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LAMPIRAN

Lampiran 1. Determinasi Tanaman Kelakai



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
UNIVERSITAS LAMBUNG MANGKURAT
LABORATORIUM FMIPA

Alamat: Jl. Jend. A. Yani Km. 35.8 Banjarbaru, Telp/Fax (0511) 4772826, website www.labdasar-unlam.org

SERTIFIKAT HASIL UJI
Nomor: 300b/LB.LABDASAR/XII/2023

Nomor Referensi	: XI-23-015	Tanggal Masuk	: 16 November 2023
Nama	: Dinda Tiara Santoso	Tanggal Selesai	: 8 Desember 2023
Institusi	: Universitas Borneo Lestari	Hasil Analisis	: Determinasi
No. Invoice	: 280/TS-11/2023	Jenis Tumbuhan	: Kelakai

HABITUS

Herba, merambat, panjang mencapai 5-10 m.

DAUN

Daun berbentuk lanset, panjang tangkai daun 10 – 20 cm, letak daun menyirip tunggal 1,5 – 4 cm, mengkilap, daun mudanya berwarna merah muda-merah-keungu-unguan, tekstur lembut dan tipis, warna daun dewasa kecoklatan-menjadi hijau tua, ujung daun meruncing, tepi daun bergerigi, pangkal daun membulat; lebar anak daun fertil 2-5 mm.

BATANG

-

AKAR

Akar rimpang yang memanjat tinggi, kuat, pipih persegi.

BUAH

-

BUNGA

-

NAMA LOKAL

Kelakai atau kalakai (Kalimantan Tengah/Kalimantan Selatan), Lemiding, miding (Pontianak), paku bang (Jawa), maja-majang, wewesu, bampesu (Sulawesi), lemidi (Sumatera).





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KLASIFIKASI

Kingdom : Plantae
Divisio : Pteridophyta
Sub Divisi : -
Class : Filicopsida
Ordo : Filicales
Family : Blechnaceae
Genus : Stenochlaena
Species : *Stenochlaena palustris* (Burm. f.) Bedd.

Synonyms :

Polypodium palustris Burm
Onoclea scandens Sw
Lomaria scandens (Sw) Willd.

Banjarbaru, 11 Desember 2023





Manager Puncak,



Dr. Fofok Wianto, S.Si., M.Si.

NIP. 19780504 200312 1 004








Lampiran 2. Proses Pembuatan Simplisia Akar Kelakai

No	Gambar	Keterangan
1.		<p>Pengumpulan bahan baku Akar Kelakai yang diambil dari daerah Pemajatan km.2, Gambut Barat, Kabupaten Banjar</p>
2.		<p>Sortasi basah dilakukan untuk memisahkan akar yang akan digunakan dari kotoran maupun bagian tanaman yang tidak diperlukan.</p>
3.		<p>Pencucian Akar Kelakai</p>
4.		<p>Pengeringan Akar</p>

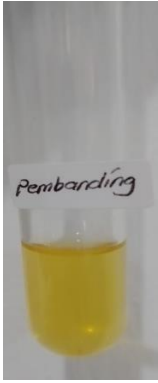
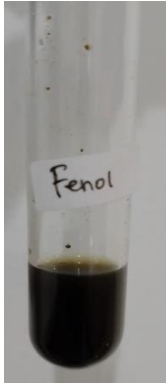
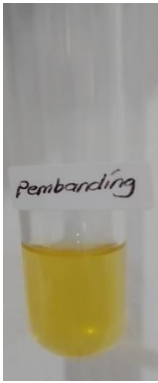



5.		Penghalusan Akar Kelakai
6.		Pengayakan Akar

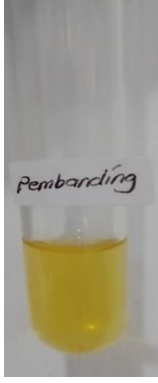

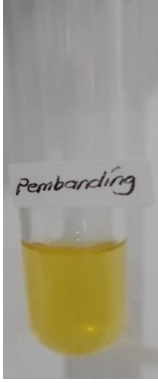
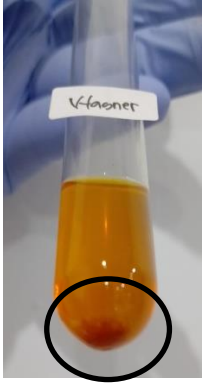
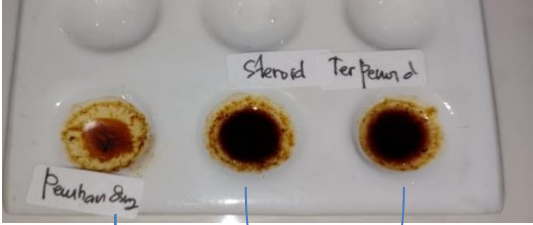
Lampiran 3. Proses Ekstraksi Akar Kelakai Menggunakan Soxhletasi

No	Gambar	Keterangan
1.		<p>Timbang Simplisia Akar Kelakai sebanyak 30g</p>
2.		<p>Proses Ekstraksi hingga memperoleh siklus bening</p>
3.		<p>Pemisahan ekstrak dengan pelarut menggunakan <i>rotary evaporator</i></p>
4.		<p>Pemekatan Ekstrak dengan <i>waterbath</i></p>

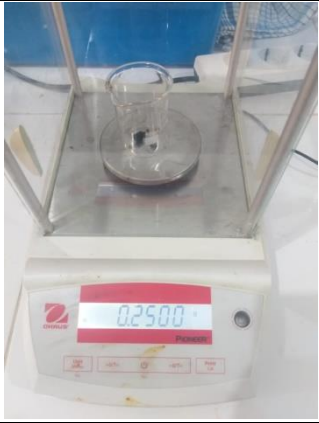



5.		Ekstrak kental
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Lampiran 4. Hasil Skrining Fitokimia Akar Kelakai

Golongan	Pereaksi	Hasil	Keterangan	Dokumentasi	
				Pembanding (ekstrak+ pelarut)	Larutan uji + pereaksi
Fenol	FeCl ₃ 10%	+	Terbentuk warna hitam menunjukkan adanya kandungan fenol		
Flavonoid	serbuk Mg + HCl (p)+ amil alcohol	+	Terbentuk warna jingga/kuning kemerahan pada lapisan amil alkohol menunjukkan adanya kandungan flavonoid		
Alkaloid	HCl Pekat + Mayer	+	Terbentuk endapan berwarna putih kekuningan menunjukkan adanya kandungan alkaloid		

	HCl Pekat+ Dragendorf	+	Terbentuk endapan berwarna merah atau jingga menunjukkan adanya kandungan alkaloid		
	HCl Pekat + Wagner	+	Terbentuk endapan berwarna merah kecoklatan menunjukkan adanya kandungan alkaloid		
Steroid	Kloroform + LB (10 tts asam asetat anhidrat dan 2 tts asam sulfat)	-	Tidak terbentuk warna hijau/biru/ungu menunjukkan tidak ada kandungan steroid	 <p>Pembandingan</p> <p>Uji Steroid / Terpenoid</p>	
Terpenoid		+	Terbentuk warna merah kecoklatan menunjukkan ada kandungan triterpenoid		

Lampiran 5. Proses Pembuatan Larutan Baku Ekstrak Akar Kelakai

No	Gambar	Keterangan
1.		Penimbangan Ekstrak 250 g
2.		Ekstrak 1000 ppm
3.		Larutan uji konsentrasi 20-350 ppm
4.		Konsentrasi 50-250 ppm

5.		Konsentrasi 300-350 ppm
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Lampiran 6. Perhitungan Pengukuran SPF Ekstrak Akar Kelakai

1. Pembuatan Larutan Induk

$$1 \text{ ppm} = 1 \text{ mg/L}$$

$$1 \text{ mL} = 0,001 \text{ L, maka } 100 \text{ mL} = 0,1 \text{ L}$$

$$2500 \text{ ppm} = x \text{ mg}/0,1 \text{ L}$$

$$\begin{aligned} X \text{ mg} &= 2500 \text{ mg/L} \times 0,1 \text{ L} \\ &= 250 \text{ mg} \end{aligned}$$

Maka, Ekstrak akar kelakai yang ditimbang yaitu 250 mg di ad kan dalam 100 mL etanol p.a.

