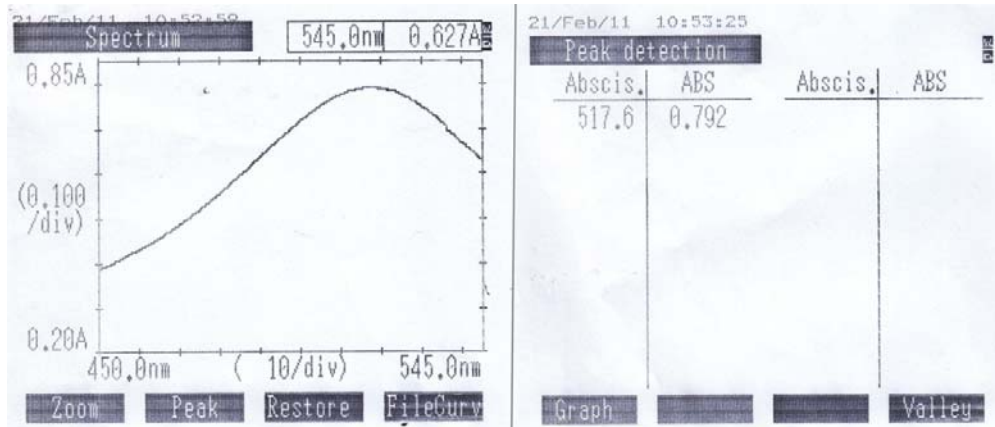


LAMPIRAN

Lampiran 1. Penentuan Panjang Gelombang Maksimum DPPH



Lampiran 2. Contoh perhitungan IC₅₀ dari Data Hasil Penentuan IC50 Ekstrak Etanol rimpang temulawak

Larutan stok 0,1 %

Replikasi 1

Pengambilan (μL)	Kadar Sampel (μg/mL)	Abs			% Antiradikal	Rerata % Antiradikal
		Sampel	Kontrol	Faktor Koreksi		
12,5	2,5	0,741	0,781	- 0,014	5,122	3,927 ± 2,88
		0,734			6,018	
		0,776			0,64	
25	5	0,726	0,781	- 0,012	7,042	10,67 ± 3,22
		0,689			11,78	
		0,678			13,188	
50	10	0,602	0,781	- 0,009	22,919	25,139 ± 2,72
		0,591			24,328	
		0,561			28,169	
100	20	0,445	0,781	0,001	43,022	45,028 ± 3,04
		0,402			48,528	
		0,441			43,534	
200	40	0,297	0,781	0,005	61,972	62,953 ± 0,87
		0,287			63,252	
		0,284			63,636	

Persamaan regresi linier:
 $Y = 1,5523X - 5,483$
 $R^2 = 0,9385$
 $IC_{50} = 28,678$

% aktivitas antiadikal

$$= \frac{(\text{absorbansi kontrol} - \text{absorbansi sampel})}{\text{absorbansi kontrol}} \times 100\%$$

Contoh perhitungan % antiradikal:

$$\% \text{ antiradikal} = \frac{0,781 - 0,741}{0,781} \times 100\% = 5,122 \%$$

Contoh Perhitungan IC₅₀:

$$Y = 1,5523X - 5,483$$

$$50 = 1,5523X - 5,483$$

$$X = 28,678 \mu\text{g/mL}$$

$$IC_{50} = 28,678 \mu\text{g/mL}$$

Lampiran 3. Hasil penentuan IC₅₀ vitamin E, ekstrak etanol rimpang kunyit, temulawak, temu kunci, temu putih

