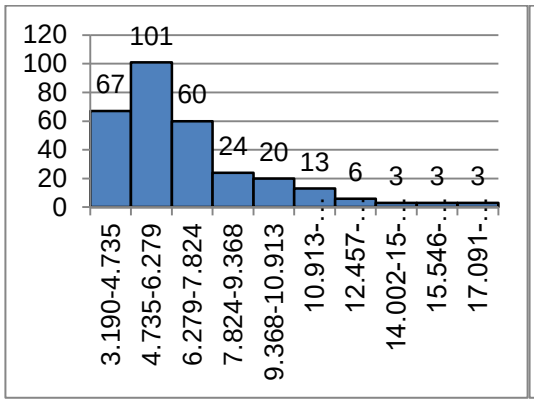
Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	5.284	57	19.0	19.0	301.180	1591.394	8408.705	44430.434	3.7	3.7
2	7.079	105	35.0	54.0	743.274	5261.485	37244.990	263649.758	16.2	19.9
3	8.874	86	28.7	82.7	763.141	6771.912	60092.150	533241.788	26.2	46.1
4	10.669	25	8.3	91.0	266.717	2845.514	30357.848	323877.891	13.2	59.3
5	12.464	12	4.0	95.0	149.563	1864.098	23233.388	289571.828	10.1	69.4
6	14.259	8	2.7	97.7	114.068	1626.449	23190.789	330666.892	10.1	79.5
7	16.053	2	0.7	98.3	32.107	515.428	8274.421	132833.257	3.6	83.2
8	17.848	2	0.7	99.0	35.697	637.132	11371.797	202968.583	5.0	88.1
9	19.643	1	0.3	99.3	19.643	385.861	7579.611	148888.974	3.3	91.4
10	21.438	2	0.7	100.0	42.877	919.201	19706.088	422464.840	8.6	100
Σ		300	100	100	2468.267	22418.474	229459.788	2692594.245	100	100
d_{ln}		8.227557368		d_{sn}	8.644550071		d_{vn}	9.145240078		
d_{sl}		9.082676983		d_{vs}	10.23529924		d_{wm}	11.73449288		

Tabel 19. Hasil perhitungan distribusi ukuran partikel setelah uji siklus formula 6

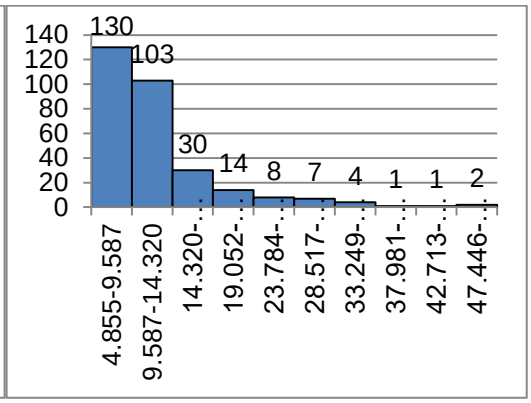
Kelas	d	n	%n	$\%n_{kml}$	nd	nd^2	nd^3	nd^4	$\%nd^3$	$\%nd^3_{kml}$
1	7.620	96	32.0	32.0	731.518	5574.146	42474.855	323657.338	1.6	1.6
2	13.338	112	37.3	69.3	1493.905	19926.369	265786.704	3545180.305	10.2	11.8
3	19.057	58	19.3	88.7	1105.301	21063.611	401407.279	7649581.220	15.4	27.2
4	24.775	16	5.3	94.0	396.406	9821.106	243321.559	6028382.394	9.3	36.5
5	30.494	6	2.0	96.0	182.963	5579.245	170132.608	5187996.365	6.5	43.0
6	36.212	4	1.3	97.3	144.849	5245.324	189945.277	6878356.298	7.3	50.2
7	41.931	1	0.3	97.7	41.931	1758.190	73722.243	3091230.498	2.8	53.1
8	47.649	0	0.0	97.7	0.000	0.000	0.000	0.000	0.0	53.1
9	53.368	4	1.3	99.0	213.471	11392.447	607988.717	32446961.215	23.3	76.3
10	59.086	3	1.0	100.0	177.259	10473.526	618840.528	36564915.887	23.7	100
Σ		300	100	100	4487.602	90833.964	2613619.770	101716261.521	100	100

d_{ln}	14.95867315	d_{sn}	17.40057126	d_{vn}	20.57660484
d_{sl}	20.24109205	d_{vs}	28.77359584	d_{wm}	38.91777323

