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## LAMPIRAN

### Lampiran 1. Rekapitulasi Data Analisis SPSS Uji Organoleptik Metode Hedonik

#### Oneway

ANOVA					
		Sum of Squares	df	Mean Square	F
Tingkat Kesukaan Warna	Between Groups	.060	2	.030	2.380
	Within Groups	.076	6	.013	
	Total	.136	8		
Tingkat Kesukaan Aroma	Between Groups	.047	2	.024	3.244
	Within Groups	.044	6	.007	
	Total	.091	8		
Tingkat Kesukaan Rasa	Between Groups	.913	2	.457	10.979
	Within Groups	.250	6	.042	
	Total	1.163	8		
Tingkat Kesukaan scr Keseluruhan	Between Groups	.143	2	.072	4.855
	Within Groups	.089	6	.015	
	Total	.232	8		

ANOVA		
		Sig.
Tingkat Kesukaan Warna	Between Groups	.173
	Within Groups	
	Total	
Tingkat Kesukaan Aroma	Between Groups	.111
	Within Groups	
	Total	
Tingkat Kesukaan Rasa	Between Groups	.010
	Within Groups	
	Total	
Tingkat Kesukaan scr Keseluruhan	Between Groups	.056

	Within Groups
	Total

## Post Hoc Tests

### Homogeneous Subsets

Tingkat Kesukaan Warna		
Duncan <sup>a</sup>		
Formula	N	Subset for alpha = 0.05 1
F3 (15% : 35%)	3	6.0800
F1 (5% : 45%)	3	6.2533
F2 (10% : 40%)	3	6.2533
Sig.		.118

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

Tingkat Kesukaan Aroma		
Duncan <sup>a</sup>		
Formula	N	Subset for alpha = 0.05 1
F3 (15% : 35%)	3	5.5733
F2 (10% : 40%)	3	5.7200
F1 (5% : 45%)	3	5.7333
Sig.		.069

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

Tingkat Kesukaan Rasa			
Duncan <sup>a</sup>			
Formula	N	Subset for alpha = 0.05	
		1	2
F3 (15% : 35%)	3	5.1467	
F2 (10% : 40%)	3		5.7867
F1 (5% : 45%)	3		5.8533
Sig.		1.000	.703

Means for groups in homogeneous subsets are displayed.  
a. Uses Harmonic Mean Sample Size = 3,000.

Tingkat Kesukaan scr Keseluruhan			
Duncan <sup>a</sup>			
Formula	N	Subset for alpha = 0.05	
		1	2
F3 (15% : 35%)	3	5.5600	
F2 (10% : 40%)	3	5.7467	5.7467
F1 (5% : 45%)	3		5.8667
Sig.		.109	.272

Means for groups in homogeneous subsets are displayed.  
a. Uses Harmonic Mean Sample Size = 3,000.

#### Lampiran 2. Rekapitulasi Data Analisis Kadar Air Bubuk Minuman Cokelat Kelor

Sampel Minuman	Ulangan	Berat sampel awal (g)	Berat air yg diuapkan (g)	Kadar air (% bb)	Kadar air rata-rata (% bb)
		(B-A)	(B-C)		
F1 (5% M: 45% C)	1	2,0040	0,0981	4,89	4,90
	2	1,0828	0,0531	4,90	
	3	2,0045	0,0982	4,90	
F2 (10% M: 40% C)	1	1,4025	0,0696	4,96	5,00
	2	1,7540	0,0875	4,99	
	3	1,5929	0,0804	5,05	
F3 (15% M: 35% C)	1	2,6254	0,1378	5,25	5,11
	2	1,6215	0,0805	4,96	
	3	1,5758	0,0805	5,11	

Perhitungan:

$$\text{Rumus Kadar air (\% bb)} = \frac{(B - C)}{(B - A)} \times 100\%$$

Keterangan:

A = berat cawan kosong (g)

B = berat cawan dan sampel sebelum dikeringkan (g)

C = berat cawan dan sampel setelah dikeringkan (g)

bb= bais basah (%)

Contoh:

$$\text{Kadar air F1 (\% bb)} = \frac{(B - C)}{(B - A)} \times 100\%$$

Diketahui:

A = 23,0313 g

B = 25,0353 g

C = 24,9372 g



Sehingga:

$$\begin{aligned} \text{Kadar air F1 (\% bb)} &= \frac{(25,0353 - 24,9372)}{(25,0353 - 23,0313)} \times 100\% \\ &= \frac{(0,0981)}{(2,004)} \times 100\% \\ &= 4,89\% \end{aligned}$$

