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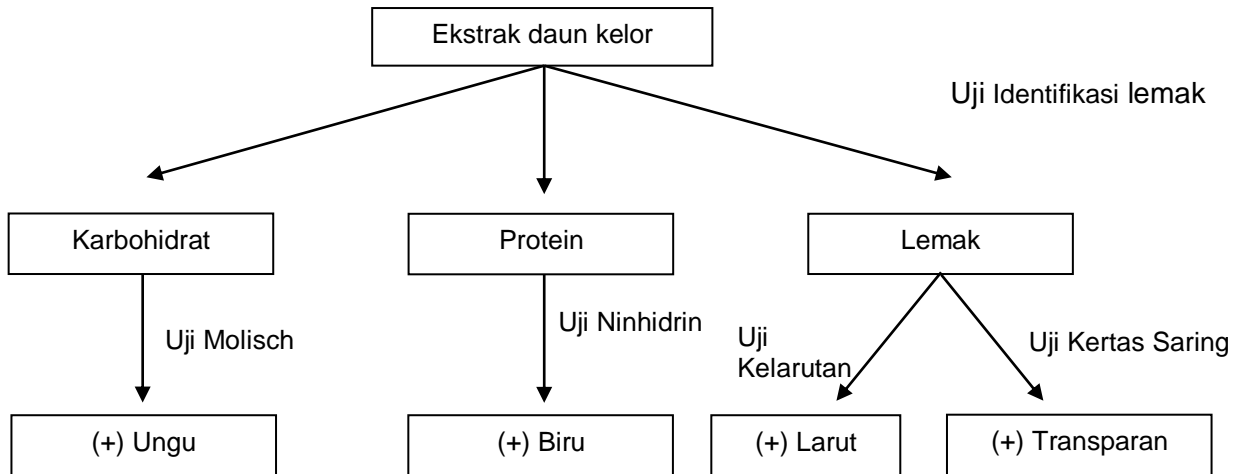
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LAMPIRAN

