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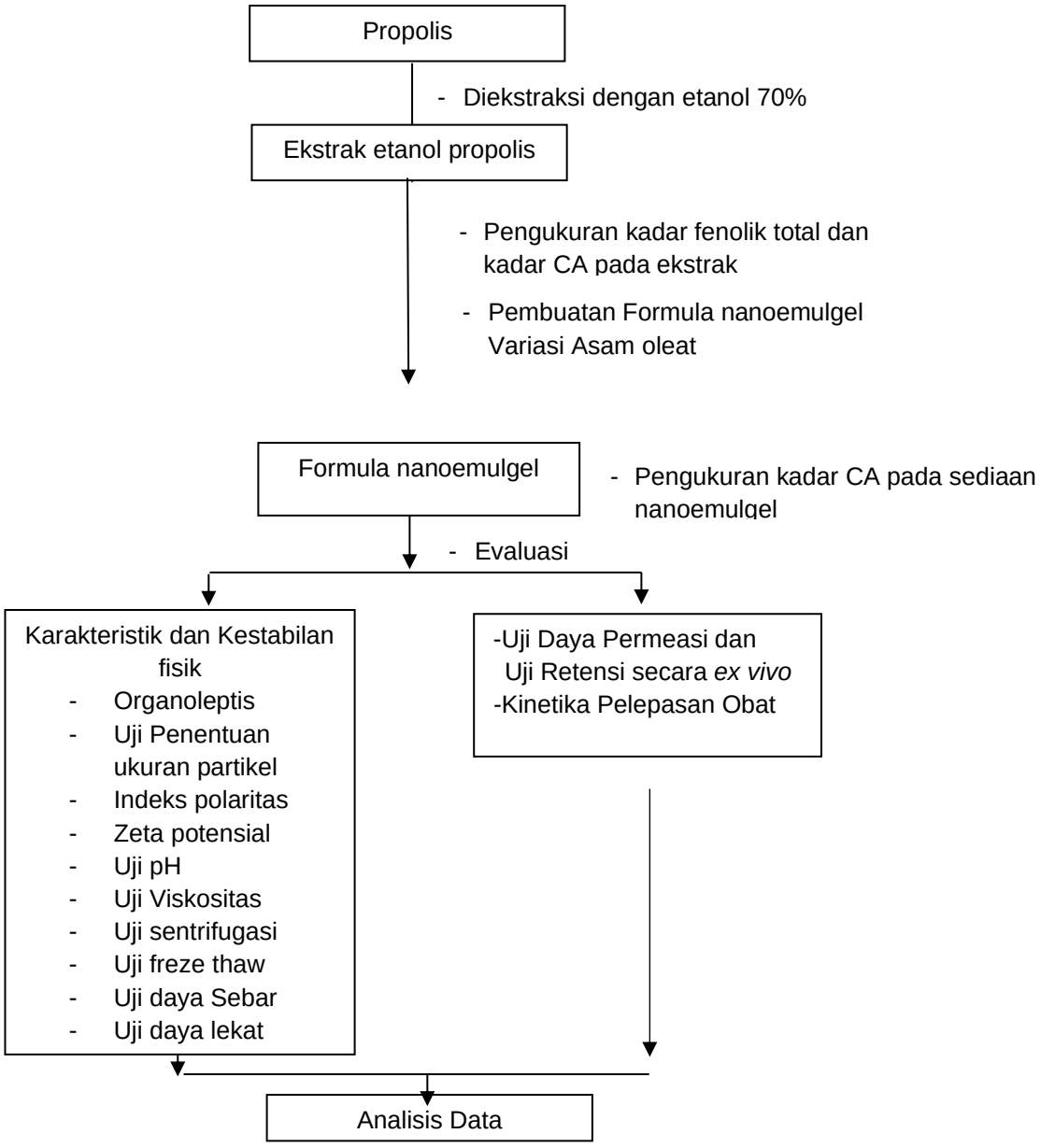
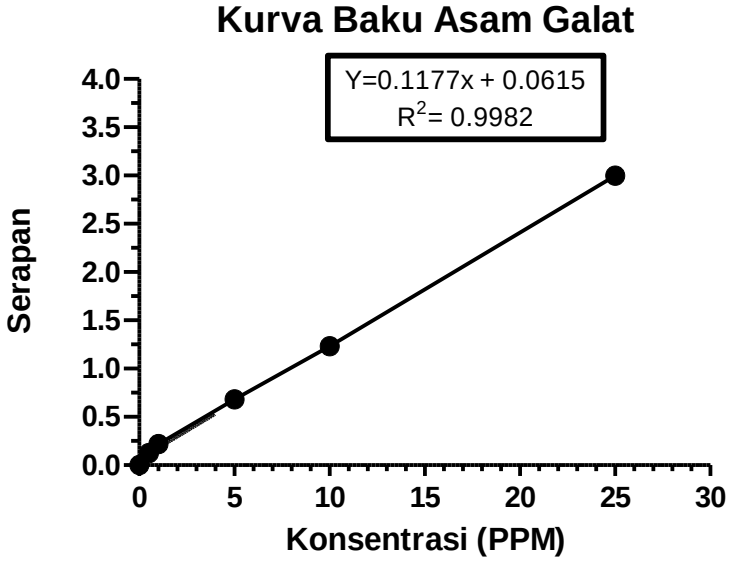
LAMPIRAN

Lampiran 1. Prosedur Penelitian



Lampiran 2. Persamaan kurva baku asam gallat

Konsentrasi (PPM)	Serapan
0	0
0.5	0.126
1.0	0.217
5.0	0.680
10.0	1.232
25.0	3.000



Lampiran 3. Perhitungan Kadar Fenolik Total (Setara Asam Galat) Dalam Ekstrak Propolis

Table 8**. Kadar Fenolik total (setara asam galat) dalam Ekstrak Propolis**

Konsentrasi Ekstrak	Serapan	Kandungan Fenolik (%)	Fenolik Total (Mg/g)
10	0.199	11.68	116,82
	0.187	10,66	106,63
	0.195	11,34	113,42
Rata-rata ± SD	0,194± 0,006	11,229±0,519	112,291±5,19

Berdasarkan persamaan garis regresi kurva baku:

Y=0,1177x+ 0,0615 dengan koefisien korelasi (r) = 0.998

x adalah konsentrasi

Y adalah serapan

Sehingga x=$\frac{Y-a}{b}$, misal serapan= 0,199

Maka, konsentrasi ditentukan berdasarkan perhitungan :

x = $\frac{0.199-0,0615}{0.1177}$ = 1,168 µg/ml

Konversi menjadi %b/b :

%b/b = $\frac{Konsentrasi\ X\ Faktor\ Pengencer\ X\ volume\ awal}{bobot\ sampel\ yang\ ditimbang} x\ 100\%$

= $\frac{1,168\ \mu g/ml\ X\ 200\ X\ 25ml}{0.05\ g} x\ 100\%$

= $\frac{4087,5\ \mu g}{0.05\ g} x\ 100\%$

= $\frac{0.0040875 g}{0.05} x\ 100\%$

= 11.68%b/b

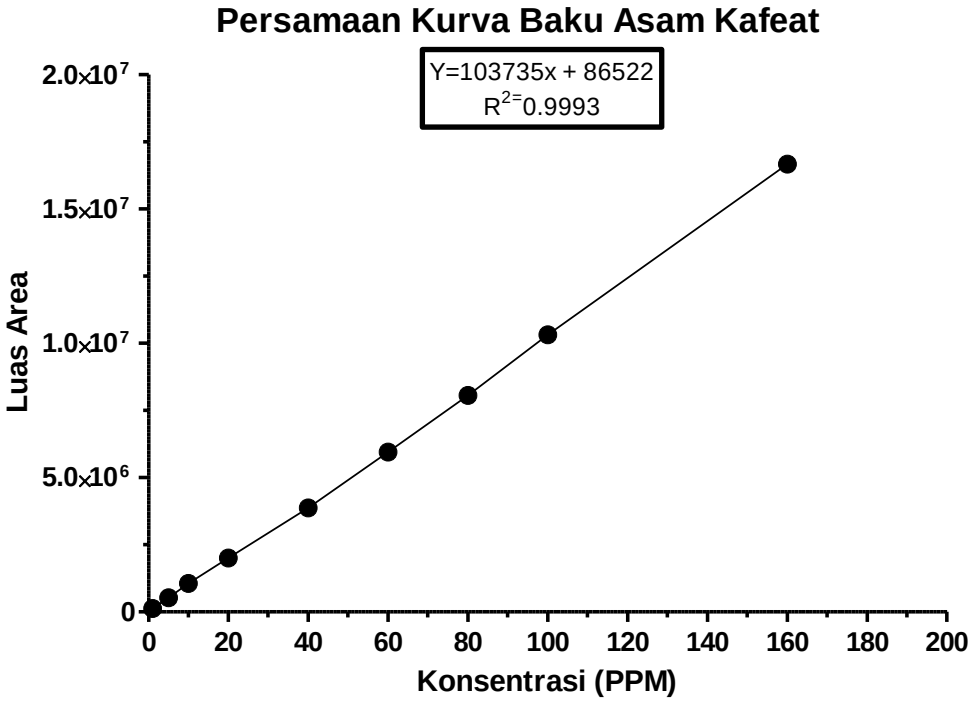
= 116,8 mg/g

Keterangan:
Bobot yang ditimbang = 0.05 g
Dilarutkan dalam 25 ml= 2000 ppm
Dipipet 25 µl (=0.025 ml) dicukupkan hingga 5 ml
Faktor pengencer =$\frac{5}{0.025}$ = 200 atau $\frac{2000ppm}{10ppm} = 200$

