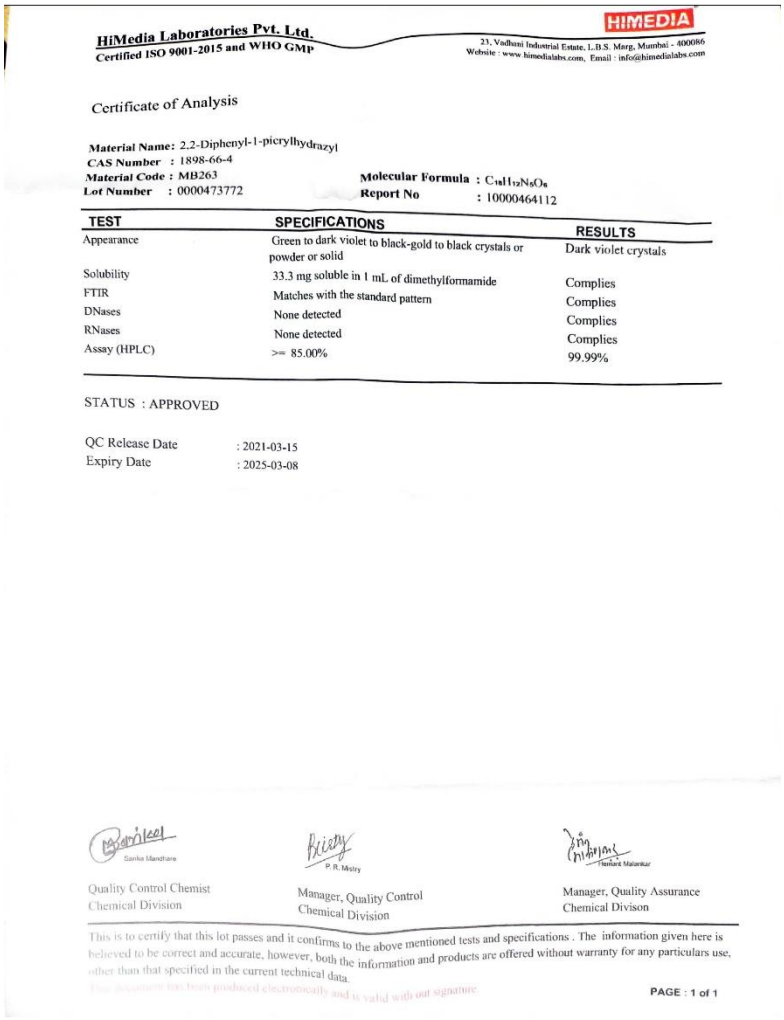
LAMPIRAN

Lampiran 1 : Lampiran Dokumen Pendukung

1. Sertifikat Keaslian DPPH



HiMedia Laboratories Pvt. Ltd.
Certified ISO 9001-2015 and WHO GMP

HIMEDIA
23, Vadhani Industrial Estate, L.B.S. Marg, Mumbai - 400086
Website : www.himedialabs.com, Email : info@himedialabs.com

Certificate of Analysis

Material Name: 2,2-Diphenyl-1-picrylhydrazyl
CAS Number : 1898-66-4
Material Code : MB263
Lot Number : 0000473772

Molecular Formula : $C_{18}H_{12}N_5O_6$
Report No : 10000464112

TEST	SPECIFICATIONS	RESULTS
Appearance	Green to dark violet to black-gold to black crystals or powder or solid	Dark violet crystals
Solubility	33.3 mg soluble in 1 mL of dimethylformamide	Complies
FTIR	Matches with the standard pattern	Complies
DNases	None detected	Complies
RNases	None detected	Complies
Assay (HPLC)	>= 85.00%	99.99%

STATUS : APPROVED

QC Release Date : 2021-03-15
Expiry Date : 2025-03-08

Sarika Mandhare
Quality Control Chemist
Chemical Division

P. R. Mistry
Manager, Quality Control
Chemical Division

Tushant Malankar
Manager, Quality Assurance
Chemical Divison

This is to certify that this lot passes and it confirms to the above mentioned tests and specifications . The information given here is believed to be correct and accurate, however, both the information and products are offered without warranty for any particulars use, other than that specified in the current technical data.
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PAGE : 1 of 1

2. Sertifikat Keaslian Standar Asam Askorbat

Certificate of Analysis

1.00468.0000 L(+)-Ascorbic Acid for analysis EMSURE® ACS,Reag. Ph Eur
Batch K52734868

	Spec. Values		Batch Values	
Assay (iodometric)	99.0 - 100.5	%	99.9	%
Identity (IR-spectrum)	conforms		conforms	
Appearance	white or almost white, cristalline powder		white or almost white, cristalline powder	
Appearance of solution (50 g/l CO_2-free water)	clear (≤ 3 NTU) and not so intense in colour than reference solution BY_7		clear (≤ 3 NTU) and not so intense in colour than reference solution BY_7	
pH (50 g/l CO_2-free water)	2.1 - 2.6		2.4	
Spec. rotation [α]20/D (100 g/l, water)	+20.5 - +21.5	°	+20.9	°
Chloride (Cl)	≤ 50	ppm	≤ 50	ppm
Sulfate (SO_4)	≤ 20	ppm	≤ 20	ppm
Cu (Copper)	≤ 5	ppm	≤ 5	ppm
Fe (Iron)	≤ 2	ppm	≤ 2	ppm
Heavy metals (ACS)	≤ 10	ppm	≤ 10	ppm
Oxalic acid	≤ 0.2	%	≤ 0.2	%
Related substances (HPLC) (Impurity C)	≤ 0.15	%	0.02	%
Related substances (HPLC) (Impurity D)	≤ 0.15	%	0.01	%
Related substances (HPLC) (unspecified impurities singly)	≤ 0.10	%	< 0.05	%
Related substances (HPLC) (sum of impurities (except impurity A and D))	≤ 0.2	%	< 0.1	%
Sulfated ash (600 °C)	≤ 0.05	%	≤ 0.05	%
Loss on Drying (105 °C)	≤ 0.1	%	< 0.1	%

Date of release (DD.MM.YYYY) 03.09.2020
Minimum shelf life (DD.MM.YYYY) 30.09.2022

Dr. Sebastian Lips
Responsible laboratory manager quality control

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SALSA **Version 992666** /990000775213// Date: 03.09.2020

Lampiran 2 : Lampiran Foto Dokumentasi

1. **Foto Belimbing Wuluh *(Averrhoa bilimbi Linn)***

Sumber : Dokumen Pribadi

Gambar 1. Buah Belimbing Wuluh *(Averrhoa bilimbi Linn)*

2. **Foto Belimbing Wuluh setelah Perajangan**

Sumber : Dokumen Pribadi

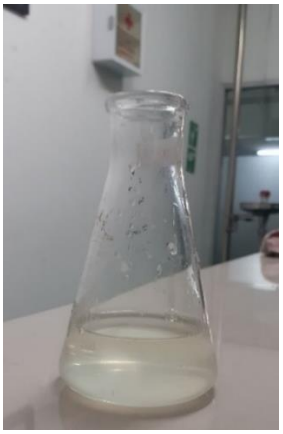
Gambar 2. Buah Belimbing Wuluh yang Telah Diiris Tipis

