

LAMPIRAN

Lampiran 1. Biodata Peneliti



A. Data Pribadi

Nama : Bunga Putri Sari
Tempat, tgl lahir : Samarinda, 12 Januari 2001
Alamat Asal : Jalan Anggur No. 19 RT 55 Gg. Salon Nonik
Kel. Sidodadi Kec. Samarinda Ulu
Email : bungaputrisari7@gmail.com

B. Riwayat Pendidikan

Pendidikan formal

- Tamat SD : SD Negeri 028 Samarinda 2013
- Tamat SMP : SMP Negeri 22 Samarinda 2016
- Tamat SLTA : SMK Negeri 17 Samarinda Jurusan Farmasi
2019

Lampiran 2. Surat Permohonan Ijin Penelitian Skripsi



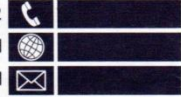
UNIVERSITAS MUHAMMADIYAH
Kalimantan Timur
Berakhlak | Berwawasan | Berkemajuan

UMKKT
Program Studi
Farmasi
Fakultas Farmasi

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Nomor : 300/FAR.1/C.6/C/2022
Lampiran : -
Perihal : Permohonan Ijin Penelitian Skripsi

Kepada Yth.

Kepala Laboratorium Universitas Muhammadiyah Kalimantan Timur

Di -

Tempat

Assalamualaikum Warahmatullahi Wabarakatuh

Bersama ini kami mengajukan permohonan kesediaan Bapak/Ibu untuk memberikan ijin penelitian di Laboratorium Kimia Bahan Alam, bagi mahasiswa/i kami:

Nama : Bunga Putri Sari
NIM : 1911102415118
Kontak: 085753919994/ bungaputrisari7@gmail.com

Guna melaksanakan pembuatan skripsi, dengan judul:

FORMULASI DAN UJI SITOTOKSIK NANO GEL MADU LEBAH KELULUT
(TRIGONA SPP.) DAN DAUN BELIMBING WULUH (AVERRHOA BILIMBI L.)

Demikian permohonan ini dibuat, atas bantuan dan kerjasamanya diucapkan terima kasih.

Wassalamualaikum Warahmatullahi Wabarakatuh

Samarinda, 02 Juni 2022

Ketua Program Studi S1 Farmasi

Universitas Muhammadiyah Kalimantan Timur

apt. Ika Ayu Mentari, M.Farm.

NIDN. 1121019201

Lampiran 3. Surat Balasan Penelitian dari Laboratorium



UMKT
Laboratorium

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Nomor : 400/LBU/A.5/C/2023
Lampiran : -
Hal : Surat Keterangan Selesai
Penelitian

Kepada Yth.
Mahasiswa
Di -
Tempat

Assalamu'alaikum Warahmatullahi Wabarakatuh

Yang bertanda tangan di bawah ini :

Nama : Rini Ernawati S.Pd.,M.Kes
Jabatan : Kepala Laboratorium
Instansi : Universitas Muhammadiyah Kalimantan Timur

Dengan ini menyatakan :

Nama : Bunga Putri Sari
NIM : 1911102415118
Program Studi : S1 Farmasi
Judul Penelitian : Formulasi dan Uji Sitotoksik Nanogel Madu Lebah Kelulut (*Trigona SPP.*) Dan Daun Belimbing Wuluh (*Averrhoa Bilimbi L.*)

Telah selesai melakukan penelitian di Laboratorium Universitas Muhammadiyah Kalimantan Timur Demikian Surat keterangan ini dibuat untuk dipergunakan sebagaimana mestinya.

Wassalamu'alaikum Warahmatullahi Wabarakatuh

Samarinda, 19 Dhu al-Qi'dah 1444 H

8 Juni 2023 M

Kepala Laboratorium Ilmu Kesehatan



Rini Ernawati, S.Pd, M.Kes

NIDN. 1102096902

Lampiran 4. Hasil Maserasi Daun Belimbing Wuluh



Lampiran 5. Proses Rotary Daun belimbing Wuluh



Lampiran 6. Proses Waterbath Ekstrak Daun Belimbing Wuluh



Lampiran 7. Hasil Ekstrak Kental Daun Belimbing Wuluh



Lampiran 8. Madu Lebah Kelulut



Lampiran 9. Larutan Uji Antioksidan Kombinasi Madu Lebah Kelulut dan Ekstrak Daun Belimbing Wuluh