Lampiran 4. Persamaan Kurva Baku Asam Kafeat

Table 9. Persamaan Kurva Baku Asam Kafeat

Konsentrasi (PPM)	Luas Area
1.	132904
5.	532100
10.	1060702
20.	2005293
40.	3866845
60.	5953463
80.	8056798
100.	10313997
160.	16677243

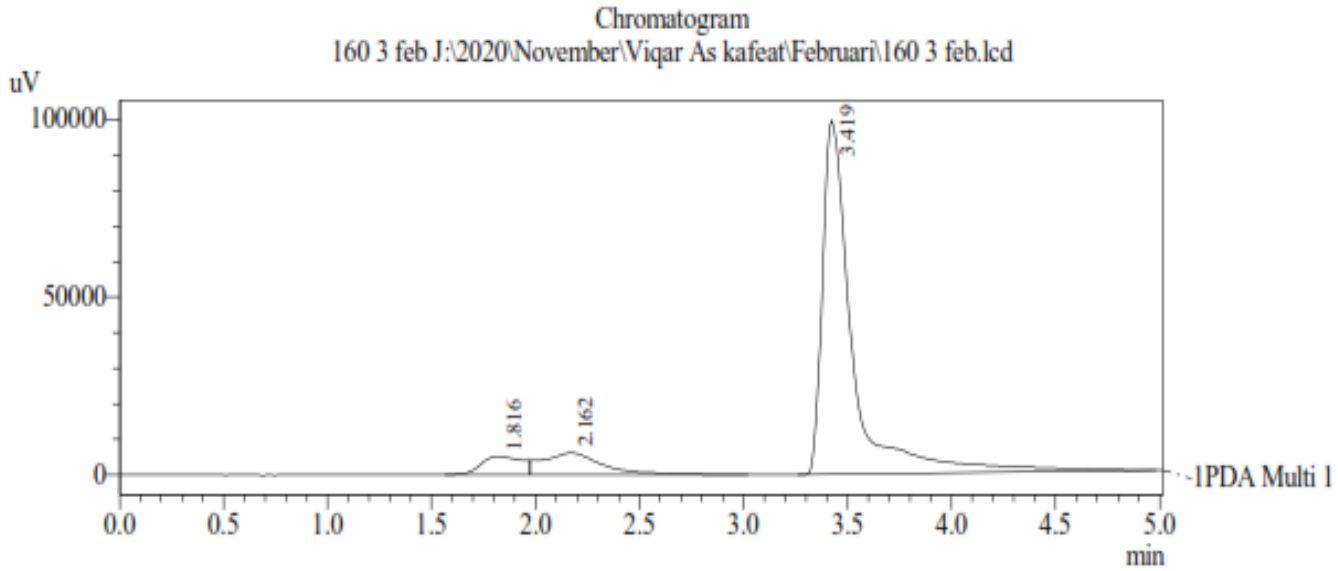


Gambar 19. Grafik persamaan linear kurva baku asam kafeat

Lampiran 5. Kromatogram Kurva Baku Asam Kafeat

BIOFARMAKA

Pusat Penelitian Fakultas Farmasi
lantai 4 wing B Gedung Pusat Kegiatan Penelitian



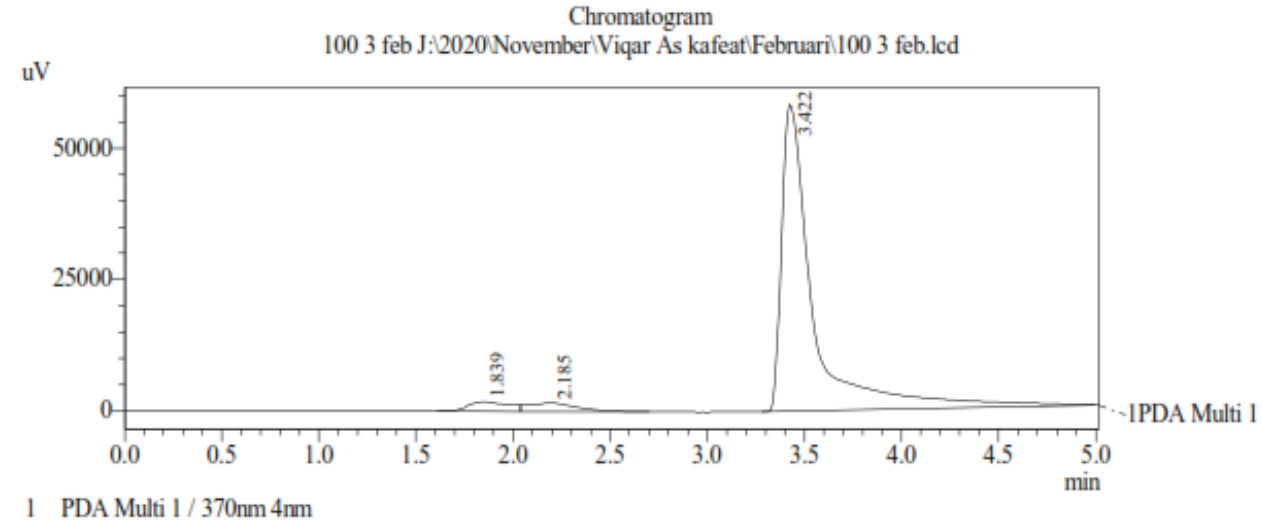
1 PDA Multi 1 / 325nm 4nm

PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.816	73111	5180	6.070	4.664
2	2.162	124185	6174	10.310	5.559
3	3.419	16677243	99706	83.620	89.777
Total		16874539	111060	100.000	100.000

Gambar 20. Kromatogram UFLC baku asam kafeat konsentrasi 160 PPM



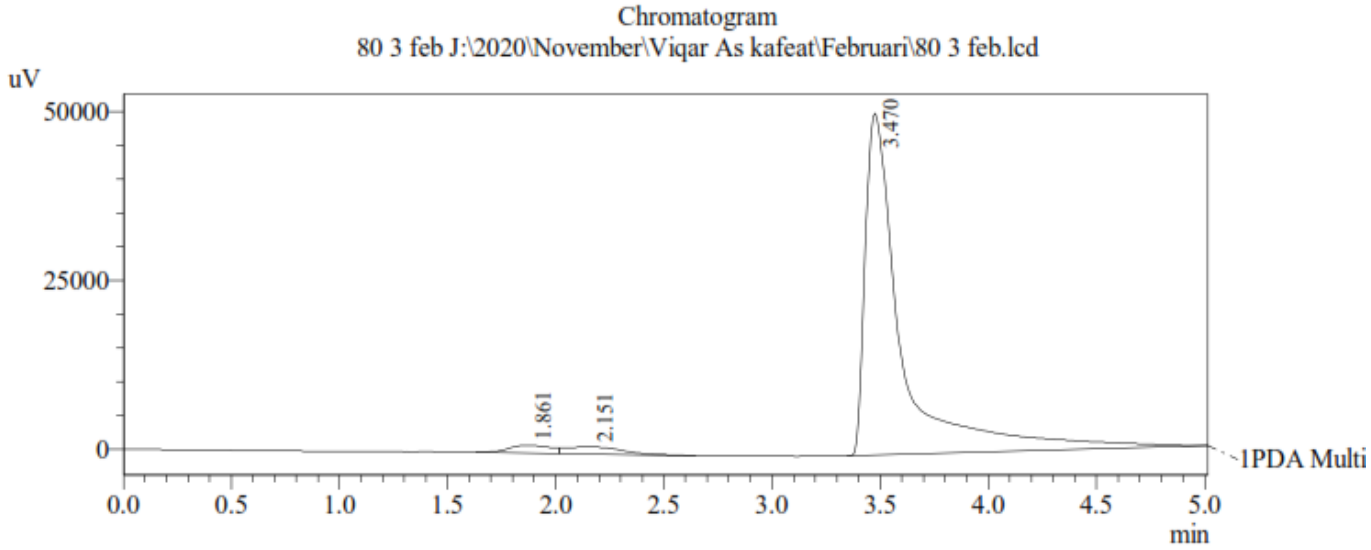
1 PDA Multi 1 / 370nm 4nm

PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.839	26052	1777	3.642	2.877
2	2.185	27818	1617	3.889	2.618
3	3.422	10313997	58360	92.470	94.505
Total		10367867	61754	100.000	100.000

