

LAMPIRAN

Lampiran 1. Surat Determinasi

1.1 Determinasi Biji Kelor



LABORATORIUM BIOLOGI

FAKULTAS SAINS DAN TEKNOLOGI TERAPAN
UNIVERSITAS AHMAD DAHLAN

Jl. Ringroad Selatan, Tamanan, Banguntapan, Bantul

SURAT KETERANGAN

Nomor : 553/Lab.Bio/B/XII/2024

Yang bertanda tangan di bawah ini Kepala Laboratorium Biologi Universitas Ahmad Dahlan menerangkan bahwa :

Nama / NIM : 1. Rosyadah Hafidz / 2021141011
2. Aulia Zaynur Rizki / 2021141025
3. Prasiwi Kartika Sari / 2021141018
4. Rizky Anjar Danianti / 2021141019
5. Rafly Muhammad Sya'bani / 2021141001
Prodi, PT : Farmasi, Universitas Sahid Surakarta

Telah melakukan determinasi biji tanaman di Laboratorium Biologi Universitas Ahmad Dahlan, pada tanggal 23 Desember 2024

Tanaman tersebut adalah :
Moringa oleifera Lam.

Demikian Surat Keterangan ini untuk dapat dipergunakan seperlunya.

Yogyakarta, 27 Desember 2024

Kepala Laboratorium Biologi



Ichsan Luqman Putra, S. Si., M.Sc.

1b – 2b – 3b – 4b – 12b – 13b – 14b – 17b – 18b – 19b – 20b – 21b – 22b – 23b – 24b – 25b
– 26b – 27a – 28b – 29b – 30b – 21a – 32a – 33a – 34a – 35a – 36d – 37b – 38b – 39b – 41b –
42b – 44b – 45b – 46a – 47a Moringaceae

1 Moringa

1 *Moringa oleifera* Lam

Flora of Java (Backer, 1965)



1.2 Determinasi Sirih Cina



LABORATORIUM BIOLOGI

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Tanaman tersebut adalah :
Peperomia pellucida (L.) Kunth

Demikian Surat Keterangan ini untuk dapat dipergunakan seperlunya.

Yogyakarta, 27 Desember 2024

Kepala Laboratorium Biologi



Ichsan Luqmanul Huda Putra, S. Si., M.Sc.

1b – 2b – 3b – 4b – 12b – 13b – 14b – 17b – 18b – 19b – 20b – 21b – 22b – 23b – 24b – 25b –
26b – 27b – 799b – 800b – 801b – 802a – 803b – 804b – 805c – 806b – 807a – 808c – 809b –
810b – 811b – 812b – 815b – 816b – 818a – 819b Piperaceae

1b – 2b – 3a Peperomia

1b – 4a – 5a – 6a *Peperomia pellucida* (L.) H.B.K.

Flora of Java (Backer, 1965)