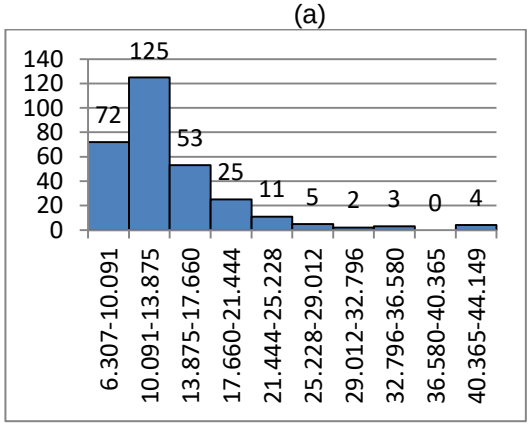
Lampiran 4. Histogram distibusi ukuran partikel



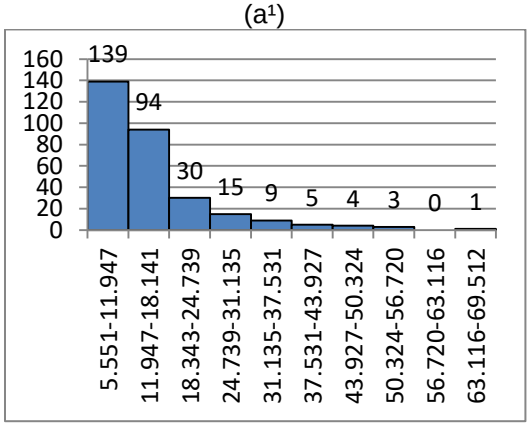
(a)



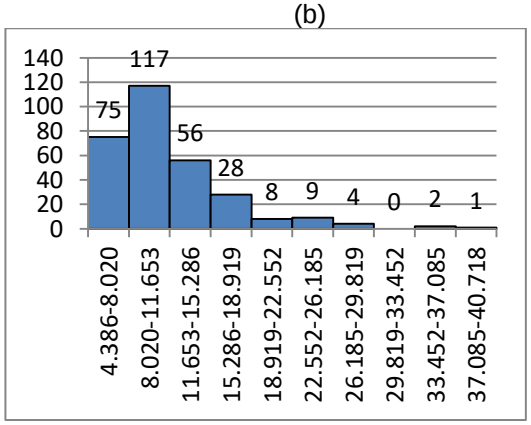
(a¹)



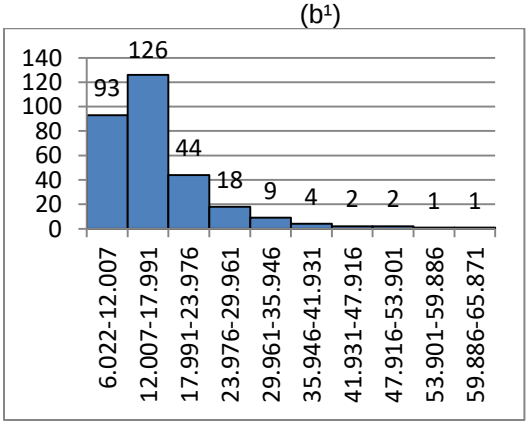
(b)



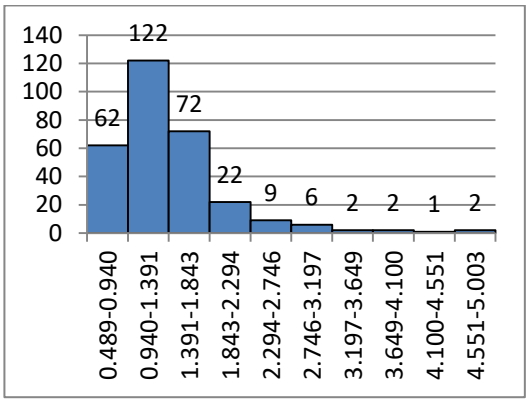
(b¹)