Vitamin E
Larutan stok 0,1 %

Pengambilan (μL)	Kadar Sampel (μg/mL)	Abs						% Antiradikal			Rerata % Antiradikal ± SD		
		R1		R2		R3		R1	R2	R3	R1	R2	R3
		Sampel	Kontrol	Sample	Kontrol	Sampel	Kontrol						
6,25	1,25	0,572	0,792	0,725	0,793	0,682	0,793	27,78	8,58	14	20,87	14,59	14,84
		0,647		0,650		0,684		18,31	18,03	13,75			
		0,661		0,657		0,660		16,54	17,15	16,77			
12,5	2,5	0,610		0,692		0,660		22,98	12,74	16,77	25,34	13,33	15,55
		0,628		0,679		0,675		20,70	14,38	14,88			
		0,536		0,691		0,674		32,33	12,86	15			
25	5	0,438		0,614		0,575		44,69	22,57	27,49	49,78	22,15	25,72
		0,358		0,590		0,622		54,79	25,6	21,56			
		0,397		0,648		0,570		49,87	18,29	28,12			
50	10	0,380	0,444	0,397	52,02	44,01	49,94	56,99	43,21	47,84			
		0,393	0,454	0,407	50,38	42,75	48,68						
		0,249	0,453	0,437	68,56	42,88	44,89						
100	20	0,290	0,298	0,247	63,38	62,42	68,85	71,46	62,5	66,25			
		0,213	0,352	0,289	73,10	55,61	63,56						
		0,175	0,242	0,267	77,90	69,48	66,33						
Replikasi	Persamaan Regresi Linear	R ²	IC ₅₀										
1	Y = 2,572X - 24,954	0,8381	9,737										
2	Y = 2,7403X - 9,9188	0,9694	14,627										
3	Y = 2,8833X - 11,694	0,9628	13,286										
Rerata IC ₅₀ ± SD (μg/mL)				12,55 ± 2,53									

Lampiran 3. Hasil penentuan IC₅₀ vitamin E, ekstrak etanol rimpang kunyit, temulawak, temu kunci, temu putih (lanjutan)

Kunyit
Larutan stok 0,1 %

Kadar Sampel (µg/mL)	Abs									% Antiradikal			Rerata % Antiradikal		
	R1			R2			R3			R1	R2	R3	R1	R2	R3
	Sampe l	Kontrol	Faktor Koreksi	Sample	Kontrol	Faktor Koreksi	Sampel	Kontrol	Faktor Koreksi						
2,5	0,741	0,781	- 0,014	0,737	0,841	- 0,015	0,738	0,841	- 0,018	5,122	12,366	12,247	3,927	7,967	8,125
	0,734			0,794			0,790			6,018	5,589	6,064			
	0,776			0,791			0,790			0,64	5,945	6,064			
5	0,726	0,781	- 0,012	0,730	0,841	- 0,012	0,728	0,841	- 0,011	7,042	13,199	13,436	10,67	14,784	10,186
	0,689			0,720			0,777			11,78	14,388	7,61			
	0,678			0,700			0,761			13,188	16,766	9,512			
10	0,602	0,781	- 0,009	0,611	0,841	- 0,010	0,638	0,841	- 0,009	22,919	27,348	24,138	25,139	24,732	22,513
	0,591			0,671			0,656			24,328	20,214	21,998			
	0,561			0,617			0,661			28,169	26,635	21,403			
20	0,445	0,781	0,001	0,510	0,841	- 0,001	0,528	0,841	0,001	43,022	39,358	37,693	45,028	40,230	40,032
	0,402			0,505			0,488			48,528	39,952	41,974			
	0,441			0,493			0,501			43,534	41,379	40,428			
40	0,297	0,781	0,005	0,334	0,841	0,007	0,330	0,841	0,005	61,972	59,929	60,761	62,953	61,356	61,871
	0,287			0,330			0,307			63,252	60,761	63,496			
	0,284			0,308			0,325			63,636	63,377	61,355			
Replikasi	Persamaan Regresi Linear			R ²	IC ₅₀										
1	Y = 1,5523X – 5,483			0,9385	28,678										
2	Y = 1,3865X – 8,3233			0,9756	30,059										
3	Y = 1,4619X – 5,8857			0,9777	30,176										
Rerata IC ₅₀ ± SD (µg/mL)					29,64 ± 0,83										

Lampiran 3. Hasil penentuan IC₅₀ vitamin E, ekstrak etanol rimpang kunyit, temulawak, temu kunci, temu putih (lanjutan)

