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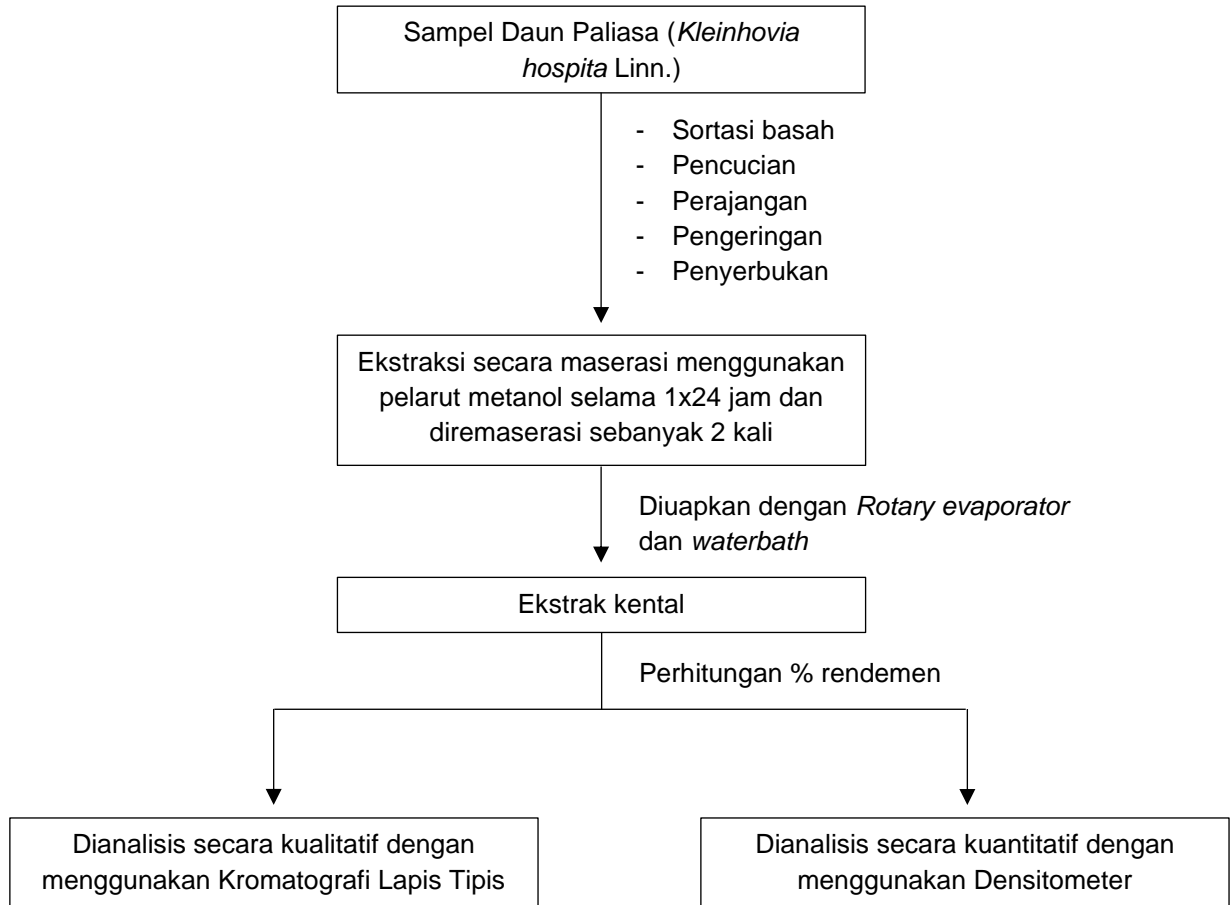
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LAMPIRAN

Lampiran 1. Skema Kerja Penelitian



Lampiran 2. Perhitungan Rendemen Ekstrak

Nama Sampel	Bobot cawan kosong (g)	Bobot cawan + ekstrak (g)	Bobot Ekstrak (g)	Bobot Sampel	Rendemen (%)
<i>Kleinhovia hospita</i> Linn.	220,20	223,78	3,58	200,01	1,789

