

DAFTAR PUSTAKA

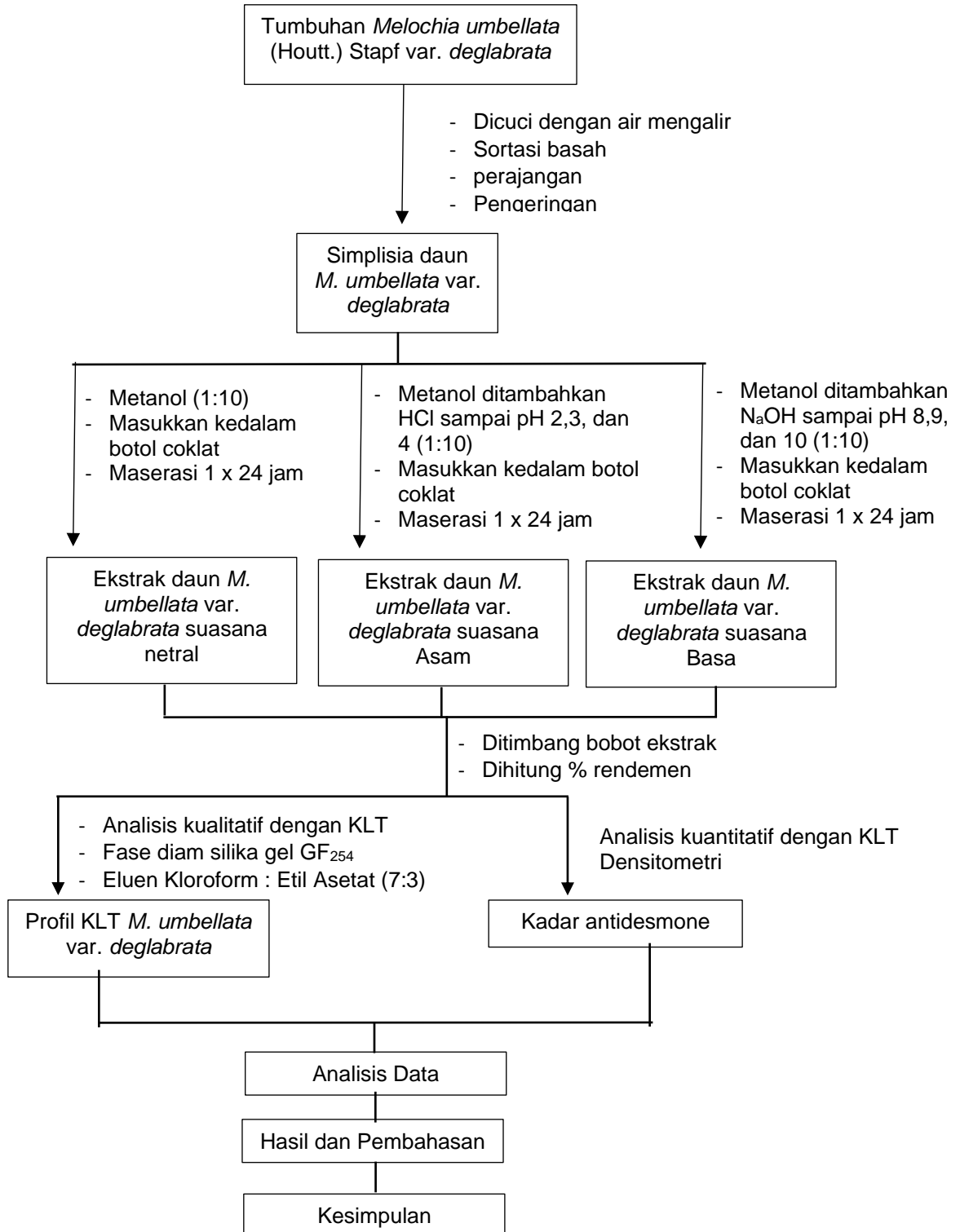
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LAMPIRAN

Lampiran 1. Skema Kerja



Lampiran 2. Luas Area (AUC)

Tabel 4. Nilai AUC ekstrak

Ekstrak	Luas area
Ekstrak N ₁	2118,3
Ekstrak N ₂	1410,1
Ekstrak N ₃	1472,0
Ekstrak A2 ₁	2774,8
Ekstrak A2 ₂	3501,6
Ekstrak A2 ₃	3676,8
Ekstrak A3 ₁	2490,5
Ekstrak A3 ₂	2762,0
Ekstrak A3 ₃	3081,6
Ekstrak A4 ₁	2542,0
Ekstrak A4 ₂	2367,7
Ekstrak A4 ₃	3098,6
Ekstrak B8 ₁	4548,0
Ekstrak B8 ₂	4912,0
Ekstrak B8 ₃	5034,6
Ekstrak B9 ₁	3870,3
Ekstrak B9 ₂	4500,6
Ekstrak B9 ₃	4740,2
Ekstrak B10 ₁	1678,3
Ekstrak B10 ₂	1642,2
Ekstrak B10 ₃	1853,9