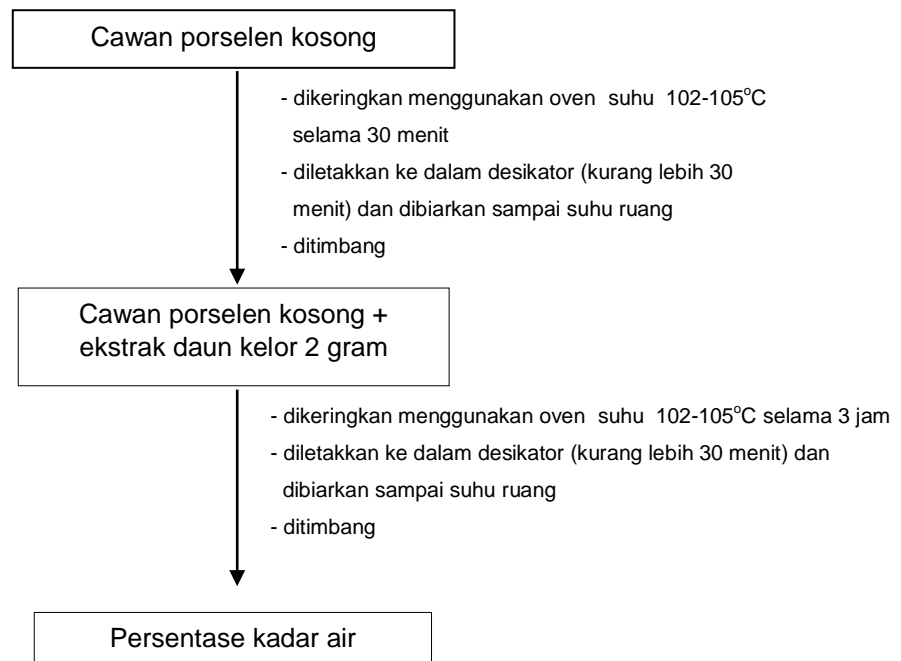
Lampiran 1. Skema kerja penelitian

1) Identifikasi Kandungan Proksimat

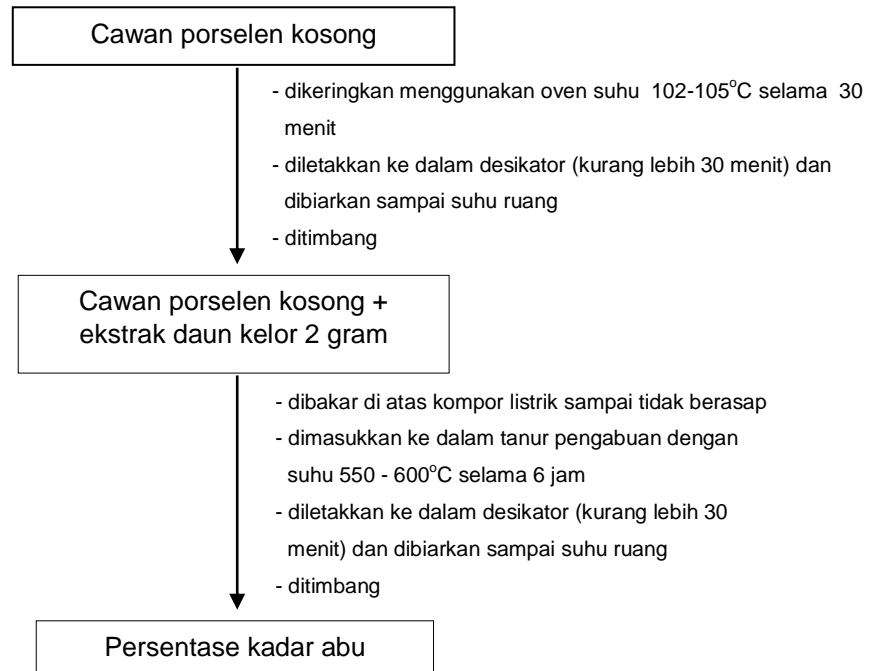


2) Analisis Proksimat

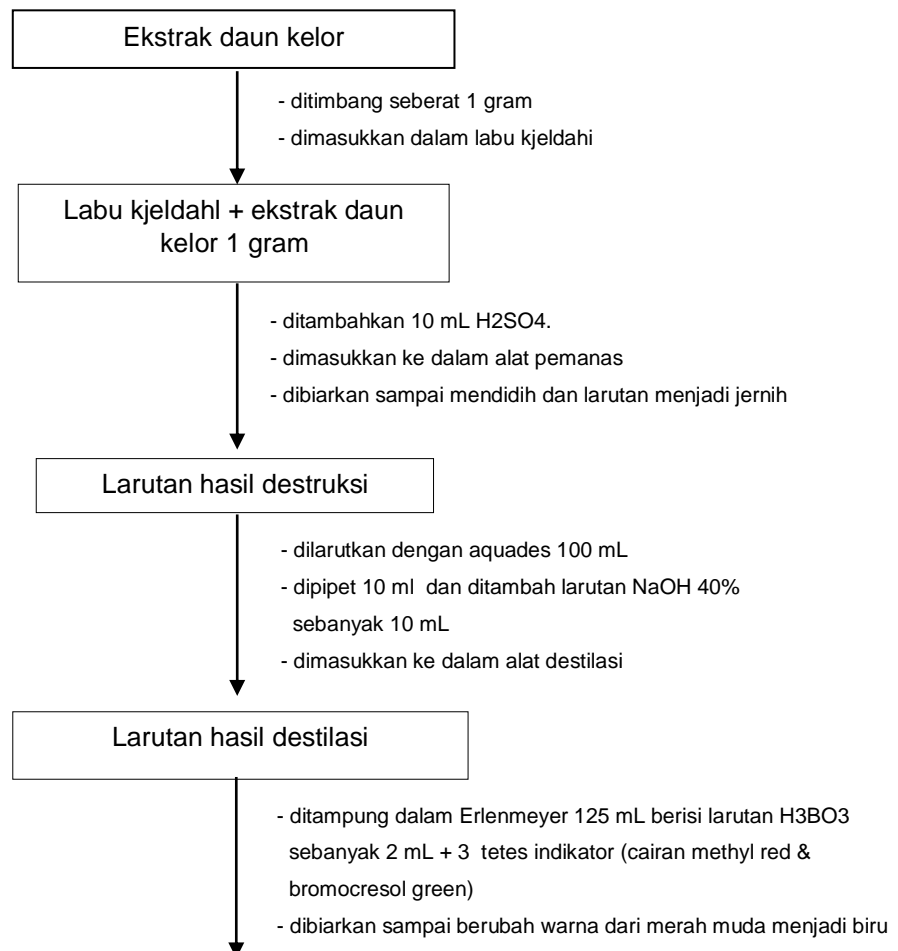
Analisis Kadar Air

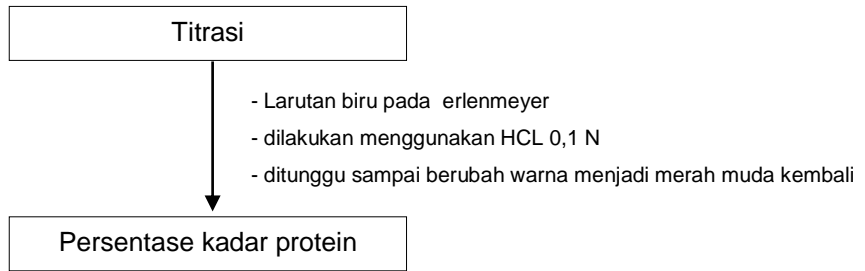


Analisis Kadar Abu

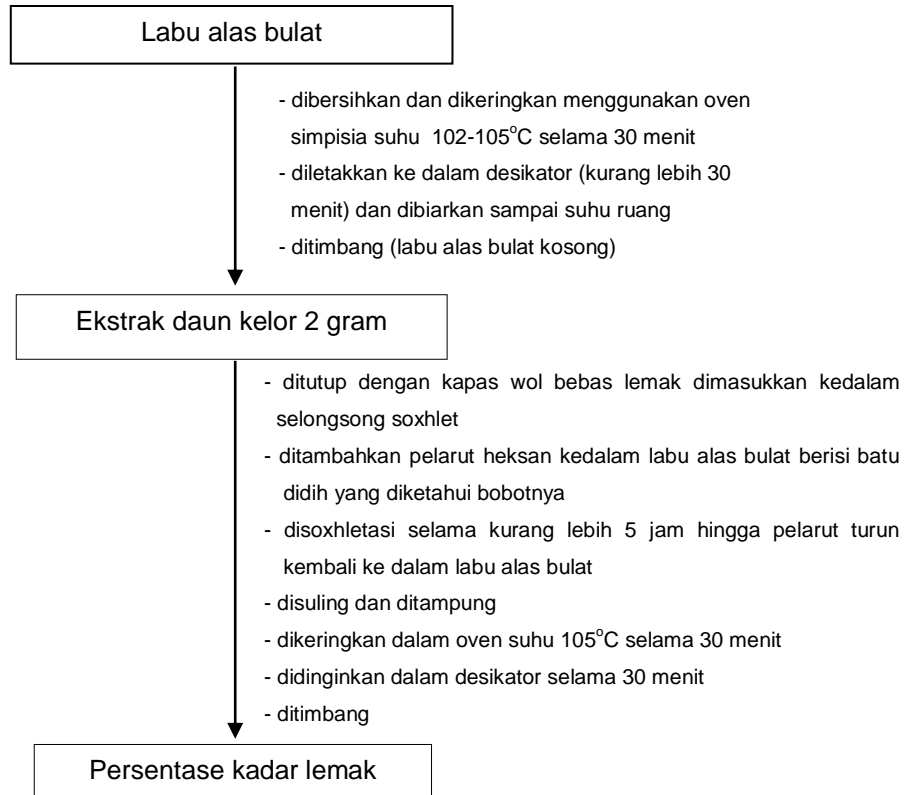


Analisis Protein

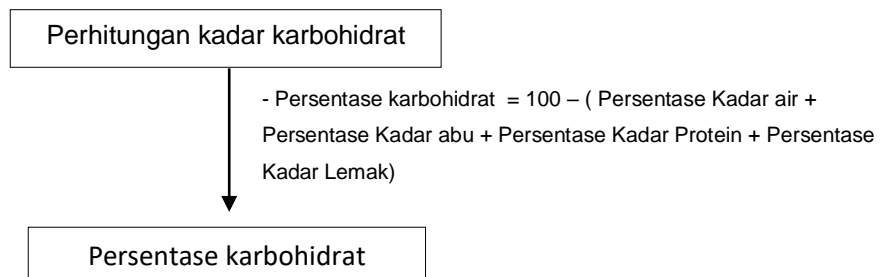




Analisis Lemak

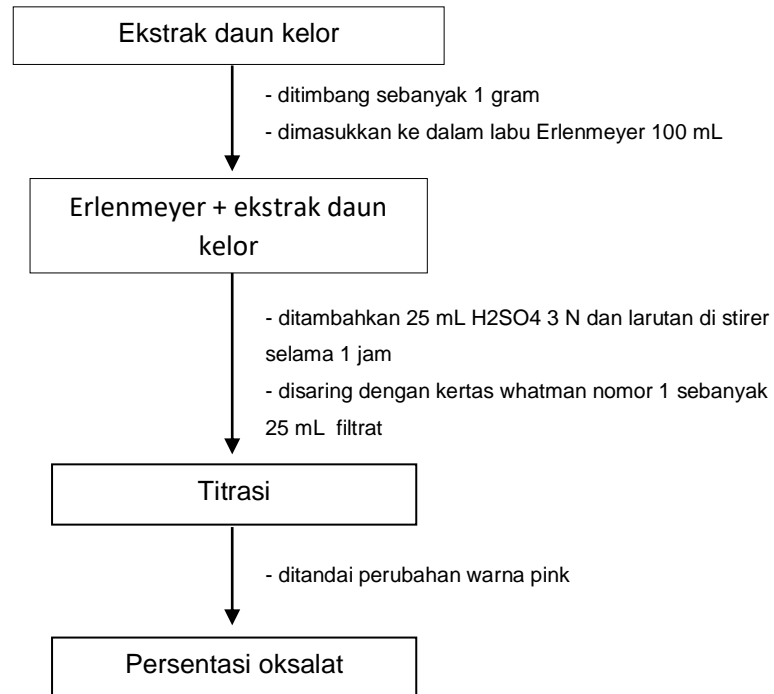


Analisis Karbohidrat

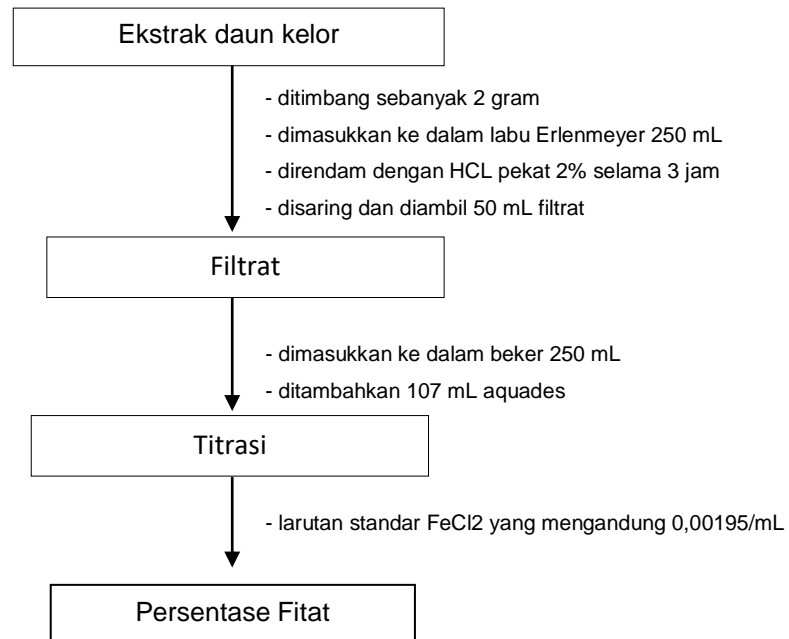


3) Analisis Antinutrien

Analisis Oksalat



Analisis Fitat



Lampiran 2. Data perhitungan

1. Persentase Rendamen

Pelarut	Bobot Simplisia (g)	Bobot Ekstrak (g)	%Rendamen