Gambar 21. Kromatogram UFLC baku asam kafeat konsentrasi 100 PPM



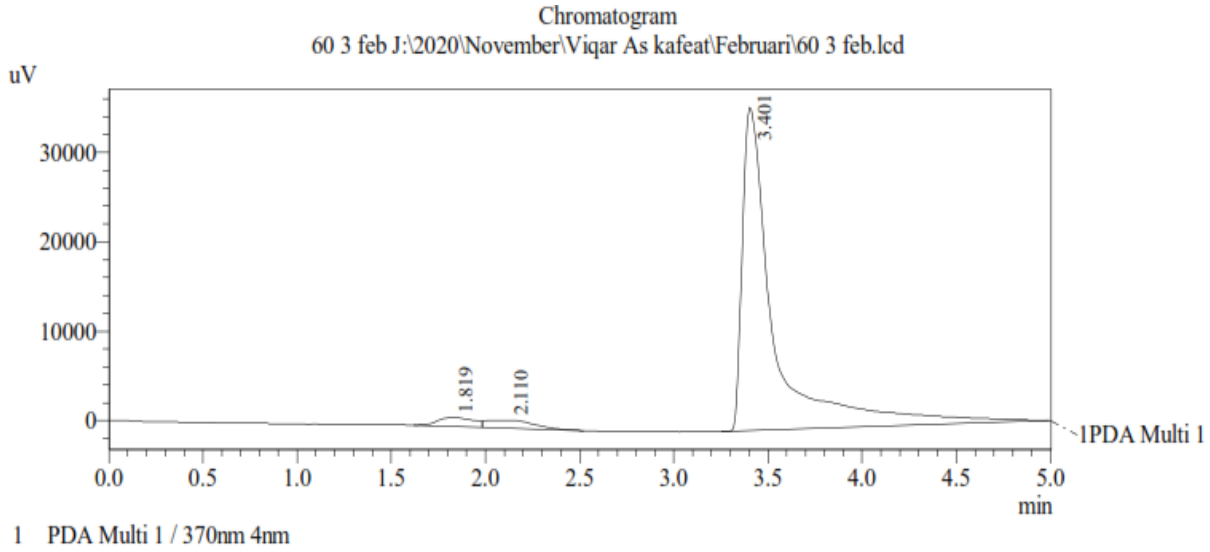
1 PDA Multi 1 / 370nm 4nm

PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.861	14764	1104	2.327	2.095
2	2.151	18656	992	2.938	1.883
3	3.470	8056798	50585	94.735	96.022
Total		8092918	52681	100.000	100.000

Gambar 22. Kromatogram UFLC baku asam kafeat konsentrasi 80 PPM



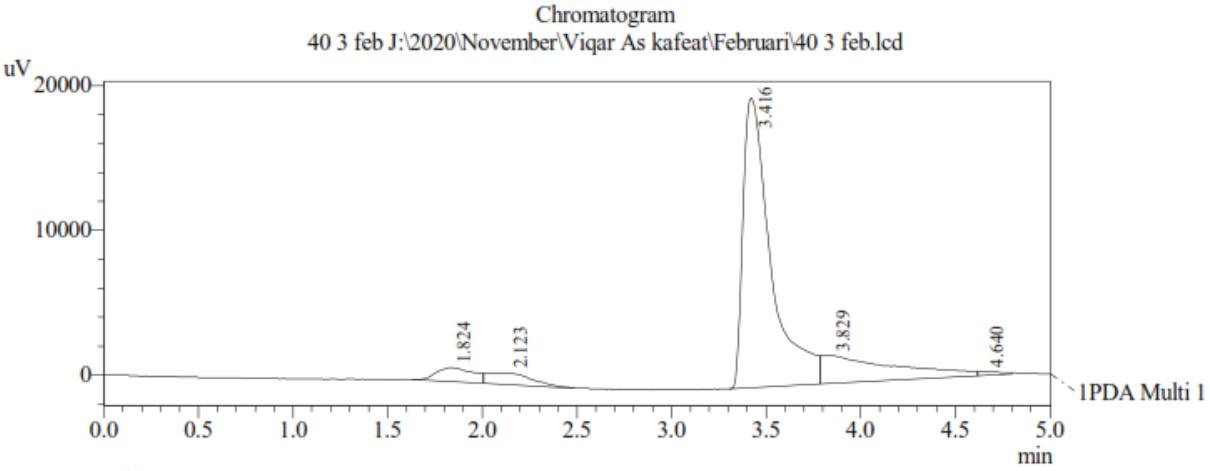
1 PDA Multi 1 / 370nm 4nm

PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.819	13475	990	2.940	2.605
2	2.110	15086	888	3.292	2.336
3	3.401	5953463	36128	93.768	95.059
Total		5982024	38006	100.000	100.000

Gambar 23. Kromatogram UFLC baku asamkafeat konsentrasi 60PPM



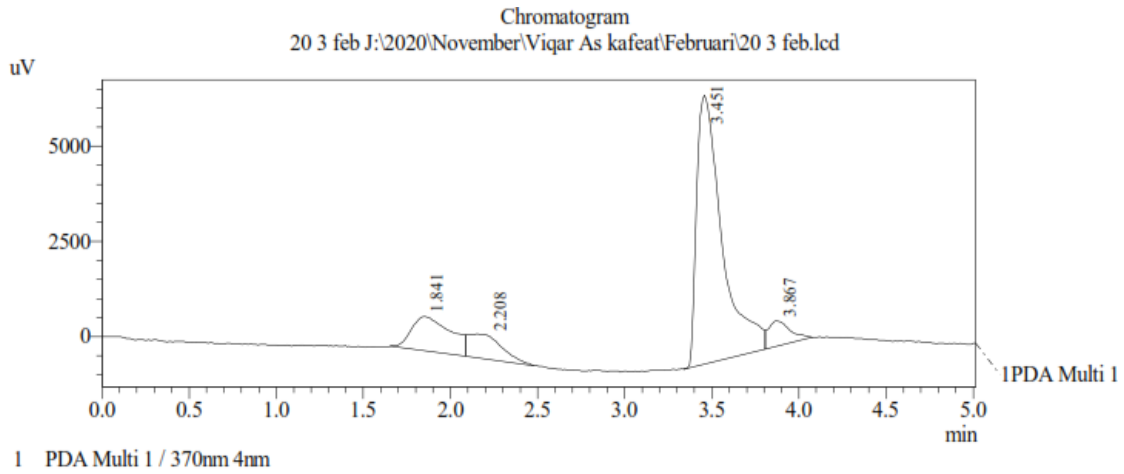
1 PDA Multi 1 / 370nm 4nm

PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.824	13657	962	4.803	4.009
2	2.123	12715	797	4.472	3.323
3	3.416	3866845	20019	72.454	83.428
4	3.829	49961	1930	17.571	8.042
5	4.640	1994	288	0.701	1.199
Total		3945172	23995	100.000	100.000

Gambar 24. Kromatogram UFLC baku asam kafeat konsentrasi 40 PPM

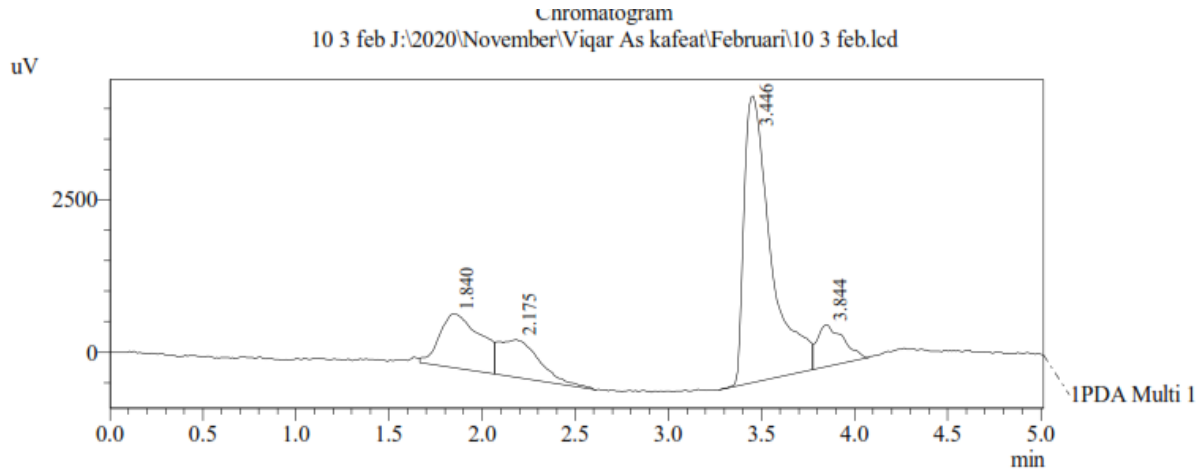


PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.841	14757	899	14.692	9.695
2	2.208	8325	642	8.288	6.930
3	3.451	2005293	7059	71.397	76.156
4	3.867	5648	669	5.623	7.218
Total		2034023	9269	100.000	100.000

Gambar 25. Kromatogram UFLC baku asam kafeat konsentrasi 20 PPM

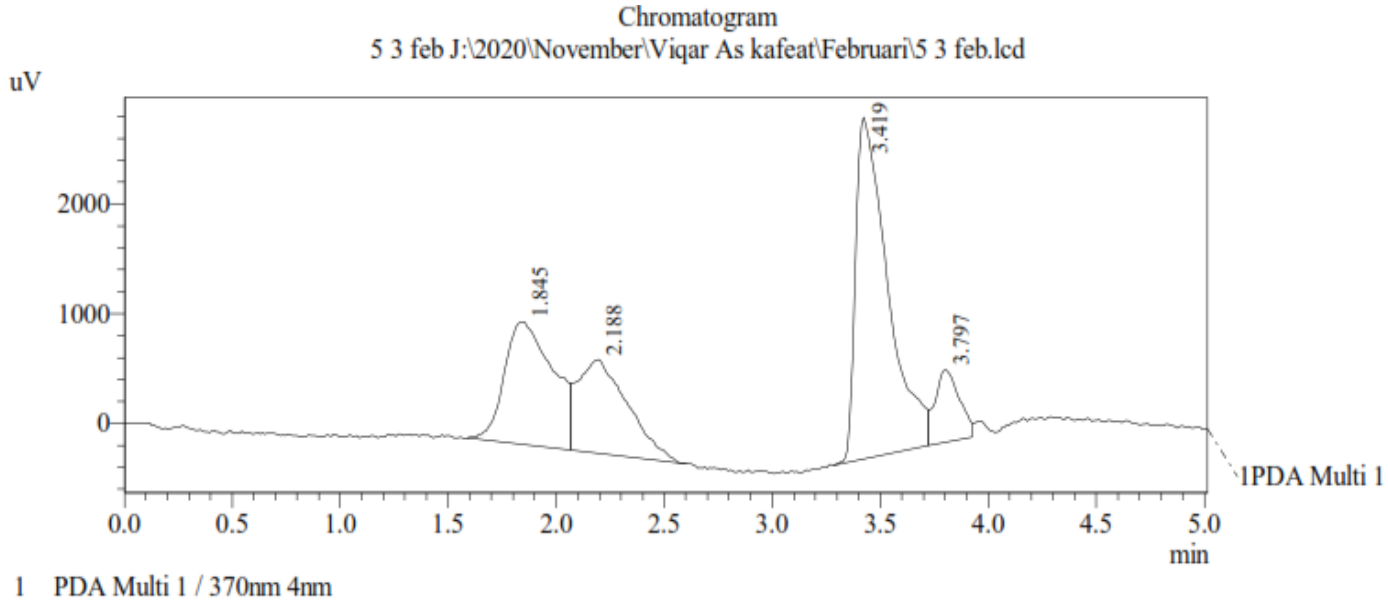


PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.840	13951	885	18.053	12.830
2	2.175	9182	617	11.882	8.941
3	3.446	1060702	4705	61.416	68.209
4	3.844	6684	691	8.649	10.020
Total		1090519	6897	100.000	100.000