Lampiran 3. Perhitungan

Lampiran 3.1 Perhitungan Rendemen

Rumus persentase rendemen yang diperoleh:

$$\% \text{Rendemen} = \frac{\text{Bobot Ekstrak (g)}}{\text{Bobot Simplisia (g)}} \times 100\%$$

Contoh perhitungan

a. Netral

- **Replikasi 1**

$$\begin{aligned} \% \text{Rendemen} &= \frac{\text{Bobot Ekstrak (g)}}{\text{Bobot Simplisia (g)}} \times 100\% \\ &= \frac{1,62 \text{ g}}{1000 \text{ g}} \times 100 \\ &= 0,162 \% \end{aligned}$$

- **Replikasi 2**

$$\% \text{Rendemen} = 0,152 \%$$

- **Replikasi 3**

$$\% \text{Rendemen} = 0,171 \%$$

b. pH 2

- **Replikasi 1**

$$\% \text{Rendemen} = 0,226 \%$$

- **Replikasi 2**

$$\% \text{Rendemen} = 0,188 \%$$

- **Replikasi 3**

$$\% \text{Rendemen} = 0,219 \%$$

II.4 pH 3

- **Replikasi 1**

$$\% \text{Rendemen} = 0,252 \%$$

- **Replikasi 2**

%Rendemen = 0,172 %

- **Replikasi 3**

%Rendemen = 0,171 %

II.5 pH 4

- **Replikasi 1**

%Rendemen = 0,141 %

- **Replikasi 2**

%Rendemen = 0,133 %

- **Replikasi 3**

%Rendemen = 0,178 %

II.6 pH 8

- **Replikasi 1**

%Rendemen = 0,153 %

- **Replikasi 2**

%Rendemen = 0,122 %

- **Replikasi 3**

%Rendemen = 0,116 %

II.7 pH 9

- **Replikasi 1**

%Rendemen = 0,154 %

- **Replikasi 2**

%Rendemen = 0,138 %

- **Replikasi 3**

%Rendemen = 0,162 %

II.8 pH 10

- **Replikasi 1**

%Rendemen = 0,102 %

- **Replikasi 2**

%Rendemen = 0,107 %

- **Replikasi 3**

%Rendemen = 0,101 %

Lampiran 3.2 Perhitungan Kadar Antidesmone

Kadar Antidesmone

Persamaan : $y = 88,548x + 854,9$

y = luas area / AUC

x = konsentrasi

a. Ekstrak Netral

▪ Replikasi 1

$$\text{AUC} = 2118,3$$

$$y = 88,548x + 854,9$$

$$2118,3 = 88,548x + 854,9$$

$$x = \frac{2118,3 - 854,9}{88,548}$$

$$= 14,267 \text{ ppm}$$

$$\text{Kadar} = \frac{14,267}{40000} \times 100\%$$

$$= 0,035\%$$

▪ Replikasi 2

$$\text{AUC} = 1410,1$$

$$y = 88,548x + 854,9$$

$$1410,1 = 88,548x + 854,9$$

$$x = \frac{1410,1 - 854,9}{88,548}$$

$$= 6,270 \text{ ppm}$$

$$\text{Kadar} = \frac{6,270}{40000} \times 100\%$$

$$= 0,015\%$$

▪ Replikasi 3

$$\text{AUC} = 1472,0$$

$$y = 88,548x + 854,9$$

$$1472,0 = 88,548x + 854,9$$

$$x = \frac{3332,3 - 854,9}{88,548}$$

$$= 6,969 \text{ ppm}$$

$$\text{Kadar} = \frac{6,969}{40000} \times 100\%$$

$$= 0,017\%$$

b. pH 2

▪ Replikasi 1

$$\text{AUC} = 2774,8$$

$$Y = 88,548x + 854,9$$

$$2774,8 = 88,548x + 854,9$$

$$x = \frac{2774,8 - 854,9}{88,548}$$

$$= 21,682 \text{ ppm}$$

$$\text{Kadar} = \frac{21,682}{40000} \times 100\%$$

$$= 0,054\%$$

▪ Replikasi 2

$$\text{AUC} = 3501,6$$

$$y = 88,548x + 854,9$$

$$3501,6 = 88,548x + 854,9$$

$$x = \frac{3501,6 - 854,9}{88,548}$$

$$= 29,890 \text{ ppm}$$

$$\text{Kadar} = \frac{29,890}{40000} \times 100\%$$

$$= 0,074\%$$

▪ Replikasi 3

$$\text{AUC} = 3676,8$$

$$y = 88,548x + 854,9$$

$$3676,8 = 88,548x + 854,9$$

$$x = \frac{3676,8 - 854,9}{88,548}$$

$$= 31,868 \text{ ppm}$$

$$\begin{aligned} \text{Kadar} &= \frac{31,868}{40000} \times 100\% \\ &= 0,79\% \end{aligned}$$