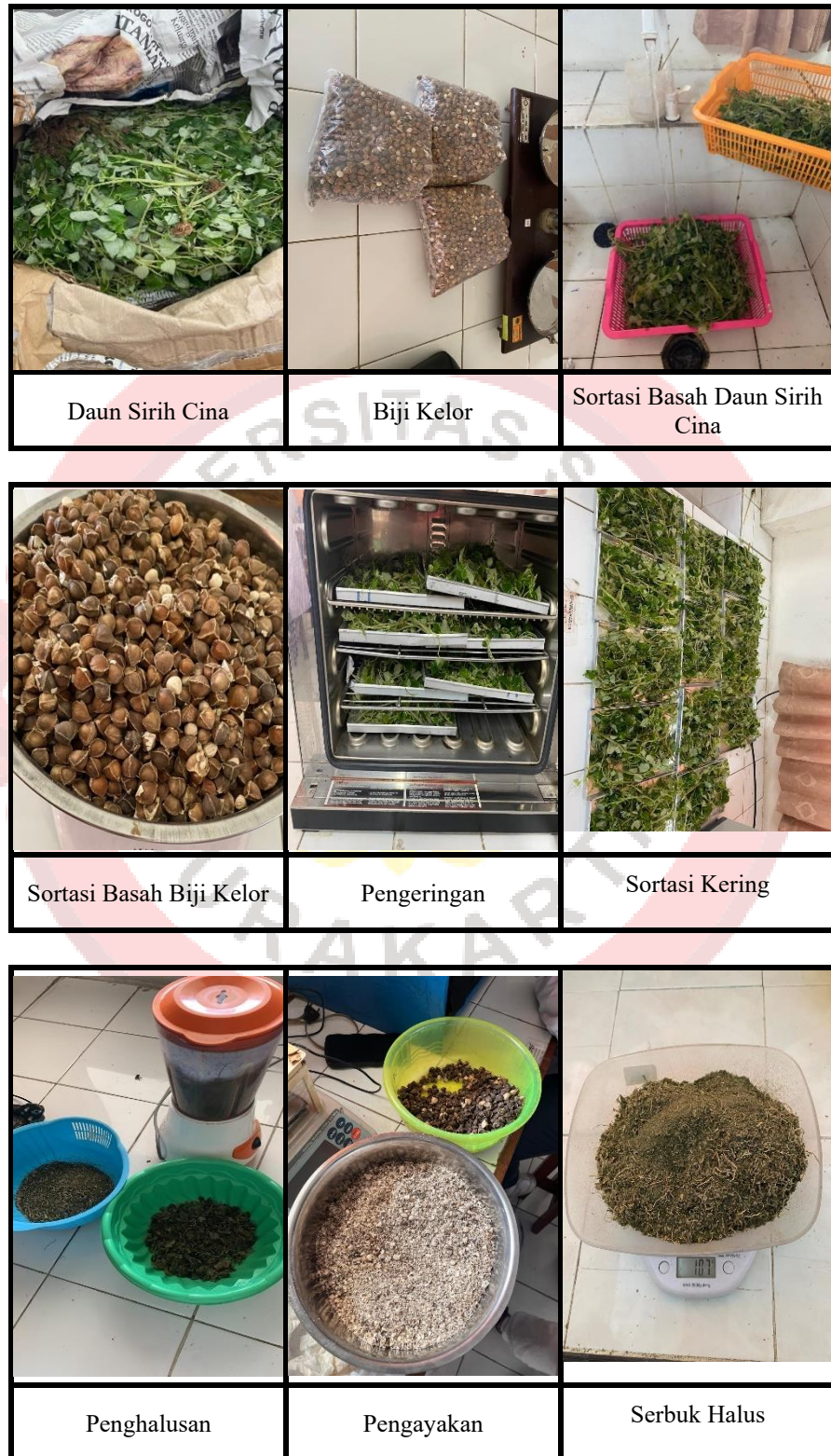
Peperomia pellucida (L.) Kunth

<https://www.worldfloraonline.org/>

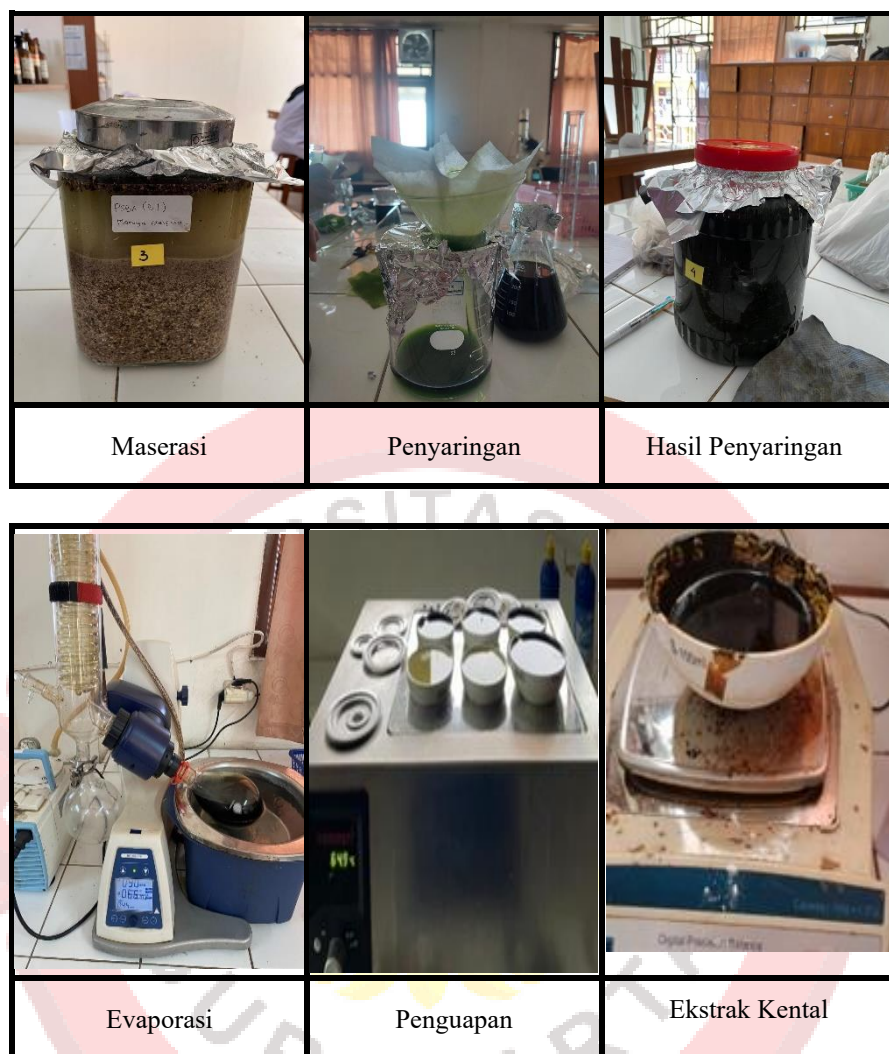


Lampiran 2. Dokumentasi Penelitian

2.1 Preparasi Sampel



2.2 Ekstraksi Sampel



2.3 Perhitungan Rendemen Ekstrak

Sampel	Berat Simplisia (gram)	Berat Ekstrak Kental (gram)	Rendemen (%)
Biji Kelor	1.322	232,65	17,60
Daun Sirih Cina	466	147,43	31,63

$$\% \text{ Rendemen} = \frac{\text{Berat Ekstrak}}{\text{Berat Simplisia}} \times 100 \%$$

a. Biji Kelor

$$\begin{aligned}\% \text{ Rendemen} &= \frac{232,65 \text{ gr}}{1,322 \text{ gr}} \times 100 \% \\ &= 17,60 \%\end{aligned}$$

b. Daun Sirih Cina

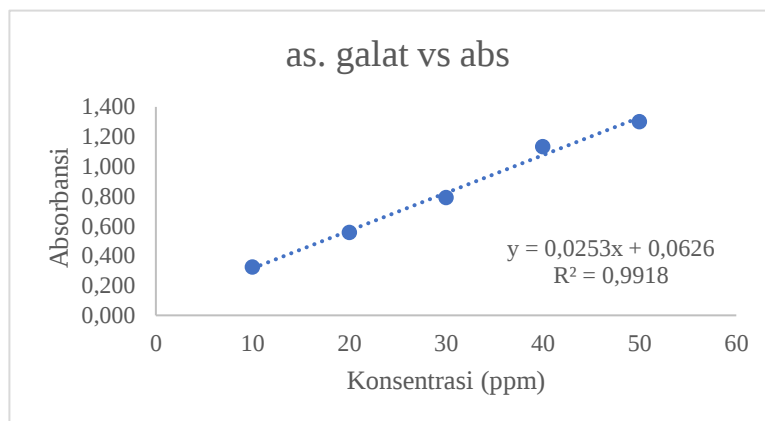
$$\begin{aligned}\% \text{ Rendemen} &= \frac{147,43 \text{ gr}}{466 \text{ gr}} \times 100 \% \\ &= 31,63 \%\end{aligned}$$

Lampiran 3. Dokumentasi Uji Kandungan Fenolik Total3.1 Data *Operating Time*

Menit Ke-	Absorbansi	Menit Ke-	Absorbansi
5	0,342	45	0,403
10	0,346	50	0,411
15	0,350	55	0,420
20	0,360	56	0,420
25	0,369	57	0,420
30	0,355	58	0,420
35	0,366	59	0,420
40	0,416	60	0,420

3.2 Tabel Pengamatan Absorbansi dan Kurva Baku Asam Galat

Konsentrasi (ppm)	Replikasi Absorbansi			Rata-Rata	SD	RSD
	1	2	3			
10	0,308	0,326	0,341	0,325	0,017	5,08
20	0,557	0,554	0,559	0,557	0,003	0,45
30	0,801	0,784	0,793	0,793	0,009	1,07
40	1,14	1,128	1,135	1,134	0,006	0,53
50	1,289	1,293	1,324	1,302	0,019	1,47