Etanol 70%	100,09	24,24	24,22 %

Perhitungan rendamen :

$$\begin{aligned} \%Rendamen &= \frac{\text{Bobot hasil ekstraksi}}{\text{bobot simplisia}} \times 100\% \\ &= \frac{24,24}{100,09} \times 100\% \\ &= 24,2182 \% \end{aligned}$$

2. Kadar Air

Replikasi	Bobot ekstrak (g)	Cawan Kosong + Bobot Awal (g)	Cawan Kosong + Bobot Akhir (g)	Kadar Air (%)	Rata – Rata (%)
1	2,0014	63,36151	62,9475	20,6855	
2	2,0015	59,0516	58,6315	20,9892	20,7723
3	2,0017	48,3748	47,9616	20,6424	

Perhitungan kadar air :

$$\%kadar\ air = \frac{(\text{Cawan Kosong} + \text{bobot awal}) - (\text{cawan kosong} + \text{bobot akhir})}{\text{bobot ekstrak}} \times 100\%$$

$$\begin{aligned} \text{Replikasi 1 } \%Kadar\ air &= \frac{63,36151 - 62,9475}{2,0014} \times 100\% \\ &= 20,6855 \% \end{aligned}$$

$$\begin{aligned} \text{Replikasi 2 } \%Kadar\ air &= \frac{59,0516 - 58,6315}{2,0015} \times 100\% \\ &= 20,9892 \% \end{aligned}$$

$$\begin{aligned} \text{Replikasi 3 } \%Kadar\ air &= \frac{48,3748 - 47,9616}{2,0017} \times 100\% \\ &= 20,6424 \% \end{aligned}$$

3. Kadar Abu

Replikasi	Bobot ekstrak (g)	Bobot Cawan Kosong (g)	Bobot Cawan Kosong + Abu (g)	Kadar Abu (%)	Rata – Rata (%)
1	2,0012	22,9620	23,1222	8,0051	
2	2,0006	26,6720	26,8022	6,5080	6,9166
3	2,0010	24,7024	24,8272	6,2368	

Perhitungan kadar abu :

$$\% \text{kadar abu} = \frac{(\text{bobot cawan kosong}) - (\text{bobot cawan kosong} + \text{abu})}{\text{bobot ekstrak}} \times 100\%$$

$$\begin{aligned} \text{Replikasi 1 \%Kadar abu} &= \frac{23,1222 - 22,9620}{2,0012} \times 100\% \\ &= 8,0051 \% \end{aligned}$$

$$\begin{aligned} \text{Replikasi 2 \%Kadar abu} &= \frac{26,8022 - 26,6720}{2,0006} \times 100\% \\ &= 6,5080 \% \end{aligned}$$

$$\begin{aligned} \text{Replikasi 3 \%Kadar abu} &= \frac{24,8272 - 24,8272}{2,0010} \times 100\% \\ &= 6,2368 \% \end{aligned}$$

4. Kadar Lemak Kasar

Replikasi	Bobot ekstrak (g)	Bobot labu sebelum (g)	Bobot labu setelah + Abu (g)	Kadar Lemak (%)	Rata – Rata (%)
1	2,0001	158,3173	158,3183	0,0499	
2	2,0001	155,6567	155,6576	0,0449	0,4656
3	2,0001	229,2283	229,2292	0,0449	

