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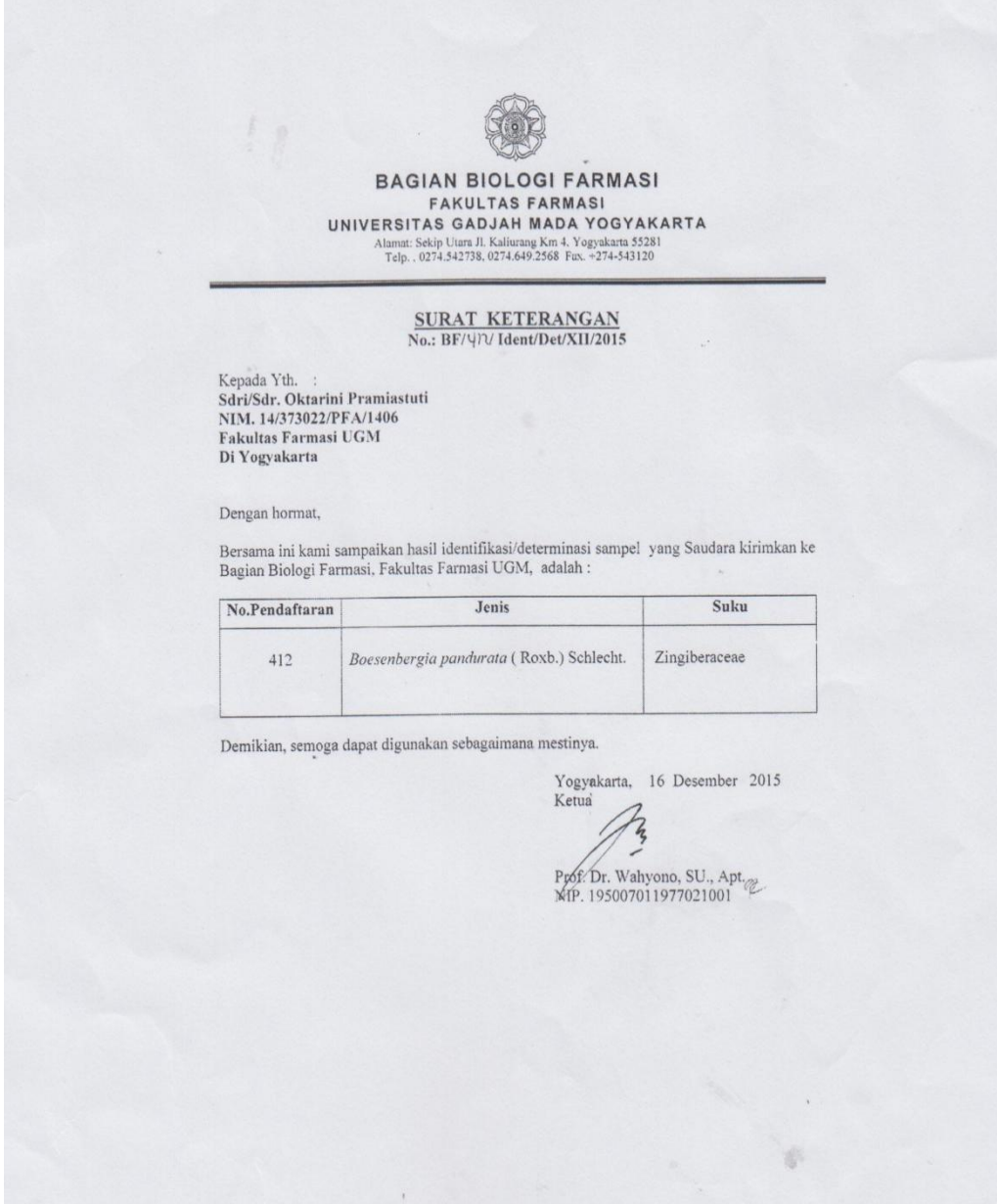
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LAMPIRAN

Lampiran 1. Hasil determinasi tanaman dari sampel serbuk simplisia rimpang temu kunci




BAGIAN BIOLOGI FARMASI
FAKULTAS FARMASI
UNIVERSITAS GADJAH MADA YOGYAKARTA
Alamat: Sekip Utara Jl. Kaliurang Km 4, Yogyakarta 55281
Telp. : 0274.542738, 0274.649.2568 Fax. =274-543120