3.3 Perhitungan Konsentrasi dan Kandungan Fenolik Total pada Ekstrak

Biji Kelor

a. Tabel Kandungan Fenolik Total

Replikasi	Abs. Pengukuran	C (ug/mL)	KTFe (mgGAE/g)	Rata-Rata ± SD	RSD
1	0,608	21,56	54,44	54,90 ± 0,47	0,85
2	0,629	22,39	54,88		
3	0,623	22,15	55,38		

b. Faktor Pengenceran

Dibuat larutan uji sampel 1000 ppm

Diambil 0,1 mL larutan uji, dilarutkan dalam 5 mL

$$\begin{aligned}
 FP &= \frac{\text{Volume Akhir}}{\text{Volume Pengambilan}} \\
 &= \frac{5000 \mu\text{L}}{100 \mu\text{L}}
 \end{aligned}$$

$$= 50 \times \text{pengenceran}$$

c. Kandungan Fenolik Total Biji Kelor

$$y = ax + b$$

$$y = 0,0253x + 0,0626$$

Di mana y adalah rata-rata absorbansi sampel (A)

x adalah hasil perhitungan konsentrasi asam galat (C)

1). Replikasi 1

$$\text{Berat Ekstrak (M)} = 99 \text{ mg (0,099 gr)}$$

$$\text{Volume} = 5 \text{ mL (0,005 L)}$$

$$\text{Konsentrasi Sampel : } y = 0,0253x + 0,0626$$

$$0,608 = 0,0253x + 0,0626$$

$$0,608 - 0,0626 = 0,0253x$$

$$0,5454 = 0,0253x$$

$$x = \frac{0,5454}{0,0253}$$

$$x = 21,56 \text{ mg/L}$$

$$\begin{aligned} \text{Fenolik Total} &= \frac{C \times V \times fp}{M} \\ &= \frac{21,56 \text{ mg/L} \times 0,005 \text{ L} \times 50}{0,099 \text{ gr}} \\ &= \frac{5,39 \text{ mg}}{0,099 \text{ gr}} \\ &= 54,44 \text{ mg GAE/g} \end{aligned}$$

2). Replikasi 2

$$\text{Berat Ekstrak (M)} = 102 \text{ mg (0,102 gr)}$$

$$\text{Volume} = 5 \text{ mL (0,005 L)}$$

$$\text{Konsentrasi Sampel : } y = 0,0253x + 0,0626$$

$$0,629 = 0,0253x + 0,0626$$

$$0,629 - 0,0626 = 0,0253x$$

$$0,5664 = 0,0253x$$

$$x = \frac{0,5664}{0,0253}$$

$$x = 22,39 \text{ mg/L}$$

$$\text{Fenolik Total} = \frac{C \times V \times fp}{M}$$

$$= \frac{22,39 \text{ mg/L} \times 0,005 \text{ L} \times 50}{0,102 \text{ gr}}$$

$$= \frac{5,5975 \text{ mg}}{0,102 \text{ gr}}$$

$$= 54,88 \text{ mg GAE/g}$$

3). Replikasi 3

$$\text{Berat Ekstrak (M)} = 100 \text{ mg (0,1 gr)}$$

$$\text{Volume} = 5 \text{ mL (0,005 L)}$$

$$\text{Konsentrasi Sampel : } y = 0,0253x + 0,0626$$

$$0,623 = 0,0253x + 0,0626$$

$$0,623 - 0,0626 = 0,0253x$$

$$0,5604 = 0,0253x$$

$$x = \frac{0,5604}{0,0253}$$

$$x = 22,15 \text{ mg/L}$$

$$\begin{aligned} \text{Fenolik Total} &= \frac{C \times V \times fp}{M} \\ &= \frac{22,15 \text{ mg/L} \times 0,005 \text{ L} \times 50}{0,1 \text{ gr}} \\ &= \frac{5,5375 \text{ mg}}{0,1 \text{ gr}} \end{aligned}$$

$$= 55,38 \text{ mg GAE/g}$$

3.4 Perhitungan Konsentrasi dan Kandungan Fenolik Total pada Ekstrak Daun Sirih Cina

a. Tabel Kandungan Fenolik Total

Replikasi	Abs. Sampel	C (mg/L)	KTF _e (mgGAE/g)	Rata-Rata ± SD	RSD
1	0,992	36,74	90,94		
2	0,985	36,46	91,15	91,02 ± 0,12	0,13
3	0,974	36,02	90,96		

b. Faktor Pengenceran

Dibuat larutan uji sampel 1000 ppm

Diambil 0,1 mL larutan uji, dilarutkan dalam 5 mL

$$\begin{aligned}
 FP &= \frac{\text{Volume Akhir}}{\text{Volume Pengambilan}} \\
 &= \frac{5000 \mu\text{L}}{100 \mu\text{L}} \\
 &= 50 \times \text{pengenceran}
 \end{aligned}$$

c. Kandungan Fenolik Total Biji Kelor

$$y = ax + b$$

$$y = 0,0253x + 0,0626$$

Di mana y adalah rata-rata absorbansi sampel (A)

x adalah hasil perhitungan konsentrasi asam galat (C)

1). Replikasi 1

$$\text{Berat Ekstrak (M)} = 101 \text{ mg (0,101 gr)}$$

$$\text{Volume} = 5 \text{ mL (0,005 L)}$$

$$\text{Konsentrasi Sampel : } y = 0,0253x + 0,0626$$

$$0,992 = 0,0253x + 0,0626$$

$$0,992 - 0,0626 = 0,0253x$$

$$0,9294 = 0,0253x$$

$$x = \frac{0,9294}{0,0253}$$

$$x = 36,74 \text{ mg/L}$$

$$\begin{aligned} \text{Fenolik Total} &= \frac{C \times V \times fp}{M} \\ &= \frac{36,74 \text{ mg/L} \times 0,005 \text{ L} \times 50}{0,101 \text{ gr}} \\ &= \frac{9,185 \text{ mg}}{0,101 \text{ gr}} \\ &= 90,94 \text{ mg GAE/g} \end{aligned}$$