Kombinasi Perbandingan 2 : 1



Kombinasi Perbandingan 1 : 1



Kombinasi Perbandingan 1:2



Kombinasi Perbandingan 0:1



Kombinasi Perbandingan 1:0

Lampiran 10. Proses Penimbangan Bahan Pembuatan Nanogel



Lampiran 11. Proses Pembuatan Basis Gel



Lampiran 12. Hasil Basis Gel



Lampiran 13. Pembuatan Nanoemulsi Kombinasi Madu Lebah Kelulut dan Ekstrak Daun Belimbing Wuluh



Lampiran 14. Proses Penggabungan Basis Gel dan Nanoemulsi



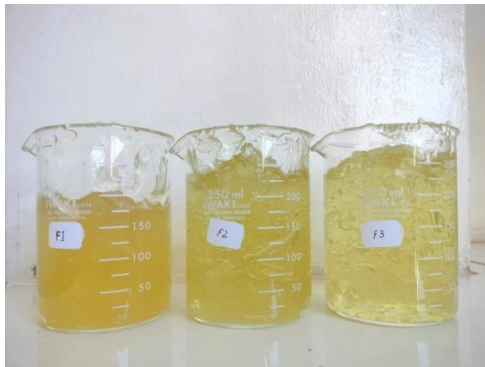
Lampiran 15. Hasil Nanogel Madu Lebah Kelulut dan Ekstrak Belimbing



Minggu ke-0



Minggu ke-1



Minggu ke-2



Minggu ke-3

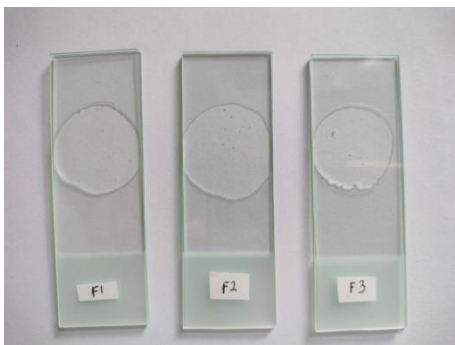


Minggu ke-4

Lampiran 16. Uji Viskositas Sediaan Nanogel



Lampiran 17. Uji Homogenitas Sediaan Nanogel



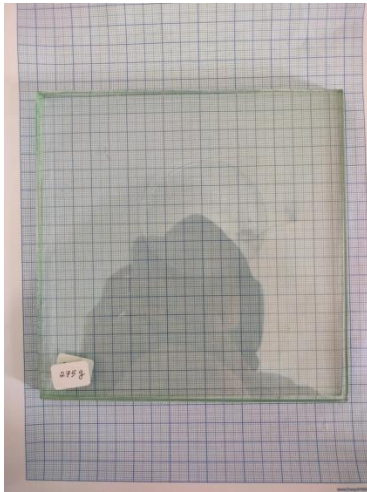
Lampiran 18. Uji pH Sediaan Nanogel



Lampiran 19. Uji Daya Lekat Sediaan Nanogel



Lampiran 20. Uji Daya Sebar Sediaan Nanogel



Lampiran 21. Telur Artemia Salina



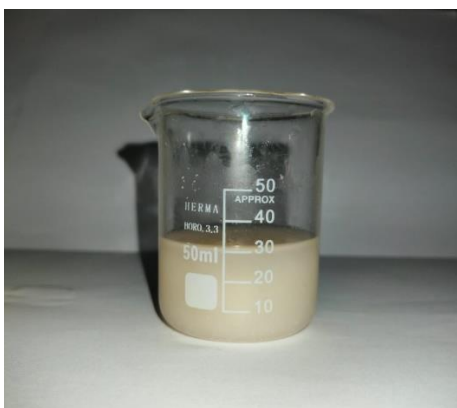
Lampiran 22. Garam Laut



Lampiran 23. Penetasan Larva Udang (Artemia salina)



Lampiran 24. Larutan Makanan Larva Udang (Artemia salina)



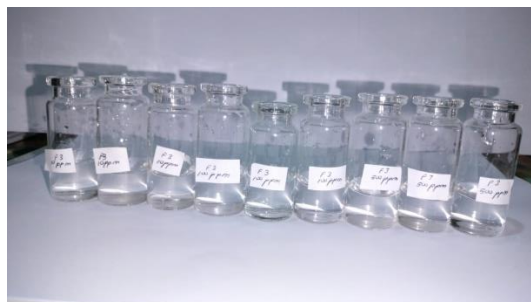
Lampiran 25. Hasil Larutan Uji Sitotoksik Nanogel Madu Lebah Kelulut dan Ekstrak Belimbing Wuluh