3. **Foto Filtrasi *Infused Water* Belimbing Wuluh**

Sumber : Dokumen Pribadi

Gambar 3. Proses Filtrasi Infused Water

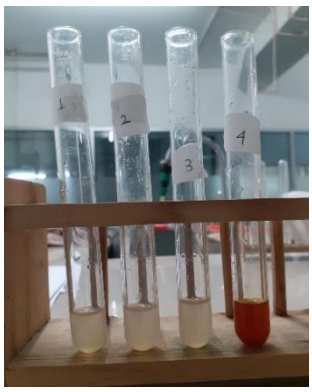
4. Foto Filtrat *Infused Water* Belimbing Wuluh



Sumber : Dokumen Pribadi

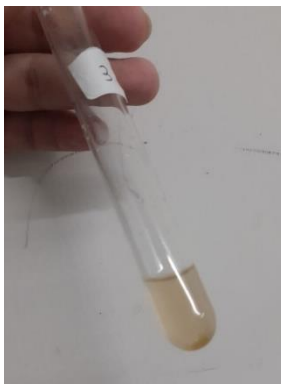
Gambar 4. Filtrat Infused Water

5. Foto Hasil Uji Alkaloid



Hasil Uji Alkaloid

Mayer (+)



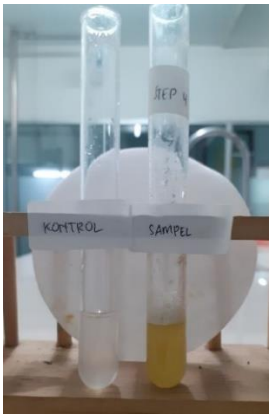
Dragendorf (-)

Bouchardat (+)