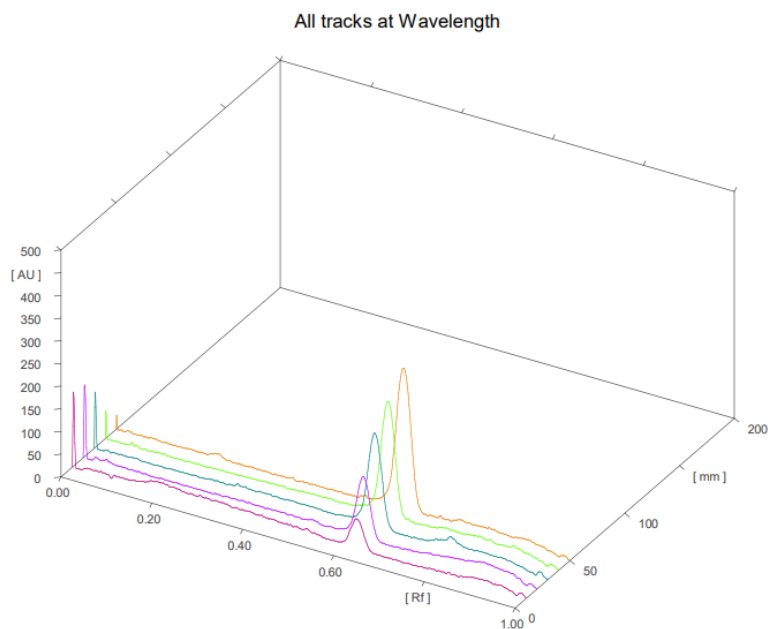
$$\text{Rendemen (\%)} = \frac{\text{Bobot akhir ekstrak (g)}}{\text{Bobot awal simplisia}} \times 100\%$$

$$= \frac{3,58 \text{ gram}}{200,01 \text{ gram}} \times 100\%$$

$$= 1,789 \%$$

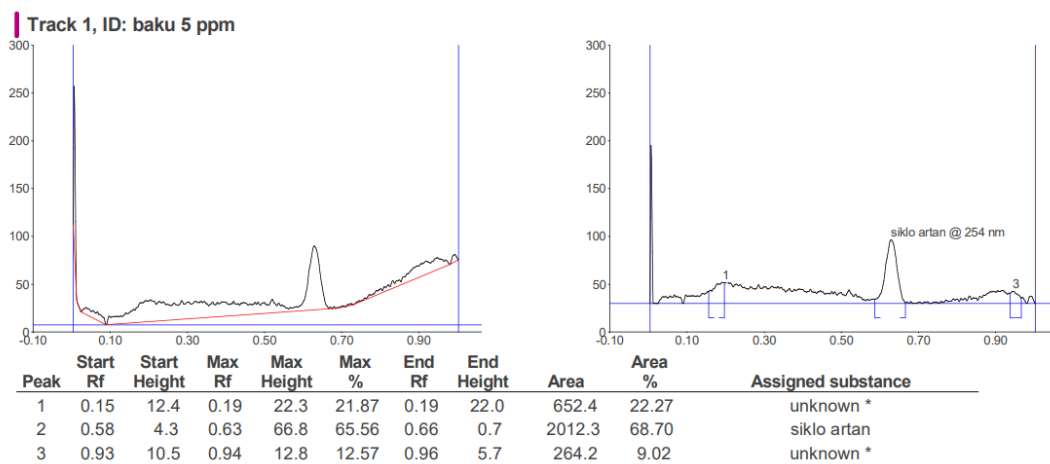
Lampiran 3. Profil KLT-Densitometri

a. Kurva Baku



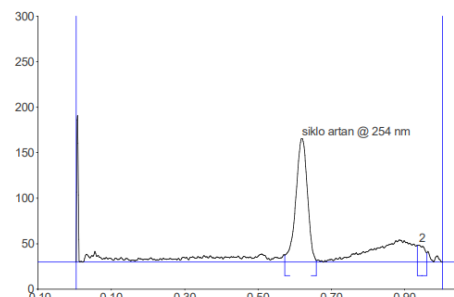
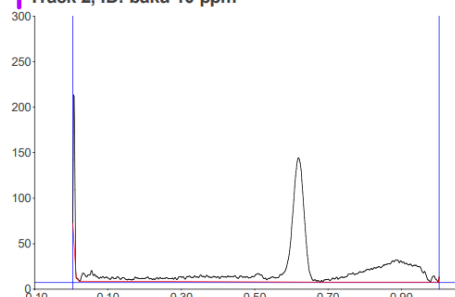
Gambar 15. Densitogram kurva baku senyawa sikloartan

1. Konsentrasi 5 ppm



2. Konsentrasi 10 ppm

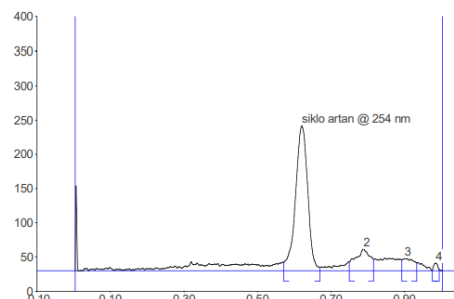
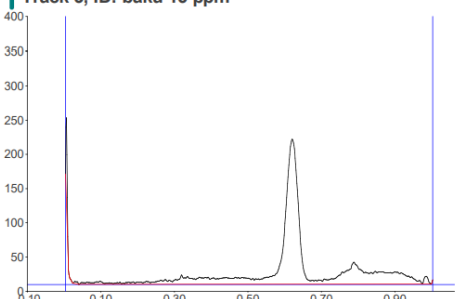
Track 2, ID: baku 10 ppm