c. pH 3

▪ Replikasi 1

$$\text{AUC} = 2490,5$$

$$y = 88,548x + 854,9$$

$$2490,5 = 88,548x + 854,9$$

$$x = \frac{2490,5 - 854,9}{88,548}$$

$$= 18,471 \text{ ppm}$$

$$\text{Kadar} = \frac{18,471}{40000} \times 100\%$$

$$= 0,046\%$$

▪ Replikasi 2

$$\text{AUC} = 2762,0$$

$$y = 88,548x + 854,9$$

$$2762,0 = 88,548x + 854,9$$

$$x = \frac{2762,0 - 854,9}{88,548}$$

$$= 21,537 \text{ ppm}$$

$$\text{Kadar} = \frac{21,537}{40000} \times 100\%$$

$$= 0,053\%$$

▪ Replikasi 3

$$\text{AUC} = 3081,6$$

$$y = 88,548x + 854,9$$

$$3081,6 = 88,548x + 854,9$$

$$x = \frac{3081,6 - 854,9}{88,548}$$

$$= 25,146 \text{ ppm}$$

$$\text{Kadar} = \frac{25,146}{40000} \times 100\%$$

$$= 0,062\%$$

d. pH 4

- Replikasi 1

$$\text{AUC} = 2542,0$$

$$y = 88,548x + 854,9$$

$$2542,0 = 88,548x + 854,9$$

$$x = \frac{2542,0 - 854,9}{88,548}$$

$$= 19,052 \text{ ppm}$$

$$\text{Kadar} = \frac{19,052}{40000} \times 100\%$$

$$= 0,047\%$$

- Replikasi 2

$$\text{AUC} = 2367,7$$

$$y = 88,548x + 854,9$$

$$2367,7 = 88,548x + 854,9$$

$$x = \frac{2367,7 - 854,9}{88,548}$$

$$= 17,084 \text{ ppm}$$

$$\text{Kadar} = \frac{17,084}{40000} \times 100\%$$

$$= 0,042\%$$

- Replikasi 3

$$\text{AUC} = 3098,6$$

$$y = 88,548x + 854,9$$

$$3098,6 = 88,548x + 854,9$$

$$x = \frac{3098,6-854,9}{88,548}$$

$$= 25,338 \text{ ppm}$$

$$\text{Kadar} = \frac{25,338}{40000} \times 100\%$$

$$= 0,063\%$$

e. pH 8

- Replikasi 1

$$\text{AUC} = 4548,0$$

$$y = 88,548x + 854,9$$

$$4548,0 = 88,548x + 854,9$$

$$x = \frac{4548,0-854,9}{88,548}$$

$$= 41,707 \text{ ppm}$$

$$\text{Kadar} = \frac{41,707}{40000} \times 100\%$$

$$= 0,104 \%$$

- Replikasi 2

$$\text{AUC} = 4912,0$$

$$y = 88,548x + 854,9$$

$$4912,0 = 88,548x + 854,9$$

$$x = \frac{4912,0-854,9}{88,548}$$

$$= 45,818 \text{ ppm}$$

$$\text{Kadar} = \frac{45,818}{40000} \times 100\%$$

$$= 0,114 \%$$

- Replikasi 3

$$\text{AUC} = 5024,6$$

$$y = 88,548x + 854,9$$

$$5024,6 = 88,548x + 854,9$$

$$x = \frac{5024,6 - 854,9}{88,548}$$

$$= 47,089 \text{ ppm}$$

$$\text{Kadar} = \frac{47,089}{40000} \times 100\%$$