Sumber : Dokumen Pribadi

Gambar 5. Hasil Skrining Senyawa Alkaloid

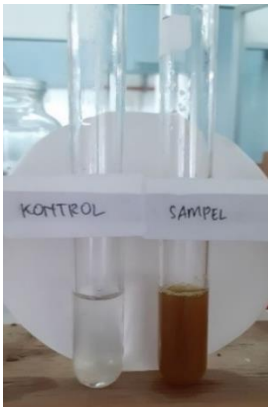
6. Foto Hasil Uji Flavonoid



Sumber : Dokumen Pribadi

Gambar 6. Hasil Skrining Senyawa Flavonoid

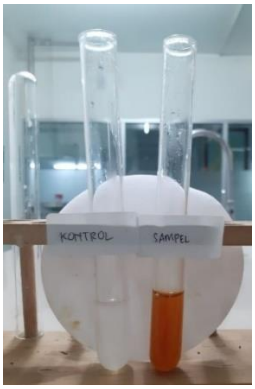
7. Foto Hasil Uji Tanin



Sumber : Dokumen Pribadi

Gambar 7. Hasil Skrining Senyawa Tanin

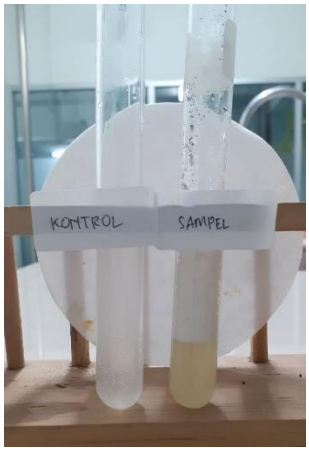
8. Foto Hasil Uji Triterpenoid



Sumber : Dokumen Pribadi

Gambar 8. Hasil Skrining Senyawa Triterpenoid

9. Foto Hasil Uji Saponin



Sumber : Dokumen Pribadi

Gambar 9. Hasil Skrining Senyawa Saponin

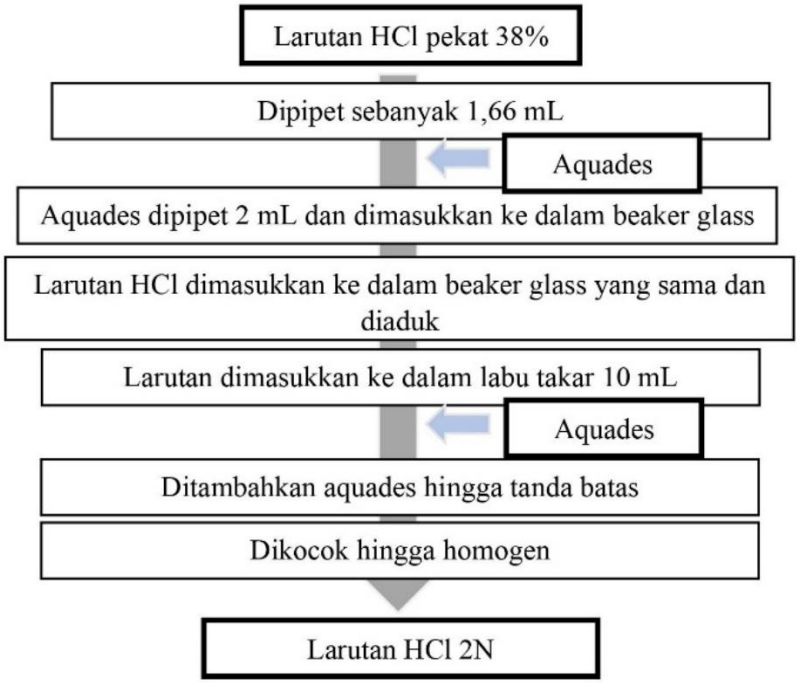
10. Foto Larutan DPPH

Sumber : Dokumen Pribadi

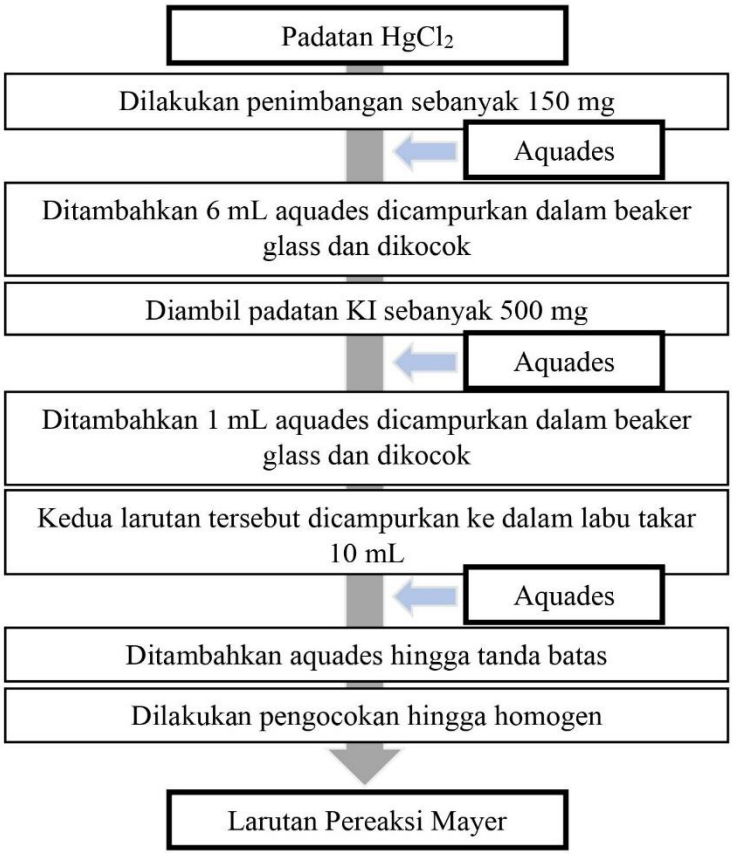
Gambar 10. Larutan Induk DPPH 25 ppm

Lampiran 3 : Lampiran Bagan Kerja Penelitian

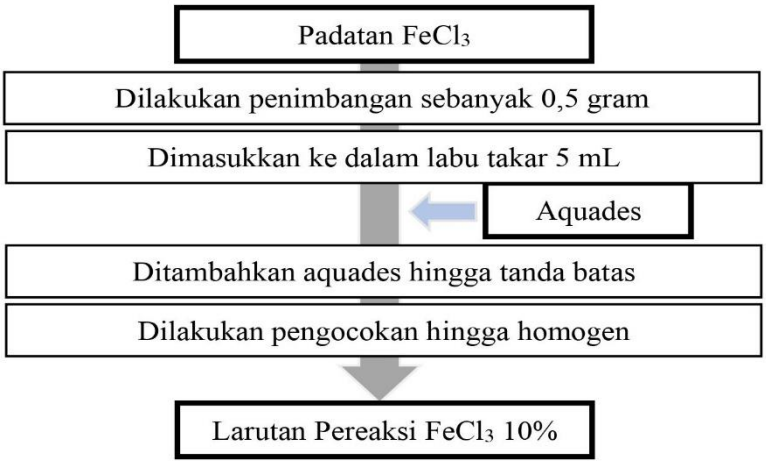
1. **Prosedur Pembuatan Larutan HCl 2N**



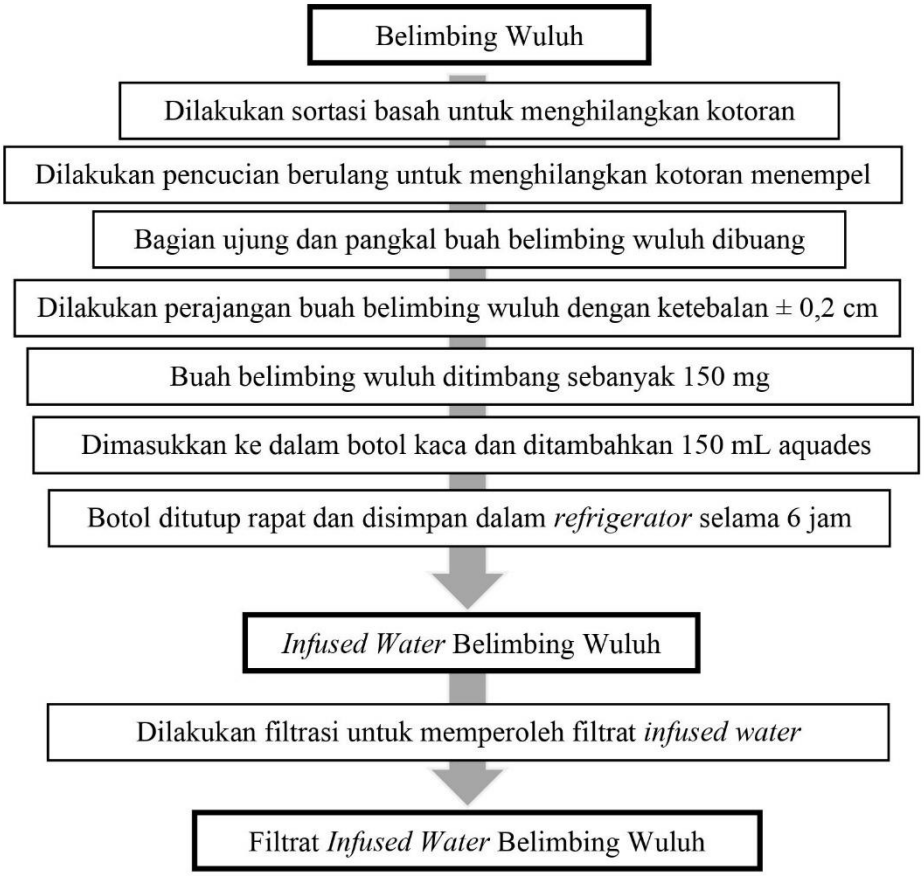
2. **Prosedur Pembuatan Larutan Pereaksi Mayer**