2. Pembuatan larutan standar konsentrasi

$$\text{Rumus} = M_1 \times V_1 = M_2 \times V_2$$

a. Konsentrasi 50 ppm

$$2500 \text{ ppm} \times V_1 = 50 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{50 \text{ ppm}}{2500 \text{ ppm}} \times 10 \text{ mL} = 0,2 \text{ mL}$$

0,2 mL = 200 μ L di ad kan dalam 10 mL etanol p.a.

b. Konsentrasi 100 ppm

$$2500 \text{ ppm} \times V_1 = 100 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{100 \text{ ppm}}{2500 \text{ ppm}} \times 10 \text{ mL} = 0,4 \text{ mL}$$

0,4 mL = 400 μ L di ad kan dalam 10 mL etanol p.a.

c. Konsentrasi 150 ppm

$$2500 \text{ ppm} \times V_1 = 150 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{150 \text{ ppm}}{2500 \text{ ppm}} \times 10 \text{ mL} = 0,6 \text{ mL}$$

0,6 mL = 600 μ L di ad kan dalam 10 mL etanol p.a.

d. Konsentrasi 200 ppm

$$2500 \text{ ppm} \times V_1 = 200 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{200 \text{ ppm}}{2500 \text{ ppm}} \times 10 \text{ mL} = 0,8 \text{ mL}$$

0,8 mL = 800 μ L di ad kan dalam 10 mL etanol p.a.

e. Konsentrasi 250 ppm

$$2500 \text{ ppm} \times V_1 = 250 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{250 \text{ ppm}}{2500 \text{ ppm}} \times 10 \text{ mL} = 1 \text{ mL}$$

1 mL = 1000 μ L di ad kan dalam 10 mL etanol p.a.

f. Konsentrasi 300 ppm

$$2500 \text{ ppm} \times V_1 = 300 \text{ ppm} \times 10 \text{ mL}$$

$$V_1 = \frac{300 \text{ ppm}}{2500 \text{ ppm}} \times 10 \text{ mL} = 1,2 \text{ mL}$$

1,2 mL = 1200 μ L di ad kan dalam 10 mL etanol p.a.



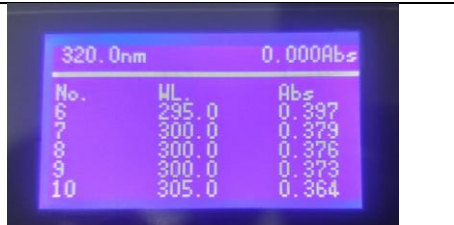
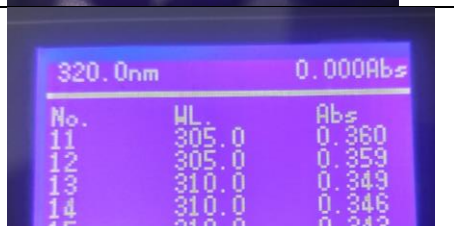

g. Konsentrasi 350 ppm

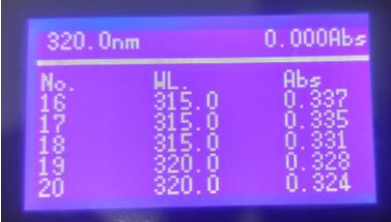

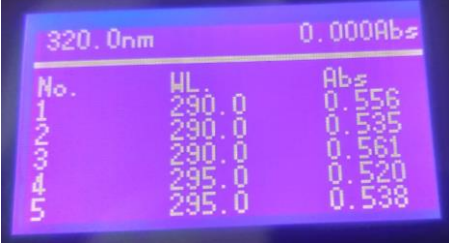
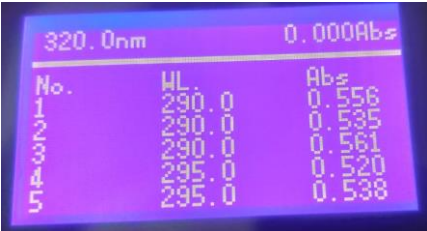

$$2500 \text{ ppm} \times V_1 = 350 \text{ ppm} \times 10 \text{ mL}$$


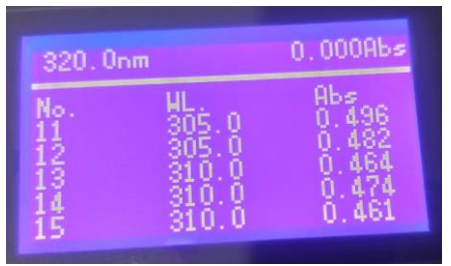
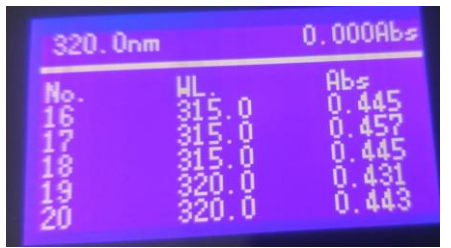
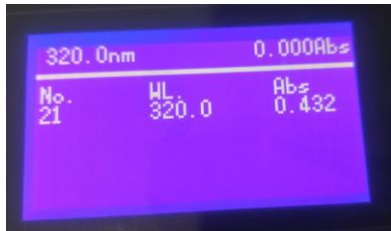
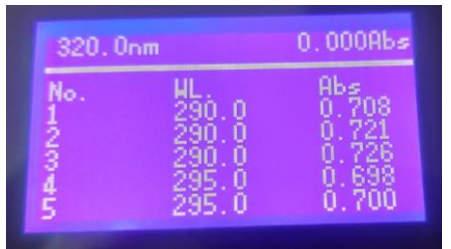
$$V_1 = \frac{350 \text{ ppm}}{2500 \text{ ppm}} \times 10 \text{ mL} = 1,4 \text{ mL}$$

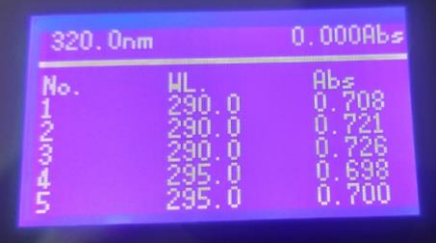
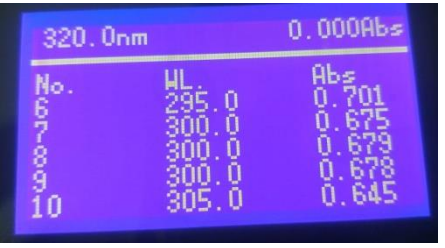

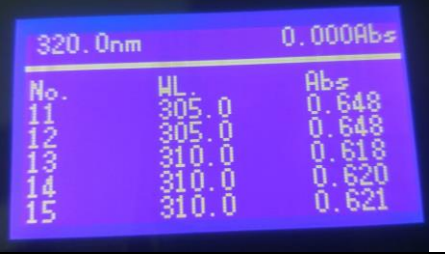

1,4 mL = 1400 μ L di ad kan dalam 10 mL etanol p.a.