Temulawak

Larutan stok 0,1 %

Kadar Sampel (µg/mL)	Abs									% Antiradikal			Rerata % Antiradikal ± SD			
	R1			R2			R3			R1	R2	R3	R1	R2	R3	
	Sampe l	Kontrol	Faktor Koreksi	Sample	Kontrol	Faktor Koreksi	Sampel	Kontrol	Faktor Koreksi							
5	0,663 0,685 0,679	0,743 0,740 0,748 0,740 Rerata= 0,743	0,015	0,66 0,681	0,739 0,740 0,743 0,738 Rerata= 0,740	- 0,012	0,673 0,683	0,762 0,756 0,760 0,758 Rerata= 0,759	- 0,009	8,748 5,787 6,595	10 7,973	11,331 10,031	7,043 ± 1,53	8,987 ± 1,43	10,681 ± 0,92	
10	0,611 0,655 0,656		0,017	0,581 0,613		- 0,011	0,647 0,605		- 0,006	15,478 9,556 9,421	21,487 17,162	14,765 20,29	11,485 ± 3,46	19,325 ± 3,06	15,528 ± 3,91	
20	0,558 0,552 0,561		0,012	0,524 0,543		- 0,008	0,538 0,539		0,000	23,284 24,092 22,880	29,189 26,622	29,117 28,986	23,419 ± 0,62	27,906 ± 1,82	29,052 ± 0,09	
40	0,447 0,452 0,433		0,022	0,422 0,424		0,001	0,387 0,388		0,004	36,878 36,205 38,762	42,973 42,703	49,012 48,88	37,282 ± 1,33	42,838 ± 0,19	48,946 ± 0,09	
80	0,241 0,291 0,271		0,034	0,271 0,266		0,009	0,249 0,258		0,040	62,988 56,988 58,950	63,378 64,052	61,924 60,738	59,642 ± 3,06	63,715 ± 0,48	61,331 ± 0,84	
Replikasi	Persamaan Regresi Linear			R ²		IC ₅₀										
1	Y = 0,6925X – 6,305			0,9801		63,097										
2	Y = 0,6885X – 11,211			0,9642		56,338										
3	Y = 0,6781X – 12,088			0,9117		55,909										
Rerata IC ₅₀ ± SD (µg/mL)							58,45 ± 5,06									

Lampiran 3. Hasil penentuan IC₅₀ vitamin E, ekstrak etanol rimpang kunyit, temulawak, temu kunci, temu putih (lanjutan)

Temu Kunci
Larutan stok 0,1 %

Kadar Sampel (µg/mL)	Abs									% Antiradikal			Rerata % Antiradikal ± SD		
	R1			R2			R3			R1	R2	R3	R1	R2	R3
	Sampel	Kontrol	Faktor Koreksi	Sample	Kontrol	Faktor Koreksi	Sampel	Kontrol	Faktor Koreksi						
20	0,602 0,611	0,743	0,025	0,582 0,608	0,739	- 0,013	0,596 0,588	0,762	- 0,012	15,612 14,401	21,351 17,838	21,476 22,530	15,007 ± 0,86	19,595 ± 2,84	22,003 ± 0,75
40	0,552 0,522			0,740 0,748			0,539 0,530			0,740	- 0,012	0,540 0,537			
80	0,411 0,404	0,740	0,020	0,418 0,430	0,743 0,738	- 0,010	0,473 0,481	0,758	- 0,010	41,992 42,934	43,514 41,892	37,022 36,627	42,463 ± 0,67	42,703 ± 1,15	36,825 ± 0,28
160	0,308 0,307	Rerata = 0,743	0,021	0,354 0,336	Rerata = 0,740	- 0,009	0,391 0,372	Rerata =	- 0,008	55,72 55,855	52,162 54,595	48,485 50,988	55,788 ± 0,09	53,379 ± 1,72	49,737 ± 1,78
200	0,237 0,228			0,254 0,245			0,292 0,290			0,759	- 0,002	65,141 66,487	65,676 66,892	61,528 61,792	65,814 ± 0,95
Replikasi	Persamaan Regresi Linier			R ²		IC ₅₀									
1	Y = 0,2647X - 14,433			0,9585		137,367									
2	Y = 0,2393X - 18,016			0,9651		133,657									
3	Y = 0,2045X - 19,405			0,9873		149,609									
Rerata IC ₅₀ ± SD (µg/mL)						140,21 ± 8,35									

Lampiran 3. Hasil penentuan IC₅₀ vitamin E, ekstrak etanol rimpang kunyit, temulawak, temu kunci, temu putih (lanjutan)