$$= 0,117 \%$$

f. pH 9

- Replikasi 1

$$\text{AUC} = 3870,3$$

$$y = 88,548x + 854,9$$

$$3870,3 = 88,548x + 854,9$$

$$x = \frac{3870,3 - 854,9}{88,548}$$

$$= 34,053 \text{ ppm}$$

$$\text{Kadar} = \frac{34,053}{40000} \times 100\%$$

$$= 0,085\%$$

- Replikasi 2

$$\text{AUC} = 4500,6$$

$$y = 88,548x + 854,9$$

$$4500,6 = 88,548x + 854,9$$

$$x = \frac{4500,6 - 854,9}{88,548}$$

$$= 41,172 \text{ ppm}$$

$$\text{Kadar} = \frac{41,172}{40000} \times 100\%$$

$$= 0,102\%$$

- Replikasi 3

$$\text{AUC} = 4740,2$$

$$y = 88,548x + 854,9$$

$$4740,2 = 88,548x + 854,9$$

$$x = \frac{4740,2 - 854,9}{88,548}$$

$$= 43,877 \text{ ppm}$$

$$\text{Kadar} = \frac{43,877}{40000} \times 100\%$$

$$= 0,109\%$$

g. pH 10

- Replikasi 1

$$\text{AUC} = 1678,3$$

$$y = 88,548x + 854,9$$

$$1678,3 = 88,548x + 854,9$$

$$x = \frac{1678,3 - 854,9}{88,548}$$

$$= 9,298 \text{ ppm}$$

$$\text{Kadar} = \frac{9,298}{40000} \times 100\%$$

$$= 0,023 \%$$

- Replikasi 2

$$\text{AUC} = 1642,2$$

$$y = 88,548x + 854,9$$

$$1642,2 = 88,548x + 854,9$$

$$x = \frac{1642,2 - 854,9}{88,548}$$

$$= 8,891 \text{ ppm}$$

$$\text{Kadar} = \frac{8,891}{40000} \times 100\%$$

$$= 0,022 \%$$

- Replikasi 3

$$\text{AUC} = 1853,9$$

$$y = 88,548x + 854,9$$

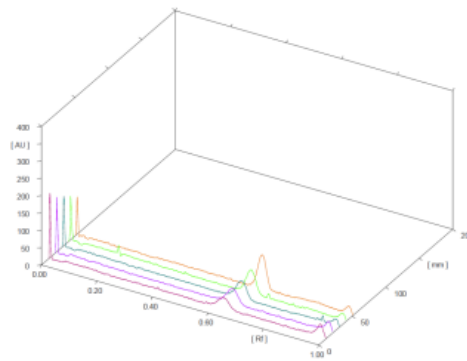
$$1853,9 = 88,548x + 854,9$$

$$\begin{aligned}x &= \frac{1853,9 - 854,9}{88,548} \\ &= 11,282 \text{ ppm}\end{aligned}$$

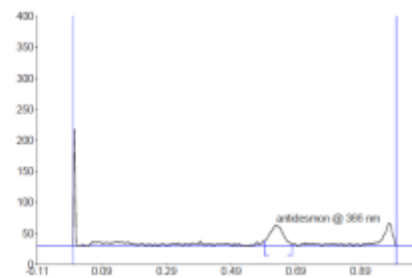
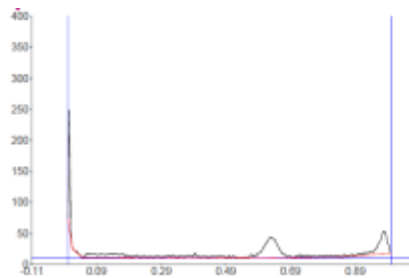
$$\begin{aligned}\text{Kadar} &= \frac{11,282}{40000} \times 100\% \\ &= 0,028 \%\end{aligned}$$

Lampiran 4 Kurva Densitometri

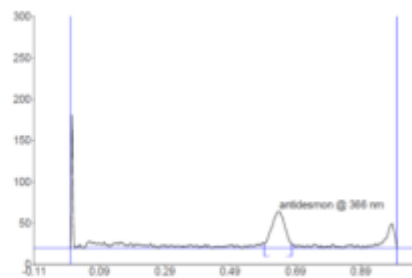
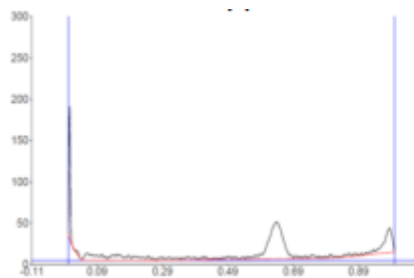
Lampiran 4.1 Kurva Densitometri Baku Antidesmon



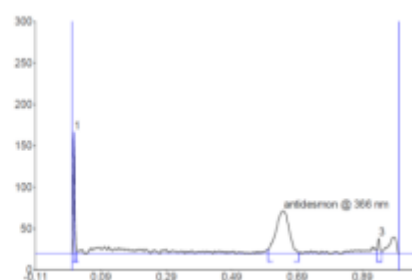
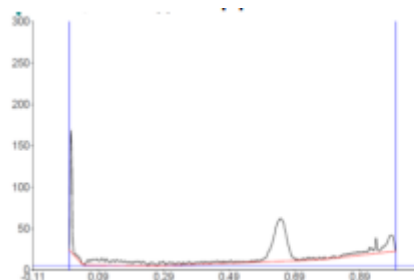
1. Konsentrasi 5 ppm



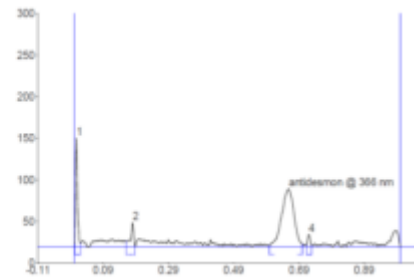
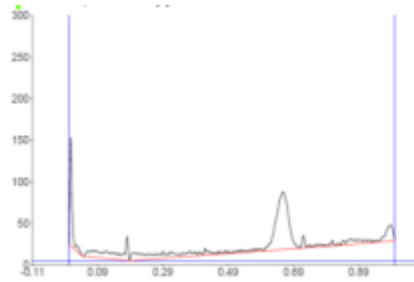
2. Konsentrasi 10 ppm



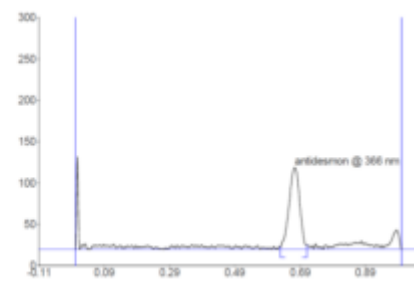
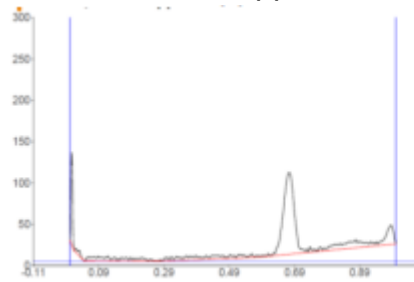
3. Konsentrasi 15 ppm