3. Prosedur Pembuatan Larutan Pereaksi $FeCl_3$ 10%

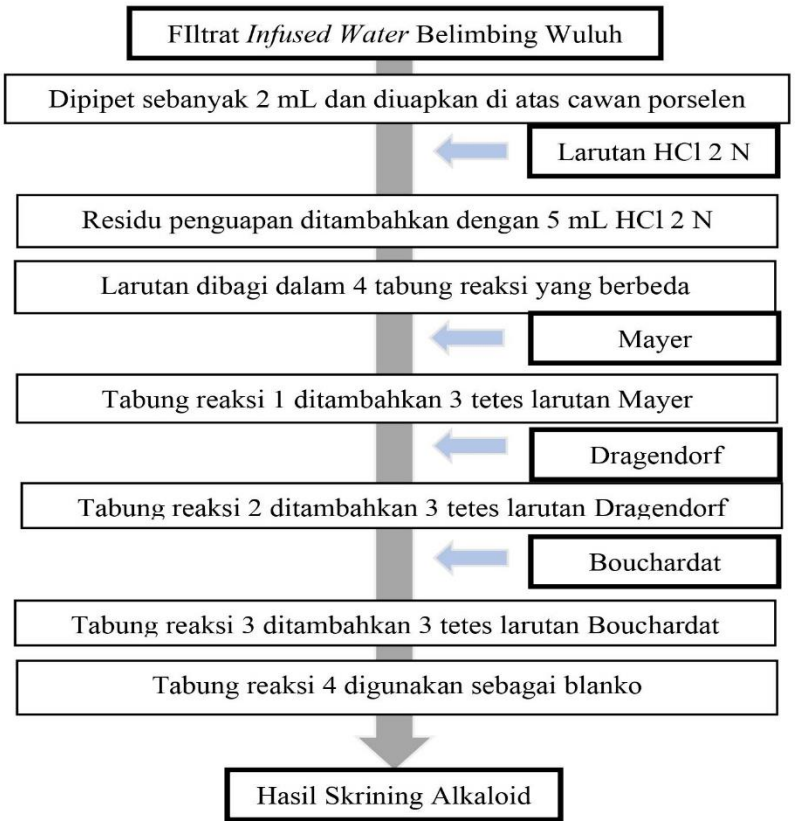


4. Prosedur Persiapan Sampel

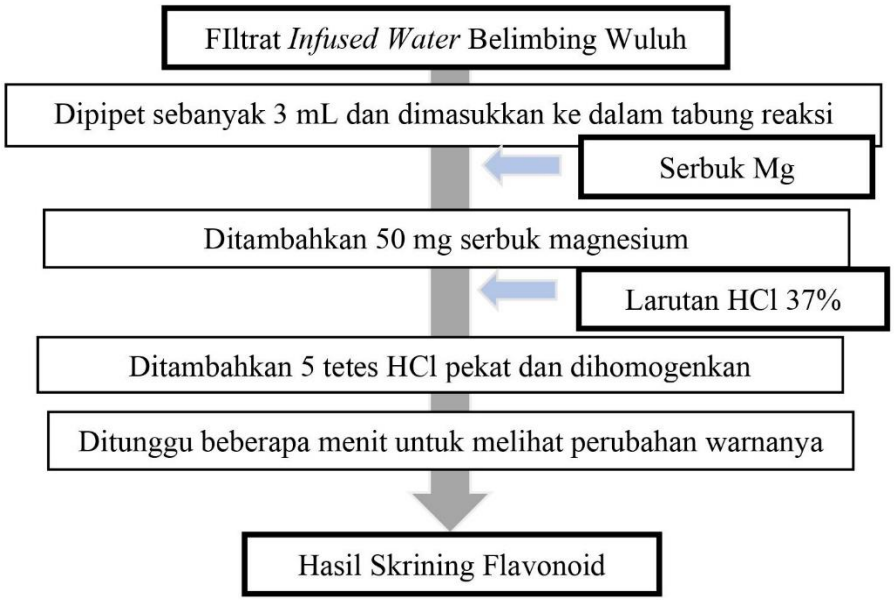


5. Prosedur Skrining Fitokimia

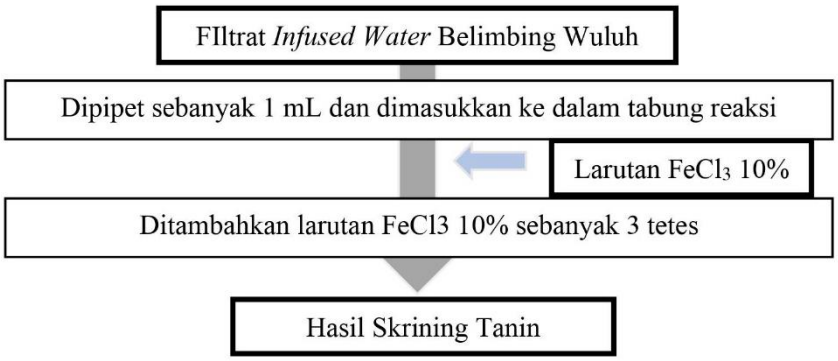
a. Skrining Alkaloid



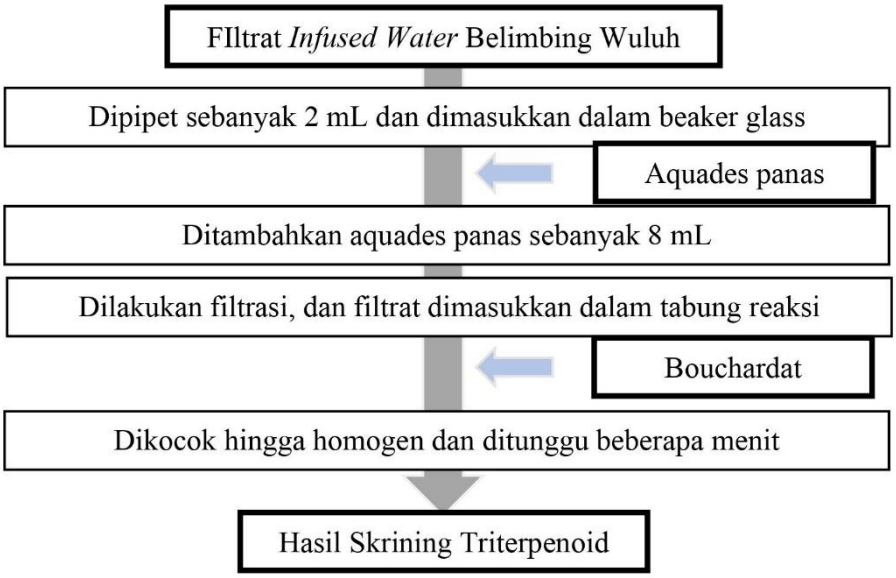
b. Skrining Flavonoid



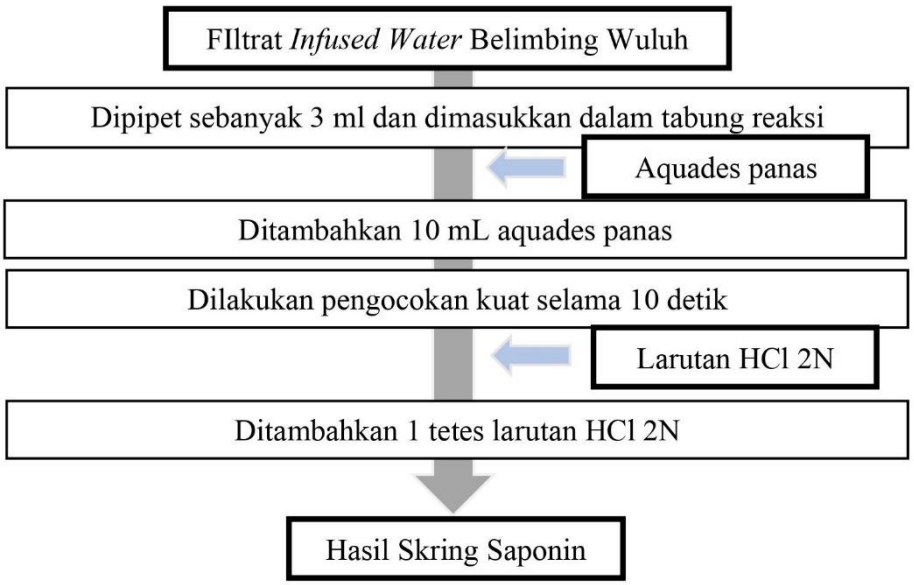