Temu Putih

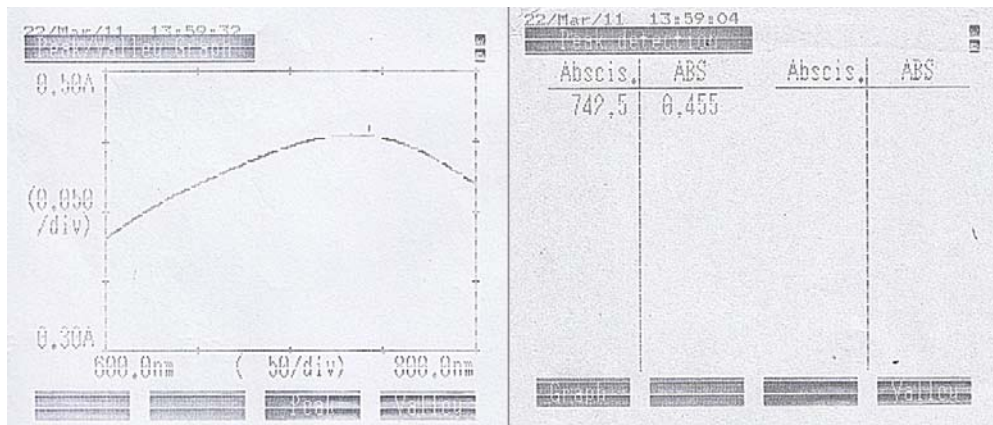
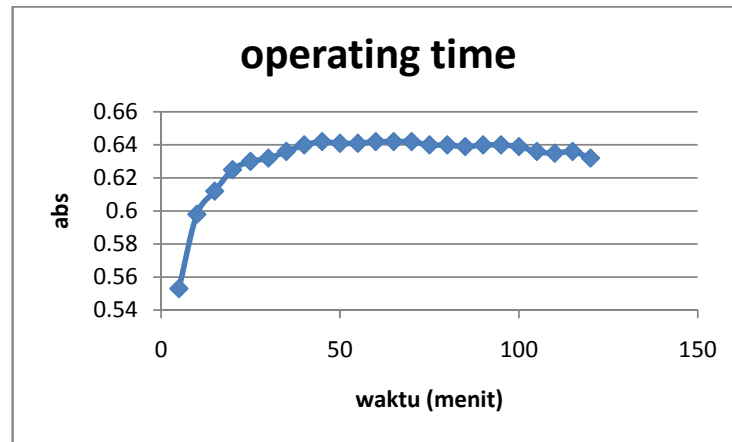
Larutan stok 0,1 %

Kadar Sampel (µg/mL)	Abs									% Antiradikal			Rerata % Antiradikal ± SD			
	R1			R2			R3			R1	R2	R3	R1	R2	R3	
	Sampel	Kontrol	Faktor Koreksi	Sample	Kontrol	Faktor Koreksi	Sampel	Kontrol	Faktor Koreksi							
20	0,692 0,648	0,743	0,018	0,651 0,628	0,739	- 0,011	0,651 0,649	0,762	- 0,009	4,441 10,363	12,027 15,135	14,229 14,493	7,402 ± 4,19	13,581 ± 2,2	14,361 ± 0,19	
40	0,635 0,616			0,740 0,748			0,575 0,579			0,740	- 0,013	0,599 0,588	0,756 0,760	- 0,010	11,709 14,267	22,297 21,757
80	0,531 0,525	0,740	0,023	0,490 0,493	0,743 0,738	- 0,000	0,537 0,51	0,758	- 0,006	25,437 26,245	33,784 33,387	29,249 28,722	25,841 ± 0,57	33,586 ± 0,28	28,986 ± 0,37	
160	0,386 0,380	Rerata = 0,743	0,014	0,421 0,421	Rerata = 0,740	0,009	0,457 0,455	Rerata =	0,002	46,164 46,972	43,108 43,108	39,789 40,053	46,568 ± 0,57	43,108 ± 0	39,921 ± 0,19	
200	0,288 0,298	0,743	0,018	0,278 0,270	0,740	0,022	0,297 0,295	0,759	0,008	58,816 57,470	59,46 60,541	60,870 61,133	58,143 ± 0,95	60,001 ± 0,76	61,002 ± 0,19	
Replikasi				Persamaan Regresi Linier			R ²			IC ₅₀						
1				Y = 0,28X - 2,1879		0,9422	170,758									
2				Y = 0,2294X - 11,516		0,9584	167,759									
3				Y = 0,2287X - 10,246		0,9989	173,826									
Rerata IC ₅₀ ± SD (µg/mL)							170,78 ± 3,03									

Lampiran 4. Hasil Penentuan IC₅₀ Ekstrak Etanol Rimpang Kunyit, Temulawak, Temu Kunci, Dan Temu Putih Dibandingkan Dengan Vitamin E.