SURAT KETERANGAN
No.: BF/47/ Ident/Det/XII/2015

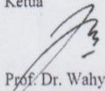
Kepada Yth. :
Sdr/Sdr. Oktarini Pramiastuti
NIM. 14/373022/PFA/1406
Fakultas Farmasi UGM
Di Yogyakarta

Dengan hormat,

Bersama ini kami sampaikan hasil identifikasi/determinasi sampel yang Saudara kirimkan ke Bagian Biologi Farmasi, Fakultas Farmasi UGM, adalah :

No.Pendaftaran	Jenis	Suku
412	<i>Boesenbergia pandurata</i> (Roxb.) Schlecht.	Zingiberaceae

Demikian, semoga dapat digunakan sebagaimana mestinya.

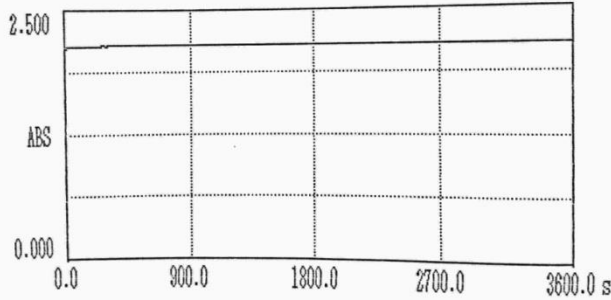
Yogyakarta, 16 Desember 2015
Ketua

Prof. Dr. Wahyono, SU., Apt.
NIP. 195007011977021001

Lampiran 2. Perhitungan rendemen ekstrak kental metanol, isolat pinostrobin dan pinosembrin

1. Penyarian secara maserasi 2 kali dengan penyari wasbensin perbandingan 1:10 dan remaserasi dengan penyari metanol 2 kali perbandingan 1:10
Bobot serbuk simplisia rimpang temu kunci : 500 gram
Bobot ekstrak : 10,48 gram
Rendemen ekstrak = $x 100\% = 2,96\%$
2. Isolat pinostrobin
Bobot kristal pinostrobin bersih yang diperoleh dari endapan filtrat wasbensin : 2,67 gram
Rendemen kristal pinostrobin terhadap bobot serbuk simplisia rimpang temu kunci : $x 100\% = 0,53\%$
3. Isolat pinosembrin
Bobot isolat yang diperoleh dari isolasi 1: 50 mg
Bobot isolat yang diperoleh dari isolasi 2: 30 mg
Bobot isolat yang diperoleh dari isolasi 3: 40 mg
Total bobot isolat pinosembrin yang diperoleh: 50 mg + 30 mg + 40 mg
= 120 mg
Rendemen isolat pinosembrin terhadap bobot ekstrak kental metanol
: $x 100\% = 1,14\%$
Rendemen isolat pinosembrin terhadap bobot serbuk simplisia rimpang temu kunci : $x 100\% = 0,024\%$

Lampiran 3. Hasil *scanning* panjang gelombang dan waktu operasional FeSO₄

Serial No. 23E45-008
 Program No. 2315301-05
 Name FES04
 Run Date 2015/03/31 11:19
 Report Date 2015/03/31 11:19
 Operator



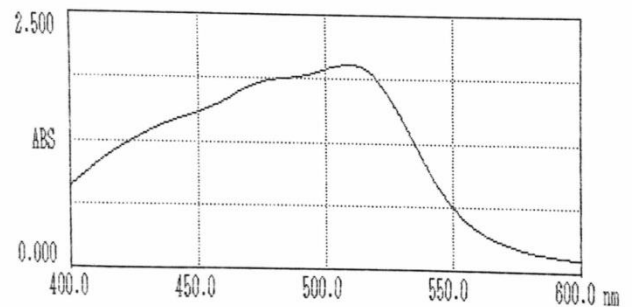
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 WL (nm) 510.0
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 Initial Delay(s) 0
 Sampling Interval(s) 5.0
 Response Medium
 Bandpass (nm) 1.5
 Lamp Change Mode Auto
 Lamp Change WL (nm) 340.0
 D2 Lamp OFF
 W1 Lamp ON
 Display Format Sequential
 Path Length (mm) 10.0

Model U-2900 Spectrophotometer

Serial No. 23E45-008
 Program No. 2315301-05
 Name FES04
 Run Date 2015/03/31 11:24
 Report Date 2015/03/31 11:24
 Operator

Data List (List Interval(s):60.0)