2). Replikasi 2

$$\text{Berat Ekstrak (M)} = 100 \text{ mg (0,1 gr)}$$

$$\text{Volume} = 5 \text{ mL (0,005 L)}$$

$$\text{Konsentrasi Sampel : } y = 0,0253x + 0,0626$$

$$0,985 = 0,0253x + 0,0626$$

$$0,985 - 0,0626 = 0,0253x$$

$$0,9224 = 0,0253x$$

$$x = \frac{0,9224}{0,0253}$$

$$x = 36,46 \text{ mg/L}$$

$$\begin{aligned} \text{Fenolik Total} &= \frac{C \times V \times fp}{M} \\ &= \frac{36,46 \text{ mg/L} \times 0,005 \text{ L} \times 50}{0,1 \text{ gr}} \\ &= \frac{9,115 \text{ mg}}{0,1 \text{ gr}} \\ &= 91,15 \text{ mg GAE/g} \end{aligned}$$

3). Replikasi 3

Berat Ekstrak (M) = 99 mg (0,099 gr)

Volume = 5 mL (0,005 L)

Konsentrasi Sampel : $y = 0,0253x + 0,0626$

$$0,974 = 0,0253x + 0,0626$$

$$0,974 - 0,0626 = 0,0253x$$

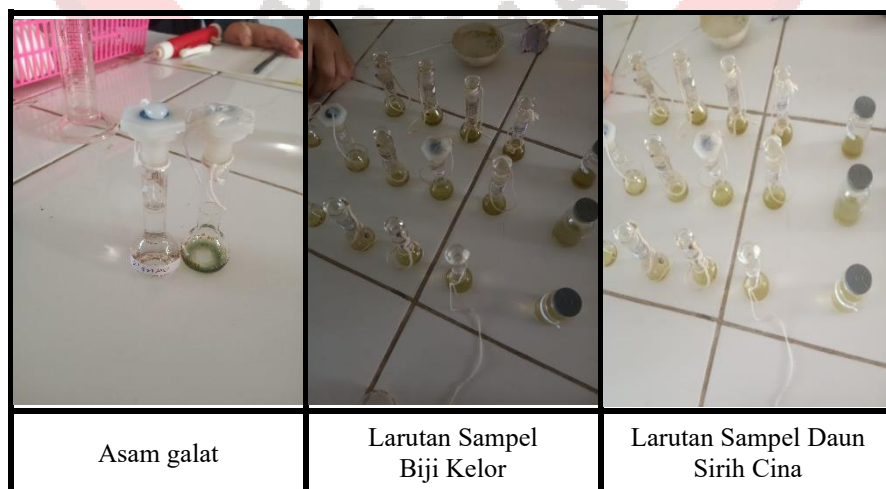
$$0,9114 = 0,0253x$$

$$x = \frac{0,9114}{0,0253}$$

$$x = 36,02 \text{ mg/L}$$

$$\begin{aligned} \text{Fenolik Total} &= \frac{C \times V \times fp}{M} \\ &= \frac{36,02 \text{ mg/L} \times 0,005 \text{ L} \times 50}{0,099 \text{ gr}} \\ &= \frac{9,005 \text{ mg}}{0,099 \text{ gr}} \\ &= 90,96 \text{ mg GAE/g} \end{aligned}$$

3.5 Dokumentasi Pengujian Kandungan Fenolik Total



Lampiran 4. Dokumentasi Uji Aktivitas Antioksidan

4.1 Data Penimbangan DPPH

Molaritas DPPH yang digunakan yaitu 0,4 Mm (0,0004 M) dalam 100 mL

Mr DPPH adalah 394,32 gr/mol

$$\text{Molaritas} = \frac{\text{Berat DPPH}}{\text{Mr}} \times \frac{1000}{\text{Volume Larutan}}$$

$$0,0004 \text{ M} = \frac{\text{Berat DPPH}}{394,32 \text{ gr/mol}} \times \frac{1000}{100 \text{ mL}}$$

$$\begin{aligned} \text{Berat DPPH} &= \frac{0,0004 \text{ M} \times 394,32 \text{ gr/mol}}{10} \\ &= 0,01577 \text{ gr} \\ &= 15,77 \text{ mg} \end{aligned}$$

4.2 Aktivitas Antioksidan Vitamin C

a. Data Penimbangan Vitamin C

Keterangan	Replikasi 1 (mg)	Replikasi 2 (mg)	Replikasi 3 (mg)
Berat wadah	126	130	135
Berat wadah + sampel	136	141	144
Berat wadah + sisa	126	130	135
Berat zat	10	11	9

b. Perhitungan Pengenceran Vitamin C

Dibuat dari larutan stok 1000 ppm dengan diencerkan menjadi 1 ppm; 1,5 ppm; 2 ppm; 2,5 ppm; dan 3 ppm dalam 5 mL.

$$V_1 \cdot C_1 = V_2 \cdot C_2$$

1). 1 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 1 \text{ ppm}$$

$$V_1 = \frac{5}{1000}$$

$$V_1 = 0,005 \text{ mL} = 5 \mu\text{L}$$

2). 1,5 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 1,5 \text{ ppm}$$

$$V_1 = \frac{7,5}{1000}$$

$$V_1 = 0,0075 \text{ mL} = 7,5 \mu\text{L}$$

3). 2 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 2 \text{ ppm}$$

$$V_1 = \frac{10}{1000}$$

$$V_1 = 0,01 \text{ mL} = 10 \mu\text{L}$$

4). 2,5 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 2,5 \text{ ppm}$$

$$V_1 = \frac{12,5}{1000}$$

$$V_1 = 0,0125 \text{ mL} = 12,5 \mu\text{L}$$

5). 3 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 3 \text{ ppm}$$

$$V_1 = \frac{15}{1000}$$

$$V_1 = 0,015 \text{ mL} = 15 \mu\text{L}$$

c. Tabel Absorbansi Larutan Blanko DPPH

Bahan	Replikasi	Absorbansi	Rata-Rata Absorbansi
blanko	1	1,331	1,328
	2	1,329	
	3	1,324	

d. Tabel Absorbansi dan Pengujian Aktivitas Antioksidan Vitamin C

1). Replikasi 1

Konsentrasi (ppm)	Absorbansi Sampel	Absorbansi kontrol	% Inhibisi
1	1,002	1,328	24,55
1,5	0,872	1,328	34,34
2	0,689	1,328	48,12
2,5	0,451	1,328	66,04
3	0,283	1,328	78,69