Perhitungan kadar lemak :

$$\% \text{kadar lemak} = \frac{\text{bobot labu setelah} - \text{bobot labu sebelum}}{\text{bobot ekstrak}} \times 100\%$$

$$\text{Replikasi 1 \%Kadar lemak} = \frac{158,3183 - 158,3173}{2,0001} \times 100\% = 0,0499 \%$$

$$\text{Replikasi 2 \%Kadar lemak} = \frac{155,6576 - 155,6567}{2,0001} \times 100\%$$

$$= 0,0449 \%$$

$$\text{Replikasi 3 \%Kadar lemak} = \frac{229,2292 - 229,2272}{2,0001} \times 100\%$$

$$= 0,0449 \%$$

5. Kadar Protein

Replikasi	Bobot ekstrak (g)	Kadar Protein (%)	Rata – Rata (%)
1	2	14,15	
2	2	14,25	14,21
3	2	14,23	

Persentase kadar protein per gram = 7,105

6. Kadar Karbohidrat

Tabel 12. Penetapan Gula Menurut Luff School

Na ₂ S ₂ O ₃ 0,1N (mL)	Glukosa, Fruktosa, Gula Inversi (mg)
1	2,4
2	4,8
3	7,2
4	9,7
5	12,2
6	14,7
7	17,2
8	19,8
9	22,4
10	25,0
11	27,6
12	30,3
13	33,0
14	35,7
15	39,5
16	41,3
17	44,2

18	47,1
19	50,0
20	53,0
21	56,0
22	59,1
23	62,2

Replikasi	Bobot ekstrak (g)	Kadar Karbohidrat (%)
1	2	64,7405

%Kadar karbohidrat = 100% - (%Kadar air + %kadar abu + %kadar lemak + %kadar protein)

$$\begin{aligned} \text{\%Kadar karbohidrat} &= 100\% - (20,7723 + 6,9166 + 0,4656 + 7,105) \\ &= 100 - 35,2595 \\ &= 64,7405\% \end{aligned}$$

7. Kadar Asam Oksalat

Berat ekuivalen/setara = 0,6303

Faktor koreksi = 0,1

Volume titran = 1,75-1,5 = 0,25 mL

Bobot sampel (g)	Volume Titran (mL)	Normalitas Titran (N)	Kadar Asam Oksalat (%)
1,0046	0,25	0,10344	1,61755

Perhitungan kadar asam oksalat

$$\text{\%Kadar} = \frac{\text{Volume titran} \times \text{Normalitas titran} \times \text{berat ekuivalen}}{\text{berat sampel} \times \text{faktor koreksi}} \times 100\%$$

$$\% \text{Kadar asam oksalat} = \frac{0,25 \times 0,110344 \times 0,6303}{1,0046 \times 0,1} \times 100\%$$

$$\% \text{Kadar asam oksalat} = 1,61755 \%$$

8. Kadar Asam Fitat

Berat ekuivalen/setara = 0,00195

Faktor koreksi = 1

Volume titran = 11-6 = 5 mL

Bobot sampel (g)	Volume Titran (mL)	Normalitas Titran (N)	Kadar Asam Oksalat (%)
1	5	1,19	1,16025

Perhitungan kadar asam fitat

$$\% \text{Kadar} = \frac{\text{Volume titran} \times \text{Normalitas titran} \times \text{berat ekuivalen}}{\text{berat sampel} \times \text{faktor koreksi}} \times 100\%$$

$$\% \text{Kadar asam fitat} = \frac{5 \times 1,19 \times 0,00195}{1 \times 1} \times 100\%$$

$$\% \text{Kadar asam fitat} = 1,16025 \%$$

9. Kadar Proksimat & Kadar Antinutrisi per 100 gram

Tabel 13. Kadar proksimat per 100 gram sampel ekstrak daun kelor (*Moringa oleifera* Lamk)