Sampel	Kadar Sampel (µg/mL)	Rerata % Antiradikal ± SD			IC ₅₀ (µg/mL)			Rerata IC ₅₀ ± SD (µg/mL)
		R.1	R.2	R.3	R.1	R.2	R.3	
Kunyit	2,5	3,927±2,88	7,967±3,81	8,125±3,57	28,678	30,059	30,176	29,64 ± 0,83
	5	10,67±3,22	14,784±1,82	10,186±2,97				
	10	25,139±2,72	24,732±3,93	22,513±1,44				
	20	45,028±3,04	40,230±1,04	40,032±2,17				
	40	62,953±0,87	61,356±1,8	61,871±1,44				
Temulawak	5	7,043±1,53	8,987±1,43	10,681 ± 0,92	63,097	53,338	55,909	58,45 ± 5,06
	10	11,48 ±3,46	19,325±3,06	15,528 ± 3,91				
	20	23,419±0,62	27,906±1,82	29,052 ± 0,09				
	40	37,282±1,33	42,838 ±0,19	48,946 ± 0,09				
	80	59,642±3,06	63,715±0,48	61,331 ± 0,84				
Temu Kunci	20	15,007 ± 0,85	19,595 ± 2,84	22,003 ± 0,75	137,367	133,657	149,609	140,21 ± 8,35
	40	25,438 ± 2,86	27,77 ± 0,86	29,052 ± 0,28				
	80	42,463 ± 0,67	42,703 ± 1,15	36,825 ± 0,28				
	160	55,788 ± 0,09	53,379 ± 1,72	49,737 ± 1,78				
	200	65,814 ± 0,95	66,284 ± 0,86	61,629 ± 0,19				
Temu Putih	20	7,402 ± 4,19	13,581 ± 2,2	14,361 ± 0,19	170,758	167,759	173,826	170,78 ± 3,03
	40	12,988 ± 1,81	22,027 ± 0,38	21,305 ± 1,73				
	80	25,841 ± 0,57	33,586 ± 0,28	28,986 ± 0,37				
	160	46,568 ± 0,57	43,108 ± 0	39,921 ± 0,19				
	200	58,143 ± 0,95	60,001 ± 0,76	61,002 ± 0,19				
Vitamin E	1,25	20,87 ± 6,04	14,59 ± 5,22	14,84 ± 1,68	9,737	14,627	13,286	12,55± 2,53
	2,5	25,34 ± 6,16	13,33 ± 0,91	15,55 ± 1,06				
	5	49,78 ± 5,05	22,15 ± 3,67	25,72 ± 3,62				
	10	56,99 ± 10,06	43,21 ± 0,69	47,84 ± 2,63				
	20	71,46 ± 7,4	62,5 ± 5,94	66,25 ± 2,65				

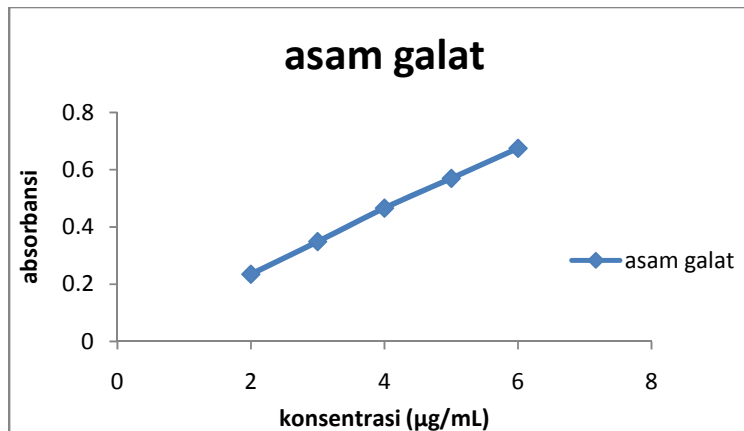
Lampiran 5. Hasil Penentuan *Operating Time* dan Panjang Gelombang Maksimum Asam Galat Asam Galat