Formulasi 1



Formulasi 2




Formulasi 3



Kontrol Negatif

Lampiran 26. Hasil Uji Particel Size Analyzer

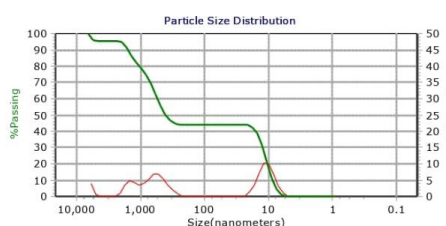


- Particle Size Analysis -

C:\Microtrac\FLEX 11.1.0.6\Databases\Iiska.MDB

-Tabular Data -

Size(nm)	%Chan	%Pass	Size(nm)	%Chan	%Pass
6540	3.90	100.00	15.19	7.20	38.91
5500	0.61	96.10	12.77	10.42	31.71
4620	0.00	95.49	10.74	10.10	21.29
3890	0.00	95.49	9.03	6.80	11.19
3270	0.00	95.49	7.60	3.25	4.39
2750	0.00	95.49	6.39	1.14	1.14
2312	0.85	95.49	5.57	0.00	0.00
1944	3.29	94.64	4.52	0.00	0.00
1635	4.99	91.35	3.80	0.00	0.00
1375	4.27	86.36	3.19	0.00	0.00
1156	3.48	82.09	2.690	0.00	0.00
972.0	3.86	78.61	2.260	0.00	0.00
818.0	5.26	74.75	1.900	0.00	0.00
687.0	6.77	69.49	1.600	0.00	0.00
578.0	6.99	62.72	1.340	0.00	0.00
486.0	5.55	55.73	1.130	0.00	0.00
409.0	3.49	50.18	0.950	0.00	0.00
344.0	1.90	46.69			
289.0	0.99	44.79			
243.0	0.00	43.80			
204.4	0.00	43.80			
171.9	0.00	43.80			
144.5	0.00	43.80			
121.5	0.00	43.80			
102.2	0.00	43.80			
85.90	0.00	43.80			
72.30	0.00	43.80			
60.80	0.00	43.80			
51.10	0.00	43.80			
43.00	0.00	43.80			
36.10	0.00	43.80			
30.40	0.00	43.80			
25.55	0.00	43.80			
21.48	1.34	43.80			
18.06	3.55	42.46			



Particle Size Distribution

- Measurement Info -

Title	
belimbing wuluh	
Identifiers	
belimbing wuluh	
belimbing wuluh	
Database Record	6
Run Number	2 of 3
Date	12/12/2022
Time	2:51 PM
Acquired Date	12/12/2022
Acquired Time	2:51 PM
Serial Number	W3936
Calculated Data	
Above Residual	0
Below Residual	0
Loading Index	6.86E-2
Conc. Index : cc/ml	0.0612 : 2.12E-5
RMS Residual	0.139%
Cell Temp (C)	24.69
Viscosity(cp)	0.8970
Reflected Pwr (uW)	2.20
User Defined Calculations	
Name	Value
Recalculation Status	
DB-Meas :: Original :	

-SOP Info-

BELIMBING WULUH	
Timing	
Setzero Time	60 (sec)
Run Time	30 (sec)
Number of Runs	3
Multi-Run Delay	0 (min)
Delay First Meas.	Disabled
Analysis	
Refractive Index	1.48
Transparency	Transp
Shape	Spherical
WATER	
Refractive Index	1.33
Low Temperature	20.0
Low Temp. Visc.	1.002
High Temperature	30.0
High Temp. Visc.	0.797
Options:	
Analysis Type	Distribution
Filter:Resolution	Std/Norm
Sensitivity	Standard
Algorithm	2.0
Perspective	
Projection	Standard
Distribution	Intensity
Upper Edge(nm)	6540
Lower Edge(nm)	0.8
Residuals	Disabled

Summary

Data	Value
MI(nm):	712.0
MN(nm):	9.07
MA(nm):	23.41
CS:	256.3
SD:	623.0
PDI:	0.765
Mz:	557.3
σ:	0.617
Sk:	0.485
Kg:	1.014

Percentiles

%Tile	Size(nm)
10.00	8.81
20.00	10.52
30.00	12.39
40.00	15.81
50.00	406.0
60.00	542.0
70.00	698.0
80.00	1043
90.00	1557
95.00	2025

Peak Summary

Dist(nm)	Vol%	Wght
2029	4.5	7.0
188	16.9	626
506	34.8	714
10.85	41.8	6.09

FLEX

11.1.0.6

- Notes -

12/12/2022 3:03 PM

Lampiran 27. Uji Normalitas SPSS

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Jumlah Larva	9	100.0%	0	0.0%	9	100.0%