No	Komponen Proksimat	Bobot sampel pengujian (g)	Kadar Hasil pengujian (%)	Kadar per 100 gram (%)
1	Kadar Air	2	20,7723	1038,615
2	Kadar Abu	2	6,9166	345,83
3	Kadar Lemak	2	0,3159	15,795
4	Kadar Protein	2	14,21	710,5
5	Kadar Karbohidrat	2	64,8902	3,244,51

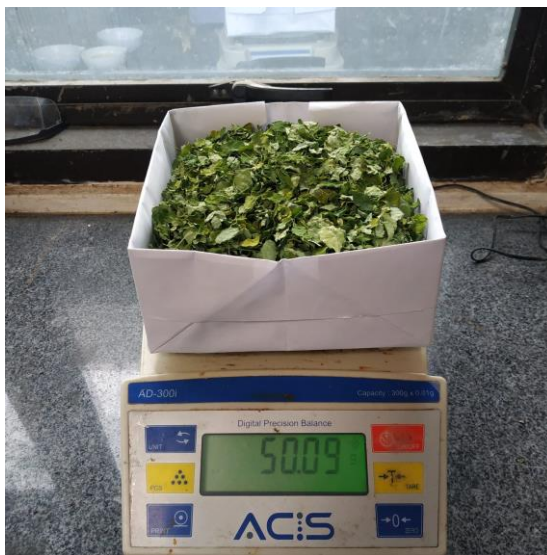
Tabel 14. Kadar antinutrien per 100 gram sampel ekstrak daun kelor (*Moringa oleifera* Lamk)

No	Komponen Antinutrisi	Bobot sampel pengujian (g)	Kadar Hasil pengujian (%)	Kadar per 100 gram (%)
1	Asam Oksalat	1	1,61755	161,755
2	Asam Fitat	1	1,16025	116,025

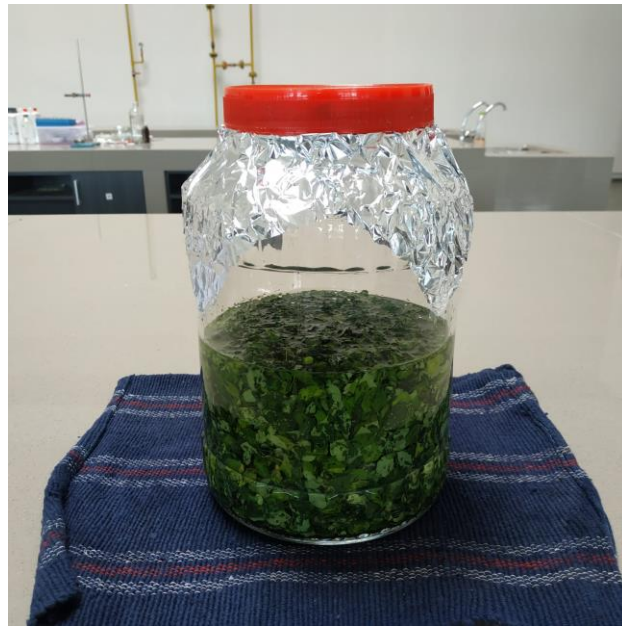
Lampiran 3. Gambar penelitian



Gambar 2. Daun Kelor (*Moringa oleifera* Lamk)