c. Skrining Tanin



d. Skrining Triterpenoid

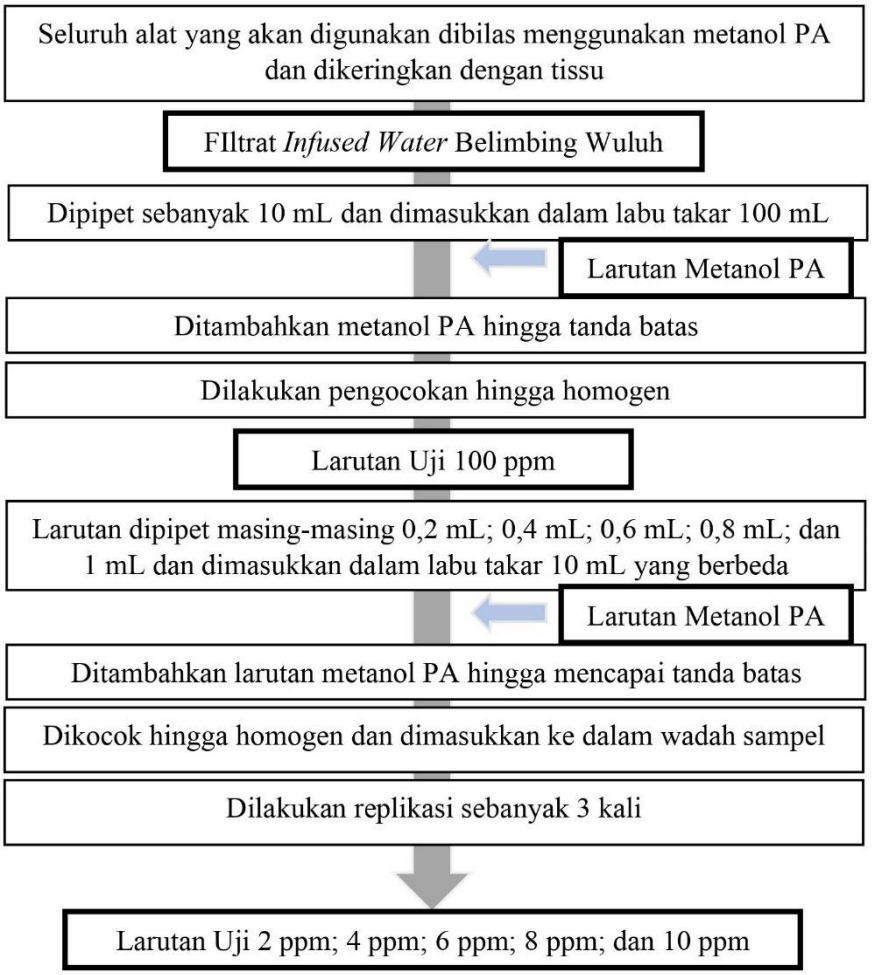


e. Skrining Saponin

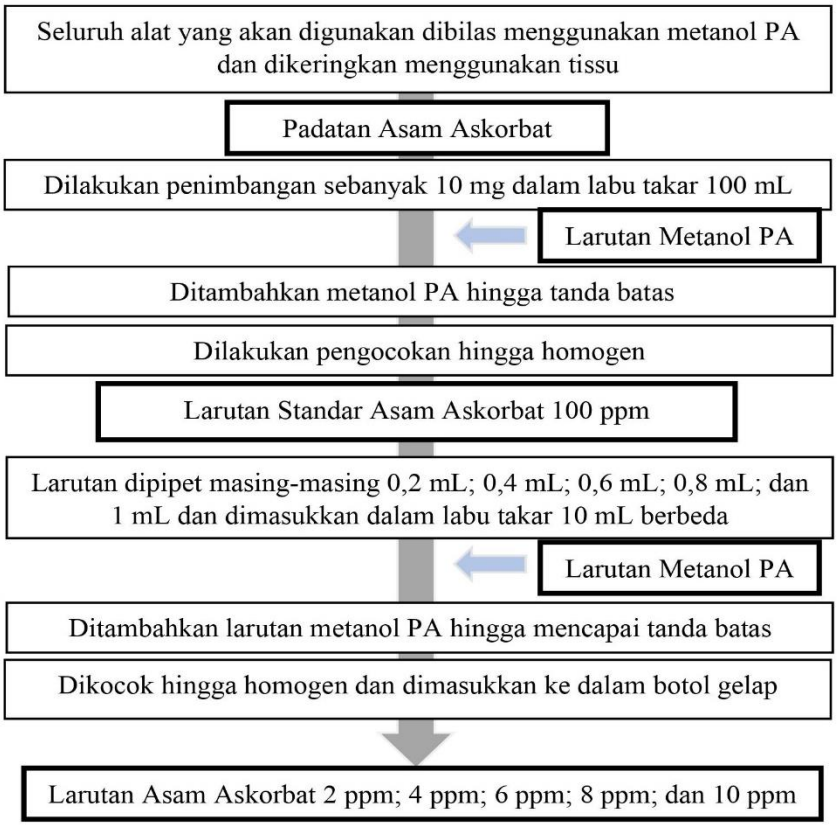


6. Prosedur Uji DPPH

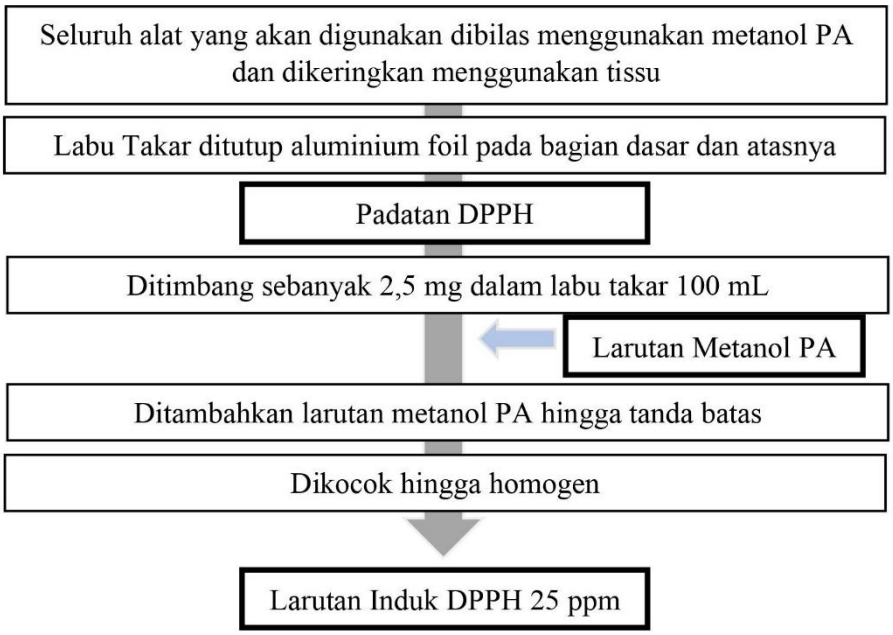
a. Pembuatan Larutan Uji *Infused Water* Belimbing Wuluh



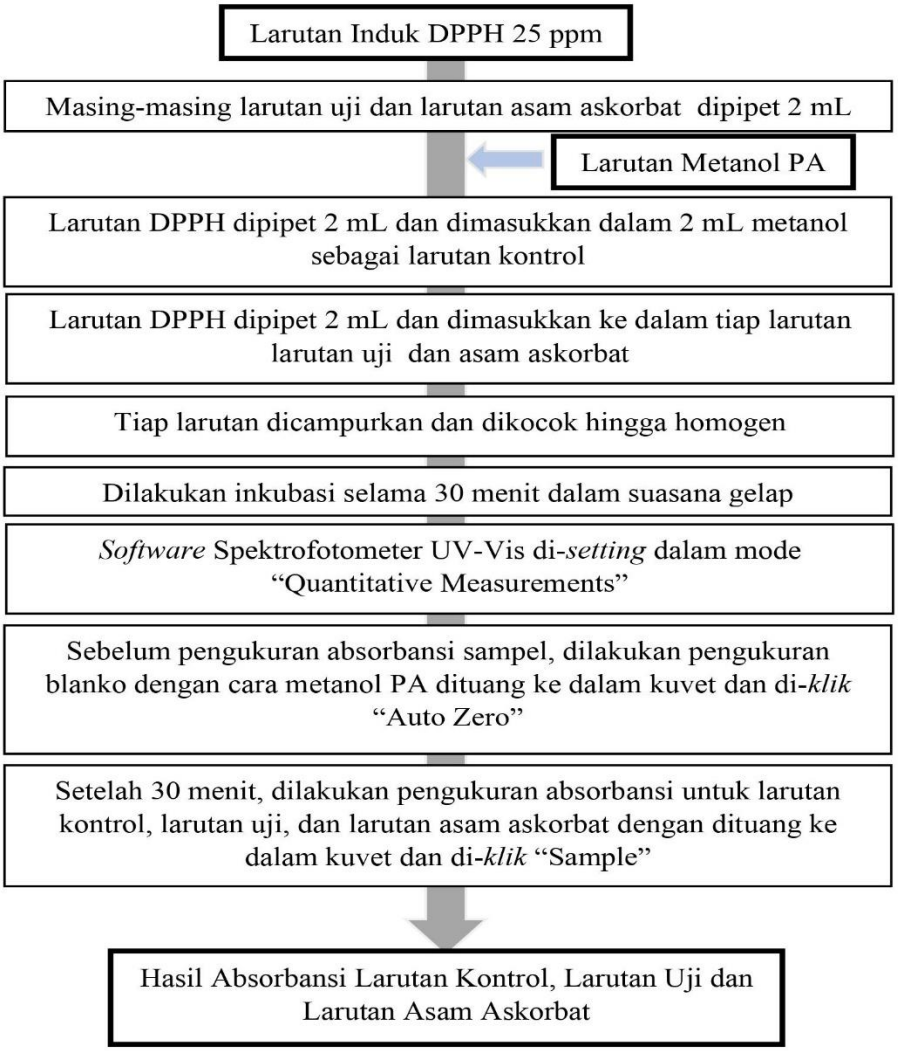
b. Pembuatan Larutan Standar Asam Askorbat