Gambar 26. Kromatogram UFLC baku asam kafeat konsentrasi 10 PPM

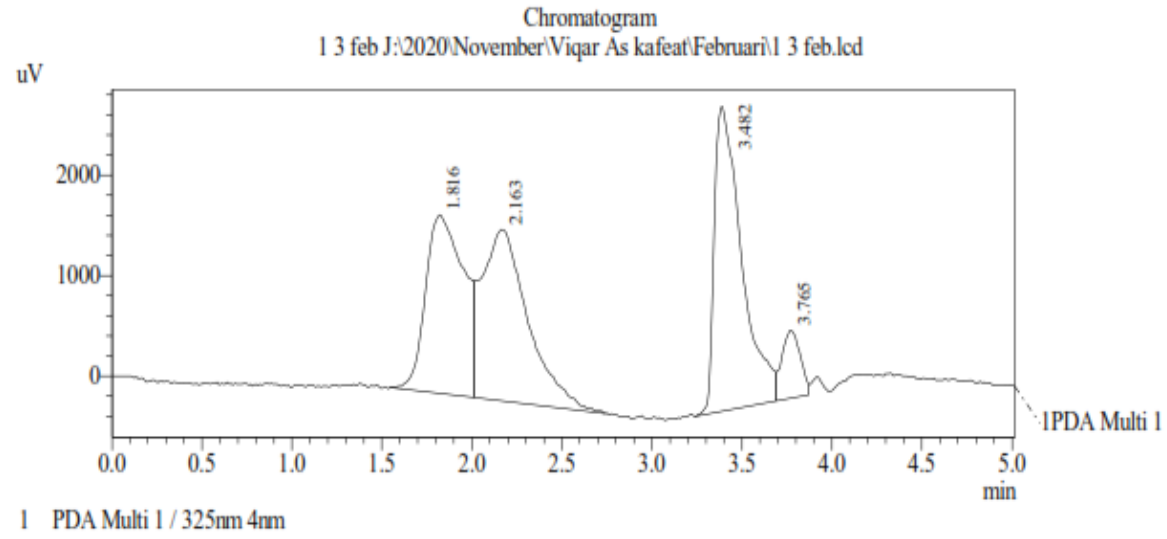


PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.845	17805	1115	25.903	19.410
2	2.188	13453	854	19.572	14.858
3	3.419	532100	3120	47.037	54.288
4	3.797	5147	658	7.488	11.444
Total		568505	5746	100.000	100.000

Gambar 27. Kromatogram UFLC baku asam kafeat konsentrasi 5 PPM

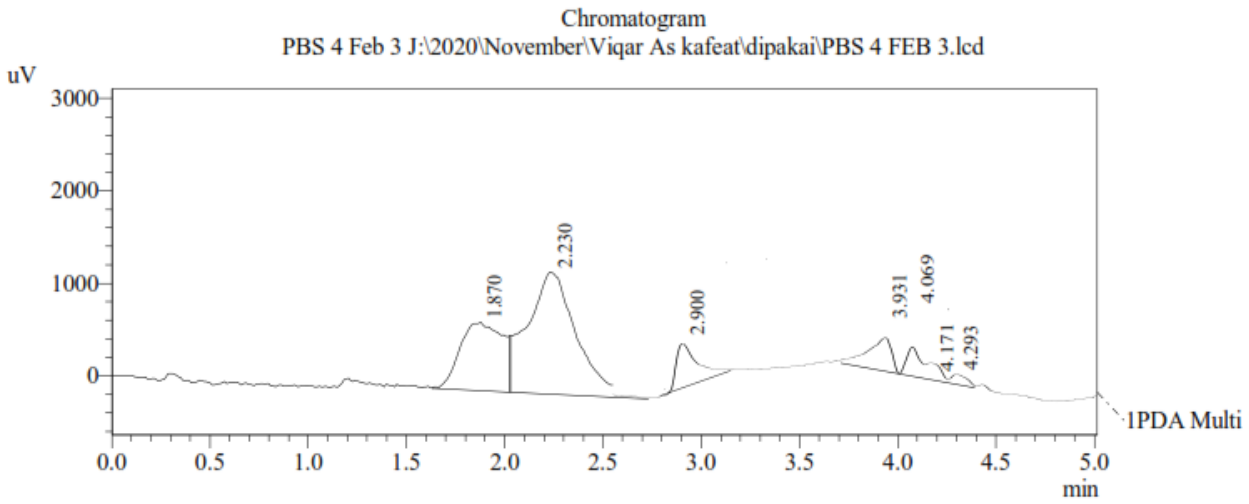


PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.816	26707	1773	28.689	24.714
2	2.163	29730	1704	31.936	23.756
3	3.482	132904	3023	34.230	42.141
4	3.765	4790	674	5.146	9.389
Total		194131	7174	100.000	100.000

Gambar 28. Kromatogram UFLC baku asam kafeat konsentrasi 1 PPM



1 PDA Multi 1 / 370nm 4nm

PeakTable

PDA Ch1 370nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	1.870	11264	735	12.679	8.229
2	2.230	22823	1314	25.689	14.708
3	2.900	16913	2365	19.037	26.478
4	3.931	25474	1882	28.673	21.068
5	4.069	7055	1510	7.940	16.912
6	4.171	3460	757	3.894	8.472
7	4.293	1856	369	2.089	4.132
Total		88845	8931	100.000	100.000

Gambar 29 Kromatogram UFLC Pelarut PBS

Lampiran 6. Kadar Asam Kafeat dalam Ekstrak Propolis

Table 10. Kadar Asam Kafeat dalam Ekstrak Propolis

Konsentrasi Ekstrak(Ppm)	Luas Area	Kandungan Asam Kafeat (%)	Kandungan Asam Kafeat (Mg/G)
10	91492	0.479	4.79
	92727	0.598	5.98
	94135	0.734	7.34
Rata-rata ± SD	92784.66667	0.603666667	6.036666667
	1322.44332	0.127594409	1.275944095

Berdasarkan persamaan garis regresi kurva baku:

Y=103735x+ 86522 dengan koefisien korelasi (r) = 0.999

x adalah konsentrasi

Y adalah serapan

Sehingga x=$\frac{Y-a}{b}$, misal Luas Area = 91492

Maka, konsentrasi ditentukan berdasarkan perhitungan :

x = $\frac{91492-86522}{103735}$ = 0,0479 µg/ml

Konversi menjadi %b/b :

%b/b = $\frac{Konsentrasi\ X\ Faktor\ Pengencer\ X\ volume\ awal}{bobot\ sampel\ yang\ ditimbang} x\ 100\%$

= $\frac{0{,}0479\ \mu g/ml\ X\ 100\ X\ 50ml}{0.05\ g} x\ 100\%$

= $\frac{239{,}5\ \mu g}{0.05\ g} x\ 100\%$

= $\frac{0.0002395g}{0.05} x\ 100\%$

= 0,479%b/b

= 4,79 mg/g

Keterangan:
Bobot yang ditimbang = 0.05 g
Dilarutkan dalam 50 ml= 1000 ppm
Dipipet 10 µl (=0.01 ml) dicukupkan hingga 1 ml
Faktor pengencer =$\frac{1}{0.01}$ = 100 atau $\frac{1000ppm}{10ppm} = 100$

Lampiran 7. Kadar Asam Kafeat dalam Sediaan Nanoemulgel

Table 11. Kadar Asam Kafeat dalam Sediaan Nanoemulgel

Formula	Konsentrasi Ekstrak(PPM)	Luas Area	Kandungan Asam Kafeat (%)	Kandungan Asam Kafeat (Mg/G)
F1	1000PPM	97908	0.0110	0.1098
		98355	0.0114	0.1141
		99132	0.0122	0.1216
	Rata-rata ± SD	98465 ± 619.370	0.0115 ± 0.0006	0.1151 ± 0.0060
F2	1000PPM	96778	0.0099	0.0989
		99145	0.0122	0.1217
		97835	0.0109	0.1091
	Rata-rata ± SD	97919.333 ±1185.751	0.0110 ±0.0011	0.1099 ± 0.0114
F3	1000PPM	98111	0.0112	0.1117
		99015	0.0120	0.1204
		97547	0.0106	0.1063
	Rata-rata ± SD	98224.333 ±740,533	0.0113 ±0.00071	0.1128 ± 0.0071
F4	0	0	0	0