ID	TIME(s)	ABS	ID	TIME(s)	ABS	ID	TIME(s)	ABS
1	0.0	2.127	2	60.0	2.136	3	120.0	2.140
4	180.0	2.144	5	240.0	2.147	6	300.0	2.147
7	360.0	2.148	8	420.0	2.149	9	480.0	2.148
10	540.0	2.148	11	600.0	2.148	12	660.0	2.148
13	720.0	2.149	14	780.0	2.149	15	840.0	2.149
16	900.0	2.149	17	960.0	2.149	18	1020.0	2.149
19	1080.0	2.149	20	1140.0	2.149	21	1200.0	2.148
22	1260.0	2.149	23	1320.0	2.150	24	1380.0	2.149
25	1440.0	2.149	26	1500.0	2.149	27	1560.0	2.149
28	1620.0	2.149	29	1680.0	2.149	30	1740.0	2.148
31	1800.0	2.149	32	1860.0	2.149	33	1920.0	2.149
34	1980.0	2.149	35	2040.0	2.149	36	2100.0	2.149
37	2160.0	2.149	38	2220.0	2.149	39	2280.0	2.149
40	2340.0	2.149	41	2400.0	2.149	42	2460.0	2.149
43	2520.0	2.149	44	2580.0	2.149	45	2640.0	2.149
46	2700.0	2.149	47	2760.0	2.150	48	2820.0	2.149
49	2880.0	2.149	50	2940.0	2.149	51	3000.0	2.149
52	3060.0	2.150	53	3120.0	2.150	54	3180.0	2.149
55	3240.0	2.149	56	3300.0	2.150	57	3360.0	2.150
58	3420.0	2.149	59	3480.0	2.149	60	3540.0	2.150
61	3600.0	2.149						



Peak (Threshold:0.001 Sensitivity:1)

ID	WL (nm)	ABS
1	509.5	2.027

Panjang gelombang maksimum

Operating time

Lampiran 4. Penetapan kapasitas antioksidan (mmol/g)

Absorbansi Asam Galat, Kuersetin, Isolat Pinostrobin, dan Pinosembrin.

Sampel	Kadar ($\mu\text{g/mL}$)	Absorban		
		A ₁	A ₂	A ₃
Asam Galat (AG)	2	0,633	0,645	0,644
Kuersetin (KR)	2	0,359	0,376	0,378
Pinosembrin (PM)	25	0,298	0,276	0,290
Pinostrobin (PT)	25	0,258	0,267	0,255

Persamaan Kurva Baku FeSO_4 :

$$y = 4,448x + 0,0120 \quad y = \text{absorbansi (A}_n\text{)} ; x = \text{FeSO}_4 \text{ (mM)}$$

x =

a. Penetapan kapasitas antioksidan asam galat (mmol/g)