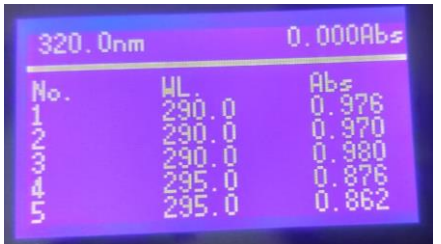
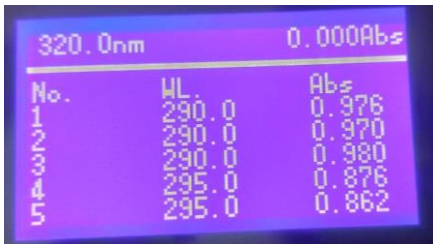

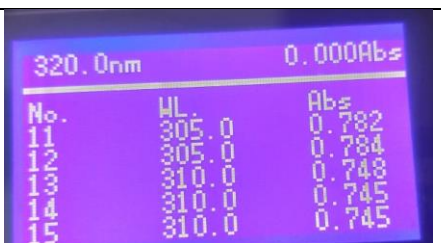
Lampiran 7. Hasil Absorbansi Ekstrak Akar Kelakai


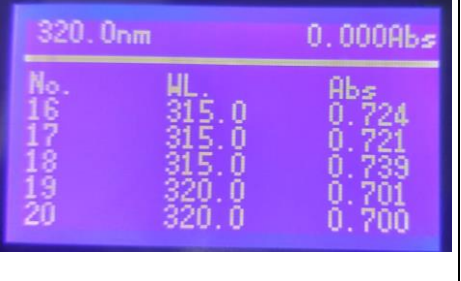
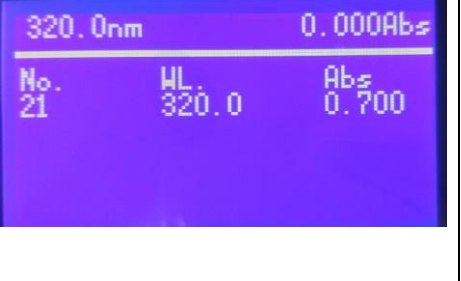
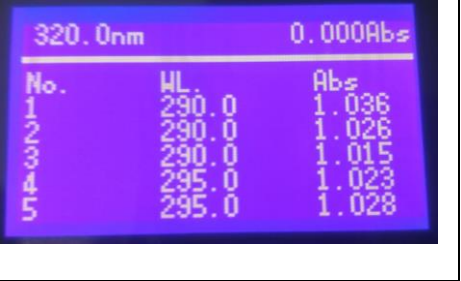

Konsentrasi	Panjang Gelombang	Reflikasi	Absorbansi	Gambar
50	290	1	0,407	
		2	0,404	
		3	0,406	
	295	1	0,4	
		2	0,398	
3		0,397		
300	300	1	0,379	
		2	0,376	
		3	0,373	
305	305	1	0,364	
		2	0,36	
		3	0,359	
310	310	1	0,349	
		2	0,346	
		3	0,343	

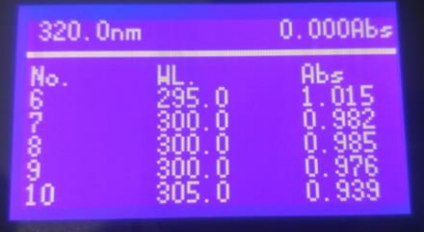
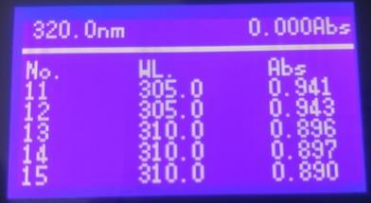
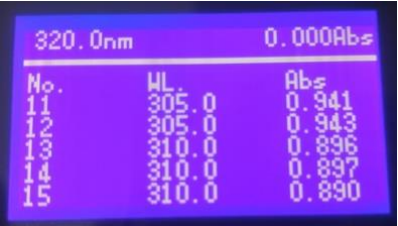
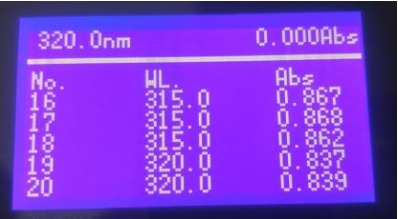


	315	1 2 3	0,337 0,335 0,331	
	320	1 2 3	0,328 0,324 0,321	
100	290	1 2 3	0,556 0,535 0,561	
	295	1 2 3	0,52 0,538 0,642	
	300	1 2 3	0,505 0,52 0,504	

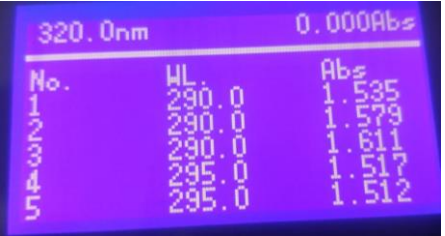
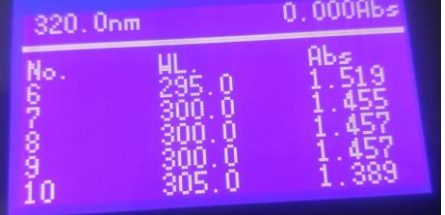
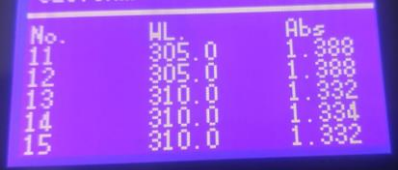
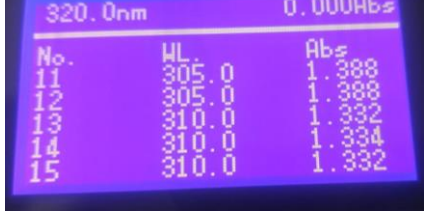