Lampiran 6. Kurva Baku Asam Galat

Kadar ($\mu\text{g/mL}$)	Abs		Rerata Abs \pm SD
	R.1	R.2	
2	0,247 0,213	0,232 0,247	0,235 \pm 0,01
3	0,345 0,319	0,374 0,357	0,349 \pm 0,002
4	0,446 0,459	0,493 0,464	0,466 \pm 0,002
5	0,557 0,576	0,570 0,576	0,570 \pm 0,01
6	0,654 0,664	0,675 0,707	0,675 \pm 0,02

Kurva baku:
 $Y = 0,1101X + 0,0186$
 $R^2 = 0,9993$



Lampiran 7. Contoh Perhitungan Kadar Fenolik Total

Sampl e	Kadar larutan (%)	F.P	Abs			GAE (mg/g)			Rerata GAE ± SD
			R1	R2	R2	R1	R2	R3	
Kunyit	0,1	50x	0,411	0,396	0,416	173,01	166,41	180,5	179,71 ± 1,29
			0,434	0,459	0,413	183,16	196,08	179,1	
			Rerata			178,09	181,25	179,8	
Temula wak	0,2		0,486	0,431	0,453	98,25	92,14	95,78	95,76 ± 3,05
			0,480	0,426	0,475	97,01	90,78	100,61	
			Rerata			97,635	91,46	98,195	
Temu Kunci	0,2		0,349	0,395	0,419	78,89	86,37	90,03	82,45 ± 3,7
			0,360	0,335	0,398	81,52	72,58	85,3	
			Rerata			80,205	79,475	87,665	
Temu Putih	0,5	0,362	0,391	0,477	31,38	33,9	41,39	35,39 ± 3,92	
		0,368	0,387	0,464	31,91	33,55	40,21		
		Rerata			31,645	33,725	40,8		

Kurva baku : $Y = 0,1101X + 0,0186$

Absorbansi (Y) = 0,411

$Y = 0,1101X + 0,0186$

$0,411 = 0,1101X + 0,0186$

$X = 3,564 \mu\text{g/ml}$

Kadar fenolik total dalam larutan stok sampel:

$= 3,564 \mu\text{g/ml} \times F_p$

$= 3,564 \mu\text{g/ml} \times 50$

$= 178,2 \mu\text{g/mL}$

$= 17,82 \text{ mg/100mL}$

Faktor pengenceran (Fp) = $\frac{5 \text{ mL}}{0,1 \text{ mL}} = 50 \times$

$GAE = \frac{17,82 \text{ mg}}{100 \text{ mL}}$

$0,103 \text{ g/100 ml}$

$= 17,82 \text{ mg}$

$0,103 \text{ g}$

$= 173,01 \text{ mg/g}$

Lampiran 8. Hasil Penetapan Kadar Fenolik Total

Sample	Berat sampel (g)			Kadar larutan (%)	F.P	GAE (mg/g)			Rerata GAE \pm SD	
	R1	R2	R3			R1	R2	R3		
Kunyit	0,0103 ad 10 mL	0,0102 ad 10 mL	0,01 ad 10 mL	0,1	50x		173,01	166,41	180,5	179,71 \pm 1,29
							183,16	196,08	179,1	
						\bar{x}	178,09	181,25	179,8	
Temulawak	0,0108 ad 5 mL	0,01019 ad 5 mL	0,0103 ad 5 mL	0,2	50x		98,25	92,14	95,78	95,76 \pm 3,05
							97,01	90,78	100,61	
						\bar{x}	97,635	91,46	98,195	
Temu Kunci	0,00951 ad 5 mL	0,0099 ad 5 mL	0,0101 ad 5 mL	0,2	50x		78,89	86,37	90,03	82,45 \pm 3,7
							81,52	72,58	85,3	
						\bar{x}	80,205	79,475	87,665	
Temu Putih	0,02487 ad 5 mL	0,02493 ad 5 mL	0,02515 ad 5 mL	0,5	50x		31,38	33,9	41,39	35,39 \pm 3,92
							31,91	33,55	40,21	
						\bar{x}	31,645	33,725	40,8	