Descriptives

		Statistic	Std. Error
Jumlah Larva	Mean	7.2222	1.13990
	95% Confidence Interval for Mean	Lower Bound 4.5936	
		Upper Bound 9.8508	
	5% Trimmed Mean	7.1914	
	Median	8.0000	
	Variance	11.694	
	Std. Deviation	3.41971	
	Minimum	3.00	
	Maximum	12.00	
	Range	9.00	
	Interquartile Range	7.00	
	Skewness	-.002	.717
	Kurtosis	-1.573	1.400

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Jumlah Larva	.160	9	.200 [*]	.919	9	.382

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Lampiran 28. Perhitungan

A. Perhitungan Rendemen Ekstrak

$$\% \text{Rendemen} = \frac{\text{Bobot ekstrak kental}}{\text{Bobot simplisia}} \times 100\%$$

$$\% \text{Rendemen} = \frac{13 \text{ gram}}{100 \text{ gram}} \times 100\%$$

$$\% \text{Rendemen} = 13\%$$

B. Penyiapan Larutan DPPH 0,1 Mm

$$\text{mM} = \frac{\text{mg}}{\text{MR}} \times \frac{1000}{\text{vol}}$$

$$0,1 \text{ Mm} = \frac{\text{mg}}{394,32} \times \frac{1000}{50}$$

$$\text{mg} = \frac{0,1 \text{ mM} \times 394,32}{20}$$

$$\text{mg} = 1,98 \text{ mg}$$

Jadi, DPPH yang ditimbang sebanyak 1,98 mg dan dilarutkan dengan metanol pada labu ukur 50 ml.

C. Pembuatan Larutan Vitamin C

$$\text{Larutan induk vitamin C} = \frac{10 \text{ mg}}{0,05 \text{ L}} = 200 \text{ ppm}$$

1. Perhitungan Konsentrasi Vitamin C

$$2 \text{ ppm} = V_1 \times N_1 = V_2 \times N_2$$

$$V_1 \times 200 \text{ ppm} = 10 \text{ mL} \times 2 \text{ ppm}$$

$$V_1 = \frac{10 \text{ ml} \times 2 \text{ ppm}}{200 \text{ ppm}}$$

$$V_1 = \frac{20}{200} = 0,1 \text{ mL} = 100 \mu\text{L}$$

$$3 \text{ ppm} = V_1 \times N_1 = V_2 \times N_2$$

$$V_1 \times 200 \text{ ppm} = 10 \text{ mL} \times 3 \text{ ppm}$$

$$V_1 = \frac{10 \text{ ml} \times 3 \text{ ppm}}{200 \text{ ppm}}$$

$$V_1 = \frac{30}{200} = 0,15 \text{ mL} = 150 \mu\text{L}$$

$$4 \text{ ppm} = V_1 \times N_1 = V_2 \times N_2$$

$$V_1 \times 200 \text{ ppm} = 10 \text{ mL} \times 4 \text{ ppm}$$

$$V_1 = \frac{10 \text{ ml} \times 4 \text{ ppm}}{200 \text{ ppm}}$$

$$V_1 = \frac{40}{200} = 0,2 \text{ mL} = 200 \mu\text{L}$$

$$5 \text{ ppm} = V_1 \times N_1 = V_2 \times N_2$$

$$V_1 \times 200 \text{ ppm} = 10 \text{ mL} \times 5 \text{ ppm}$$

$$V_1 = \frac{10 \text{ mL} \times 5 \text{ ppm}}{200 \text{ ppm}}$$

$$V_1 = \frac{50}{200} = 0,25 \text{ mL} = 250 \mu\text{L}$$

$$6 \text{ ppm} = V_1 \times N_1 = V_2 \times N_2$$

$$V_1 \times 200 \text{ ppm} = 10 \text{ mL} \times 6 \text{ ppm}$$

$$V_1 = \frac{10 \text{ mL} \times 6 \text{ ppm}}{200 \text{ ppm}}$$

$$V_1 = \frac{60}{200} = 0,3 \text{ mL} = 300 \mu\text{L}$$

2. Perhitungan % Inhibisi Vitamin C

$$\text{Rumus : } \frac{\text{Abs.Kontrol} - \text{Abs.Sampel}}{\text{Abs.Kontrol}} \times 100\%$$