Berdasarkan persamaan garis regresi kurva baku:

Y=103735x+ 86522 dengan koefisien korelasi (r) = 0.999

x adalah konsentrasi

Y adalah serapan

Sehingga x=$\frac{Y-a}{b}$, misal Luas Area = 97908

Maka, konsentrasi ditentukan berdasarkan perhitungan :

x = $\frac{97908-86522}{103735}$ = 0,1097 µg/ml

Konversi menjadi %b/b :

$$\%b/b = \frac{Konsentrasi\ X\ volume\ awal}{bobot\ sampel\ yang\ ditimbang} x\ 100\%$$

$$= \frac{0{,}1097\ \mu\frac{g}{ml}\ X\ 50ml}{0.05\ g} x\ 100\%$$

$$= \frac{5.488\mu g}{0.05\ g} x\ 100\%$$

$$= \frac{0.00000548g}{0.05} x\ 100\%$$

= 0,01098%b/b

= 0,1098 mg/g

Lampiran 8. Data uji viskositas nanoemulgel saat sebelum penyimpanan 4 minggu dan setelah penyimpanan 4 minggu

Viskositas Sebelum penyimpanan 4 minggu

Formula	Dial Reading	Faktor Koreksi	Viskositas	Rata-Rata	Standar Deviasi
F1	43	800	34400		
	45	800	36000	35466.667	923.760
	45	800	36000		
F2	37	800	29600		
	38	800	30400	30266.667	611.010
	38.5	800	30800		
F3	35	800	28000		
	36.5	800	29200	28800.000	692.820
	36.5	800	29200		
F4	47	800	37600		
	48	800	38400	38666.667	1222.020
	50	800	40000		

Viskositas Setelah penyimpanan 4 Minggu

Formula	Dial Reading	Faktor Koreksi	Viskositas	Rata-Rata	Standar Deviasi
F1	44	800	35200		
	43	800	34400	34800.000	400.000
	43.5	800	34800		
F2	38	800	30400		
	37	800	29600	29600.000	800.000
	36	800	28800		
F3	35	800	28000		
	35	800	28000	28133.333	230.940
	35.5	800	28400		
F4	46	800	36800		
	49	800	39200	38133.333	1222.020
	48	800	38400		

Lampiran 9. Data Ukuran partikel, Indeks polidipersitas dan potensial zeta

Formula	Ukuran Partikel (Nm)			Polydispersity Index (Nm)			Zeta Potensial (mV)		
	Nilai	Rata-Rata	SD	Nilai	Rata-Rata	SD	Nilai	Rata-Rata	SD
F1	212.87	213.47	1.80	0.131	0.17	0.03	-29.68	-27.40	2.27
	212.05			0.182			-25.14		
	215.5			0.197			-27.38		
F2	211.57	204.23	11.61	0.311	0.31	0.02	-28.33	-28.78	0.48
	210.28			0.284			-28.73		
	190.84			0.325			-29.28		
F3	138.38	137.28	1.11	0.244	0.25	0.01	-33.16	-30.46	2.34
	137.31			0.264			-29.10		
	136.16			0.249			-29.11		
F4	272.18	272.79	0.58	0.179	0.18	0.01	-30.51	-31.81	1.60
	273.34			0.191			-31.32		
	272.86			0.17			-33.60		

Lampiran 10. Ukuran partikel Nanoemulgel dan indeks polidipersitas

Summary Statistics
Report Formula 1

Type	Start Date/Time	Sample ID	Eff. Diam. (nm)	Polydispersity	Baseline Index	Count Rate (kcps)	Data Retained (%)	Diffusion Coeff. (cm^2/s)
DLS	02/11/2020 17:58:46	NF1 NO DILUTION - 1	212.87	0.131	2.9	554.1	100.00	2.305E-08
DLS	02/11/2020 18:01:47	NF1 NO DILUTION - 2	212.05	0.182	0.0	757.1	99.48	2.314E-08
DLS	02/11/2020 18:04:48	NF1 NO DILUTION - 3	215.50	0.197	7.5	892.5	98.70	2.277E-08
		Mean:	213.32	0.160	3.4	689.4	99.55	2.301E-08
		Std Err:	0.75	0.017	1.6	82.9	0.31	8.062E-11
		Std Dev:	1.50	0.034	3.1	165.8	0.61	1.612E-10

Summary Statistics
Report Formula 2

Type	Start Date/Time	Sample ID	Eff. Diam. (nm)	Polydispersity	Baseline Index	Count Rate (kcps)	Data Retained (%)	Diffusion Coeff. (cm^2/s)
DLS	02/11/2020 18:14:03	NF2 - 1	211.57	0.311	0.0	505.0	97.77	2.320E-08
DLS	02/11/2020 18:17:04	NF2 - 2	210.28	0.284	4.0	578.0	99.35	2.334E-08
DLS	02/11/2020 18:20:05	NF2 - 3	190.84	0.325	7.0	646.9	99.48	2.572E-08
		Mean:	204.23	0.306	3.7	576.6	98.87	2.408E-08
		Std Err:	6.71	0.012	2.0	41.0	0.55	8.171E-10
		Std Dev:	11.61	0.021	3.5	71.0	0.95	1.415E-09

Summary Statistics
Report Formula 3

Type	Start Date/Time	Sample ID	Eff. Diam. (nm)	Polydispersity	Baseline Index	Count Rate (kcps)	Data Retained (%)	Diffusion Coeff. (cm^2/s)
DLS	02/11/2020 19:03:15	NF3 - 1	138.38	0.244	8.1	464.8	99.48	3.546E-08
DLS	02/11/2020 19:06:16	NF3 - 2	137.31	0.264	9.8	457.7	99.34	3.574E-08
DLS	02/11/2020 19:09:17	NF3 - 3	136.16	0.249	8.9	452.7	100.00	3.604E-08
		Mean:	137.28	0.253	9.0	458.4	99.61	3.575E-08
		Std Err:	0.64	0.006	0.5	3.5	0.20	1.668E-10
		Std Dev:	1.11	0.011	0.9	6.1	0.35	2.889E-10

Summary Statistics
Report Formula 4

Type	Start Date/Time	Sample ID	Eff. Diam. (nm)	Polydispersity	Baseline Index	Count Rate (kcps)	Data Retained (%)	Diffusion Coeff. (cm^2/s)
DLS	02/11/2020 19:26:03	NF4 - 1	272.18	0.179	9.7	519.6	100.00	1.803E-08
DLS	02/11/2020 19:29:04	NF4 - 2	273.34	0.191	8.7	526.7	100.00	1.795E-08
DLS	02/11/2020 19:32:05	NF4 - 3	272.86	0.170	8.0	531.9	98.95	1.799E-08
		Mean:	272.80	0.180	8.8	526.1	99.65	1.799E-08
		Std Err:	0.34	0.006	0.5	3.6	0.35	2.228E-11
		Std Dev:	0.58	0.010	0.8	6.2	0.60	3.858E-11

Lampiran 11. Zeta Potential Nanoemulgel

Summary Statistics
Report Formula 1

Type	Start Date/Time	Sample ID	Zeta Potential (mV)	Mobility (µ/s)/(V/cm)	Conductance (µS)	Sample Count Rate (kcps)	Ref. Count Rate (kcps)	RMS Residual
PALS	02/11/2020 19:48:00	NF 1 - 1	-29.68	-2.32	122	735	1,734	2.9322E-02
PALS	02/11/2020 19:49:37	NF 1 - 2	-25.14	-1.96	122	735	1,734	1.7458E-02
PALS	02/11/2020 19:51:13	NF 1 - 3	-27.38	-2.14	122	735	1,734	2.5237E-02
		Mean:	-27.40	-2.14	122	735	1,734	2.4006E-02
		Std Err:	1.31	0.10	0	0	0	3.4799E-03
		Std Dev:	2.27	0.18	0	0	0	6.0273E-03

Summary Statistics
Report Formula 2

Type	Start Date/Time	Sample ID	Zeta Potential (mV)	Mobility (µ/s)/(V/cm)	Conductance (µS)	Sample Count Rate (kcps)	Ref. Count Rate (kcps)	RMS Residual
PALS	02/11/2020 18:51:58	NF 2 - 1	-28.33	-2.21	170	871	1,519	9.2571E-03
PALS	02/11/2020 18:53:35	NF 2 - 2	-28.73	-2.24	170	871	1,519	2.1674E-02
PALS	02/11/2020 18:55:11	NF 2 - 3	-29.28	-2.29	170	871	1,519	1.0843E-02
		Mean:	-28.78	-2.25	170	871	1,519	1.3925E-02
		Std Err:	0.28	0.02	0	0	0	3.9018E-03
		Std Dev:	0.48	0.04	0	0	0	6.7581E-03

Summary Statistics
Report Formula 3

Type	Start Date/Time	Sample ID	Zeta Potential (mV)	Mobility (µ/s)/(V/cm)	Conductance (µS)	Sample Count Rate (kcps)	Ref. Count Rate (kcps)	RMS Residual
PALS	02/11/2020 19:16:24	NF 3 - 1	-33.16	-2.59	116	488	1,474	4.5468E-02
PALS	02/11/2020 19:18:01	NF 3 - 2	-29.10	-2.27	116	488	1,474	1.3957E-02
PALS	02/11/2020 19:19:37	NF 3 - 3	-29.11	-2.27	116	488	1,474	1.3716E-02
		Mean:	-30.45	-2.38	116	488	1,474	2.4380E-02
		Std Err:	1.35	0.11	0	0	0	1.0544E-02
		Std Dev:	2.34	0.18	0	0	0	1.8263E-02