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.57	7.8	0.62	136.4	87.97	0.66	1.8	4273.9	92.00	siklo artan
2	0.93	18.5	0.94	18.7	12.03	0.96	10.2	371.7	8.00	unknown *

3. Konsentrasi 15 ppm

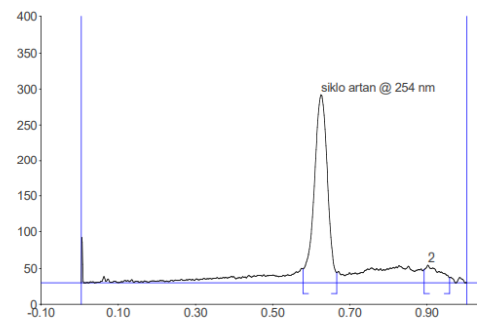
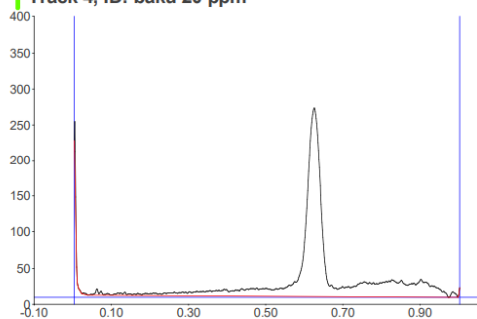
Track 3, ID: baku 15 ppm



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.57	12.5	0.62	211.8	77.53	0.67	5.1	7018.5	78.22	siklo artan
2	0.75	13.2	0.78	32.2	11.77	0.81	16.5	1263.6	14.08	unknown *
3	0.89	16.2	0.90	17.9	6.55	0.93	11.5	566.9	6.32	unknown *
4	0.97	0.9	0.98	11.4	4.16	0.99	2.2	124.3	1.39	unknown *

4. Konsentrasi 20 ppm

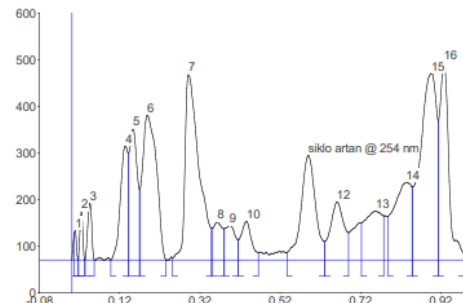
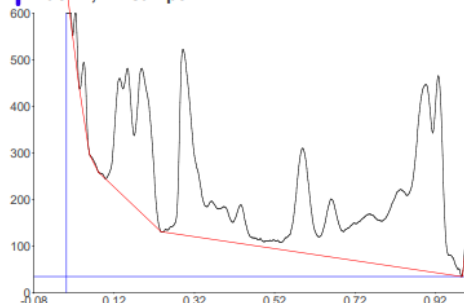
Track 4, ID: baku 20 ppm



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.58	19.5	0.62	262.3	91.42	0.66	14.1	8900.3	90.23	siklo artan
2	0.89	18.6	0.90	24.6	8.58	0.96	7.4	964.2	9.77	unknown *

2. Replikasi 2

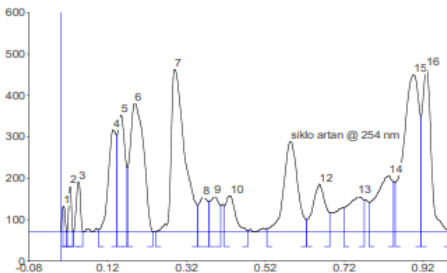
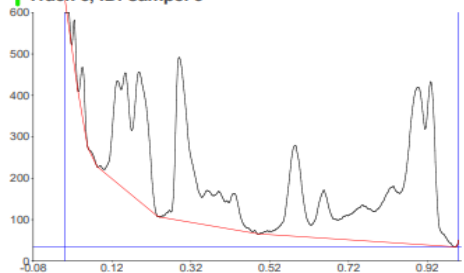
Track 2, ID: sampel 2