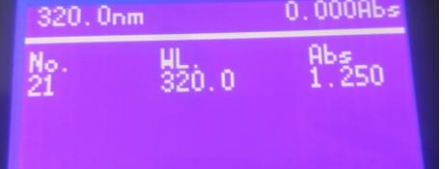
	305	1 2 3	0,481 0,496 0,482	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>11</td><td>305.0</td><td>0.496</td></tr> <tr><td>12</td><td>305.0</td><td>0.482</td></tr> <tr><td>13</td><td>310.0</td><td>0.464</td></tr> <tr><td>14</td><td>310.0</td><td>0.474</td></tr> <tr><td>15</td><td>310.0</td><td>0.461</td></tr> </tbody> </table>	No.	WL	Abs	11	305.0	0.496	12	305.0	0.482	13	310.0	0.464	14	310.0	0.474	15	310.0	0.461
No.	WL	Abs																				
11	305.0	0.496																				
12	305.0	0.482																				
13	310.0	0.464																				
14	310.0	0.474																				
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	310	1 2 3	0,464 0,474 0,461	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>11</td><td>305.0</td><td>0.496</td></tr> <tr><td>12</td><td>305.0</td><td>0.482</td></tr> <tr><td>13</td><td>310.0</td><td>0.464</td></tr> <tr><td>14</td><td>310.0</td><td>0.474</td></tr> <tr><td>15</td><td>310.0</td><td>0.461</td></tr> </tbody> </table>	No.	WL	Abs	11	305.0	0.496	12	305.0	0.482	13	310.0	0.464	14	310.0	0.474	15	310.0	0.461
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11	305.0	0.496																				
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13	310.0	0.464																				
14	310.0	0.474																				
15	310.0	0.461																				
	315	1 2 3	0,445 0,457 0,445	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>16</td><td>315.0</td><td>0.445</td></tr> <tr><td>17</td><td>315.0</td><td>0.457</td></tr> <tr><td>18</td><td>315.0</td><td>0.445</td></tr> <tr><td>19</td><td>320.0</td><td>0.431</td></tr> <tr><td>20</td><td>320.0</td><td>0.443</td></tr> </tbody> </table>	No.	WL	Abs	16	315.0	0.445	17	315.0	0.457	18	315.0	0.445	19	320.0	0.431	20	320.0	0.443
No.	WL	Abs																				
16	315.0	0.445																				
17	315.0	0.457																				
18	315.0	0.445																				
19	320.0	0.431																				
20	320.0	0.443																				
	320	1 2 3	0,431 0,443 0,432	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>21</td><td>320.0</td><td>0.432</td></tr> </tbody> </table>	No.	WL	Abs	21	320.0	0.432												
No.	WL	Abs																				
21	320.0	0.432																				
150	290	1 2 3	0,708 0,721 0,726	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>1</td><td>290.0</td><td>0.708</td></tr> <tr><td>2</td><td>290.0</td><td>0.721</td></tr> <tr><td>3</td><td>290.0</td><td>0.726</td></tr> <tr><td>4</td><td>295.0</td><td>0.698</td></tr> <tr><td>5</td><td>295.0</td><td>0.700</td></tr> </tbody> </table>	No.	WL	Abs	1	290.0	0.708	2	290.0	0.721	3	290.0	0.726	4	295.0	0.698	5	295.0	0.700
No.	WL	Abs																				
1	290.0	0.708																				
2	290.0	0.721																				
3	290.0	0.726																				
4	295.0	0.698																				
5	295.0	0.700																				


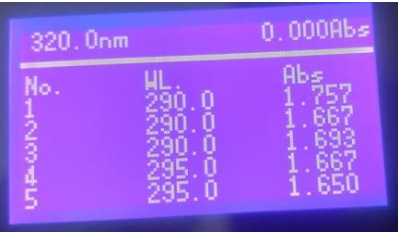

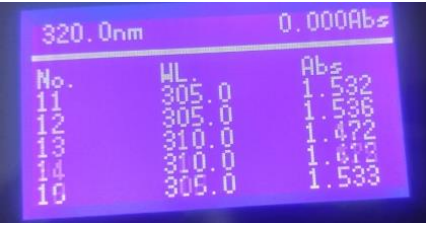
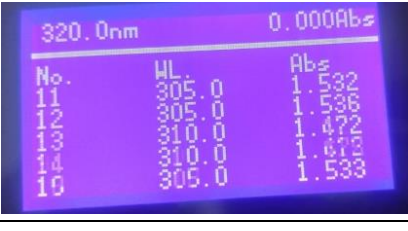
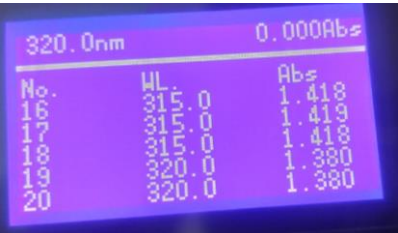
295	1 2 3	0,698 0,7 0,701	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>1</td><td>290.0</td><td>0.708</td></tr> <tr><td>2</td><td>290.0</td><td>0.721</td></tr> <tr><td>3</td><td>290.0</td><td>0.726</td></tr> <tr><td>4</td><td>295.0</td><td>0.698</td></tr> <tr><td>5</td><td>295.0</td><td>0.700</td></tr> </tbody> </table>	No.	WL	Abs	1	290.0	0.708	2	290.0	0.721	3	290.0	0.726	4	295.0	0.698	5	295.0	0.700
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2	290.0	0.721																			
3	290.0	0.726																			
4	295.0	0.698																			
5	295.0	0.700																			
300	1 2 3	0,675 0,679 0,678	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>6</td><td>295.0</td><td>0.701</td></tr> <tr><td>7</td><td>300.0</td><td>0.675</td></tr> <tr><td>8</td><td>300.0</td><td>0.679</td></tr> <tr><td>9</td><td>300.0</td><td>0.678</td></tr> <tr><td>10</td><td>305.0</td><td>0.645</td></tr> </tbody> </table>	No.	WL	Abs	6	295.0	0.701	7	300.0	0.675	8	300.0	0.679	9	300.0	0.678	10	305.0	0.645
No.	WL	Abs																			
6	295.0	0.701																			
7	300.0	0.675																			
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9	300.0	0.678																			
10	305.0	0.645																			
305	1 2 3	0,645 0,648 0,648	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>11</td><td>305.0</td><td>0.648</td></tr> <tr><td>12</td><td>305.0</td><td>0.648</td></tr> <tr><td>13</td><td>310.0</td><td>0.618</td></tr> <tr><td>14</td><td>310.0</td><td>0.620</td></tr> <tr><td>15</td><td>310.0</td><td>0.621</td></tr> </tbody> </table>	No.	WL	Abs	11	305.0	0.648	12	305.0	0.648	13	310.0	0.618	14	310.0	0.620	15	310.0	0.621
No.	WL	Abs																			
11	305.0	0.648																			
12	305.0	0.648																			
13	310.0	0.618																			
14	310.0	0.620																			
15	310.0	0.621																			
310	1 2 3	0,618 0,62 0,621	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>11</td><td>305.0</td><td>0.648</td></tr> <tr><td>12</td><td>305.0</td><td>0.648</td></tr> <tr><td>13</td><td>310.0</td><td>0.618</td></tr> <tr><td>14</td><td>310.0</td><td>0.620</td></tr> <tr><td>15</td><td>310.0</td><td>0.621</td></tr> </tbody> </table>	No.	WL	Abs	11	305.0	0.648	12	305.0	0.648	13	310.0	0.618	14	310.0	0.620	15	310.0	0.621
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315	1 2 3	0,597 0,599 0,597	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>16</td><td>315.0</td><td>0.597</td></tr> <tr><td>17</td><td>315.0</td><td>0.599</td></tr> <tr><td>18</td><td>315.0</td><td>0.597</td></tr> <tr><td>19</td><td>320.0</td><td>0.579</td></tr> <tr><td>20</td><td>320.0</td><td>0.581</td></tr> </tbody> </table>	No.	WL	Abs	16	315.0	0.597	17	315.0	0.599	18	315.0	0.597	19	320.0	0.579	20	320.0	0.581
No.	WL	Abs																			
16	315.0	0.597																			
17	315.0	0.599																			
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20	320.0	0.581																			


	320	1 2 3	0,579 0,581 0,581	
200	290	1 2 3	0,976 0,97 0,98	
	295	1 2 3	0,876 0,862 0,863	
	300	1 2 3	0,824 0,819 0,823	
	305	1 2 3	0,784 0,782 0,784	