Summary Statistics
Report Formula 4

Type	Start Date/Time	Sample ID	Zeta Potential (mV)	Mobility (µ/s)/(V/cm)	Conductance (µS)	Sample Count Rate (kcps)	Ref. Count Rate (kcps)	RMS Residual
PALS	02/11/2020 19:39:08	NF 4 - 1	-30.51	-2.38	109	716	1,777	1.6394E-02
PALS	02/11/2020 19:40:44	NF 4 - 2	-31.32	-2.45	109	716	1,777	1.3701E-02
PALS	02/11/2020 19:42:21	NF 4 - 3	-33.60	-2.63	109	716	1,777	2.5206E-02
		Mean:	-31.81	-2.49	109	716	1,777	1.8434E-02
		Std Err:	0.92	0.07	0	0	0	3.4742E-03
		Std Dev:	1.60	0.13	0	0	0	6.0175E-03

Lampiran 12. Data uji daya sebar dan uji daya lekat

Table 12. Data uji daya sebar

Formula	UJI DAYA SEBAR				
	Replikasi	Nilai (cm)	Rata-rata	Rata-rata (cm)	SD
F1	S1	5.841	5.776	5.76	0.12
		5.638			
		5.85			
	S2	5.602	5.793		
		5.887			
		5.891			
	S3	5.68	5.695		
		5.606			
		5.799			
F2	S1	5.693	5.977	5.77	0.38
		5.569			
		6.669			
	S2	5.891	5.846		
		5.85			
		5.797			
	S3	5.41	5.483		
		5.462			
		5.576			
F3	S1	6.63	6.482	6.47	0.24
		6.326			
		6.49			
	S2	6.355	6.34		
		6.013			
		6.657			
	S3	6.466	6.587		
		6.863			
		6.433			
F4	S1	5.708	5.884	5.73	0.38
		5.997			
		5.946			
	S2	5.97	5.943		
		5.897			
		5.962			
	S3	5.108	5.372		
		5.035			
		5.974			

Table 13. Data Uji Daya Lekat

Formula	Daya Lekat		
	Nilai	**Rata-Rata**	**SD**
F1	11.66		
	9.54	11.47	1.85
	13.22		
F2	7.23		
	10.33	8.57	1.59
	8.16		
F3	6.76		
	8.28	6.99	1.196
	5.92		
F4	9.02		
	10.92	9.3	1.499733
	7.96		

Lampiran 13. Data hasil uji freeze thaw

Table 14. Data uji Viskositas pada freeze thaw siklus 1

Formula	Uji Viskositas					
	Siklus 1					
	Dial Reading	Faktor Koreksi	Viskositas	Rata-Rata	Standar Deviasi	%RSD
F1	44.5	800	35600			
	45	800	36000	36133.33	611.01	1.69
	46	800	36800			
F2	38	800	30400			
	39	800	31200	30800.00	400.00	1.30
	38.5	800	30800			
F3	34.5	800	27600			
	36	800	28800	28133.33	611.01	2.17
	35	800	28000			
F4	48	800	38400			
	48.5	800	38800	39066.667	832.666	2.13
	50	800	40000			

Table 15. Data uji Viskositas pada freeze thaw siklus 2

Formula	Siklus 2					
	Dial Reading	Faktor Koreksi	Viskositas	Rata-Rata	Standar Deviasi	%RSD
	44	800	35200			
F1	44	800	35200	35600.00	692.82	1.95
	45.5	800	36400			
	38	800	30400			
F2	38	800	30400	30533.33	230.94	0.76
	38.5	800	30800			
	34	800	27200			
F3	35	800	28000	27866.67	611.01	2.19
	35.5	800	28400			
	48	800	38400			
F4	50	800	40000	38933.33	923.76	2.37
	48	800	38400			

Table 16. Data Uji Viskositas Pada Freeze Thaw Siklus 3

Formula	Siklus 3					
	Dial Reading	Faktor Koreksi	Viskositas	Rata-Rata	Standar Deviasi	%RSD
F1	40.5	800	32400			
	44	800	35200	34000.00	1442.22	4.24
	43	800	34400			
F2	36	800	28800			
	38	800	30400	29866.67	923.76	3.09
	38	800	30400			
F3	34	800	27200			
	32	800	25600	26666.67	923.76	3.46
	34	800	27200			
F4	47.5	800	38000			
	48	800	38400	38266.67	230.94	0.60
	48	800	38400			

Table 17. Data uji pH pada freeze thaw

Formula	PH								
	Siklus 1			Siklus 2			Siklus 3		
	Nilal	Rata-Rata	SD	Nilai	Rata-Rata	SD	Nilai	Rata-Rata	SD
F1	5.88			5.9			5.79		
	5.92	5.93	0.05	5.88	5.90	0.02	5.85	5.84	0.04
	5.98			5.91			5.87		
F2	5.7			5.66			5.3		
	5.65	5.69	0.03	5.54	5.57	0.08	5.47	5.40	0.09
	5.71			5.5			5.43		
F3	5.3			5.5			4.58		
	5.52	5.44	0.119	5.53	5.38	0.240	4.96	4.84	0.225
	5.49			5.1			4.98		
F4	6.21			5.9			5.84		
	5.97	6.08	0.12	5.93	5.90	0.04	5.84	5.80	0.08
	6.05			5.86			5.71		

Lampiran 14. Data hasil uji pH sebelum penyimpanan 4 minggu dan setelah penyimpanan 4 Minggu

Formula	Hasil Uji PH					
	Sebelum penyimpanan 4 minggu			Setelah 1 Bulan		
	Nilai	Rata-Rata	SD	Nilai	Rata-Rata	SD
F1	6.02 5.94 6.91	6.29	0.54	5.79 5.98 5.87	5.87	0.10
F2	5.71 5.69 5.74	5.71	0.03	5.63 5.65 5.65	5.64	0.01
F3	5.57 5.47 5.52	5.52	0.050	5.4 5.5 5.57	5.49	0.09
F4	6.02 5.99 5.96	5.99	0.03	5.92 5.87 5.93	5.91	0.03

Lampiran 15. Hasil uji daya Permeasi Nanoemulgel

Berdasarkan persamaan garis regresi kurva baku:

Y=103735x+ 86522 dengan koefisien korelasi (r) = 0.999

x adalah konsentrasi

Y adalah serapan

Sehingga x=$\frac{Y-a}{b}$, misal Pada F1 Replikasi 1 jam 7 Luas Area = 86531

Maka, konsentrasi ditentukan berdasarkan perhitungan :

x = $\frac{86531-86522}{103735}$ = 0,0001 µg/ml

Konsentrasi dalam 1 mL = 0.0001 µg

Konsentrasi dalam 28 mL = 28 x 0.0001/ 1000= 0.0000024 mg

Jumlah terpermeasi = Konsentrasi dalam 28 mL + Faktor koreksi

= 0.0000024 mg + 0

= 0.0000024 mg

Persen permeasi = $\frac{jumlah\ yang\ terpermeasi}{jumlah\ total\ asam\ kafeat\ dama\ nanoemulgel}$ x 100%

=$\frac{0.0000024\ \text{mg}}{0.115\ mg}$x 100%

=0.02%

A. Formula F1

Jam	Replikasi	Luas Area	Konsentrasi	1 ml (µg)	28ml(mg)	Faktor Koreksi	Jumlah Terpermeasi	%Permeasi	Rata-Rata	SD
0.25	1	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0		
	3	0	0	0	0	0	0	0		
0.5	1	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0		
	3	0	0	0	0	0	0	0		
1	1	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0		
	3	0	0	0	0	0	0	0		
2	1	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0		
	3	0	0	0	0	0	0	0		
4	1	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0		
	3	0	0	0	0	0	0	0		
6	1	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0		
	3	0	0	0	0	0	0	0		
7	1	86531	0.0001	0.0001	0.0000024	0	0.0000024	0.00211	0.02	0.02
	2	86675	0.0015	0.001	0.00004	0	0.0000413	0.03591		

	3	86661	0.0013	0.001	0.00004	0	0.0000375	0.03262		
	1	89122	0.0251	0.025	0.00070	0.000002	0.0007042	0.61236		
8	2	88500	0.0191	0.019	0.00053	0.00004	0.0005752	0.50017	0.71	0.26
	3	90661	0.0399	0.040	0.00112	0.00004	0.0011547	1.00410		
	1	100584	0.1356	0.136	0.00380	0.0007042	0.0044998	3.91288		
24	2	98614	0.1166	0.117	0.00326	0.0005752	0.0038391	3.33831	3.74	0.35
	3	99175	0.1220	0.122	0.00342	0.0011547	0.0045700	3.97391		

B. Formula F2

Jam	Replikasi	Luas Area	Konsentrasi	1 ml (µg)	28ml(mg)	Faktor Koreksi	Jumlah Terpermeasi	%Permeasi	Rata-Rata	SD
	1	0	0	0	0	0	0	0		
0.25	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	0	0	0	0	0	0	0		
0.5	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	0	0	0	0	0	0	0		
1	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	0	0	0	0	0	0	0		
2	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	0	0	0	0	0	0	0		
4	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	0	0	0	0	0	0	0		
6	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	88584	0.0199	0.020	0.00056	0	0.00056	0.50643		
7	2	87053	0.0051	0.005	0.00014	0	0.00014	0.13042	0.22	0.25
	3	86675	0.0015	0.001	0.00004	0	0.00004	0.03758		
	1	94597	0.0778	0.078	0.00218	0.00056	0.00274	2.48969		