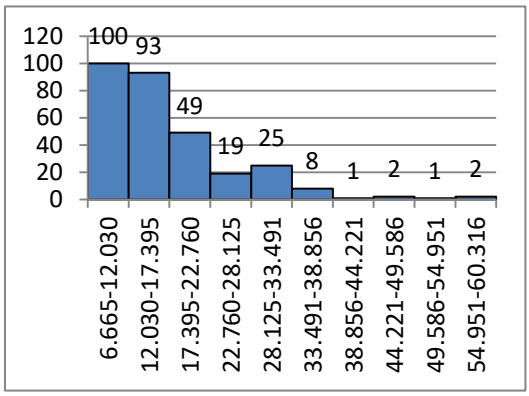
(c)



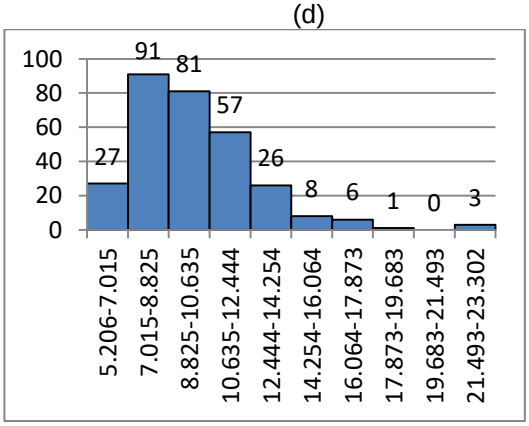
(c¹)



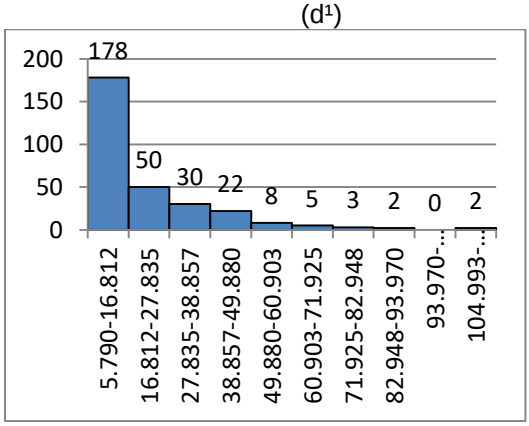
(d)



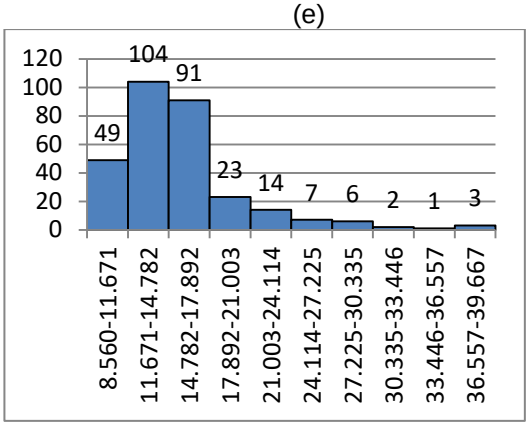
(d¹)



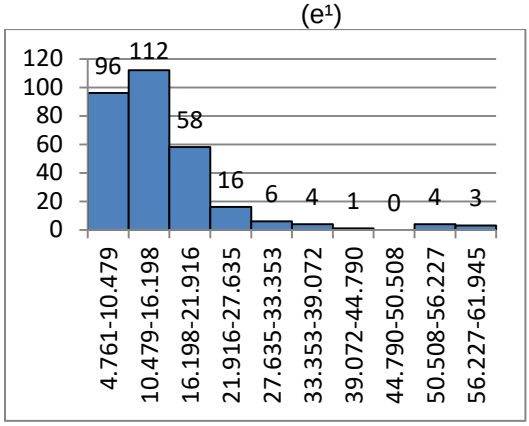
(e)



(e¹)



(f)



(f¹)