Perhitungan % Hambatan

$$1 \text{ ppm} = \frac{1,328 - 1,002}{1,328} \times 100 \% = 24,55 \%$$

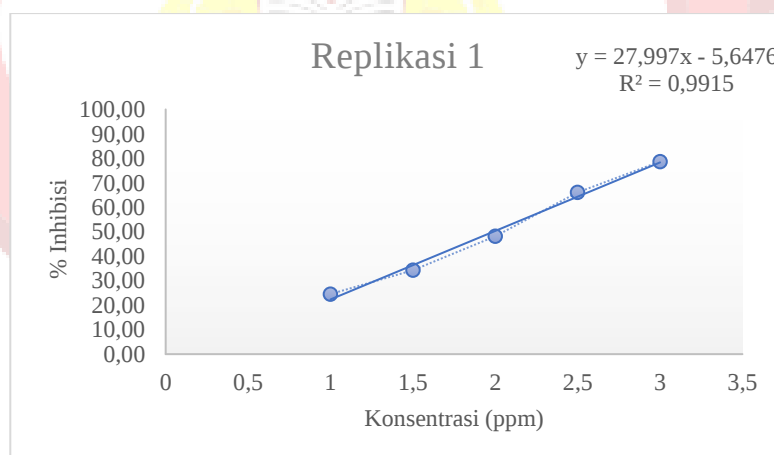
$$1,5 \text{ ppm} = \frac{1,328 - 0,872}{1,328} \times 100 \% = 34,34 \%$$

$$2 \text{ ppm} = \frac{1,328 - 0,689}{1,328} \times 100 \% = 48,12 \%$$

$$2,5 \text{ ppm} = \frac{1,328 - 0,451}{1,328} \times 100 \% = 66,04 \%$$

$$3 \text{ ppm} = \frac{1,328 - 0,283}{1,328} \times 100 \% = 78,69 \%$$

Persamaan Regresi Linear Vitamin C



Perhitungan IC₅₀

$$y = 27,997x - 5,6476$$

$$IC_{50} = \frac{50 + 5,6476}{27,997}$$

$$= 1,998$$

2). Replikasi 2

Konsentrasi (ppm)	Absorbansi Sampel	Absorbansi kontrol	% Inhibisi
1	1,005	1,328	24,32
1,5	0,867	1,328	34,71
2	0,676	1,328	49,10
2,5	0,465	1,328	64,98
3	0,291	1,328	78,09

Perhitungan % Hambatan

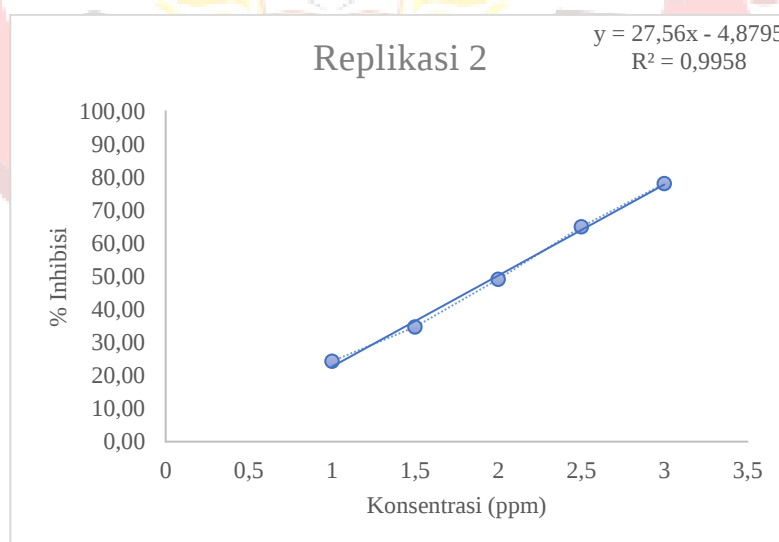
$$1 \text{ ppm} = \frac{1,328 - 1,005}{1,328} \times 100 \% = 24,32 \%$$

$$1,5 \text{ ppm} = \frac{1,328 - 0,867}{1,328} \times 100 \% = 34,71 \%$$

$$2 \text{ ppm} = \frac{1,328 - 0,676}{1,328} \times 100 \% = 49,10 \%$$

$$2,5 \text{ ppm} = \frac{1,328 - 0,465}{1,328} \times 100 \% = 64,98 \%$$

$$3 \text{ ppm} = \frac{1,328 - 0,291}{1,328} \times 100 \% = 78,09 \%$$

Persamaan Regresi Linear Vitamin C**Perhitungan IC₅₀**

$$y = 27,56x - 4,8795$$

$$IC_{50} = \frac{50 + 4,8795}{27,56}$$

$$= 1,991$$

3). Replikasi 3

Konsentrasi (ppm)	Absorbansi Sampel	Absorbansi kontrol	% Inhibisi
1	1,010	1,328	23,95
1,5	0,877	1,328	33,96
2	0,673	1,328	49,32
2,5	0,455	1,328	65,74
3	0,276	1,328	79,22

Perhitungan % Hambatan

$$1 \text{ ppm} = \frac{1,328 - 1,010}{1,328} \times 100 \% = 23,95 \%$$

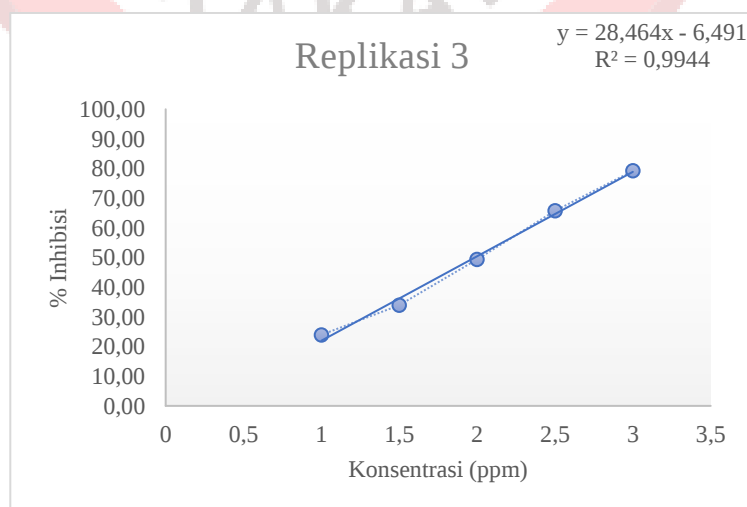
$$1,5 \text{ ppm} = \frac{1,328 - 0,877}{1,328} \times 100 \% = 33,96 \%$$

$$2 \text{ ppm} = \frac{1,328 - 0,673}{1,328} \times 100 \% = 49,32 \%$$

$$2,5 \text{ ppm} = \frac{1,328 - 0,455}{1,328} \times 100 \% = 65,74 \%$$

$$3 \text{ ppm} = \frac{1,328 - 0,276}{1,328} \times 100 \% = 79,22 \%$$

Persamaan Regresi Linear Vitamin C



Perhitungan IC₅₀

$$y = 28,464x - 6,491$$

$$\begin{aligned} \text{IC}_{50} &= \frac{50 + 6,491}{28,464} \\ &= 1,985 \end{aligned}$$