$$2 \text{ ppm} = \frac{0,803 - 0,721}{0,803} \times 100\% = 10,21\%$$

$$3 \text{ ppm} = \frac{0,803 - 0,711}{0,803} \times 100\% = 11,45\%$$

$$4 \text{ ppm} = \frac{0,803 - 0,624}{0,803} \times 100\% = 22,29\%$$

$$5 \text{ ppm} = \frac{0,803 - 0,603}{0,803} \times 100\% = 24,90\%$$

$$6 \text{ ppm} = \frac{0,803 - 0,582}{0,803} \times 100\% = 27,52\%$$

3. Perhitungan IC₅₀ Vitamin C

$$y = 4,807x + 0,046$$

$$50 = 4,807x + 0,046$$

$$4,807x = 50 - 0,046$$

$$X = \frac{49,954}{4,807}$$

$$X = 10,39 \text{ ppm}$$

D. Perhitungan Konsentrasi Kombinasi Madu Lebah Kelulut dan Ekstrak Belimbing Wuluh

Larutan induk 100 mg kombinasi madu lebah kelulut dan ekstrak daun belimbing wuluh

$$\frac{10.000}{1.000} = \frac{x}{10}$$

$$10.000 \times 10 = 1.000 \times x$$

$$100.000 = 1.000 \times x$$

$$x = \frac{100.000}{1.000}$$

$$x = 100 \text{ mg}$$

Jadi, ditimbang sampel kombinasi hingga mencapai berat 100 mg dan di dilarutkan dengan methanol pada labu ukur 10 ml.

Tabel Hasil Uji Antioksidan Kombinasi Madu Lebah Kelulut dan Ekstrak Daun Belimbing Wuluh

Perbandin gan	Konsentr asi	Abs 1	Abs 2	Abs 3	Rata- rata	%Inhibi si	IC ₅₀ (µg/mL)
1:0	10	0,696	0,694	0,700	0,696	13,32%	132,76
	30	0,641	0,646	0,645	0,644	19,80%	ppm > 50
	50	0,596	0,604	0,602	0,600	25,28%	ppm
	70	0,532	0,529	0,528	0,529	34,12%	(sedang)
	90	0,543	0,542	0,467	0,517	35,61%	
2 : 1	10	0,522	0,520	0,519	0,520	35,24%	90,36 ppm
	30	0,473	0,472	0,471	0,472	41,22%	>50 ppm
	50	0,452	0,450	0,446	0,449	44,08%	(kuat)
	70	0,444	0,442	0,440	0,442	44,95%	
	90	0,403	0,398	0,397	0,399	50,31%	
1:1	10	0,670	0,673	0,671	0,671	16,43%	106,18
	30	0,588	0,591	0,583	0,587	26,89%	ppm > 50
	50	0,542	0,540	0,533	0,538	33,00%	ppm
	70	0,486	0,488	0,485	0,486	39,47%	(sedang)
	90	0,467	0,470	0,444	0,460	42,71%	
1:2	10	0,629	0,623	0,631	0,630	21,54%	102,10
	30	0,585	0,588	0,579	0,584	27,27%	ppm > 50
	50	0,516	0,517	0,515	0,516	35,74%	ppm
	70	0,493	0,495	0,489	0,492	38,72%	(sedang)
	90	0,429	0,432	0,428	0,429	46,57%	
0:1	10	0,393	0,389	0,426	0,402	49,93%	18,05 ppm
	30	0,373	0,377	0,372	0,374	53,42%	< 50 ppm
	50	0,336	0,340	0,339	0,338	57,90%	(sangat
	70	0,242	0,239	0,236	0,239	70,23%	kuat)
	90	0,162	0,158	0,161	0,160	80,07%	
Vitamin C	2	0,744	0,741	0,679	0,721	10,21%	10,39 ppm

3	0.711	0.712	0.710	0.711	11.45%	< 50 ppm
4	0.625	0.623	0.626	0.624	22.29%	(sangat
5	0.631	0.591	0.589	0,603	24.90%	kuat)
6	0.579	0.586	0.583	0,584	27.52%	