	310	1 2 3	0,748 0,745 0,745	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>11</td><td>305.0</td><td>0.782</td></tr> <tr><td>12</td><td>305.0</td><td>0.784</td></tr> <tr><td>13</td><td>310.0</td><td>0.748</td></tr> <tr><td>14</td><td>310.0</td><td>0.745</td></tr> <tr><td>15</td><td>310.0</td><td>0.745</td></tr> </tbody> </table>	No.	WL	Abs	11	305.0	0.782	12	305.0	0.784	13	310.0	0.748	14	310.0	0.745	15	310.0	0.745
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No.	WL	Abs																				
21	320.0	0.700																				
250	290	1 2 3	1,036 1,026 1,015	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>1</td><td>290.0</td><td>1.036</td></tr> <tr><td>2</td><td>290.0</td><td>1.026</td></tr> <tr><td>3</td><td>290.0</td><td>1.015</td></tr> <tr><td>4</td><td>295.0</td><td>1.023</td></tr> <tr><td>5</td><td>295.0</td><td>1.028</td></tr> </tbody> </table>	No.	WL	Abs	1	290.0	1.036	2	290.0	1.026	3	290.0	1.015	4	295.0	1.023	5	295.0	1.028
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	300	1 2 3	0,989 0,985 0,976	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>6</td><td>295.0</td><td>1.015</td></tr> <tr><td>7</td><td>300.0</td><td>0.982</td></tr> <tr><td>8</td><td>300.0</td><td>0.985</td></tr> <tr><td>9</td><td>300.0</td><td>0.976</td></tr> <tr><td>10</td><td>305.0</td><td>0.939</td></tr> </tbody> </table>	No.	WL	Abs	6	295.0	1.015	7	300.0	0.982	8	300.0	0.985	9	300.0	0.976	10	305.0	0.939
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	315	1 2 3	0,867 0,868 0,862	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>16</td><td>315.0</td><td>0.867</td></tr> <tr><td>17</td><td>315.0</td><td>0.868</td></tr> <tr><td>18</td><td>315.0</td><td>0.862</td></tr> <tr><td>19</td><td>320.0</td><td>0.837</td></tr> <tr><td>20</td><td>320.0</td><td>0.839</td></tr> </tbody> </table>	No.	WL	Abs	16	315.0	0.867	17	315.0	0.868	18	315.0	0.862	19	320.0	0.837	20	320.0	0.839
No.	WL	Abs																				
16	315.0	0.867																				
17	315.0	0.868																				
18	315.0	0.862																				
19	320.0	0.837																				
20	320.0	0.839																				
	320	1 2 3	0,837 0,839 0,833	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>21</td><td>320.0</td><td>0.833</td></tr> </tbody> </table>	No.	WL	Abs	21	320.0	0.833												
No.	WL	Abs																				
21	320.0	0.833																				
300	290	1 2 3	1,535 1,579 1,611	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>1</td><td>290.0</td><td>1.535</td></tr> <tr><td>2</td><td>290.0</td><td>1.579</td></tr> <tr><td>3</td><td>290.0</td><td>1.611</td></tr> <tr><td>4</td><td>295.0</td><td>1.517</td></tr> <tr><td>5</td><td>295.0</td><td>1.512</td></tr> </tbody> </table>	No.	WL	Abs	1	290.0	1.535	2	290.0	1.579	3	290.0	1.611	4	295.0	1.517	5	295.0	1.512
No.	WL	Abs																				
1	290.0	1.535																				
2	290.0	1.579																				
3	290.0	1.611																				
4	295.0	1.517																				
5	295.0	1.512																				

	295	1 2 3	1,517 1,512 1,519	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>1</td><td>290.0</td><td>1.535</td></tr> <tr><td>2</td><td>290.0</td><td>1.579</td></tr> <tr><td>3</td><td>290.0</td><td>1.611</td></tr> <tr><td>4</td><td>295.0</td><td>1.517</td></tr> <tr><td>5</td><td>295.0</td><td>1.512</td></tr> </tbody> </table>	No.	WL	Abs	1	290.0	1.535	2	290.0	1.579	3	290.0	1.611	4	295.0	1.517	5	295.0	1.512
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1	290.0	1.535																				
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	300	1 2 3	1,455 1,457 1,457	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>6</td><td>295.0</td><td>1.519</td></tr> <tr><td>7</td><td>300.0</td><td>1.455</td></tr> <tr><td>8</td><td>300.0</td><td>1.457</td></tr> <tr><td>9</td><td>300.0</td><td>1.457</td></tr> <tr><td>10</td><td>305.0</td><td>1.389</td></tr> </tbody> </table>	No.	WL	Abs	6	295.0	1.519	7	300.0	1.455	8	300.0	1.457	9	300.0	1.457	10	305.0	1.389
No.	WL	Abs																				
6	295.0	1.519																				
7	300.0	1.455																				
8	300.0	1.457																				
9	300.0	1.457																				
10	305.0	1.389																				
	305	1 2 3	1,389 1,388 1,388	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>11</td><td>305.0</td><td>1.388</td></tr> <tr><td>12</td><td>305.0</td><td>1.388</td></tr> <tr><td>13</td><td>310.0</td><td>1.332</td></tr> <tr><td>14</td><td>310.0</td><td>1.334</td></tr> <tr><td>15</td><td>310.0</td><td>1.332</td></tr> </tbody> </table>	No.	WL	Abs	11	305.0	1.388	12	305.0	1.388	13	310.0	1.332	14	310.0	1.334	15	310.0	1.332
No.	WL	Abs																				
11	305.0	1.388																				
12	305.0	1.388																				
13	310.0	1.332																				
14	310.0	1.334																				
15	310.0	1.332																				
	310	1 2 3	1,332 1,334 1,332	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>11</td><td>305.0</td><td>1.388</td></tr> <tr><td>12</td><td>305.0</td><td>1.388</td></tr> <tr><td>13</td><td>310.0</td><td>1.332</td></tr> <tr><td>14</td><td>310.0</td><td>1.334</td></tr> <tr><td>15</td><td>310.0</td><td>1.332</td></tr> </tbody> </table>	No.	WL	Abs	11	305.0	1.388	12	305.0	1.388	13	310.0	1.332	14	310.0	1.334	15	310.0	1.332
No.	WL	Abs																				
11	305.0	1.388																				
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13	310.0	1.332																				
14	310.0	1.334																				
15	310.0	1.332																				
	315	1 2 3	1,287 1,289 1,288	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>16</td><td>315.0</td><td>1.287</td></tr> <tr><td>17</td><td>315.0</td><td>1.289</td></tr> <tr><td>18</td><td>315.0</td><td>1.288</td></tr> <tr><td>19</td><td>320.0</td><td>1.250</td></tr> <tr><td>20</td><td>320.0</td><td>1.252</td></tr> </tbody> </table>	No.	WL	Abs	16	315.0	1.287	17	315.0	1.289	18	315.0	1.288	19	320.0	1.250	20	320.0	1.252
No.	WL	Abs																				
16	315.0	1.287																				
17	315.0	1.289																				
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	320	1 2 3	1,25 1,252 1,25	 <table border="1"> <thead> <tr> <th>No.</th> <th>WL</th> <th>Abs</th> </tr> </thead> <tbody> <tr><td>21</td><td>320.0</td><td>1.250</td></tr> </tbody> </table>	No.	WL	Abs	21	320.0	1.250												
No.	WL	Abs																				
21	320.0	1.250																				

350	290	1 2 3	1,757 1,667 1,693	
	295	1 2 3	1,667 1,65 1,652	
	300	1 2 3	1,619 1,622 1,615	
	305	1 2 3	1,533 1,532 1,536	
	310	1 2 3	1,472 1,473 1,47	
	315	1 2 3	1,418 1,419 1,418	

	320	1 2 3	1,38 1,38 1,378	
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Lampiran 8. Perhitungan SPF Ekstrak Akar Kelakai