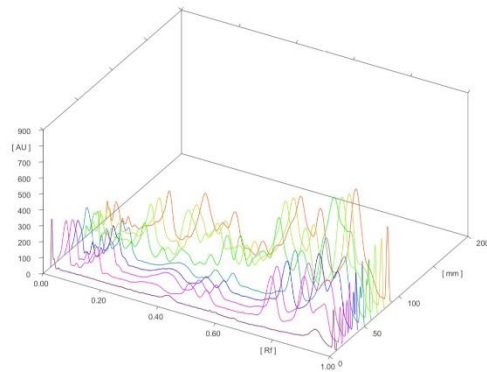
4. Konsentrasi 20 ppm



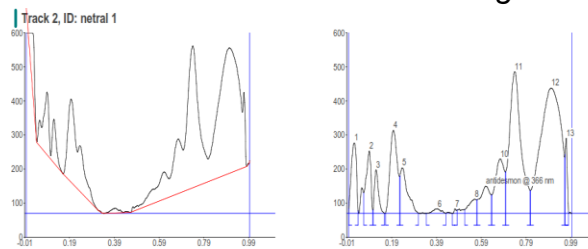
5. Konsentrasi 25 ppm



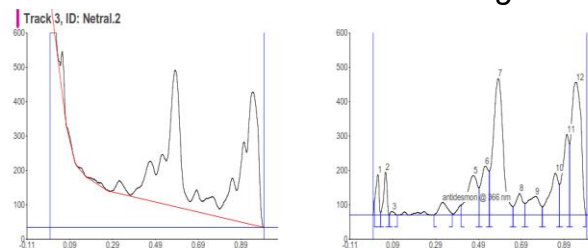
Lampiran 4.2 Kurva Densitometri Sampel



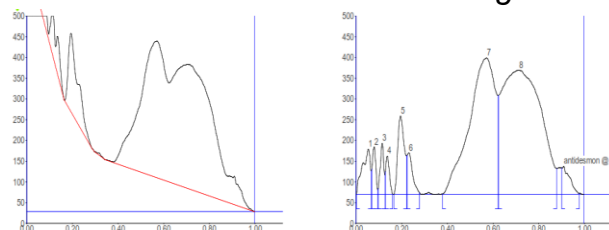
6. Ekstrak daun *M. umbellata* var. *deglabrata* netral replikasi 1

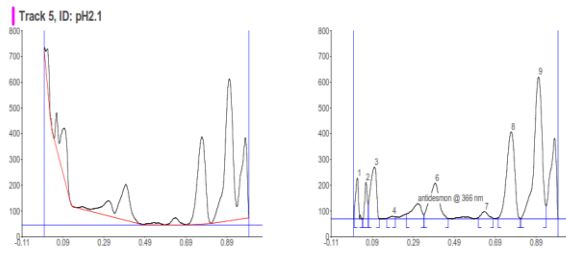
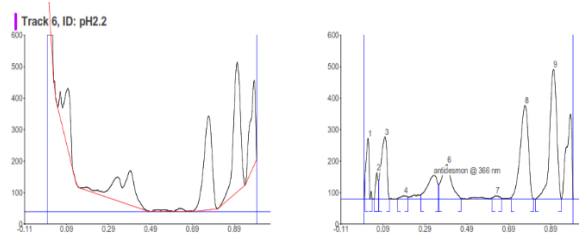
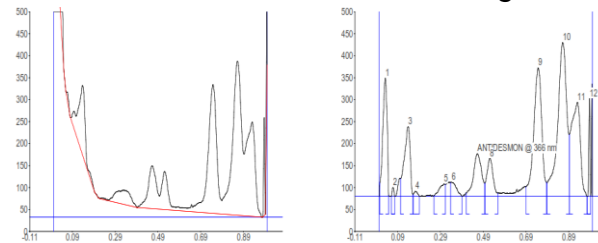
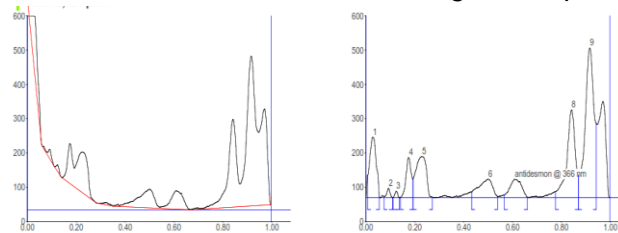