8	2	95625	0.0878	0.088	0.00246	0.00014	0.00260	2.36615	2.16	0.46
	3	93005	0.0625	0.062	0.00175	0.00004	0.00179	1.62983		
	1	100584	0.1356	0.136	0.00380	0.00274	0.00653	5.94337		
24	2	103008	0.1589	0.159	0.00445	0.00260	0.00705	6.41517	5.58	1.07
	3	97691	0.1077	0.108	0.00301	0.00179	0.00481	4.37298		

C**. Formula F3**

Jam	Replikasi	Luas Area	Konsentrasi	1 ml (µg)	28ml(mg)	Faktor Koreksi	Jumlah Terpermeasi	%Permeasi	Rata-Rata	SD
	1	0	0	0	0	0	0	0		
0.25	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	0	0	0	0	0	0	0		
0.5	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	0	0	0	0	0	0	0		
1	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	0	0	0	0	0	0	0		
2	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		
	1	0	0	0	0	0	0	0		
4	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		

	1	86684	0.0016	0.002	0.00004	0	0.00004	0.03870		
6	2	86881	0.0035	0.003	0.00010	0	0.00010	0.08575	0.08	0.04
	3	87005	0.0047	0.005	0.00013	0	0.00013	0.11537		
	1	99459	0.1247	0.125	0.00349	0.00004	0.00354	3.12891		
7	2	99601	0.1261	0.126	0.00353	0.00010	0.00363	3.20988	3.14	0.07
	3	98918	0.1195	0.119	0.00335	0.00013	0.00348	3.07635		
	1	104459	0.1729	0.173	0.00484	0.00349	0.00833	7.37475		
8	2	110601	0.2321	0.232	0.00650	0.00353	0.01003	8.87578	7.47	1.36
	3	99918	0.1291	0.129	0.00362	0.00335	0.00696	6.16083		
	1	114221	0.2670	0.267	0.00748	0.00484	0.01232	10.90089		
24	2	109887	0.2252	0.225	0.00631	0.00650	0.01281	11.33276	11.67	0.98
	3	126562	0.3860	0.386	0.01081	0.00362	0.01442	12.76404		

D. Formula F4

Jam	Replikasi	Luas Area	Konsentrasi	1 ml (µg)	28ml(mg)	Faktor Koreksi	Jumlah Terpermeasi	%Permeasi	Rata-Rata	SD
	1	0	0	0	0	0	0	0		
0.25-24	2	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0		

Lampiran 16 Data Hasil Uji Retensi

Berdasarkan persamaan garis regresi kurva baku:

Y=103735x+ 86522 dengan koefisien korelasi (r) = 0.999

x adalah konsentrasi

Y adalah serapan

Sehingga x=$\frac{Y-a}{b}$, misal Pada F1 Replikasi 1 Luas Area = 156908

Maka, konsentrasi ditentukan berdasarkan perhitungan :

x = $\frac{156908-86522}{103735}$ = 0,6785 µg/ml

Jumlah asam kafeat dalam nanoemulgel yang terdeposisi = $\frac{0{,}6785\ \mu\frac{g}{ml} x 50ml}{1000}$

= 0.0339 mg

Persen retensi = $\frac{jumlah\ yang\ terdeposisi}{jumlah\ total\ asam\ kafeat\ dalam\ \ nanoemulgel}$ x 100%

=$\frac{0.0339\ mg}{0.115\ mg}$x 100%

=29,5%

Table 18 Data hasil uji Retensi

Formula	Replikasi	Luas Area	Konsentrasi (µg/Ml)	Jumlah Asam Kafeat Terdeposisi Setelah 24 Jam (Mg)	%Retensi	Rata-Rata	SD
F1	1	156908	0.6785	0.033925869	29.50075548	27.28	2.11
	2	146881	0.5819	0.029092881	25.2981573		
	3	151005	0.6216	0.031080638	27.02664188		
F2	1	182496	0.9252	0.046259218	42.43964972	43.13	4.09
	2	180601	0.9069	0.045345833	39.43115925		
	3	199918	1.0931	0.054656577	47.52745813		
F3	1	123963	0.3609	0.018046465	15.97032261	11.39	4.03
	2	109887	0.2252	0.011261869	9.792929727		
	3	106562	0.1932	0.009659228	8.399328557		
F4	1	0	0	0	0	0	0
	2	0	0	0	0		
	3	0	0	0	0		

Lampiran 17 analisis anova pH nanoemulgel

Table Analyzed	Data 1			
Two-way RM ANOVA	Matching by cols			
Source of Variation	% of total variation	P value		
Interaction	6.81	0.3357		
Time	57.40	0.0011		
Column Factor	6.36	0.1418		
Subjects (matching)	7.6217	0.4230		
Source of Variation	P value summary	Significant?		
Interaction	ns	No		
Time	**	Yes		
Column Factor	ns	No		
Subjects (matching)	ns	No		
Source of Variation	Df	Sum-of-squares	Mean square	F
Interaction	3	0.1445	0.04818	1.248
Time	3	1.219	0.4062	10.52
Column Factor	1	0.1350	0.1350	3.337
Subjects (matching)	4	0.1618	0.04046	1.048
Residual	12	0.4632	0.03860	

Lampiran 18 analisis anova viskositas

Table Analyzed	Data 1			
Two-way RM ANOVA	Matching by cols			
Source of Variation	% of total variation	P value		
Interaction	0.01	0.9976		
Time	96.58	< 0.0001		
Column Factor	0.61	0.2552		
Subjects (matching)	1.3822	0.0674		
Source of Variation	P value summary	Significant?		
Interaction	ns	No		
Time	***	Yes		
Column Factor	ns	No		
Subjects (matching)	ns	No		
Source of Variation	Df	Sum-of-squares	Mean square	F
Interaction	3	20000	6667	0.01422
Time	3	3.820e+008	1.273e+008	271.6
Column Factor	1	2.407e+006	2.407e+006	1.761
Subjects (matching)	4	5.467e+006	1.367e+006	2.915
Residual	12	5.627e+006	468889	

Lampiran 19 analisis anova Ukuran partikel

Table Analyzed	Data 1
One-way analysis of variance	
P value	< 0.0001
P value summary	***
Are means signif. different? (P < 0.05)	Yes
Number of groups	4
F	264.5
R square	0.9900

ANOVA Table	SS	df	MS
Treatment (between columns)	27716	3	9239
Residual (within columns)	279.4	8	34.93
Total	27996	11	

Tukey's Multiple Comparison Test	Mean Diff.	q	Significant? P < 0.05?	Summary	95% CI of diff
F1 vs F2	9.243	2.709	No	ns	-6.210 to 24.70
F1 vs F3	76.19	22.33	Yes	***	60.74 to 91.64
F1 vs F4	-59.32	17.39	Yes	***	-74.77 to -43.87
F2 vs F3	66.95	19.62	Yes	***	51.49 to 82.40
F2 vs F4	-68.56	20.09	Yes	***	-84.02 to -53.11
F3 vs F4	-135.5	39.71	Yes	***	-151.0 to -120.1

Lampiran 20 analisis anova Indeks Polidispersitas

Table Analyzed	Data 1		
One-way analysis of variance			
P value	0.0002		
P value summary	***		
Are means signif. different? (P < 0.05)	Yes		
Number of groups	4		
F	26.90		
R square	0.9098		
ANOVA Table	SS	df	MS
Treatment (between columns)	0.03734	3	0.01245
Residual (within columns)	0.003701	8	0.0004627
Total	0.04104	11	

Tukey's Multiple Comparison Test	Mean Diff.	q	Significant? P < 0.05?	Summary	95% CI of diff
F1 vs F2	-0.1367	11.00	Yes	***	-0.1929 to -0.08042
F1 vs F3	-0.08233	6.630	Yes	**	-0.1386 to -0.02609
F1 vs F4	-0.01000	0.8052	No	ns	-0.06624 to 0.04624
F2 vs F3	0.05433	4.375	No	ns	-0.001911 to 0.1106
F2 vs F4	0.1267	10.20	Yes	***	0.07042 to 0.1829
F3 vs F4	0.07233	5.825	Yes	*	0.01609 to 0.1286

Lampiran 21 Analisis Anova *Zeta Potensial*

Table Analyzed	Data 1		
One-way analysis of variance			
P value	0.0778		
P value summary	ns		
Are means signif. different? (P < 0.05)	No		
Number of groups	4		
F	3.315		
R square	0.5542		
ANOVA Table	SS	df	MS
Treatment (between columns)	33.39	3	11.13
Residual (within columns)	26.86	8	3.357
Total	60.25	11	

Lampiran 22 Analisis Anova Daya Sebar

Table Analyzed	Data 1
One-way analysis of variance	
P value	< 0.0001
P value summary	***
Are means signif. different? (P < 0.05)	Yes
Number of groups	4
F	12.78
R square	0.5451
Bartlett's test for equal variances	
Bartlett's statistic (corrected)	11.81
P value	0.0081
P value summary	**
Do the variances differ signif. (P < 0.05)	Yes

ANOVA Table	SS	df	MS
Treatment (between columns)	3.968	3	1.323
Residual (within columns)	3.311	32	0.1035
Total	7.279	35	