Ppm	λ (nm)	Absorbansi			EE x I	EE x I x A		
		R1	R2	R3		R1	R2	R3
50	290	0,407	0,404	0,406	0,015	0,006105	0,00606	0,00609
	295	0,4	0,398	0,397	0,0817	0,03268	0,03252	0,03243
	300	0,379	0,376	0,373	0,2874	0,108925	0,10806	0,1072
	305	0,364	0,36	0,359	0,3278	0,119319	0,11801	0,11768
	310	0,349	0,346	0,343	0,1864	0,065054	0,06449	0,06394
	315	0,337	0,335	0,331	0,0839	0,028274	0,02811	0,02777
	320	0,328	0,324	0,321	0,018	0,005904	0,00583	0,00578
	Total						0,366261	0,36308
Rata-rata						0,36341		

$$\begin{aligned} \text{Replikasi 1} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,36626 = 3,6626 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 2} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,36308 = 3,6308 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 3} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,36089 = 3,6089 \end{aligned}$$

$$\begin{aligned} \text{Rata - Rata SPF} &= \text{CF} \times \sum \text{EE} (\lambda) \times \text{I} (\lambda) \times \text{Abs} (\lambda) \\ &= 10 \times 0,36341 = 3,6341 \end{aligned}$$

Ppm	λ (nm)	Absorbansi			EE x I	EE x I x A		
		R1	R2	R3		R1	R2	R3
100	290	0,556	0,535	0,561	0,015	0,00834	0,00803	0,00842
	295	0,52	0,538	0,542	0,0817	0,042484	0,04395	0,04428
	300	0,505	0,52	0,504	0,2874	0,145137	0,14945	0,14485
	305	0,481	0,496	0,482	0,3278	0,157672	0,16259	0,158
	310	0,464	0,474	0,461	0,1864	0,08649	0,08835	0,08593
	315	0,445	0,457	0,445	0,0839	0,037336	0,03834	0,03734
	320	0,431	0,443	0,432	0,018	0,007758	0,00797	0,00778
	Total						0,485216	0,49869
Rata-rata						0,490163233		

$$\begin{aligned} \text{Replikasi 1} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,48521 = 4,8521 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 2} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,49869 = 4,9869 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 3} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,48659 = 4,8659 \end{aligned}$$

$$\begin{aligned} \text{Rata - Rata SPF} &= \text{CF} \times \sum \text{EE} (\lambda) \times \text{I} (\lambda) \times \text{Abs} (\lambda) \\ &= 10 \times 0,49016 = 4,9016 \end{aligned}$$

Ppm	λ (nm)	Absorbansi			EE x I	EE x I x A		
		R1	R2	R3		R1	R2	R3
150	290	0,708	0,721	0,726	0,015	0,01062	0,01082	0,01089
	295	0,698	0,7	0,701	0,0817	0,057027	0,05719	0,05727
	300	0,675	0,679	0,678	0,2874	0,193995	0,19514	0,19486
	305	0,645	0,648	0,648	0,3278	0,211431	0,21241	0,21241
	310	0,618	0,62	0,621	0,1864	0,115195	0,11557	0,11575
	315	0,597	0,599	0,597	0,0839	0,050088	0,05026	0,05009
	320	0,579	0,581	0,581	0,018	0,010422	0,01046	0,01046
	Total						0,648778	0,65185
Rata-rata						0,650786067		

$$\begin{aligned} \text{Replikasi 1} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,64877 = 6,4877 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 2} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,65185 = 6,5185 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 3} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,65173 = 6,5173 \end{aligned}$$

$$\begin{aligned} \text{Rata - Rata SPF} &= \text{CF} \times \sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda) \\ &= 10 \times 0,65078 = 6,5078 \end{aligned}$$

Ppm	λ (nm)	Absorbansi			EE x I	EE x I x A		
		R1	R2	R3		R1	R2	R3
200	290	0,976	0,97	0,98	0,015	0,01464	0,01455	0,0147
	295	0,876	0,862	0,863	0,0817	0,071569	0,07043	0,07051
	300	0,824	0,819	0,823	0,2874	0,236818	0,23538	0,23653
	305	0,784	0,782	0,784	0,3278	0,256995	0,25634	0,257
	310	0,748	0,745	0,745	0,1864	0,139427	0,13887	0,13887
	315	0,724	0,721	0,739	0,0839	0,060744	0,06049	0,062
	320	0,701	0,7	0,7	0,018	0,012618	0,0126	0,0126
	Total						0,792811	0,78866
Rata-rata						0,791222967		

$$\begin{aligned} \text{Replikasi 1} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,79281 = 7,9281 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 2} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,78866 = 7,8866 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 3} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 0,7922 = 7,922 \end{aligned}$$

$$\begin{aligned} \text{Rata - Rata SPF} &= \text{CF} \times \sum \text{EE} (\lambda) \times \text{I} (\lambda) \times \text{Abs} (\lambda) \\ &= 10 \times 0,79122 = 7,9122 \end{aligned}$$

Ppm	Λ (nm)	Absorbansi			EE x I	EE x I x A		
		R1	R2	R3		R1	R2	R3
250	290	1,036	1,026	1,015	0,015	0,01554	0,01539	0,01523
	295	1,023	1,028	1,015	0,0817	0,083579	0,08399	0,08293
	300	0,982	0,985	0,976	0,2874	0,282227	0,28309	0,2805
	305	0,939	0,941	0,943	0,3278	0,307804	0,30846	0,30912
	310	0,896	0,897	0,89	0,1864	0,167014	0,1672	0,1659
	315	0,867	0,868	0,862	0,0839	0,072741	0,07283	0,07232
	320	0,837	0,839	0,833	0,018	0,015066	0,0151	0,01499
	Total						0,943972	0,94605
Rata-rata						0,943668767		

$$\text{SPF} = \text{CF} \times \sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)$$

$$= 10 \times 0,94366 = 9,4366$$

$$\text{Replikasi 1} \quad \text{SPF} = 10 \times \text{EE} \times \text{I}$$

$$= 10 \times 0,94397 = 9,4397$$

$$\text{Replikasi 2} \quad \text{SPF} = 10 \times \text{EE} \times \text{I}$$

$$= 10 \times 0,94605 = 9,4605$$

$$\text{Replikasi 3} \quad \text{SPF} = 10 \times \text{EE} \times \text{I}$$

$$= 10 \times 0,94098 = 9,4098$$

$$\text{Rata - Rata SPF} = \text{CF} \times \sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)$$

$$= 10 \times 0,94366 = 9,4366$$

Ppm	λ (nm)	Absorbansi			EE x I	EE x I x A			
		R1	R2	R3		R1	R2	R3	
300	290	1,535	1,579	1,611	0,015	0,023025	0,02369	0,02417	
	295	1,517	1,512	1,519	0,0817	0,123939	0,12353	0,1241	
	300	1,455	1,457	1,457	0,2874	0,418167	0,41874	0,41874	
	305	1,389	1,388	1,388	0,3278	0,455314	0,45499	0,45499	
	310	1,332	1,334	1,332	0,1864	0,248285	0,24866	0,24828	
	315	1,287	1,289	1,288	0,0839	0,107979	0,10815	0,10806	
	320	1,25	1,252	1,25	0,018	0,0225	0,02254	0,0225	
	Total						1,399209	1,40028	1,40084
	Rata-rata						1,400112333		

$$\begin{aligned} \text{Replikasi 1} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 1,39920 = 13,9920 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 2} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 1,40028 = 14,0028 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 3} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 1,40084 = 14,0084 \end{aligned}$$

$$\begin{aligned} \text{Rata - RataSPF} &= \text{CF} \times \sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda) \\ &= 10 \times 1,40011 = 14,0011 \end{aligned}$$