1. $X_1 =$

$$X_1 = 0,1396 \text{ mM}$$

$$K_1 = 69,807 \text{ mmol/g}$$

2. $X_2 =$

$$X_2 = 0,1423 \text{ mM}$$

$$K_2 = 71,156 \text{ mmol/g}$$

3. $X_2 =$

$$X_2 = 0,1421 \text{ mM}$$

$$K_2 = 71,043 \text{ mmol/g}$$

=

$$\text{AG} = 70,669 \text{ mmol/g}$$

b. Penetapan kapasitas antioksidan kuersetin

1. $X_1 =$

$$X_1 = 0,0780 \text{ mM}$$

$$K_1 = 39,006 \text{ mmol/g}$$

2. $X_2 =$

$$X_2 = 0,0818 \text{ mM}$$

$$K_2 = 40,917 \text{ mmol/g}$$

3. $X_3 =$

$$X_3 = 0,0823 \text{ mM}$$

$$K_3 = 41,142 \text{ mmol/g}$$

=

$$K_R = 40,355 \text{ mmol/g}$$

c. Penetapan kapasitas antioksidan isolat pinosembrin

1. $X_1 =$

$$X_1 = 0,0643 \text{ mM}$$

$$K_1 = 2,572 \text{ mmol/g}$$

2. $X_1 =$

$$X_1 = 0,0594 \text{ mM}$$

$$K_1 = 2,374 \text{ mmol/g}$$

3. $X_1 =$