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.01	56.8	0.01	63.0	1.96	0.01	1.5	364.3	0.36	unknown *
2	0.02	7.7	0.02	104.5	3.25	0.03	2.8	801.6	0.80	unknown *
3	0.03	2.1	0.04	122.1	3.80	0.06	0.6	1306.1	1.30	unknown *
4	0.10	0.2	0.13	245.1	7.63	0.14	229.1	4870.9	4.86	unknown *
5	0.14	229.3	0.15	282.1	8.78	0.17	151.9	6020.5	6.00	unknown *
6	0.17	152.2	0.19	311.4	9.69	0.23	0.2	11530.7	11.49	unknown *
7	0.25	5.7	0.29	398.6	12.41	0.35	68.8	14801.3	14.75	unknown *
8	0.35	68.7	0.36	81.7	2.54	0.38	67.1	2075.1	2.07	unknown *
9	0.38	67.2	0.39	74.1	2.31	0.41	43.3	2048.8	2.04	unknown *
10	0.42	43.4	0.44	83.2	2.59	0.47	16.1	2360.4	2.35	unknown *
11	0.54	16.9	0.59	224.9	7.00	0.63	39.6	8735.5	8.71	siklo artan
12	0.63	39.9	0.66	124.8	3.88	0.69	59.3	4597.2	4.58	unknown *

3. Replikasi 3

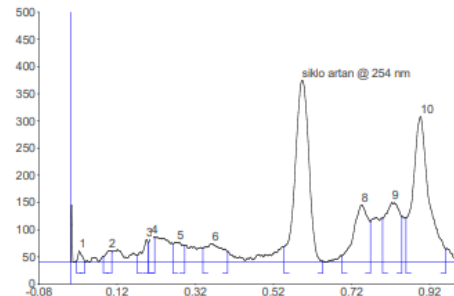
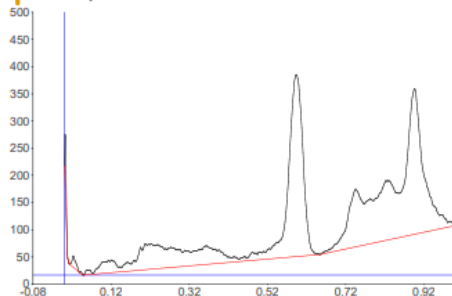
Track 3, ID: sampel 3



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.01	60.4	0.01	64.4	2.06	0.02	0.1	382.8	0.41	unknown *
2	0.02	2.7	0.02	110.4	3.53	0.03	3.8	787.1	0.84	unknown *
3	0.03	0.6	0.05	122.6	3.92	0.06	1.7	1331.8	1.42	unknown *
4	0.10	5.6	0.13	247.9	7.93	0.14	233.6	5404.7	5.76	unknown *
5	0.14	235.3	0.15	282.5	9.04	0.17	155.9	5629.8	6.00	unknown *
6	0.17	156.4	0.19	312.1	9.99	0.23	0.2	11427.0	12.18	unknown *
7	0.24	0.1	0.29	393.5	12.59	0.35	65.0	14333.1	15.27	unknown *
8	0.35	65.1	0.36	83.4	2.67	0.38	73.9	2075.8	2.21	unknown *
9	0.38	74.0	0.39	86.3	2.76	0.41	63.8	2152.8	2.29	unknown *
10	0.42	63.3	0.43	87.4	2.80	0.47	4.1	2405.4	2.56	unknown *
11	0.52	7.8	0.58	219.9	7.04	0.62	30.0	8287.6	8.83	siklo artan
12	0.63	30.1	0.66	116.2	3.72	0.68	47.4	3948.7	4.21	unknown *
13	0.72	58.1	0.76	86.4	2.76	0.77	76.9	3659.6	3.90	unknown *
14	0.78	72.0	0.83	136.3	4.36	0.85	121.4	6190.0	6.60	unknown *
15	0.85	120.2	0.90	379.9	12.16	0.92	279.4	16354.6	17.43	unknown *
16	0.92	281.1	0.93	395.0	12.64	0.99	0.2	9471.1	10.09	unknown *

4. Senyawa baku sikloartan

Track 4, ID: baku



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.02	3.1	0.02	21.0	2.05	0.04	0.3	222.7	0.59	unknown *
2	0.08	10.3	0.10	21.9	2.14	0.11	20.5	368.4	0.98	unknown *
3	0.17	12.7	0.19	42.4	4.14	0.20	36.0	674.4	1.80	unknown *
4	0.20	36.4	0.21	47.9	4.68	0.22	46.1	667.7	1.78	unknown *
5	0.26	33.3	0.27	37.4	3.65	0.29	31.0	996.6	2.65	unknown *
6	0.34	26.1	0.36	34.5	3.36	0.40	19.9	1648.4	4.39	unknown *
7	0.55	28.5	0.59	334.9	32.69	0.65	2.0	12437.6	33.12	siklo artan
8	0.70	12.2	0.75	106.1	10.35	0.77	75.0	4242.8	11.30	unknown *
9	0.80	80.8	0.82	110.3	10.76	0.85	83.6	4469.2	11.90	unknown *
10	0.86	81.5	0.90	268.2	26.17	0.96	24.4	11821.3	31.48	unknown *

Lampiran 4. Perhitungan kadar senyawa sikloartan

Persamaan linearitas $y = 464,8x - 267,14$

Sampel ekstrak *K. hospita* dibuat konsentrasi 100.000 ppm yaitu 500,1 mg sampel dalam 5 ml labu tentukur.