4.3 Aktivitas Antioksidan Biji Kelor

a. Data Penimbangan Biji Kelor

Keterangan	Replikasi 1 (mg)	Replikasi 2 (mg)	Replikasi 3 (mg)
Berat wadah	19.781	22.033	21.912
Berat wadah + sampel	19.831	22.084	21.961
Berat wadah + sisa	19.781	22.033	21.912
Berat zat	50	51	49

b. Perhitungan Pengenceran Biji Kelor

Dibuat dari larutan stok 1000 ppm dengan diencerkan menjadi 1 ppm, 2 ppm, 3 ppm, 4 ppm, dan 5 ppm dalam 5 mL.

$$V_1 \cdot C_1 = V_2 \cdot C_2$$

1). 1 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 1 \text{ ppm}$$

$$V_1 = \frac{5}{1000}$$

$$V_1 = 0,005 \text{ mL} = 5 \mu\text{L}$$

2). 2 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 2 \text{ ppm}$$

$$V_1 = \frac{10}{1000}$$

$$V_1 = 0,01 \text{ mL} = 10 \mu\text{L}$$

3). 3 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 3 \text{ ppm}$$

$$V_1 = \frac{15}{1000}$$

$$V_1 = 0,015 \text{ mL} = 15 \mu\text{L}$$

4). 4 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 4 \text{ ppm}$$

$$V_1 = \frac{20}{1000}$$

$$V_1 = 0,02 \text{ mL} = 20 \mu\text{L}$$

5). 5 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 5 \text{ ppm}$$

$$V_1 = \frac{25}{1000}$$

$$V_1 = 0,025 \text{ mL} = 25 \mu\text{L}$$

c. Tabel Absorbansi Larutan Blanko DPPH

Bahan	Replikasi	Absorbansi	Rata-Rata Absorbansi
blanko	1	1,313	1,309
	2	1,308	
	3	1,306	

d. Tabel Absorbansi dan Pengujian Aktivitas Antioksidan Biji Kelor

1). Replikasi 1

Konsentrasi (ppm)	Absorbansi Sampel	Absorbansi kontrol	% Inhibisi
1	1,223	1,309	6,57
2	1,143	1,309	12,68
3	0,991	1,309	24,29
4	0,786	1,309	39,95
5	0,567	1,309	56,68

Perhitungan % Hambatan

$$1 \text{ ppm} = \frac{1,309 - 1,223}{1,309} \times 100 \% = 6,57 \%$$

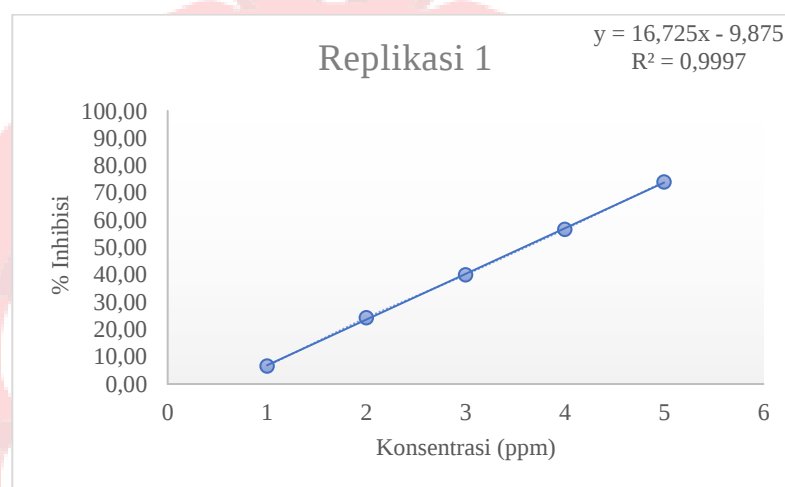
$$2 \text{ ppm} = \frac{1,309 - 1,143}{1,309} \times 100 \% = 12,68 \%$$

$$3 \text{ ppm} = \frac{1,309 - 0,991}{1,309} \times 100 \% = 24,29 \%$$

$$4 \text{ ppm} = \frac{1,309 - 0,786}{1,309} \times 100 \% = 39,95 \%$$

$$5 \text{ ppm} = \frac{1,309 - 0,567}{1,309} \times 100 \% = 56,68 \%$$

Persamaan Regresi Linear Biji Kelor



Perhitungan IC₅₀

$$y = 12,75x - 10,214$$

$$IC_{50} = \frac{50 + 10,214}{12,75}$$

$$= 4,723$$

2). Replikasi 2

Konsentrasi (ppm)	Absorbansi Sampel	Absorbansi kontrol	% Inhibisi
1	1,213	1,309	7,33
2	1,158	1,309	11,54
3	0,984	1,309	24,83
4	0,795	1,309	39,27
5	0,556	1,309	57,52

Perhitungan % Hambatan

$$1 \text{ ppm} = \frac{1,309 - 1,213}{1,309} \times 100 \% = 7,33 \%$$

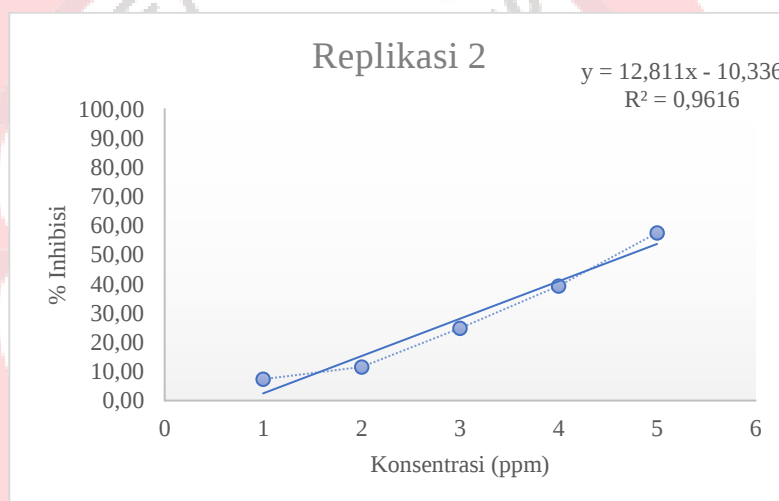
$$2 \text{ ppm} = \frac{1,309 - 1,158}{1,309} \times 100 \% = 11,54 \%$$