$$X_1 = 0,0625 \text{ mM}$$

$$K_1 = 2,500 \text{ mmol/g}$$

=

$$P_M = 2,482 \text{ mmol/g}$$

d. Penetapan kapasitas antioksidan isolat pinostrobin

1. $X_1 =$

$$X_1 = 0,0553 \text{ mM}$$

$$K_1 = 2,212 \text{ mmol/g}$$

2. $X_1 =$

$$X_1 = 0,0573 \text{ mM}$$

$$K_1 = 2,293 \text{ mmol/g}$$

3. $X_1 =$

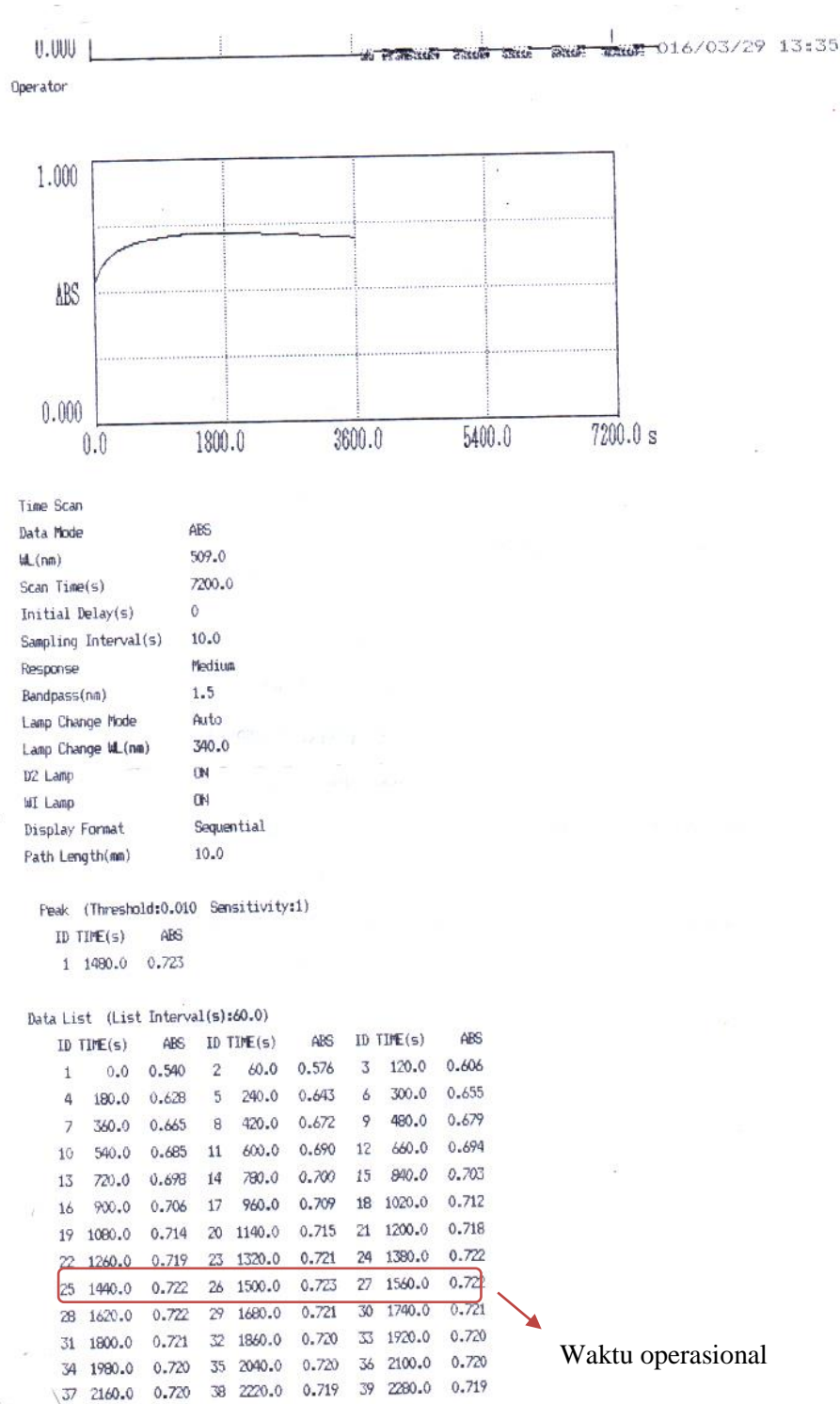
$$X_1 = 0,0625 \text{ mM}$$

$$K_1 = 2,187 \text{ mmol/g}$$

=

$$P_T = 2,231 \text{ mmol/g}$$

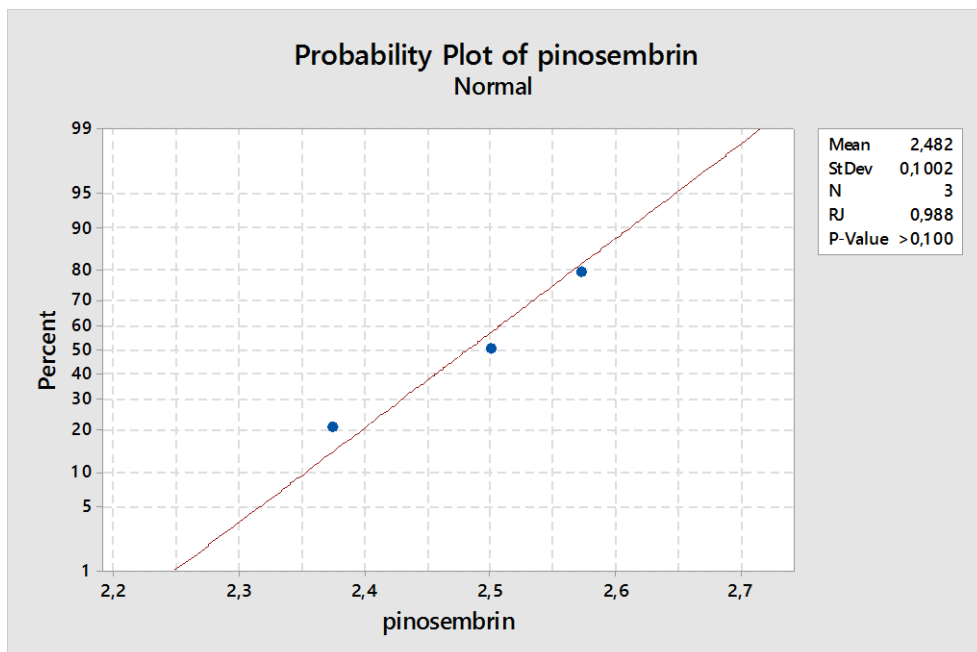
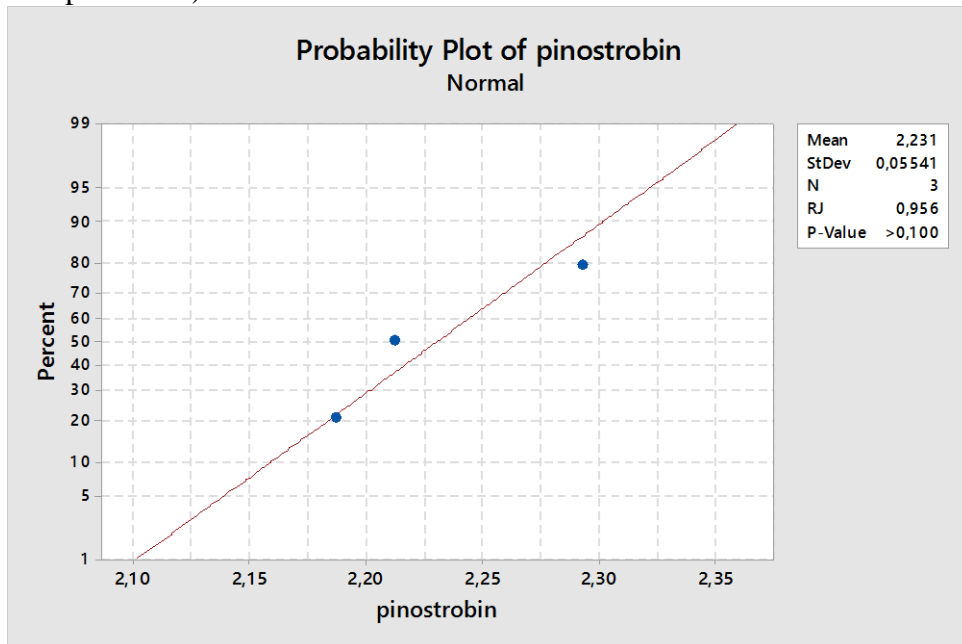
Lampiran 5. Hasil *scanning* waktu operasional kuersetin yang direaksikan dengan FeCl_3 dan fenantrolin



Lampiran 6. Analisis statistika uji-t sampel independen kapasitas antioksidan isolat pinostrobin dan pinosembrin dengan prog Minitab 17