$$\%Kadar = \frac{\text{konsentrasi senyawa (x)}}{\text{konsentrasi sampel}} \times 100\%$$

Replikasi 1

$$\text{Konsentrasi sikloartan} = \frac{9338,9+267,14}{464,8} = 20,66 \text{ ppm}$$

$$\%Kadar = \frac{20,66}{100.000} \times 100\% = 0,02066\% = 0,2 \text{ mg/g}$$

Replikasi 2

$$\text{Konsentrasi sikloartan} = \frac{8735,5+267,14}{464,8} = 19,36 \text{ ppm}$$

$$\%Kadar = \frac{19,36}{100.000} \times 100\% = 0,01936\% = 0,19 \text{ mg/g}$$

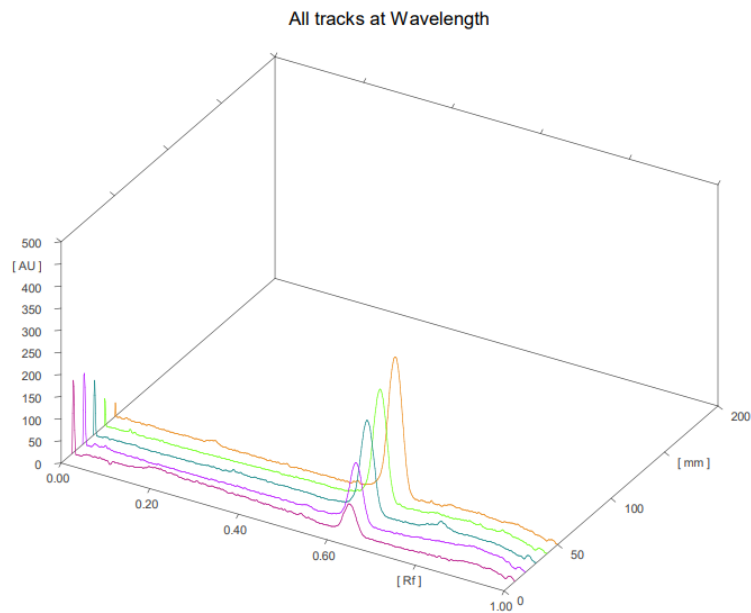
Replikasi 3

$$\text{Konsentrasi sikloartan} = \frac{8287,6+267,14}{464,8} = 18,40 \text{ ppm}$$

$$\%Kadar = \frac{18,40}{100.000} \times 100\% = 0,01840\% = 0,18 \text{ mg/g}$$

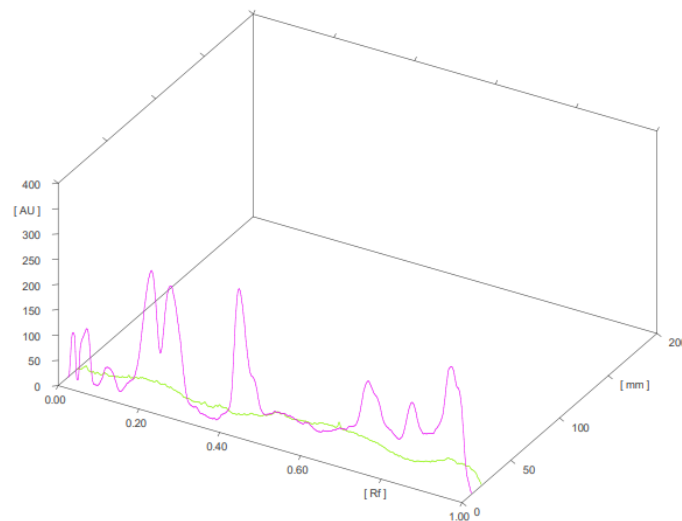
Lampiran 5. Validasi Metode

a. Linearitas



Gambar 16. Densitogram Linearitas

b. LOD dan LOQ



Gambar 17. Densitogram LOD dan LOQ

Konsententrasi (ppm)	AUC (X)	Xi	X-Xi	(X-Xi) ²
5	2012,3	2056,86	-44,56	1985.594
10	4273,9	4380,86	-106,96	11440.44
15	7018,5	6704,68	313,64	98370.05
20	8900,3	9028,86	-128,56	16527.67
25	11319	11352,86	-33,86	1146.5
Jumlah				129470.3