Tukey's Multiple Comparison Test	Mean Diff.	q	Significant? P < 0.05?	Summary	95% CI of diff
F1 vs F2	-0.01367	0.1275	No	ns	-0.4248 to 0.3975
F1 vs F3	-0.7154	6.672	Yes	***	-1.127 to -0.3043
F1 vs F4	0.1330	1.240	No	ns	-0.2781 to 0.5441
F2 vs F3	-0.7018	6.545	Yes	***	-1.113 to -0.2907
F2 vs F4	0.1467	1.368	No	ns	-0.2645 to 0.5578
F3 vs F4	0.8484	7.913	Yes	***	0.4373 to 1.260

Lampiran 23 Analisis Anova Daya Lekat

Table Analyzed	Data 1			
One-way analysis of variance				
P value	0.0433			
P value summary	*			
Are means signif. different? (P < 0.05)	Yes			
Number of groups	4			
F	4.330			
R square	0.6188			
ANOVA Table	SS	df	MS	
Treatment (between columns)	31.25	3	10.42	
Residual (within columns)	19.25	8	2.406	
Total	50.49	11		

Tukey's Multiple Comparison Test	Mean Diff.	q	Significant? P < 0.05?	Summary	95% CI of diff
F1 vs F2	2.900	3.239	No	ns	-1.156 to 6.956
F1 vs F3	4.487	5.010	Yes	*	0.4311 to 8.542
F1 vs F4	2.173	2.427	No	ns	-1.882 to 6.229
F2 vs F3	1.587	1.772	No	ns	-2.469 to 5.642
F2 vs F4	-0.7267	0.8115	No	ns	-4.782 to 3.329
F3 vs F4	-2.313	2.583	No	ns	-6.369 to 1.742

Lampiran 24 Analisis Anova Daya Permeasi

Table Analyzed	Data 1
Repeated Measures ANOVA	
P value	0.0470
P value summary	*
Are means signif. different? (P < 0.05)	Yes
Number of groups	4
F	3.070
R square	0.2773
Was the pairing significantly effective?	
R square	0.4855
F	3.917
P value	0.0044
P value summary	**
Is there significant matching? (P < 0.05)	Yes

ANOVA Table	SS	df	MS
Treatment (between columns)	31.17	3	10.39
Individual (between rows)	106.1	8	13.26
Residual (random)	81.23	24	3.385
Total	218.5	35	

Tukey's Multiple Comparison Test	Mean Diff.	q	Significant? P < 0.05?	Summary	95% CI of diff
F1 vs F2	-0.3881	0.6329	No	ns	-2.780 to 2.004
F1 vs F3	-1.987	3.240	No	ns	-4.379 to 0.4052
F1 vs F4	0.4968	0.8100	No	ns	-1.896 to 2.889
F2 vs F3	-1.599	2.607	No	ns	-3.991 to 0.7933
F2 vs F4	0.8849	1.443	No	ns	-1.507 to 3.277
F3 vs F4	2.484	4.050	Yes	*	0.09155 to 4.876

Lampiran 25 Analisis Anova Uji Retensi

Table Analyzed	Data 1
One-way analysis of variance	
P value	< 0.0001
P value summary	***
Are means signif. different? (P < 0.05)	Yes
Number of groups	4
F	168.8
R square	0.9844

ANOVA Table	SS	df	MS
Treatment (between columns)	3050	3	1017
Residual (within columns)	48.19	8	6.024
Total	3098	11	

Tukey's Multiple Comparison Test	Mean Diff.	q	Significant? P < 0.05?	Summary	95% CI of diff
F1 vs F2	-15.86	11.19	Yes	***	-22.28 to -9.440
F1 vs F3	13.09	9.240	Yes	***	6.676 to 19.51
F1 vs F4	27.28	19.25	Yes	***	20.86 to 33.69
F2 vs F3	28.95	20.43	Yes	***	22.53 to 35.37
F2 vs F4	43.13	30.44	Yes	***	36.72 to 49.55
F3 vs F4	14.18	10.01	Yes	***	7.764 to 20.60

Lampiran 26 Analisis Anova pH pada uji frezee thaw

Table Analyzed	Data 1			
Two-way RM ANOVA	Matching by cols			
Source of Variation	% of total variation	P value		
Interaction	15.42	0.0024		
Time	36.30	< 0.0001		
Column Factor	38.36	< 0.0001		
Subjects (matching)	1.3517	0.8195		
Source of Variation	P value summary	Significant?		
Interaction	**	Yes		
Time	***	Yes		
Column Factor	***	Yes		
Subjects (matching)	ns	No		
Source of Variation	Df	Sum-of-squares	Mean square	F
Interaction	6	0.6279	0.1047	5.394
Time	3	1.478	0.4928	25.40
Column Factor	2	1.562	0.7811	85.13
Subjects (matching)	6	0.05505	0.009175	0.4729
Residual	18	0.3492	0.01940	
Number of missing values	0			
Bonferroni posttests				
siklus 1 vs siklus 2				
Column Factor	siklus 1	siklus 2	Difference	95% CI of diff.
F1	5.927	5.687	-0.2400	-0.5755 to 0.09553
F2	5.897	5.567	-0.3300	-0.6655 to 0.005532
F3	5.837	5.400	-0.4367	-0.7722 to -0.1011
F4	5.983	5.913	-0.07000	-0.4055 to 0.2655
Column Factor	Difference	t	P value	Summary
F1	-0.2400	2.265	P > 0.05	ns
F2	-0.3300	3.114	P < 0.05	*
F3	-0.4367	4.121	P<0.01	**
F4	-0.07000	0.6606	P > 0.05	ns
siklus 1 vs siklus 3				
Column Factor	siklus 1	siklus 3	Difference	95% CI of diff.
F1	5.927	5.513	-0.4133	-0.7489 to -0.07780
F2	5.897	5.377	-0.5200	-0.8555 to -0.1845
F3	5.837	4.840	-0.9967	-1.332 to -0.6611
F4	5.983	5.873	-0.1100	-0.4455 to 0.2255
Column Factor	Difference	t	P value	Summary
F1	-0.4133	3.900	P<0.01	**
F2	-0.5200	4.907	P<0.001	***
F3	-0.9967	9.405	P<0.001	***
F4	-0.1100	1.038	P > 0.05	ns
siklus 2 vs siklus 3				
Column Factor	siklus 2	siklus 3	Difference	95% CI of diff.
F1	5.687	5.513	-0.1733	-0.5089 to 0.1622
F2	5.567	5.377	-0.1900	-0.5255 to 0.1455
F3	5.400	4.840	-0.5600	-0.8955 to -0.2245
F4	5.913	5.873	-0.04000	-0.3755 to 0.2955
Column Factor	Difference	t	P value	Summary
F1	-0.1733	1.636	P > 0.05	ns
F2	-0.1900	1.793	P > 0.05	ns
F3	-0.5600	5.285	P<0.001	***
F4	-0.04000	0.3775	P > 0.05	ns

Lampiran 27 Analisis Anova Viskositas pada uji frezee thaw

Table Analyzed	Data 1				
Two-way RM ANOVA	Matching by cols				
Source of Variation	% of total variation	P value			
Interaction	8.15	< 0.0001			
Time	58.69	< 0.0001			
Column Factor	31.09	< 0.0001			
Subjects (matching)	1.0147	0.0365			
Source of Variation	P value summary	Significant?			
Interaction	***	Yes			
Time	***	Yes			
Column Factor	***	Yes			
Subjects (matching)	*	Yes			
Source of Variation		Df	Sum-of-squares	Mean square	F
Interaction		6	5.700e+007	9.501e+006	23.41
Time		3	4.103e+008	1.368e+008	336.9
Column Factor		2	2.173e+008	1.087e+008	91.92
Subjects (matching)		6	7.093e+006	1.182e+006	2.912
Residual		18	7.307e+006	405926	
Number of missing values		0			

Bonferroni posttests

SIKLUS 1 vs SIKLUS 2

Column Factor	SIKLUS 1	SIKLUS 2	Difference	95% CI of diff.
F1	36133	30800	-5333	-7336 to -3331
F2	35600	30533	-5067	-7069 to -3064
F3	34000	29867	-4133	-6136 to -2131
F4	39067	38933	-133.3	-2136 to 1869

Column Factor	Difference	t	P value	Summary
F1	-5333	8.433	P<0.001	***
F2	-5067	8.011	P<0.001	***
F3	-4133	6.535	P<0.001	***
F4	-133.3	0.2108	P > 0.05	ns

SIKLUS 1 vs SIKLUS 3

Column Factor	SIKLUS 1	SIKLUS 3	Difference	95% CI of diff.
F1	36133	28133	-8000	-10003 to -5997
F2	35600	27867	-7733	-9736 to -5731
F3	34000	26667	-7333	-9336 to -5331
F4	39067	38267	-800.0	-2803 to 1203

Column Factor	Difference	t	P value	Summary
F1	-8000	12.65	P<0.001	***
F2	-7733	12.23	P<0.001	***
F3	-7333	11.60	P<0.001	***
F4	-800.0	1.265	P > 0.05	ns

SIKLUS 2 vs SIKLUS 3

Column Factor	SIKLUS 2	SIKLUS 3	Difference	95% CI of diff.
F1	30800	28133	-2667	-4669 to -664.1
F2	30533	27867	-2667	-4669 to -664.1
F3	29867	26667	-3200	-5203 to -1197
F4	38933	38267	-666.7	-2669 to 1336

Column Factor	Difference	t	P value	Summary
F1	-2667	4.216	P<0.01	**
F2	-2667	4.216	P<0.01	**
F3	-3200	5.060	P<0.001	***
F4	-666.7	1.054	P > 0.05	ns