1. Perhitungan Konsentrasi Kombinasi Madu Lebah Kelulut dan Ekstrak Daun Belimbing Wuluh

a. Perbandingan 1:0

$$10 \text{ ppm} = \frac{0,803-0,696}{0,803} \times 100\% = 13,32\%$$

$$30 \text{ ppm} = \frac{0,803-0,644}{0,803} \times 100\% = 19,80\%$$

$$50 \text{ ppm} = \frac{0,803-0,600}{0,838} \times 100\% = 25,28\%$$

$$70 \text{ ppm} = \frac{0,803-0,529}{0,803} \times 100\% = 34,12\%$$

$$90 \text{ ppm} = \frac{0,803-0,517}{0,803} \times 100\% = 35,61\%$$

b. Perbandingan 2 : 1

$$10 \text{ ppm} = \frac{0,803-0,520}{0,803} \times 100\% = 35,24\%$$

$$30 \text{ ppm} = \frac{0,803-0,472}{0,803} \times 100\% = 41,22\%$$

$$50 \text{ ppm} = \frac{0,803-0,449}{0,838} \times 100\% = 44,08\%$$

$$70 \text{ ppm} = \frac{0,803-0,442}{0,803} \times 100\% = 44,95\%$$

$$90 \text{ ppm} = \frac{0,803-0,399}{0,803} \times 100\% = 50,31\%$$

c. Perbandingan 1 : 1

$$10 \text{ ppm} = \frac{0,803-0,671}{0,803} \times 100\% = 16,43\%$$

$$30 \text{ ppm} = \frac{0,803-0,587}{0,803} \times 100\% = 26,89\%$$

$$50 \text{ ppm} = \frac{0,803-0,538}{0,838} \times 100\% = 33,00\%$$

$$70 \text{ ppm} = \frac{0,803-0,486}{0,803} \times 100\% = 39,47\%$$

$$90 \text{ ppm} = \frac{0,803-0,460}{0,803} \times 100\% = 42,71\%$$

d. Perbandingan 1 : 2

$$10 \text{ ppm} = \frac{0,803-0,630}{0,803} \times 100\% = 21,54\%$$

$$30 \text{ ppm} = \frac{0,803-0,584}{0,803} \times 100\% = 27,27\%$$

$$50 \text{ ppm} = \frac{0,803-0,516}{0,838} \times 100\% = 35,74\%$$

$$70 \text{ ppm} = \frac{0,803-0,492}{0,803} \times 100\% = 38,72\%$$

$$90 \text{ ppm} = \frac{0,803-0,429}{0,803} \times 100\% = 46,57\%$$

e. Perbandingan 0 : 1

$$10 \text{ ppm} = \frac{0,803-0,402}{0,803} \times 100\% = 49,93\%$$

$$30 \text{ ppm} = \frac{0,803-0,374}{0,803} \times 100\% = 53,42\%$$

$$50 \text{ ppm} = \frac{0,803-0,338}{0,838} \times 100\% = 57,90\%$$

$$70 \text{ ppm} = \frac{0,803-0,239}{0,803} \times 100\% = 70,23\%$$

$$90 \text{ ppm} = \frac{0,803-0,160}{0,803} \times 100\% = 80,07\%$$

2. Perhitungan nilai IC₅₀

a. Perbandingan 1 : 0

$$y = 0,2945x + 10,901$$

$$50 = 0,2945x + 10,901$$

$$0,2945x = 50 - 10,901$$

$$X = \frac{39,099}{0,2945}$$

$$X = 132,76 \text{ ppm}$$

b. Perbandingan 2:1

$$y = 0,1694x + 34,693$$

$$50 = 0,1694x + 34,693$$

$$0,1694x = 50 - 34,693$$

$$X = \frac{15,307}{0,1694}$$

$$X = 90,36 \text{ ppm}$$

c. Perbandingan 1:1

$$y = 0,3257x + 15,415$$

$$50 = 0,3257x + 15,415$$

$$0,3257x = 50 - 15,415$$

$$X = \frac{34,585}{0,3257}$$

$$X = 106,18 \text{ ppm}$$

d. Perbandingan 1:2

$$y = 0,3076x + 18,591$$

$$50 = 0,3076x + 18,591$$

$$0,3076x = 50 - 18,591$$

$$X = \frac{31,409}{0,3076}$$

$$X = 102,10 \text{ ppm}$$

e. Perbandingan 0:1

$$y = 0,3855x + 43,038$$

$$50 = 0,3855x + 43,038$$

$$0,3855x = 50 - 43,038$$

$$X = \frac{6,962}{0,3855}$$

$$X = 18,05 \text{ ppm}$$

E. Perhitungan Bahan Penusun Nanogel

1. Basis Gel

a. Carbophol 940

Konsentrasi 0,5%

$$\frac{0,5}{100} \times 100\% = 0,5 \text{ gram} + 10\% = 0,55 \text{ gram}$$

Konsentrasi 1%

$$\frac{1}{100} \times 100\% = 1 \text{ gram} + 10\% = 1,1 \text{ gram}$$

Konsentrasi 1,5%

$$\frac{1,5}{100} \times 100\% = 1,5 \text{ gram} + 10\% = 1,65 \text{ gram}$$

b. Propilenglikol

$$\frac{4}{100} \times 100\% = 4 \text{ gram} + 10\% = 4,4 \text{ gram}$$

c. Metil Paraben

$$\frac{0,2}{100} \times 100\% = 0,2 \text{ gram} + 10\% = 0,22 \text{ gram}$$

d. Propil Paraben

$$\frac{0,02}{100} \times 100\% = 0,02 \text{ gram} + 10\% = 0,022 \text{ gram}$$