A. Uji normalitas data

Kurang dari 50 sampel menggunakan uji Ryan-Joiner (sama dengan uji Shapiro-Wilk)



Kedua isolat mempunyai $P\text{-Value} > 0.100$. Data kedua isolat terdistribusi normal

B. Uji homogenitas varians

Test and CI for Two Variances: pinosembrin; pinostrobin

Method

Null hypothesis $\sigma(\text{pinosembrin}) / \sigma(\text{pinostrobin}) = 1$
Alternative hypothesis $\sigma(\text{pinosembrin}) / \sigma(\text{pinostrobin}) \neq 1$
Significance level $\alpha = 0,05$

Statistics

Variable	N	StDev	Variance	95% CI for StDevs
pinosembrin	3	0,100	0,010	(0,015; 1,969)
pinostrobin	3	0,055	0,003	(0,008; 1,088)

Ratio of standard deviations = 1,809
Ratio of variances = 3,271

95% Confidence Intervals

Method	CI for StDev Ratio	CI for Variance Ratio
Bonett	(0,352; 9,292)	(0,124; 86,347)
Levene	(*; *)	(*; *)

Tests

Method	DF1	DF2	Test Statistic	P-Value
Bonett	1	—	0,73	0,393
Levene	1	4	0,49	0,521

Pada uji Levene $P\text{-Value} > 0,05$, varians data diasumsikan homogen

C. Uji-t sampel independen

Two-Sample T-Test and CI: kapasitas antioksidan, senyawa

Two-sample T for kapasitas antioksidan

senyawa	N	Mean	StDev	SE Mean
1	3	2,482	0,100	0,058
2	3	2,2307	0,0554	0,032

Difference = $\mu (1) - \mu (2)$

Estimate for difference: 0,2513

95% CI for difference: (0,0409, 0,4617)

T-Test of difference = 0 (vs \neq): T-Value = 3,80 P-Value = 0,032 DF = 3

Nilai *P-Value* < 0,05 = H_0 ditolak, H_1 diterima

Kesimpulan: Ada perbedaan rata-rata nilai kapasitas antioksidan yang

bermakna antara isolat pinostrobin dan pinosembrin

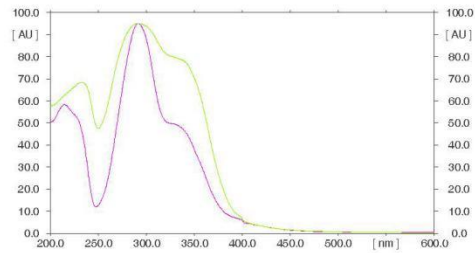
Lampiran 7. Hasil *scanning* panjang gelombang maksimum untuk uji kemurnian isolat pinostrobin dengan KLT Densitometri

winCATS Planar Chromatography Manager

Detector properties

Y-position for 0 adjust 0.0 mm
 Track # for 0 adjust 0
 Analog Offset 10%
 Sensitivity Automatic (25)

AutoGenerated1 on all Tracks



T	Rf	Substance	Max. @
1	0.65	Rf AutoGenerated1	292 nm
2	0.57	Rf AutoGenerated1	294 nm

Evaluation results

Evaluation Sequence

Track	Track type	Vial	Sample ID
1	Sample	1	
2	Sample	1	

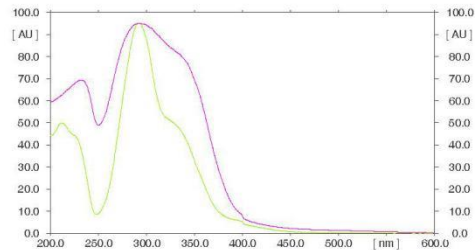
Table of substances

Substance	Position		Tracks
	MD	mm	
AutoGenerated1	58.8	A A	1 2

Lampiran 8. Hasil *scanning* panjang gelombang maksimum untuk uji kemurnian isolat pinosembryn dengan KLT Densitometri

winCATS Planar Chromatography Manager

AutoGenerated1 on all Tracks



T	Rf	Substance	Max. @
1	0.37	Rf AutoGenerated1	291 nm
2	0.35	Rf AutoGenerated1	292 nm

Evaluation results

Evaluation Sequence

Track	Track type	Vial	Sample ID
1	Sample	1	
2	Sample	1	

Table of substances

Substance	Position Tracks	
	MD.mm	1 2
AutoGenerated1	38.8	A A