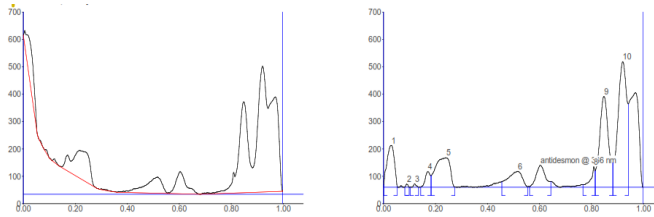
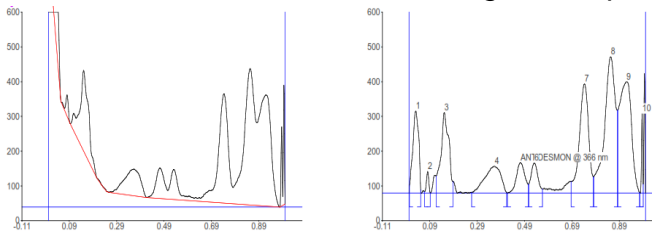
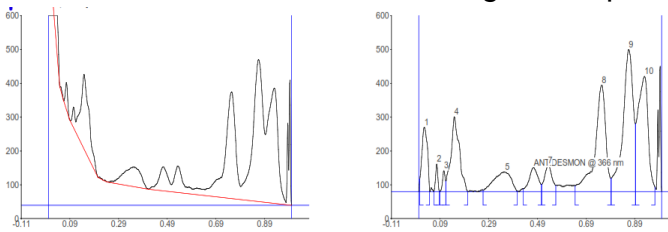
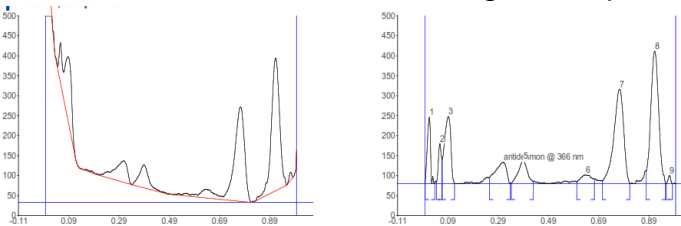
7. Ekstrak daun *M. umbellata* var. *deglabrata* netral replikasi 2



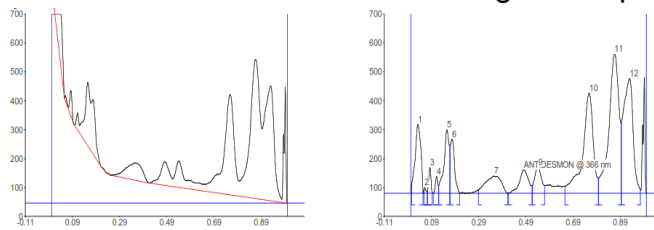
8. Ekstrak daun *M. umbellata* var. *deglabrata* netral replikasi 3



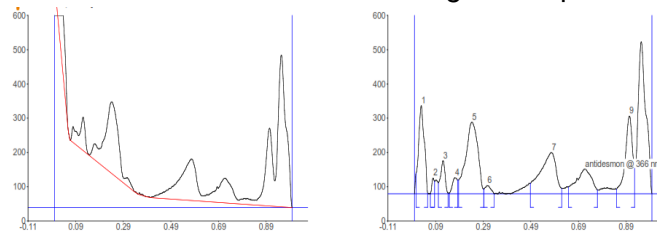
9. Ekstrak daun *M. umbellata* var. *deglabrata* pH 2 replikasi 110. Ekstrak daun *M. umbellata* var. *deglabrata* pH 2 replikasi 211. Ekstrak daun *M. umbellata* var. *deglabrata* pH 2 replikasi 312. Ekstrak daun *M. umbellata* var. *deglabrata* pH 3 replikasi 1

13. Ekstrak daun *M. umbellata* var. *deglabrata* pH 3 replikasi 214. Ekstrak daun *M. umbellata* var. *deglabrata* pH 3 replikasi 315. Ekstrak daun *M. umbellata* var. *deglabrata* pH 4 replikasi 116. Ekstrak daun *M. umbellata* var. *deglabrata* pH 4 replikasi 2

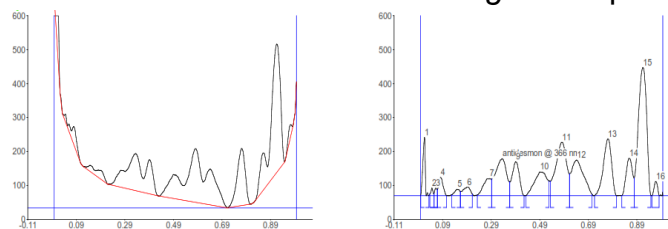
17. Ekstrak daun *M. umbellata* var. *deglabrata* pH 4 replikasi 3



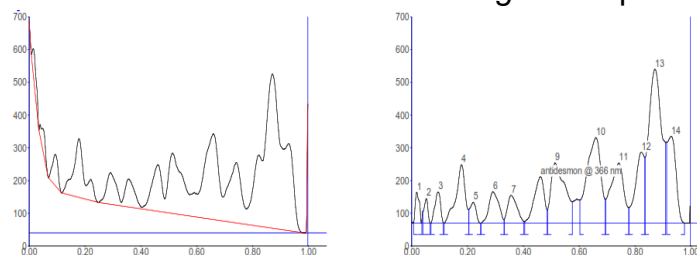
18. Ekstrak daun *M. umbellata* var. *deglabrata* pH 8 replikasi 1