c. Pembuatan Larutan Induk DPPH



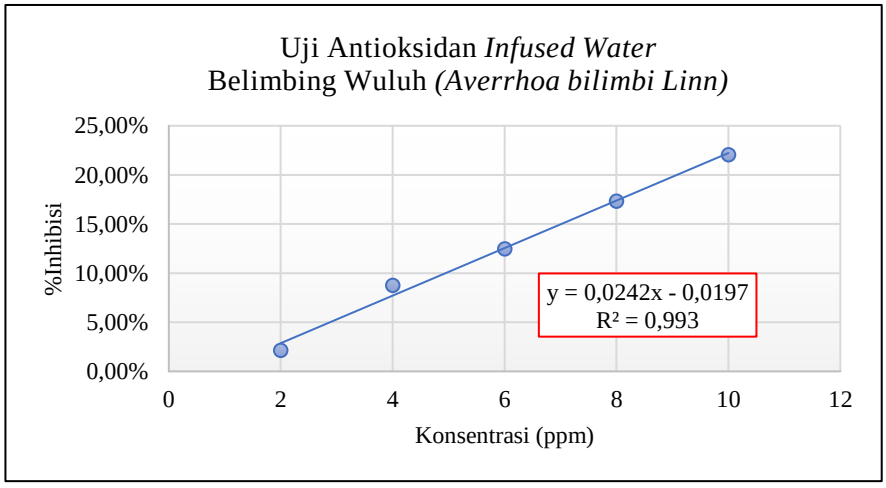
d. Penentuan Nilai Aktivitas Antioksidan dengan Metode DPPH



Lampiran 4 : Hasil Uji Aktivitas Antioksidan

Tabel 1. Hasil Uji Antioksidan Sampel *Infused Water* Belimbing Wuluh *(Averrhoa bilimbi Linn)* terhadap DPPH

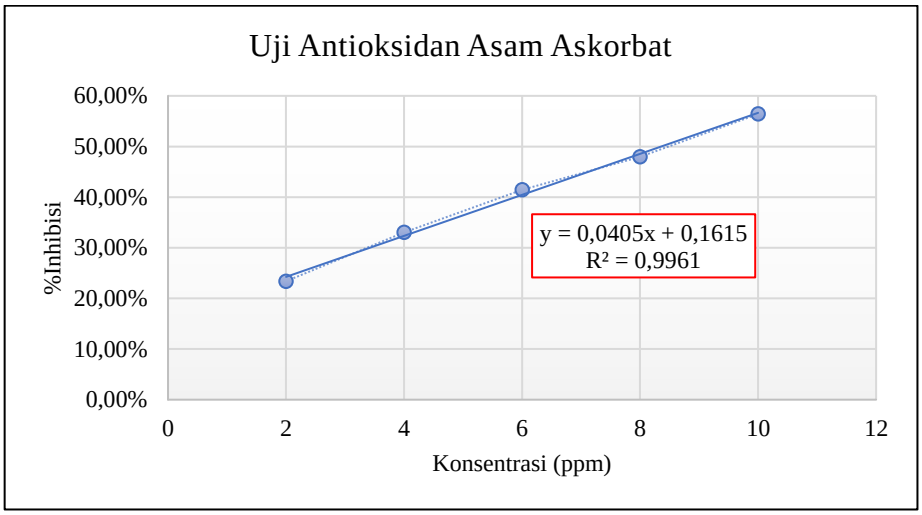
No.	Konsentrasi Sampel	Rep.	Absorbansi	Rata-rata Absorbansi	%Inhibisi	IC_{50}
1	Kontrol DPPH (25 ppm)	1	0,1257	0,1257	-	21,546 ppm
2.	2 ppm	1	0,1246	0,1230	2,15%	
		2	0,1243			
		3	0,1201			
3.	4 ppm	1	0,1176	0,1147	8,75%	
		2	0,1133			
		3	0,1132			
4.	6 ppm	1	0,1111	0,1100	12,46%	
		2	0,1106			
		3	0,1084			
5.	8 ppm	1	0,1050	0,1039	17,32%	
		2	0,1036			
		3	0,1032			
6.	10 ppm	1	0,1007	0,0979	22,06%	
		2	0,0996			
		3	0,0936			



Gambar 11. Grafik Hubungan Konsentrasi Sampel terhadap %inhibisi DPPH

Tabel 2. Hasil Uji Antioksidan Asam Arkobat terhadap DPPH

No.	Konsentrasi Sampel	Absorbansi	%Inhibisi	IC_{50}
1.	Kontrol DPPH (25 ppm)	0,1257	-	8,358 ppm
2.	2 ppm	0,0963	23,39%	
3.	4 ppm	0,0842	33,17%	
4.	6 ppm	0,0736	41,44%	
5.	8 ppm	0,0654	47,97%	
6.	10 ppm	0,0548	56,40%	



Gambar 12. Grafik Hubungan Konsentrasi Asam Askorbat terhadap %inhibisi DPPH

Lampiran 5 : Lampiran Perhitungan

1. Perhitungan Pembuatan Larutan HCl 2N

Diketahui :

- Konsentrasi Larutan HCl pekat (N_1) = 12N
- Volume Larutan (V_2) = 10 mL
- Konsentrasi Larutan (N_2) = 2N

Ditanya :

- Berapa volume larutan HCl pekat (37%) yang dibutuhkan?

Jawab :

$$N_1 \times V_1 = N_2 \times V_2$$
$$12N \times V_1 = 2 \times 10\ mL$$
$$V_1 = \frac{20\ N.mL}{N}$$
$$V_1 = 1{,}66\ mL$$

Jadi, larutan HCl pekat (37%) yang dibutuhkan sebanyak 1,66 mL.