$$3 \text{ ppm} = \frac{1,309 - 0,984}{1,309} \times 100 \% = 24,83 \%$$

$$4 \text{ ppm} = \frac{1,309 - 0,795}{1,309} \times 100 \% = 39,27 \%$$

$$5 \text{ ppm} = \frac{1,309 - 0,556}{1,309} \times 100 \% = 57,52 \%$$

Persamaan Regresi Linear Biji Kelor



Perhitungan IC₅₀

$$y = 12,811x - 10,336$$

$$IC_{50} = \frac{50 + 10,336}{12,811}$$

$$= 4,710$$

3). Replikasi 3

Konsentrasi (ppm)	Absorbansi Sampel	Absorbansi kontrol	% Inhibisi
1	1,228	1,309	6,19
2	1,132	1,309	13,52
3	0,976	1,309	25,44
4	0,767	1,309	41,41
5	0,571	1,309	56,38

Perhitungan % Hambatan

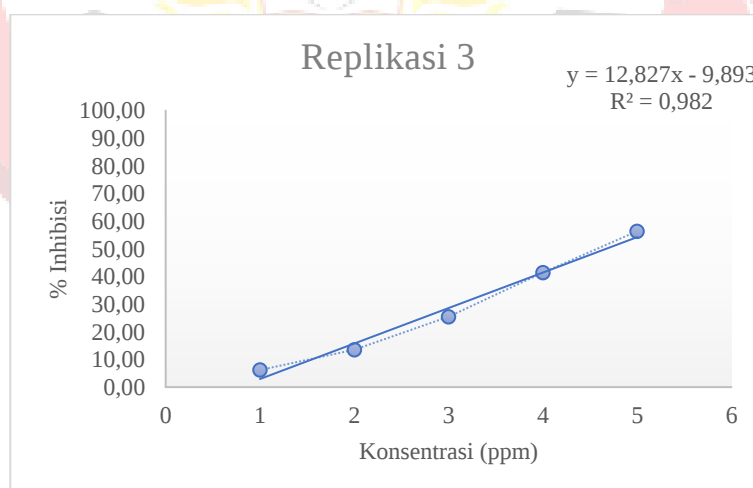
$$1 \text{ ppm} = \frac{1,309 - 1,228}{1,309} \times 100 \% = 6,19 \%$$

$$2 \text{ ppm} = \frac{1,309 - 1,132}{1,309} \times 100 \% = 13,52 \%$$

$$3 \text{ ppm} = \frac{1,309 - 0,976}{1,309} \times 100 \% = 25,44 \%$$

$$4 \text{ ppm} = \frac{1,309 - 0,767}{1,309} \times 100 \% = 41,41 \%$$

$$5 \text{ ppm} = \frac{1,309 - 0,571}{1,309} \times 100 \% = 56,38 \%$$

Persamaan Regresi Linear Biji Kelor**Perhitungan IC₅₀**

$$y = 12,827x - 9,893$$

$$\begin{aligned} \text{IC}_{50} &= \frac{50 + 9,893}{12,827} \\ &= 4,669 \end{aligned}$$

4.4 Aktivitas Antioksidan Daun Sirih Cina

a. Data Penimbangan Daun Sirih Cina

Keterangan	Replikasi 1 (mg)	Replikasi 2 (mg)	Replikasi 3 (mg)
Berat wadah	23,021	22.211	21.342
Berat wadah + sampel	23.072	22.261	21,392
Berat wadah + sisa	23,021	22.211	21.342
Berat zat	51	50	50

b. Perhitungan Pengenceran Daun Sirih Cina

Dibuat dari larutan stok 1000 ppm dengan diencerkan menjadi 1 ppm, 2 ppm, 3 ppm, 4 ppm, dan 5 ppm dalam 5 mL.

$$V_1 \cdot C_1 = V_2 \cdot C_2$$

1). 1 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 1 \text{ ppm}$$

$$V_1 = \frac{5}{1000}$$

$$V_1 = 0,005 \text{ mL} = 5 \mu\text{L}$$

2). 2 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 2 \text{ ppm}$$

$$V_1 = \frac{10}{1000}$$

$$V_1 = 0,01 \text{ mL} = 10 \mu\text{L}$$

3). 3 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 3 \text{ ppm}$$

$$V_1 = \frac{15}{1000}$$

$$V_1 = 0,015 \text{ mL} = 15 \mu\text{L}$$

4). 4 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 4 \text{ ppm}$$

$$V_1 = \frac{20}{1000}$$

$$V_1 = 0,02 \text{ mL} = 20 \mu\text{L}$$

5). 5 ppm

$$V_1 \cdot 1000 \text{ ppm} = 5 \text{ mL} \cdot 5 \text{ ppm}$$

$$V_1 = \frac{25}{1000}$$

$$V_1 = 0,025 \text{ mL} = 25 \mu\text{L}$$

c. Tabel Absorbansi Larutan Blanko DPPH

Bahan	Replikasi	Absorbansi	Rata-Rata Absorbansi
blanko	1	1,333	1,335
	2	1,337	
	3	1,334	

d. Tabel Absorbansi dan Pengujian Aktivitas Antioksidan Daun Sirih Cina

1). Replikasi 1

Konsentrasi (ppm)	Absorbansi Sampel	Absorbansi kontrol	% Inhibisi
1	1,103	1,335	17,38
2	0,977	1,335	26,82
3	0,751	1,335	43,75
4	0,578	1,335	56,70
5	0,302	1,335	77,38