e. TEA

$$\frac{0,3}{100} \times 100\% = 0,3 \text{ gram} + 10\% = 0,33 \text{ gram}$$

2. Nanoemulsi

a. Madu Lebah Kelulut

$$\frac{0,05}{100} \times 100\% = 0,05 \text{ gram} = 50 \text{ mg}$$

b. Ekstrak Daun Belimbing Wuluh

$$\frac{0,025}{100} \times 100\% = 0,025 \text{ gram} = 25 \text{ mg}$$

c. Tween 80

$$\frac{2}{100} \times 100\% = 2 \text{ gram} + 10\% = 2,2 \text{ gram}$$

F. Pembuatan Larutan Uji Sitotoksik Nanogel

$$\text{Larutan induk naogel} = \frac{200 \text{ mg}}{100 \text{ mL}} = 2 \text{ mL} = 2000 \text{ ppm}$$

1. Perhitungan Konsentrasi Nanogel

$$10 \text{ ppm} = V_1 \times N_1 = V_2 \times N_2$$

$$V_1 \times 2000 \text{ ppm} = 5 \text{ mL} \times 10 \text{ ppm}$$

$$V_1 = \frac{5 \text{ mL} \times 10 \text{ ppm}}{2000 \text{ ppm}}$$

$$V_1 = \frac{50}{200} = 0,25 \text{ mL} = 25 \mu\text{L}$$

$$100 \text{ ppm} = V_1 \times N_1 = V_2 \times N_2$$

$$V_1 \times 2000 \text{ ppm} = 5 \text{ mL} \times 100 \text{ ppm}$$

$$V_1 = \frac{5 \text{ ml} \times 100 \text{ ppm}}{2000 \text{ ppm}}$$

$$V_1 = \frac{500}{2000} = 0,25 \text{ mL} = 250 \mu\text{L}$$

$$500 \text{ ppm} = V_1 \times N_1 = V_2 \times N_2$$

$$V_1 \times 2000 \text{ ppm} = 5 \text{ mL} \times 500 \text{ ppm}$$

$$V_1 = \frac{5 \text{ ml} \times 500 \text{ ppm}}{2000 \text{ ppm}}$$

$$V_1 = \frac{2500}{2000} = 1,25 \text{ mL} = 1.250 \mu\text{L}$$

2. Perhitungan % Kematian Larva Udang (*Artemia salina*)

a. Formulasi 1

$$10 \text{ ppm} = \frac{3}{30} \times 100\% = 10\%$$

$$100 \text{ ppm} = \frac{8}{30} \times 100\% = 26,66\%$$

$$500 \text{ ppm} = \frac{10}{30} \times 100\% = 33,33\%$$

b. Formulasi 2

$$10 \text{ ppm} = \frac{4}{30} \times 100\% = 13,33\%$$

$$100 \text{ ppm} = \frac{8}{30} \times 100\% = 26,66\%$$

$$500 \text{ ppm} = \frac{11}{30} \times 100\% = 36,66\%$$

c. Formulasi 3

$$10 \text{ ppm} = \frac{3}{30} \times 100\% = 10\%$$

$$100 \text{ ppm} = \frac{6}{30} \times 100\% = 20\%$$

$$500 \text{ ppm} = \frac{12}{30} \times 100\% = 40\%$$

3. Perhitungan Nilai LC₅₀

a. Formulasi 1

$$y = 0,5044x + 3,2551$$

$$5 = 0,5044x + 3,2551$$

$$x = \frac{5 - 3,2551}{0,5044}$$

$$x = 3,4593$$

Sehingga LC 50 = antilog X

$$= \text{Antilog } 3,4593$$

$$= 2879,769 \text{ ppm}$$

b. Formulasi 2

$$y = 0,4557 + 3,4242$$

$$5 = 0,4557 + 3,4242$$

$$x = \frac{5 - 3,4242}{0,4557}$$

$$x = 3,4579$$

$$\begin{aligned} \text{Sehingga LC 50} &= \text{antilog } X \\ &= \text{Antilog } 3,4579 \\ &= 2870,627 \text{ ppm} \end{aligned}$$

c. Formulasi 3

$$y = 0,5948x + 3,0801$$

$$5 = 0,5948x + 3,0801$$

$$x = \frac{5 - 3,0801}{0,5948}$$

$$x = 3,2278 \text{ ppm}$$

$$\begin{aligned} \text{Sehingga LC 50} &= \text{antilog } X \\ &= \text{Antilog } 3,2278 \\ &= 1689,692 \text{ ppm} \end{aligned}$$