2. Perhitungan Pembuatan Larutan Pereaksi $FeCl_3$ 1%

Diketahui :

- Konsentrasi Larutan = 10 %
- Volume Larutan = 5 mL

Ditanya :

- Berapa massa padatan $FeCl_3$ yang dibutuhkan?

Jawab :

massa = konsentrasi larutan x volume larutan
= 10 % x 5 mL
= 0,5 gram
= 500 mg

Jadi, massa padatan FeCl3 yang dibutuhkan sebanyak 500 mg.

3. Perhitungan Pembuatan Larutan Uji *Infused Water* Belimbing Wuluh

Pembuatan Larutan Induk 100 ppm :

Diketahui :

- Konsentrasi larutan *infused water* (M_1) = 1000 ppm
- Konsentrasi larutan induk (M_2) = 100 ppm
- Volume larutan induk (V_2) = 100 mL

Ditanya :

- Berapa volume larutan *infused water* belimbing wuluh yang dibutuhkan?

Jawab :

$$M1.V1 = M2 . V2$$

$$1000\ ppm .\ V1 = 100\ ppm . 100\ mL$$

$$V1 = 10\ mL$$

Jadi, volume larutan *infused water* yang dibutuhkan sebanyak 10 mL.

Pengenceran larutan dari 100 ppm menjadi 2 ppm; 4 ppm; 6 ppm; 8 ppm; dan 10 ppm.

Diketahui :

- Konsentrasi awal larutan induk (M_1) = 100 ppm
- Volume Larutan (V_2) = 10 mL

Ditanya :

- Berapa volume larutan induk yang dibutuhkan untuk membuat masing-masing konsentrasi?

Jawab :

i. 2 ppm

$$M_1 \times V_1 = M_2 \times V_2$$

$$100 \text{ ppm} \times V_1 = 2 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{20\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 0{,}2\ mL}$$

ii. 4 ppm

$$M_1 \times V_1 = M_2 \times V_2$$

$$100 \text{ ppm} \times V_1 = 4 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{40\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 0{,}4\ mL}$$

iii. 6 ppm

$$M_1 \times V_1 = M_2 \times V_2$$

$$100 \text{ ppm} \times V_1 = 6 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{60\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 0{,}6\ mL}$$

iv. 8 ppm

$$M_1 \times V_1 = M_2 \times V_2$$

$$100 \text{ ppm} \times V_1 = 8 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{80\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 0{,}8\ mL}$$

v. **10 ppm**

$$M_1 \times V_1 = M_2 \times V_2$$

$$100 \text{ ppm} \times V_1 = 10 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{100\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 1\ mL}$$

Perhitungan Pembuatan Larutan Standar Asam Askorbat

Pembuatan Larutan Induk 100 ppm :

Diketahui :

- Konsentrasi larutan = 100 ppm
- Volume Larutan = 100 mL = 0,1 L

Ditanya :

- Berapa massa padatan asam askorbat yang dibutuhkan?

Jawab :

$$\text{Konsentrasi (ppm)} = \frac{massa\ (mg)}{volume\ (L)}$$

$$100 \text{ ppm} = \frac{massa\ (mg)}{0{,}1\ L}$$

$$\text{Massa} = 0{,}1 \times 100 \text{ mg}$$

$$\text{Massa} = 10 \text{ mg}$$

Jadi, massa padatan asam askorbat yang dibutuhkan adalah sebanyak 10 mg.

Pengenceran larutan dari 100 ppm menjadi 2 ppm; 4 ppm; 6 ppm; 8 ppm; dan 10 ppm.

Diketahui :

- Konsentrasi awal (M_1) = 100 ppm
- Volume Larutan (V_2) = 10 mL

Ditanya :

- Berapa volume larutan induk yang dibutuhkan untuk membuat masing-masing konsentrasi?

Jawab :

i. 2 ppm

$$M_1 \times V_1 = M_2 \times V_2$$

$$100 \text{ ppm} \times V_1 = 2 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{20\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 0{,}2\ mL}$$

ii. 4 ppm

$$M_1 \times V_1 = M_2 \times V_2$$

$$100 \text{ ppm} \times V_1 = 4 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{40\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 0{,}4\ mL}$$

iii. 6 ppm

$$M_1 \times V_1 = M_2 \times V_2$$

$$100 \text{ ppm} \times V_1 = 6 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{60\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 0{,}6\ mL}$$

iv. 8 ppm

$$M_1 \times V_1 = M_2 \times V_2$$

$$100 \text{ ppm} \times V_1 = 8 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{80\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 0{,}8\ mL}$$

v. 10 ppm

$$M_1 \times V_1 = M_2 \times V_2$$

$$100\ ppm \times V_1 = 10\ ppm \times 10\ mL$$

$$V_1 = \frac{100\ ppm.mL}{100\ ppm}$$

$$\mathbf{V_1 = 1\ mL}$$

5. Perhitungan Pembuatan Larutan Induk DPPH

Diketahui :

- Konsentrasi larutan = 25 ppm
- Volume Larutan = 100 mL = 0,1 L

Ditanya :

- Berapa massa padatan DPPH yang dibutuhkan?

Jawab :

$$\text{Konsentrasi (ppm)} = \frac{massa\ (mg)}{volume\ (L)}$$

$$50\ ppm = \frac{massa\ (mg)}{0{,}1\ L}$$

$$\text{Massa} = 0{,}1 \times 25\ mg$$

$$\text{Massa} = 2{,}5\ mg$$

Jadi, massa padatan DPPH yang dibutuhkan adalah sebanyak 2,5 mg.

6. Perhitungan %inhibisi *Infused Water* Belimbing Wuluh *(Averrhoa bilimbi Linn)* terhadap DPPH

Diketahui :

- Hasil absorbansi kontrol DPPH = 0,1257
- Hasil absorbansi larutan uji ekstrak biji chia :
  Larutan A (3 ppm) = 0,1230

Larutan B (4 ppm) = 0,1147

Larutan C (5 ppm) = 0,1100

Larutan D (6 ppm) = 0,1039

Larutan E (7 ppm) = 0,0979

Ditanya : Berapa %inhibisi dari larutan uji *infused water* belimbing wuluh terhadap DPPH?

Jawab :

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ sampel}{Absorbansi\ kontrol}\ x\ 100\%$$

i. Larutan A (2 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol}\ x\ 100\%$$

$$\%\text{inhibisi} = \frac{0{,}1257 - 0{,}1230}{0{,}1257}\ x\ 100\%$$

$$\%\text{inhibisi} = 2{,}15\%$$

ii. Larutan B (4 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol}\ x\ 100\%$$

$$\%\text{inhibisi} = \frac{0{,}1257 - 0{,}1147}{0{,}1257}\ x\ 100\%$$

$$\%\text{inhibisi} = 8{,}75\%$$

iii. Larutan C (6 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol}\ x\ 100\%$$

$$\%\text{inhibisi} = \frac{0{,}1257 - 0{,}1100}{0{,}1257}\ x\ 100\%$$

$$\%\text{inhibisi} = 12{,}46\%$$

iv. Larutan D (8 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol}\ x\ 100\%$$

$$\%\text{inhibisi} = \frac{0{,}1257 - 0{,}1039}{0{,}1257}\ x\ 100\%$$

%inhibisi = 17,32%

v. Larutan E (10 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol}\ x\ 100\%$$

$$\%\text{inhibisi} = \frac{0,1257 - 0,0979}{0,1257}\ x\ 100\%$$

%inhibisi = 22,06%

7. Perhitungan %inhibisi Asam Askorbat terhadap DPPH

Diketahui :

- Hasil absorbansi blanko = 0,1257
- Hasil absorbansi larutan uji ekstrak biji chia :

  Larutan A (3 ppm) = 0,0963

  Larutan B (4 ppm) = 0,0842

  Larutan C (5 ppm) = 0,0736

  Larutan D (6 ppm) = 0,0654

  Larutan E (7 ppm) = 0,0548

Ditanya : Berapa %inhibisi dari larutan uji asam askorbat terhadap DPPH?