Persamaan garis	Koefisien korelasi	Simpangan baku residual (Sy)	Batas deteksi (LOD) (µg/mL)	Batas kuantitasi (LOQ) (µg/mL)
$y = 464,8x - 267,14$	0,9976	207,742	1,341	4,470

$$S_y = \sqrt{\frac{\sum(X-X_i)^2}{n-2}}$$

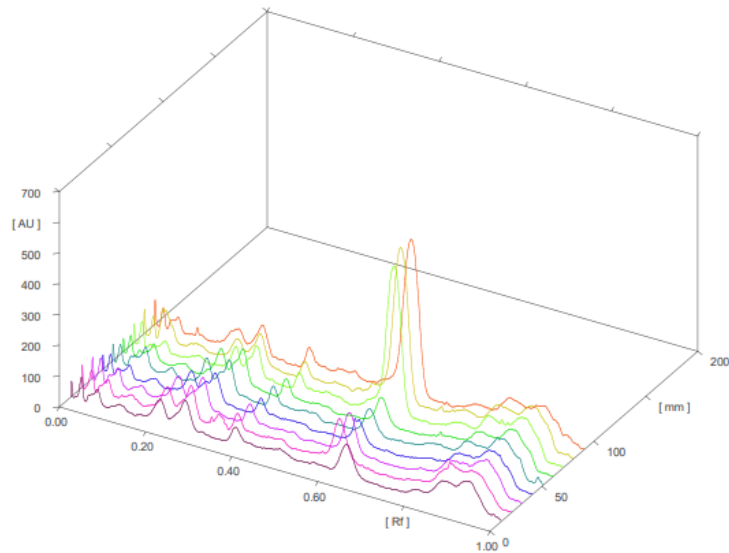
$$S_y = \sqrt{\frac{129470.3}{5-2}}$$

$$S_y = 207,742$$

$$\begin{aligned} \text{LOD} &= F \frac{S_y}{b} \\ &= 3 \frac{207,742}{464,8} \\ &= 1,341 \mu\text{g/mL} \end{aligned}$$

$$\begin{aligned} \text{LOQ} &= F \frac{S_y}{b} \\ &= 10 \frac{207,742}{464,8} \\ &= 4,470 \mu\text{g/mL} \end{aligned}$$

c. Akurasi



Gambar 18. Densitogram Akurasi

Konsentrasi (ppm)	Konsentrasi sampel (ppm)	AUC	Konsentrasi sampel+ baku	%recovery	Rata-rata (%)
20	0,57	2297,5	5,517	24,738	29.121
		2628,9	6,230	28,303	
		3188,5	7,434	34,323	
30	0,57	3443,8	7,983	24,713	29.036
		4633,9	10,544	33,248	
		4062,2	9,314	29,148	
40	0,57	19188,6	41,858	103,220	108.247
		19966,9	43,532	107,406	
		21214,2	46,216	114,115	

Konsentrasi baku sikloartan

Baku sikloartan dibuat konsentrasi 1000 ppm yaitu 1,0 mg baku dalam 1 ml lalu diencerkan menjadi 20, 30, dan 40 ppm.

Konsentrasi sampel

$$Y = 464,8x - 267,14$$

$$X = \frac{0 + 267,14}{464,8} = 0,57 \text{ ppm}$$

Senyawa sikloartan dalam sampel ekstrak *K. hospita* dibuat konsentrasi 10 ppm yaitu 100,0 mg sampel dalam 2 ml pelarut, lalu diencerkan menjadi 0,57 ppm.