Tabel Hasil Uji Sitotoksik Formulasi 1 Nanogel madu lebah kelulut dan ekstrak daun belimbing wuluh

Formulasi	Konsentrasi	Perlakuan			Total Kematian	Rata Rata Kematian	%Kematian	Log Konsentrasi (X)	Nilai Probabilit (Y)	LC ₅₀ (ppm)
		T1	T2	T3						
F1	0	0	0	0	0	0	0	0	0	2879,769
	10	1	1	1	3	1	10	1	3,72	
	100	3	2	3	8	2,6	26,6	2	4,36	
	500	4	3	3	10	3,3	33,3	2,698	4,56	
F2	0	0	0	0	0	0	0	0	0	2870,627
	10	1	2	1	4	1,3	13,3	1	3,87	
	100	2	3	3	8	2,6	26,6	2	4,36	
	500	3	4	4	11	3,6	36,6	2,698	4,64	
F3	0	0	0	0	0	0	0	0	0	1689,692
	10	1	1	1	3	1	10	1	3,72	
	100	2	2	2	6	2	20	2	4,16	
	500	4	4	4	12	4	40	2,698	4,75	

Lampiran 29. Konsultasi Bimbingan Skripsi

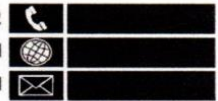


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 DAUN *Averrhoa bilimbi* L. DAN MADU LEBAH KELULUT
 (*Trigona* spp.)

No.	Tanggal	Materi Bimbingan	Arahan/Masukan	Bukti Konsultasi
1.	7 Maret 2022	penentuan judul penelitian	judul masih bersifat sementara, tentukan judul dengan baik	
2.	18 Maret 2022	pembahasan pemilihan judul skripsi	konsistenkan pilihan judul yang dikuasai, dan menjadi proposal	
3.	21 Maret 2022	Alur penelitian	perbanyak membaca literatur mengenai metode pengujian yang sesuai	
4.	22 April 2022	Perbaikan proposal skripsi	perbaiki proposal dan ajukan pelaksanaan ujian proposal	
5.	27 April 2022	Perbaikan proposal skripsi	segera daftar ujian proposal	
6.	8 Juni 2022	Uji Antioksidan	segera lakukan uji coba dan menykil pembahasan	
7.	28 Juli 2022	Komposisi formulasi	pilih bahan yang sesuai dan mengecek ketersediaan bahan dan alat di lab	
8.	18 Agustus 2022	Hasil formulasi	Nanogel sudah baik, namun belum nampak transparan, lakukan pengamatan kembali	
9.	27 Oktober 2022	Uji Sitotoksik	persiapkan bahan, serta gunakan konsentrasi yang terbaik agar sel tetap hidup	
10.	19 November 2022	Hasil uji sitotoksik	Hasil sudah baik, segera selesaikan pembahasan	



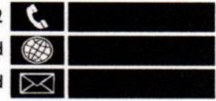
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DAUN *Averrhoa bilimbi* L. DAN MADU LEBAH KELULUT
(*Trigona* spp.)

No.	Tanggal	Materi Bimbingan	Arahan/Masukan	Bukti Konsultasi
11.	31 Desember 2022	pembahasan BAB 4	lengkapi hasil literatur terdahulu untuk memper kuat hasil pembahasan	
12.	9 Januari 2023	pembahasan BAB 4	pembahasan sudah baik, segera ajukan ujian skripsi dan pelajari dengan baik	
13.	12 Januari 2023	Perbaiki pembahasan	pembahasan dirincikan dan foto penelitian dilengkapi	
14.	15 Januari 2023	perbaiki pembahasan	pembahasan sudah baik, segera uji plagiasi	
15.	17 Mei 2023	Uji Plagiasi	perbaiki hasil skripsi parafrase kata-kata yang baik	
16.	29 Mei 2023	Uji Plagiasi	lakukan pengecekan ulang skripsi dan naskah	

Lampiran 30. Hasil Uji Plagiasi

**SK 2 : AKTIVITAS ANTIOKSIDAN
KOMBINASI EKSTRAK DAUN
Averrhoa bilimbi L. DAN MADU
LEBAH KELULUT**

by Bunga Putri Sari

Submission date: 07-Jun-2023 01:54PM (UTC+0800)

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