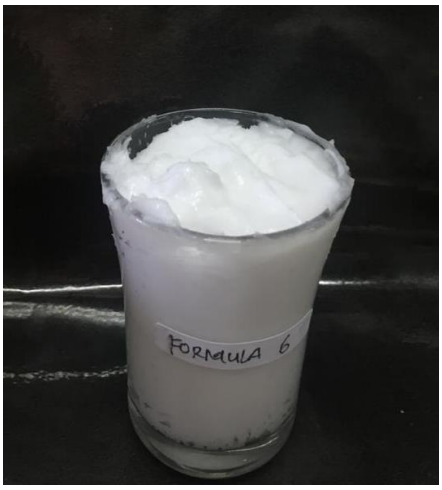
Keterangan:

(a) Formula 1 sebelum uji siklus
(b) Formula 2 sebelum uji siklus
(c) Formula 3 sebelum uji siklus
(d) Formula 4 sebelum uji siklus
(e) Formula 5 sebelum uji siklus
(f) Formula 6 sebelum uji siklus

(a¹) Formula 1 setelah uji siklus
(b¹) Formula 2 setelah uji siklus
(c¹) Formula 3 setelah uji siklus
(d¹) Formula 4 setelah uji siklus
(e¹) Formula 5 setelah uji siklus
(f¹) Formula 6 setelah uji siklus

Lampiran 5. Dokumentasi Penelitian

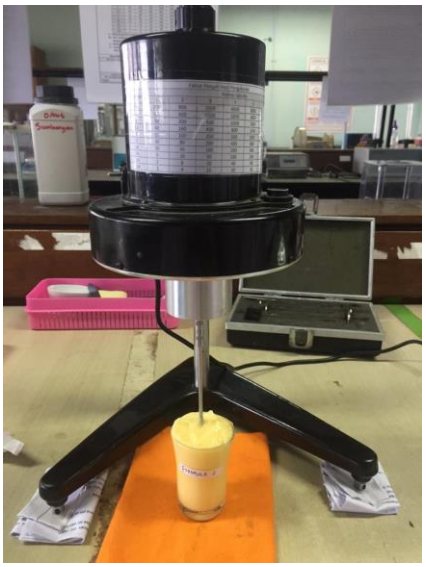
Gambar 21. Sediaan krim dengan tambahan zat aktif ubiquinon



Gambar 22. Sediaan krim tanpa tambahan zat aktif ubiquinon

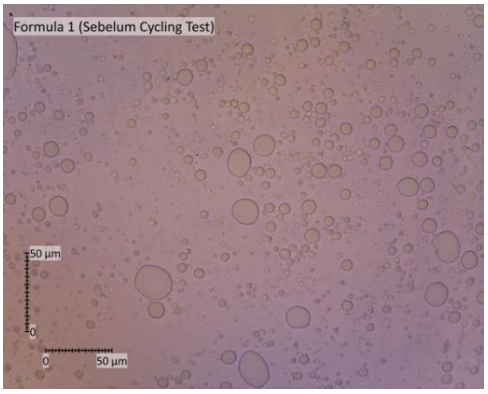
Gambar 23. Suhu penyimpanan sediaan di lemari pendingin 5 ±2°C

Gambar 24. Suhu penyimpanan sediaan di lemari granul 40 ±2°C

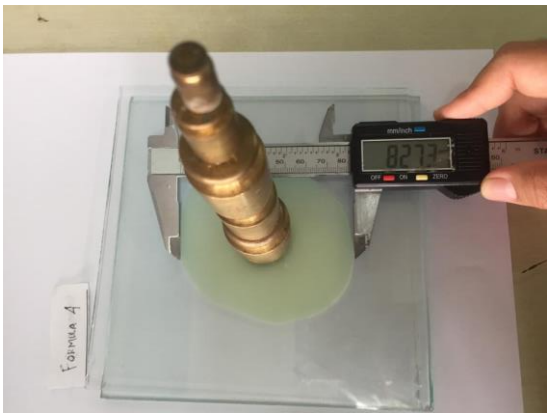


Gambar 25. Pengukuran viskositas sediaan krim

Gambar 26. Pengukuran pH sediaan krim



Gambar 27. Pengukuran distribusi ukuran partikel



Gambar 28. Pengukuran daya sebar sediaan krim

Gambar 29. Pengujian tipe emulsi metode dispersi zat warna

Gambar 30. Pengujian tipe emulsi metode pengenceran