Perhitungan konsentrasi sampel+baku 20 ppm

$$X1 = \frac{2297,5 + 267,14}{464,8} = 5,517$$

$$X2 = \frac{2628,9 + 267,14}{464,8} = 6,230$$

$$X3 = \frac{3188,5 + 267,14}{464,8} = 7,434$$

Perhitungan konsentrasi sampel+baku 30 ppm

$$X1 = \frac{3443,8 + 267,14}{464,8} = 7,983$$

$$X2 = \frac{4633,9 + 267,14}{464,8} = 10,544$$

$$X3 = \frac{4062 + 267,14}{464,8} = 9,314$$

Perhitungan konsentrasi sampel+baku 40 ppm

$$X1 = \frac{19188,6 + 267,14}{464,8} = 41,858$$

$$X2 = \frac{19966,9 + 267,14}{464,8} = 43,532$$

$$X3 = \frac{21214,2 + 267,14}{464,8} = 46,216$$

Perhitungan persen recovery

$$\% \text{recovery} = \frac{C_f - C_a}{C^* a} \times 100\%$$

Perhitungan persen recovery sampel+ baku 20 ppm

$$\% \text{recovery } X1 = \frac{5,517728 - 0,57}{20} \times 100\% = 24,738\%$$

$$\% \text{recovery X2} = \frac{6,230723 - 0,57}{20} \times 100\% = 28,303\%$$

$$\% \text{recovery X3} = \frac{7,434682 - 0,57}{20} \times 100\% = 34,323\%$$

Perhitungan persen recovery sampel+ baku 30 ppm

$$\% \text{recovery X1} = \frac{7,98395 - 0,57}{30} \times 100\% = 24,713\%$$

$$\% \text{recovery X2} = \frac{10,54441 - 0,57}{30} \times 100\% = 33,248\%$$

$$\% \text{recovery X3} = \frac{9,314415 - 0,57}{30} \times 100\% = 29,148\%$$

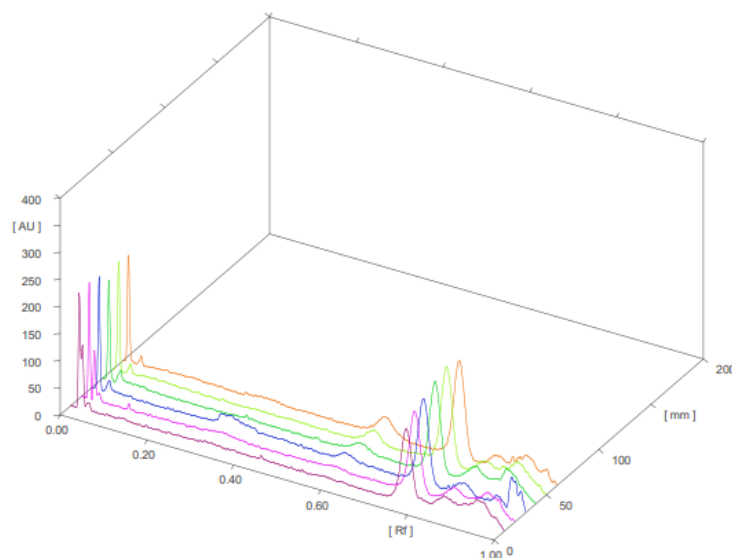
Perhitungan persen recovery sampel+ baku 40 ppm

$$\% \text{recovery X1} = \frac{41,8583 - 0,57}{40} \times 100\% = 103,220\%$$

$$\% \text{recovery X2} = \frac{43,53279 - 0,57}{40} \times 100\% = 107,406\%$$

$$\% \text{recovery X3} = \frac{46,21631 - 0,57}{40} \times 100\% = 114,115\%$$

d. Presisi



Gambar 19. Densitogram Presisi

Konsentrasi (ppm)	Replikasi	AUC	X-Xi	(X-Xi) ²
10	1	4007,6	-447,3166667	200092,2003
	2	4266,3	-188,6166667	35576,24694
	3	4329,4	-125,5166667	15754,43361
	4	4444,7	-10,21666667	104,3802778
	5	4777,3	322,3833333	103931,0136
	6	4904,2	449,2833333	201855,5136
	Rata-rata	4454,916667	Jumlah	557313,7883
			SD	333,8603
			RSD	7,32

Analit pada matriks sampel 10 ppm

$$\text{RSD} < 2^{(1-0.5 \log C)} \times 0,67$$

$$\text{RSD} < 2^{(1-0.5 \log 0.00001)} \times 0,67$$

$$\text{RSD} < 2^{(1-0.5 \cdot (-5))} \times 0,67$$

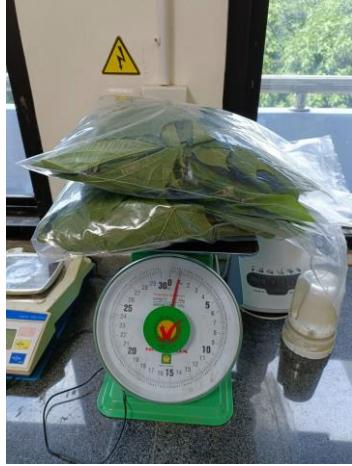
$$\text{RSD} < 2^{3,5} \times 0,67$$

$$\text{RSD} < 7.58$$

$$\begin{aligned} \text{Simpangan Baku (SD)} &= \sqrt{\frac{\sum(X-X_i)^2}{n-1}} \\ &= \sqrt{\frac{557313,7883}{6-1}} \\ &= 333,8603 \end{aligned}$$

$$\begin{aligned} \text{Simpangan Baku Relatif (RSD)} &= \frac{\text{SD}}{\bar{X}} \times 100\% \\ &= \frac{333,8603}{4554,916667} \times 100\% \\ &= 7,32\% \end{aligned}$$