Ppm	λ (nm)	Absorbansi			EE x I	EE x I x A		
		R1	R2	R3		R1	R2	R3
350	290	1,757	1,667	1,693	0,015	0,026355	0,02501	0,0254
	295	1,667	1,65	1,652	0,0817	0,136194	0,13481	0,13497
	300	1,619	1,622	1,615	0,2874	0,465301	0,46616	0,46415
	305	1,533	1,532	1,536	0,3278	0,502517	0,50219	0,5035
	310	1,472	1,473	1,47	0,1864	0,274381	0,27457	0,27401
	315	1,418	1,419	1,418	0,0839	0,11897	0,11905	0,11897
	320	1,38	1,38	1,378	0,018	0,02484	0,02484	0,0248
	Total						1,548558	1,54662
Rata-rata						1,546993		

$$\begin{aligned} \text{Replikasi 1} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 1,54855 = 15,4855 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 2} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 1,54662 = 15,4662 \end{aligned}$$

$$\begin{aligned} \text{Replikasi 3} \quad \text{SPF} &= 10 \times \text{EE} \times \text{I} \\ &= 10 \times 1,5458 = 15,458 \end{aligned}$$

$$\begin{aligned} \text{Rata - Rata SPF} &= \text{CF} \times \sum \text{EE} (\lambda) \times \text{I} (\lambda) \times \text{Abs} (\lambda) \\ &= 10 \times 1,54699 = 15,4699 \end{aligned}$$

Konsentrasi (PPM)	Replikasi	Nilai SPF	Kategori
50	1	3,6626	Proteksi Minimal (Sedang)
	2	3,6308	Proteksi Minimal (Sedang)
	3	3,6089	Proteksi Minimal(Sedang)
	Rata-Rata	3,6341	Proteksi Minimal(Sedang)
100	1	4,8521	Proteksi Sedang
	2	4,9869	Proteksi Sedang
	3	4,8659	Proteksi Sedang
	Rata-Rata	4,9016	Proteksi Sedang
150	1	6,4877	Proteksi Ekstra (Kuat)
	2	6,5185	Proteksi Ekstra (Kuat)
	3	6,5173	Proteksi Ekstra(Kuat)
	Rata-Rata	6,5078	Proteksi Ekstra(Kuat)
200	1	7,9281	Proteksi Ekstra (Kuat)
	2	7,8866	Proteksi Ekstra (Kuat)
	3	7,922	Proteksi Ekstra (Kuat)
	Rata-Rata	7,9122	Proteksi Ekstra (Kuat)
250	1	9,4397	Proteksi Maksimal (Sangat Kuat)
	2	9,4605	Proteksi Maksimal (Sangat Kuat)
	3	9,4098	Proteksi Maksimal(Sangat Kuat)
	Rata-Rata	9,4366	Proteksi Maksimal(Sangat Kuat)
300	1	13,9920	Proteksi Maksimal (Ekstrim)
	2	14,0028	Proteksi Maksimal (Ekstrim)
	3	14,0084	Proteksi Maksimal (Ekstrim)
	Rata-Rata	14,0011	Proteksi Maksimal (Ekstrim)
350	1	15,4855	Proteksi Ultra (Ekstrim)
	2	15,4662	Proteksi Ultra (Ekstrim)
	3	15,458	Proteksi Ultra (Ekstrim)
	Rata-Rata	15,4699	Proteksi Ultra (Ekstrim)

Lampiran 9. Hasil SPSS Ekstrak Akar Kelakai

Tests of Normality

ppm	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Nilai SPF						
ppm 50	.213	3	.	.990	3	.806
ppm 100	.352	3	.	.826	3	.178
ppm 150	.373	3	.	.779	3	.066
ppm 200	.335	3	.	.858	3	.261
ppm 250	.214	3	.	.989	3	.803
ppm 300	.249	3	.	.968	3	.654
ppm 350	.270	3	.	.948	3	.563

a. Lilliefors Significance Correction

ANOVA

Nilai SPF	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	359.585	6	59.931	52834.728	<.001
Within Groups	.016	14	.001		
Total	359.601	20			

Tests of Homogeneity of Variances

Nilai SPF		Levene	df1	df2	Sig.
		Statistic			
Nilai SPF	Based on Mean	5.145	6	14	.005
	Based on Median	.639	6	14	.698
	Based on Median and with adjusted df	.639	6	3.250	.706
	Based on trimmed mean	4.461	6	14	.010


Games-Howell	ppm 50	ppm 100	-1.26770*	.04552	.002	-1.5837	-.9517
		ppm 150	-2.87390*	.01843	<.001	-2.9744	-2.7734
		ppm 200	-4.27830*	.02014	<.001	-4.3804	-4.1762
		ppm 250	-5.80273*	.02133	<.001	-5.9092	-5.6962
		ppm 300	-10.36713*	.01617	<.001	-10.4850	-10.2493
		ppm 350	-11.83597*	.01746	<.001	-11.9397	-11.7322
	ppm 100	ppm 50	1.26770*	.04552	.002	.9517	1.5837
		ppm 150	-1.60620*	.04399	.002	-1.9506	-1.2618
		ppm 200	-3.01060*	.04473	<.001	-3.3396	-2.6816
		ppm 250	-4.53503*	.04528	<.001	-4.8547	-4.2154
		ppm 300	-9.09943*	.04309	<.001	-9.4675	-8.7314
		ppm 350	-10.56827*	.04359	<.001	-10.9224	-10.2141
	ppm 150	ppm 50	2.87390*	.01843	<.001	2.7734	2.9744
		ppm 100	1.60620*	.04399	.002	1.2618	1.9506
		ppm 200	-1.40440*	.01640	<.001	-1.4889	-1.3199
		ppm 250	-2.92883*	.01783	<.001	-3.0244	-2.8333
		ppm 300	-7.49323*	.01116	<.001	-7.5625	-7.4240
		ppm 350	-8.96207*	.01296	<.001	-9.0282	-8.8959
	ppm 200	ppm 50	4.27830*	.02014	<.001	4.1762	4.3804
		ppm 100	3.01060*	.04473	<.001	2.6816	3.3396
		ppm 150	1.40440*	.01640	<.001	1.3199	1.4889
		ppm 250	-1.52443*	.01959	<.001	-1.6230	-1.4258
		ppm 300	-6.08883*	.01380	<.001	-6.1836	-5.9941
		ppm 350	-7.55767*	.01529	<.001	-7.6421	-7.4732
	ppm 250	ppm 50	5.80273*	.02133	<.001	5.6962	5.9092
		ppm 100	4.53503*	.04528	<.001	4.2154	4.8547
		ppm 150	2.92883*	.01783	<.001	2.8333	3.0244
		ppm 200	1.52443*	.01959	<.001	1.4258	1.6230
		ppm 300	-4.56440*	.01548	<.001	-4.6755	-4.4533
		ppm 350	-6.03323*	.01682	<.001	-6.1312	-5.9353
	ppm 300	ppm 50	10.36713*	.01617	<.001	10.2493	10.4850
		ppm 100	9.09943*	.04309	<.001	8.7314	9.4675
		ppm 150	7.49323*	.01116	<.001	7.4240	7.5625
		ppm 200	6.08883*	.01380	<.001	5.9941	6.1836
		ppm 250	4.56440*	.01548	<.001	4.4533	4.6755
		ppm 350	-1.46883*	.00947	<.001	-1.5225	-1.4152
	ppm 350	ppm 50	11.83597*	.01746	<.001	11.7322	11.9397
		ppm 100	10.56827*	.04359	<.001	10.2141	10.9224
		ppm 150	8.96207*	.01296	<.001	8.8959	9.0282
		ppm 200	7.55767*	.01529	<.001	7.4732	7.6421
		ppm 250	6.03323*	.01682	<.001	5.9353	6.1312
		ppm 300	1.46883*	.00947	<.001	1.4152	1.5225