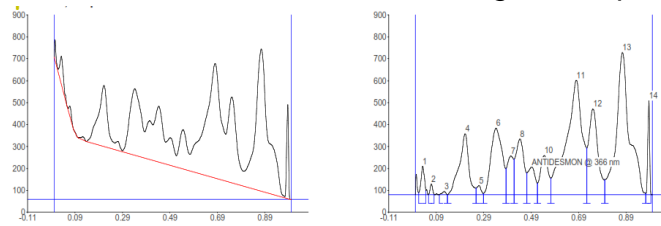
19. Ekstrak daun *M. umbellata* var. *deglabrata* pH 8 replikasi 2



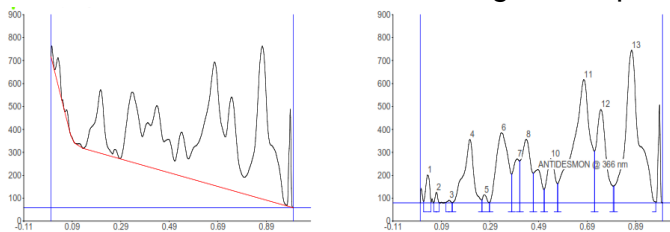
20. Ekstrak daun *M. umbellata* var. *deglabrata* pH 8 replikasi 3



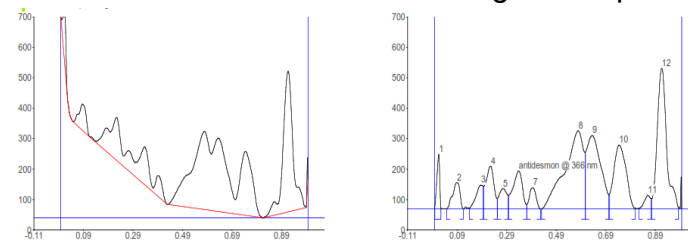
21. Ekstrak daun *M. umbellata* var. *deglabrata* pH 9 replikasi 1



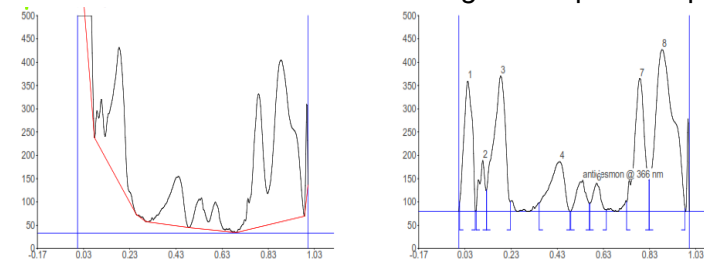
22. Ekstrak daun *M. umbellata* var. *deglabrata* pH 9 replikasi 2

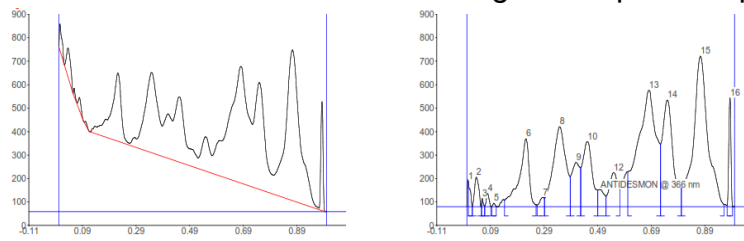
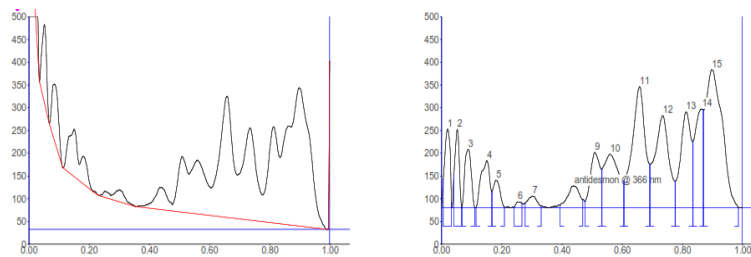


23. Ekstrak daun *M. umbellata* var. *deglabrata* pH 9 replikasi 3



24. Ekstrak daun *M. umbellata* var. *deglabrata* pH 10 replikasi 1



25. Ekstrak daun *M. umbellata* var. *deglabrata* pH 10 replikasi 226. Ekstrak daun *M. umbellata* var. *deglabrata* pH 10 replikasi 3

Lampiran 5. Uji Statistik Kadar Antidesmon dari KLT-Densitometri

Tests of Normality

	pH	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Kadar_Antidesmon	netral	.353	3	.	.824	3	.174
	pH 2	.314	3	.	.893	3	.363
	pH 3	.200	3	.	.995	3	.862
	pH 4	.298	3	.	.916	3	.439
	pH 8	.301	3	.	.912	3	.424
	pH 9	.273	3	.	.945	3	.549
	pH 10	.328	3	.	.871	3	.298

a. Lilliefors Significance Correction

ANOVA

Kadar_Antidesmon

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.021	6	.004	35.753	.000
Within Groups	.001	14	.000		
Total	.023	20			