Lampiran 6. Dokumentasi Penelitian



Gambar 20. Penimbangan sampel



Gambar 21. Pencucian sampel



Gambar 22. Pengeringan sampel



Gambar 23. Penghalusan simplisia



Gambar 24. Pengayakan simplisia



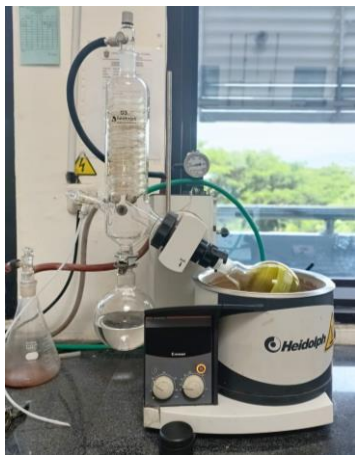
Gambar 25. Penimbangan simplisia



Gambar 26. Proses maserasi



Gambar 27. Penyaringan



Gambar 28. Penguapan pelarut



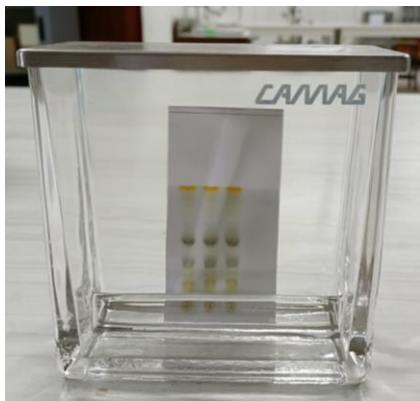
Gambar 29. Penguapan pelarut



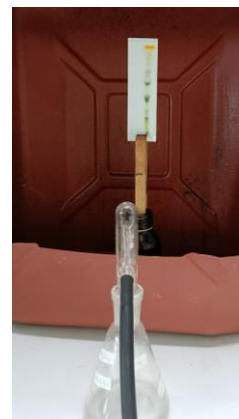
Gambar 30. Penimbangan ekstrak



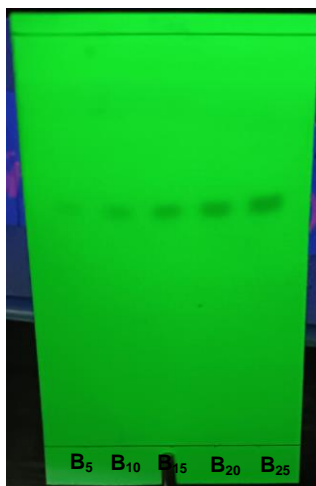
Gambar 31. Penotolan sampel dan baku



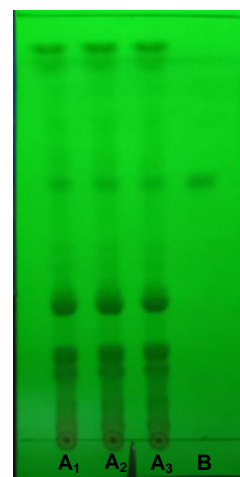
Gambar 32. Proses elusi



Gambar 33. Penyemprotan reagen H_2SO_4



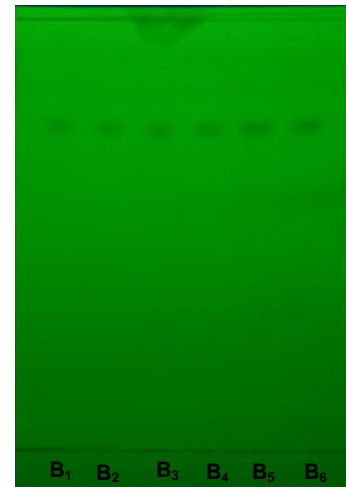
Gambar 34. Profil KLT kurva baku senyawa sikloartan; (B) = Baku Sikloartan



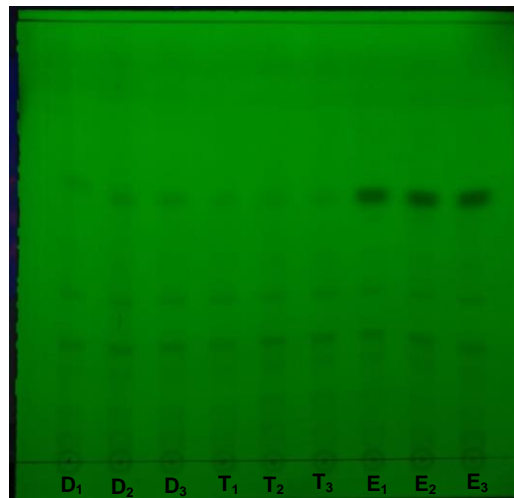
Gambar 35. Profil KLT *Kleinhovia hospita* Linn.; (A) Ekstrak n-heksan *K. hospita*; (B) = Baku Sikloartan



Gambar 36. Profil KLT LOD dan LOQ senyawa sikloartan: (A) Ekstrak n-heksan *K. hospita*; (L) = Larutan blanko



Gambar 37. Profil KLT presisi senyawa sikloartan; (B) = Baku Sikloartan konsentrasi 10 ppm



Gambar 38. Profil KLT akurasi senyawa sikloartan; (D) Ekstrak n-heksan *K. hospita* dengan baku Sikloartan konsentrasi 20 ppm; (T) Ekstrak n-heksan *K. hospita* dengan baku Sikloartan konsentrasi 30 ppm; (E) Ekstrak n-heksan *K. hospita* dengan baku Sikloartan konsentrasi 40 ppm