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


Descriptive Statistics

	N	Mean	Std. Deviation
ppm 50	3	3.6339	.02674
ppm 100	3	4.9016	.07416
ppm 150	3	6.5078	.01745
ppm 200	3	7.9122	.02241
ppm 250	3	9.4367	.02549
ppm 300	3	14.0011	.00834
ppm 350	3	15.4699	.01412
Valid N (listwise)	3		

Lampiran 10. Hasil Validasi Spektrofotometer



YAYASAN BORNEO LESTARI
 Laboratorium Borneo Lestari
 Jl. Kelapa Sawit 8 Bumi Berkat RT.02 RW.01 Telp.(0511)4783717 Kelurahan Sungai Besar
 Kecamatan Banjarbaru Selatan Kode Pos 70714 Kota Banjarbaru-Kalimantan Selatan



KETERANGAN HASIL UJI DI LABORATORIUM

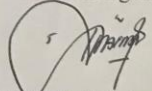
Nama : Elvita Nurwahdini
 NIM : 4820102220011

DATA HASIL PENGUJIAN SPEKTROFOTOMETRI UV-VIS

1. Hasil Absorbansi Ekstrak Etanol Akar Kelakai

Panjang gelombang 290

Konsentrasi (ppm)	Replikasi	Absorbansi
50	1	0,407
	2	0,404
	3	0,406
100	1	0,556
	2	0,535
	3	0,561
150	1	0,708
	2	0,721
	3	0,726
200	1	0,976
	2	0,97
	3	0,98
250	1	1,036
	2	1,026
	3	1,015
300	1	1,535
	2	1,579
	3	1,611
350	1	1,757
	2	1,667
	3	1,693

Pembimbing Laboran

 (Tia Fajar Safariana, S.Farm)



YAYASAN BORNEO LESTARI

Laboratorium Borneo Lestari

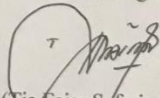
Jl. Kelapa Sawit 8 Bumi Berkat RT.02 RW.01 Telp.(0511)4783717 Kelurahan Sungai Besar
Kecamatan Banjarbaru Selatan Kode Pos 70714 Kota Banjarbaru-Kalimantan Selatan



Panjang gelombang 295

Konsentrasi (ppm)	Replikasi	Absorbansi
50	1	0,4
	2	0,398
	3	0,397
100	1	0,52
	2	0,538
	3	0,642
150	1	0,698
	2	0,7
	3	0,701
200	1	0,876
	2	0,862
	3	0,863
250	1	1,023
	2	1,028
	3	1,015
300	1	1,517
	2	1,512
	3	1,519
350	1	1,667
	2	1,65
	3	1,652

Pembimbing Laboran


(Sia Fajar Safariana, S.Farm)



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Panjang gelombang 300

Konsentrasi (ppm)	Replikasi	Absorbansi
50	1	0,379
	2	0,376
	3	0,373
100	1	0,505
	2	0,52
	3	0,504
150	1	0,675
	2	0,679
	3	0,678
200	1	0,824
	2	0,819
	3	0,823
250	1	0,989
	2	0,985
	3	0,976
300	1	1,455
	2	1,457
	3	1,457
350	1	1,619
	2	1,622
	3	1,615

Pembimbing Laboran

(Tia Fajar Safariana, S.Farm)



YAYASAN BORNEO LESTARI
Laboratorium Borneo Lestari

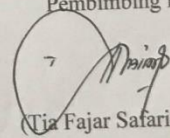
Jl. Kelapa Sawit 8 Bumi Berkat RT.02 RW.01 Telp.(0511)4783717 Kelurahan Sungai Besar
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Panjang gelombang 305

Konsentrasi (ppm)	Replikasi	Absorbansi
50	1	0,364
	2	0,36
	3	0,359
100	1	0,481
	2	0,496
	3	0,482
150	1	0,645
	2	0,648
	3	0,648
200	1	0,784
	2	0,782
	3	0,784
250	1	0,939
	2	0,941
	3	0,943
300	1	1,389
	2	1,388
	3	1,388
350	1	1,533
	2	1,532
	3	1,536

Pembimbing Laboran


(Tia Fajar Safariana, S.Farm)



YAYASAN BORNEO LESTARI
Laboratorium Borneo Lestari

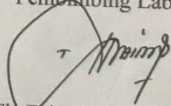
Jl. Kelapa Sawit 8 Bumi Berkat RT.02 RW.01 Telp.(0511)4783717 Kelurahan Sungai Besar
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Panjang gelombang 310

Konsentrasi (ppm)	Replikasi	Absorbansi
50	1	0,349
	2	0,346
	3	0,343
100	1	0,464
	2	0,474
	3	0,461
150	1	0,618
	2	0,62
	3	0,621
200	1	0,748
	2	0,745
	3	0,745
250	1	0,896
	2	0,897
	3	0,89
300	1	1,332
	2	1,334
	3	1,332
350	1	1,472
	2	1,473
	3	1,47

Pembimbing Laboran


(Tia Pajar Safariana, S.Farm)



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Panjang gelombang 315

Konsentrasi (ppm)	Replikasi	Absorbansi
50	1	0,337
	2	0,335
	3	0,331
100	1	0,445
	2	0,457
	3	0,445
150	1	0,597
	2	0,599
	3	0,597
200	1	0,724
	2	0,721
	3	0,739
250	1	0,867
	2	0,868
	3	0,862
300	1	1,287
	2	1,289
	3	1,288
350	1	1,418
	2	1,419
	3	1,418

Pembimbing Laboran

(Tia Fajar Safariana, S.Farm)



YAYASAN BORNEO LESTARI

Laboratorium Borneo Lestari

Jl. Kelapa Sawit 8 Bumi Berkat RT.02 RW.01 Telp.(0511)4783717 Kelurahan Sungai Besar
Kecamatan Banjarbaru Selatan Kode Pos 70714 Kota Banjarbaru-Kalimantan Selatan



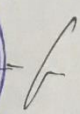
Panjang gelombang 320

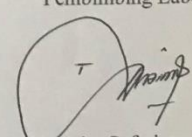
Konsentrasi (ppm)	Replikasi	Absorbansi
50	1	0,328
	2	0,324
	3	0,321
100	1	0,431
	2	0,443
	3	0,432
150	1	0,579
	2	0,581
	3	0,581
200	1	0,701
	2	0,7
	3	0,7
250	1	0,837
	2	0,839
	3	0,833
300	1	1,25
	2	1,252
	3	1,125
350	1	1,38
	2	1,38
	3	1,378

Dengan ini menyatakan bahwa seluruh hasil pengujian yang dilakukan di laboratorium Universitas Borneo Lestari telah di validasi dan dinyatakan valid.

Demikian keterangan ini dibuat untuk diketahui dan dipergunakan semestinya.

Mengetahui,

Kepala Laboratorium

 (apt. Putri Indah Bayakti, M.Pharm., Sci)

Pembimbing Laboran

 (Tia Fajar Safariana, S.Farm)