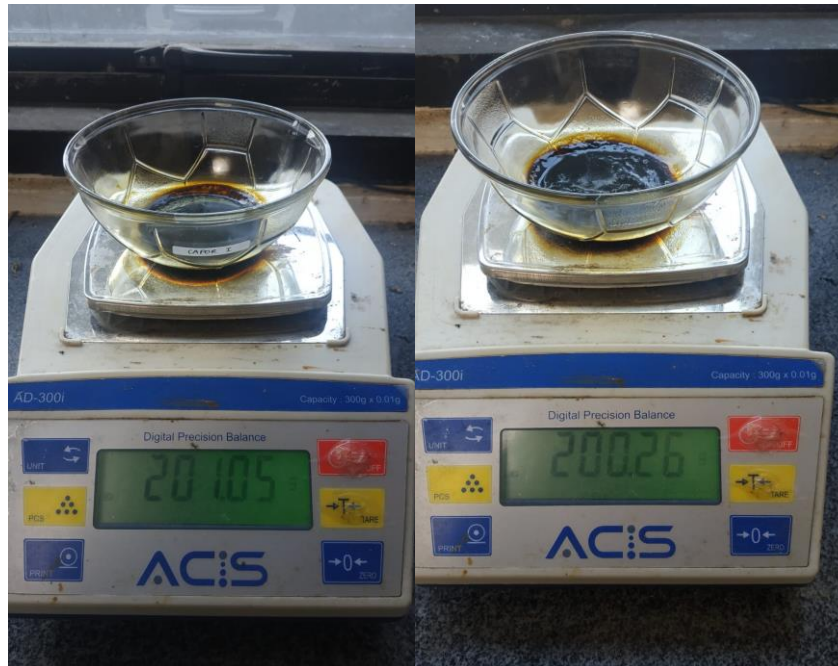
Gambar 3. Simplisia Daun Kelor (*Moringa oleifera* Lamk)



Gambar 4. Ekstraksi Daun Kelor (*Moringa oleifera* Lamk) dengan metode maserasi



Gambar 5. Penguapan pelarut ekstrak Daun Kelor (*Moringa oleifera* Lamk) dengan *rotary evaporator*



Gambar 6. Ekstrak Daun Kelor (*Moringa oleifera* Lamk)



Gambar 7. Penetapan kadar air ekstrak Daun Kelor (*Moringa oleifera* Lamk)



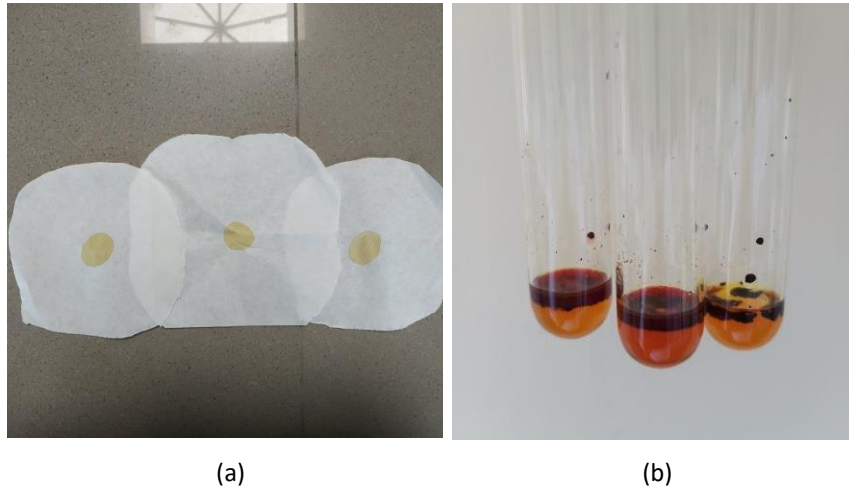
Gambar 8. Penetapan kadar abu ekstrak Daun Kelor (*Moringa oleifera* Lamk)



Gambar 9. Identifikasi protein ekstrak Daun Kelor (*Moringa oleifera* Lamk)



Gambar 10. Identifikasi karbohidrat ekstrak Daun Kelor (*Moringa oleifera* Lamk)



Gambar 11. Identifikasi lemak ekstrak Daun Kelor (*Moringa oleifera* Lamk) dengan kertas saring (a) dan uji kelarutan lipid (b)



Gambar 12. Penetapan kadar lemak ekstrak Daun Kelor (*Moringa oleifera* Lamk) dengan metode sokhletasi



Gambar 13. Penetapan kadar asam oksalat ekstrak Daun Kelor (*Moringa oleifera* Lamk)



Gambar 14. Penetapan kadar asam fitat ekstrak Daun Kelor (*Moringa oleifera* Lamk)