Perhitungan % Hambatan

$$1 \text{ ppm} = \frac{1,335 - 1,013}{1,335} \times 100 \% = 17,38 \%$$

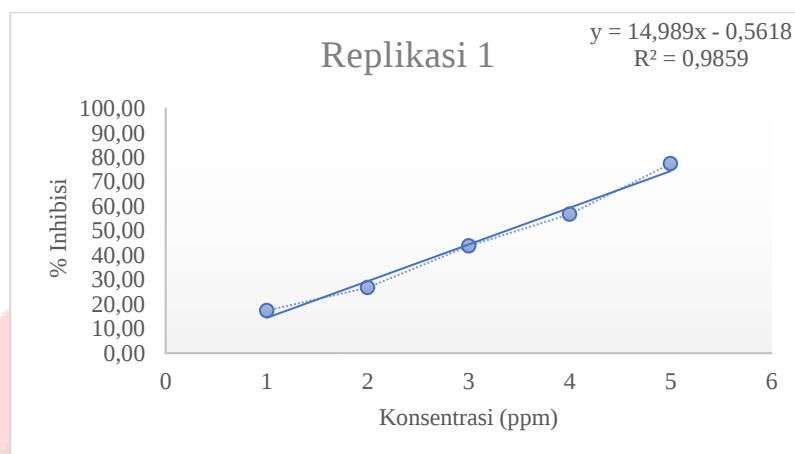
$$2 \text{ ppm} = \frac{1,335 - 0,977}{1,335} \times 100 \% = 26,82 \%$$

$$3 \text{ ppm} = \frac{1,335 - 0,751}{1,335} \times 100 \% = 43,75 \%$$

$$4 \text{ ppm} = \frac{1,335 - 0,578}{1,335} \times 100 \% = 56,70 \%$$

$$5 \text{ ppm} = \frac{1,335 - 0,302}{1,335} \times 100 \% = 77,38 \%$$

Persamaan Regresi Linear Daun Sirih Cina



Perhitungan IC₅₀

$$y = 14,989x - 0,5618$$

$$\begin{aligned} \text{IC}_{50} &= \frac{50 + 0,5618}{14,989} \\ &= 3,373 \end{aligned}$$

2). Replikasi 2

Konsentrasi (ppm)	Absorbansi Sampel	Absorbansi kontrol	% Inhibisi
1	1,089	1,335	18,43
2	0,968	1,335	27,49
3	0,735	1,335	44,94
4	0,559	1,335	58,13
5	0,298	1,335	77,68

Perhitungan % Hambatan

$$1 \text{ ppm} = \frac{1,335 - 1,089}{1,335} \times 100 \% = 18,43 \%$$

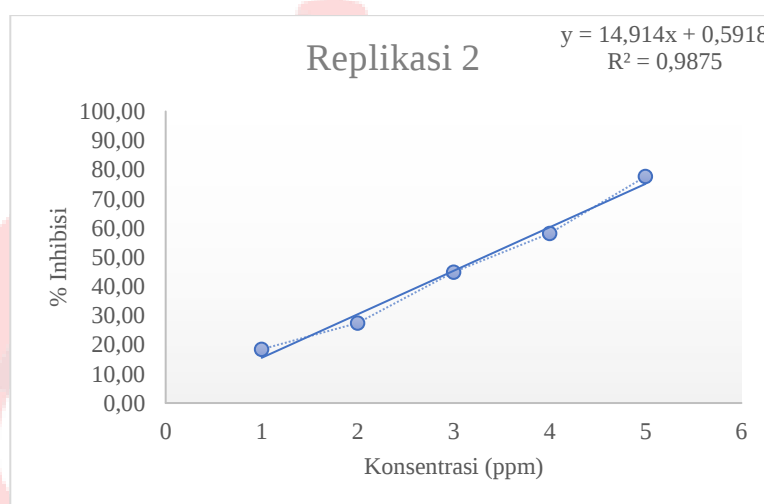
$$2 \text{ ppm} = \frac{1,335 - 0,968}{1,335} \times 100 \% = 27,49 \%$$

$$3 \text{ ppm} = \frac{1,335 - 0,735}{1,335} \times 100 \% = 44,94 \%$$

$$4 \text{ ppm} = \frac{1,335 - 0,559}{1,335} \times 100 \% = 58,13 \%$$

$$5 \text{ ppm} = \frac{1,335 - 0,298}{1,335} \times 100 \% = 77,68 \%$$

Persamaan Regresi Linear Daun Sirih Cina



Perhitungan IC₅₀

$$y = 14,914x + 0,5918$$

$$\begin{aligned} \text{IC}_{50} &= \frac{50 - 0,5918}{14,914} \\ &= 3,349 \end{aligned}$$

3). Replikasi 3

Konsentrasi (ppm)	Absorbansi Sampel	Absorbansi kontrol	% Inhibisi
1	1,081	1,335	19,03
2	0,971	1,335	27,27
3	0,744	1,335	44,27
4	0,570	1,335	57,30
5	0,319	1,335	76,10

Perhitungan % Hambatan

$$1 \text{ ppm} = \frac{1,335 - 1,081}{1,335} \times 100 \% = 19,03 \%$$

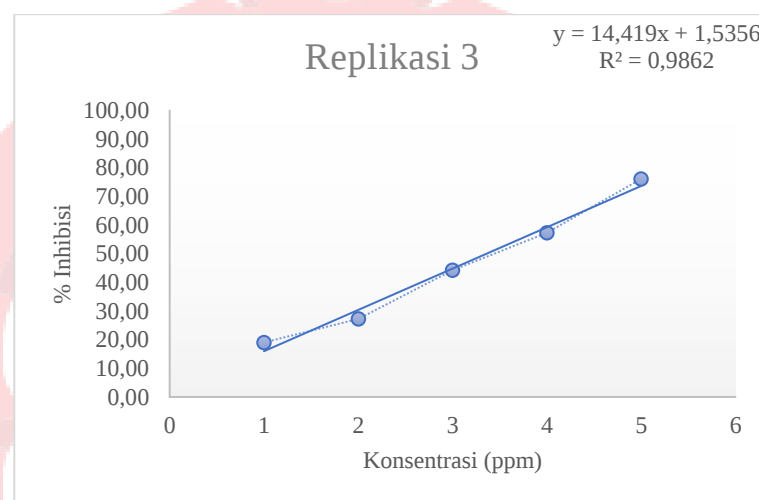
$$2 \text{ ppm} = \frac{1,335 - 0,971}{1,335} \times 100 \% = 27,27 \%$$

$$3 \text{ ppm} = \frac{1,335 - 0,744}{1,335} \times 100 \% = 44,27 \%$$

$$4 \text{ ppm} = \frac{1,335 - 0,570}{1,335} \times 100 \% = 57,30 \%$$

$$5 \text{ ppm} = \frac{1,335 - 0,319}{1,335} \times 100 \% = 76,10 \%$$

Persamaan Regresi Linear Daun Sirih Cina



Perhitungan IC₅₀

$$y = 14,419x + 1,5356$$

$$IC_{50} = \frac{50 - 1,5356}{14,419}$$

$$= 3,361$$

4.5 Dokumentasi Pengujian Aktivitas Antioksidan