Jawab :

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol}\ x\ 100\%$$

i. Larutan A (2 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol}\ x\ 100\%$$

$$\%\text{inhibisi} = \frac{0,1257 - 0,0963}{0,1257}\ x\ 100\%$$

%inhibisi = 23,39%

ii. Larutan B (4 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol}\ x\ 100\%$$

$$\%\text{inhibisi} = \frac{0{,}1257 - 0{,}0842}{0{,}1257} \; x\; 100\%$$

$$\%\text{inhibisi} = 33{,}17\%$$

iii. Larutan C (6 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol} \; x\; 100\%$$

$$\%\text{inhibisi} = \frac{0{,}1257 - 0{,}0736}{0{,}1257} \; x\; 100\%$$

$$\%\text{inhibisi} = 41{,}44\%$$

iv. Larutan D (8 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol} \; x\; 100\%$$

$$\%\text{inhibisi} = \frac{0{,}1257 - 0{,}0654}{0{,}1257} \; x\; 100\%$$

$$\%\text{inhibisi} = 47{,}97\%$$

v. Larutan E (10 ppm)

$$\%\text{inhibisi} = \frac{Absorbansi\ kontrol - Aborbansi\ standar}{Absorbansi\ kontrol} \; x\; 100\%$$

$$\%\text{inhibisi} = \frac{0{,}1257 - 0{,}0548}{0{,}789} \; x\; 100\%$$

$$\%\text{inhibisi} = 56{,}40\%$$

8. Perhitungan Regresi dan IC_{50} *Infused Water* Belimbing Wuluh *(Averrhoa bilimbi Linn)*

Tabel 3. Perhitungan Persamaan Regresi Infused Water Belimbing Wuluh (Averrhoa bilimbi Linn)

No.	X (ppm)	Y (Abs)	X^2	Y^2	XY
1.	2	0,0215	4	0,000461	0,042959
2.	4	0,875	16	0,007658	0,350040
3.	6	0,1246	36	0,015533	0,747812
4.	8	0,1731	64	0,029986	1,385309
5.	10	0,2206	100	0,048678	2,206311
Σ	**30**	**0,6274**	**220**	**0,102317**	**4,732431**

Penentuan Persamaan Regresi

$$\mathbf{a} = \frac{n\,(\Sigma XY) - (\Sigma X)(\Sigma Y)}{n\,(\Sigma X^2) - (\Sigma X)^2}$$

$$\mathbf{a} = \frac{5\,(4{,}732431) - (30)(0{,}6274)}{5\,(220) - (30)^2}$$

$$\mathbf{a} = \frac{23{,}66221586 - 18{,}8225934}{1100 - 900}$$

$$\mathbf{a} = \frac{4{,}8395652}{200}$$

$$\mathbf{a} = 0{,}02419786$$

$$\mathbf{a} = 0{,}0242$$

$$\mathbf{b} = \frac{(\Sigma Y)\,(\Sigma X^2) - (\Sigma X)\,(\Sigma XY)}{n\,(\Sigma X^2) - (\Sigma X)^2}$$

$$\mathbf{b} = \frac{(0{,}62741928)\,(220) - (30)(4{,}73243172)}{5\,(220) - (30)^2}$$

$$\mathbf{b} = \frac{138{,}0323516 - 141{,}9729516}{1100 - 900}$$

$$\mathbf{b} = \frac{-\,3{,}9406}{200}$$

$$\mathbf{b} = -\,0{,}0197$$

Persamaan Regresi Linear :

$$y = ax + b$$

$$y = 0{,}0242x - 0{,}0197$$

Perhitungan Nilai IC_{50}

$$y = 0{,}0242x - 0{,}0197$$

$$50\% = 0{,}0242x - 0{,}0197$$

$$0{,}5 = 0{,}0242x - 0{,}0197$$

$$0{,}0242x = 0{,}5 + 0{,}0197$$

$$0{,}0242x = 0{,}5197$$

$$X = \frac{0{,}5197}{0{,}0242}$$

$$\mathbf{X = 21{,}475\ ppm}$$

9. Perhitungan Regresi dan Nilai IC_{50} Asam Askorbat

Tabel 4. Perhitungan Persamaan Regresi Asam Askorbat

No.	X (ppm)	Y (Abs)	X^2	Y^2	XY
1.	2	0,2339	4	0,05470	0,4677
2.	4	0,3302	16	0,10900	1,3206
3.	6	0,4145	36	0,17179	2,4869
4.	8	0,4797	64	0,23012	3,8377
5.	10	0,5640	100	0,31814	5,6404
Σ	**30**	**2,0223**	**220**	**0,88376**	**13,7534**

Penentuan Persamaan Regresi

$$\mathbf{a} = \frac{n\,(\Sigma XY) - (\Sigma X)(\Sigma Y)}{n\,(\Sigma X^2) - (\Sigma X)^2}$$

$$\mathbf{a} = \frac{5\,(13{,}75338107) - (30)(2{,}02227529)}{5\,(220) - (30)^2}$$

$$\mathbf{a} = \frac{68{,}76690533 - 60{,}66825777}{1100 - 900}$$

$$\mathbf{a} = \frac{8{,}09864756}{200}$$

$$\mathbf{a} = 0{,}040493238$$

$$\mathbf{a} = 0{,}0405$$

$$\mathbf{b} = \frac{(\Sigma Y)\,(\Sigma X^2) - (\Sigma X)\,(\Sigma XY)}{n\,(\Sigma X^2) - (\Sigma X)^2}$$

$$\mathbf{b} = \frac{(12{,}022275259)\,(220) - (30)(13{,}75338107)}{5\,(220) - (30)^2}$$

$$\mathbf{b} = \frac{444{,}900557 - 412{,}601432}{1100 - 900}$$

$$\mathbf{b} = \frac{32{,}299125}{200}$$

$$\mathbf{b} = 0{,}161495625$$

$$\mathbf{b} = 0{,}1615$$

Persamaan Regresi Linear :

$$y = ax + b$$

$$y = 0{,}0405x + 0{,}1615$$

Perhitungan Nilai IC_{50}

$$y = 0{,}0405x + 0{,}1615$$

$$50\% = 0{,}0405x + 0{,}1615$$

$$0{,}5 = 0{,}0405x + 0{,}1615$$

$$0{,}0405x = 0{,}5 - 0{,}1615$$

$$0{,}0405x = 0{,}3385$$

$$X = \frac{0{,}3385}{0{,}0405}$$

$$\mathbf{X = 8{,}358\ ppm}$$