Multiple Comparisons

Dependent Variable: Kadar_Antidesmon

Tukey HSD

(I) pH	(J) pH	Mean Difference			95% Confidence Interval	
		(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Netral	pH 2	-.04667*	.00811	.001	-.0743	-.0190
	pH 3	-.03133*	.00811	.022	-.0590	-.0037
	pH 4	-.02833*	.00811	.043	-.0560	-.0007
	pH 8	-.08933*	.00811	.000	-.1170	-.0617
	pH 9	-.07633*	.00811	.000	-.1040	-.0487
	pH 10	-.00200	.00811	1.000	-.0297	.0257
pH 2	netral	.04667*	.00811	.001	.0190	.0743
	pH 3	.01533	.00811	.516	-.0123	.0430
	pH 4	.01833	.00811	.325	-.0093	.0460
	pH 8	-.04267*	.00811	.002	-.0703	-.0150
	pH 9	-.02967*	.00811	.032	-.0573	-.0020
	pH 10	.04467*	.00811	.001	.0170	.0723

pH 3	netral	.03133*	.00811	.022	.0037	.0590
	pH 2	-.01533	.00811	.516	-.0430	.0123
	pH 4	.00300	.00811	1.000	-.0247	.0307
	pH 8	-.05800*	.00811	.000	-.0857	-.0303
	pH 9	-.04500*	.00811	.001	-.0727	-.0173
	pH 10	.02933*	.00811	.035	.0017	.0570
pH 4	netral	.02833*	.00811	.043	.0007	.0560
	pH 2	-.01833	.00811	.325	-.0460	.0093
	pH 3	-.00300	.00811	1.000	-.0307	.0247
	pH 8	-.06100*	.00811	.000	-.0887	-.0333
	pH 9	-.04800*	.00811	.001	-.0757	-.0203
	pH 10	.02633	.00811	.067	-.0013	.0540
pH 8	netral	.08933*	.00811	.000	.0617	.1170
	pH 2	.04267*	.00811	.002	.0150	.0703
	pH 3	.05800*	.00811	.000	.0303	.0857
	pH 4	.06100*	.00811	.000	.0333	.0887
	pH 9	.01300	.00811	.683	-.0147	.0407
	pH 10	.08733*	.00811	.000	.0597	.1150
pH 9	netral	.07633*	.00811	.000	.0487	.1040
	pH 2	.02967*	.00811	.032	.0020	.0573
	pH 3	.04500*	.00811	.001	.0173	.0727
	pH 4	.04800*	.00811	.001	.0203	.0757
	pH 8	-.01300	.00811	.683	-.0407	.0147
	pH 10	.07433*	.00811	.000	.0467	.1020
pH 10	netral	.00200	.00811	1.000	-.0257	.0297
	pH 2	-.04467*	.00811	.001	-.0723	-.0170
	pH 3	-.02933*	.00811	.035	-.0570	-.0017
	pH 4	-.02633	.00811	.067	-.0540	.0013
	pH 8	-.08733*	.00811	.000	-.1150	-.0597
	pH 9	-.07433*	.00811	.000	-.1020	-.0467

*. The mean difference is significant at the 0.05 level.

Lampiran 6. Dokumentasi Kegiatan**Gambar 13. Pengambilan sampel****Gambar 14. Penimbangan simplisia****Gambar 15. Pencucian sampel****Gambar 16. Pengeringan sampel****Gambar 17. Penghalusan sampel****Gambar 18. Proses maserasi sampel**



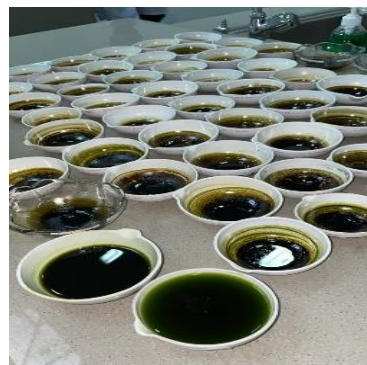
Gambar 19. Penyaringan Hasil Ekstraksi



Gambar 20. Pemekatan Sampel menggunakan *Rotary evaporator*



Gambar 21. Timbang Wadah Kosong



Gambar 22. Penguapan Ekstrak



Gambar 23. Ekstrak Kental



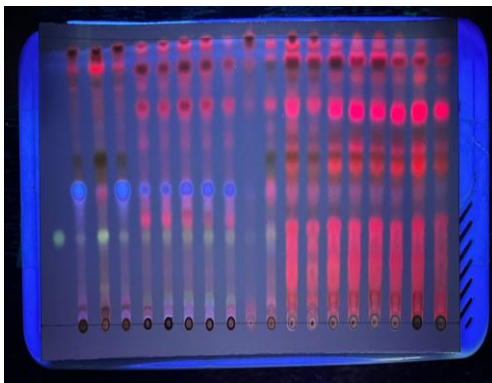
Gambar 24. Pembuatan Larutan Stok dan Larutan Uji



Gambar 25. Penimbangan ekstrak 200 mg



Gambar 26. Proses Elusi KLT



Gambar 27. Pengamatan dibawah sinar uv



Gambar 28. Analisis Lempeng KLT dengan Alat TLC Scanner