Lampiran 3. Analisis Statistik Data Kadar Air Bubuk Minuman Cokelat Kelor

### Oneway

ANOVA					
Kadar Air					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.066	2	.033	4.283	.070
Within Groups	.046	6	.008		
Total	.112	8			

Lampiran 4. Rekapitulasi Data Analisis Kadar Abu Bubuk Minuman Cokelat Kelor

Sampel Minuman	Ulangan	Berat sampel awal (g)	Berat setelah diabukan (g)	Kadar abu (% bb)	Kadar abu rata-rata (%bb)
		(B)	(C-A)		
F1 (5% M: 45% C)	1	1,6389	0,1266	7,72	7,73
	2	1,6856	0,1293	7,67	
	3	1,4655	0,1143	7,79	
F2 (10% M: 40% C)	1	1,8524	0,1402	7,56	7,48
	2	1,6571	0,1233	7,44	
	3	2,0089	0,1493	7,43	
F3 (15% M: 35% C)	1	1,4421	0,1042	7,23	7,39
	2	1,1318	0,0851	7,52	
	3	1,5288	0,1136	7,43	

Perhitungan:

$$\text{Rumus Kadar Abu (\% bb)} = \frac{C-A}{B} \times 100\%$$

Keterangan:

A = berat cawan kosong (g)

B = berat sampel awal (g)

C = berat cawan dan abu (g)

Contoh:

$$\text{Kadar Abu F1 (\% bb)} = \frac{C-A}{B} \times 100\%$$

Diketahui:

$$A = 22,3978 \text{ g}$$

$$B = 1,6389 \text{ g}$$

$$C = 22,5244 \text{ g}$$

Sehingga:

$$\begin{aligned} \text{Kadar abu F1 (\% bb)} &= \frac{(22,5244 - 22,3978)}{1,6389} \times 100\% \\ &= \frac{(0,1266)}{1,6389} \times 100\% \\ &= 7,72 \% \end{aligned}$$

Lampiran 5. Analisis Statistik Data Kadar Abu Bubuk Minuman Cokelat Kelor

### Oneway

ANOVA					
Kadar Abu					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.181	2	.090	8.765	.017
Within Groups	.062	6	.010		
Total	.242	8			

### Post Hoc Tests

#### Homogeneous Subsets

Kadar Abu			
Duncan <sup>a</sup>			
Formula	N	Subset for alpha = 0.05	
		1	2
F3 (15% M : 35% C)	3	7.3933	
F2 (10% M : 40% C)	3	7.4767	
F1 (5% M : 45% C)	3		7.7267
Sig.		.353	1.000

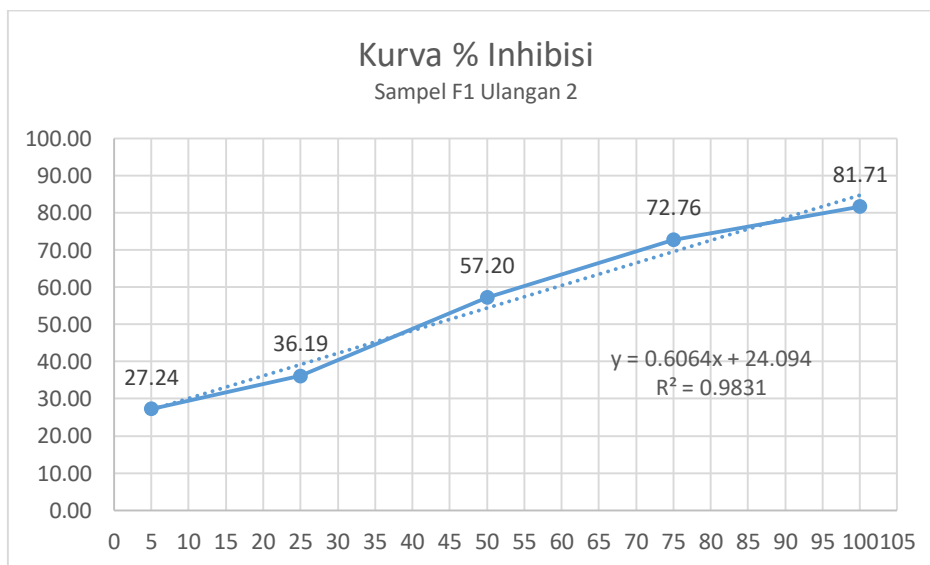
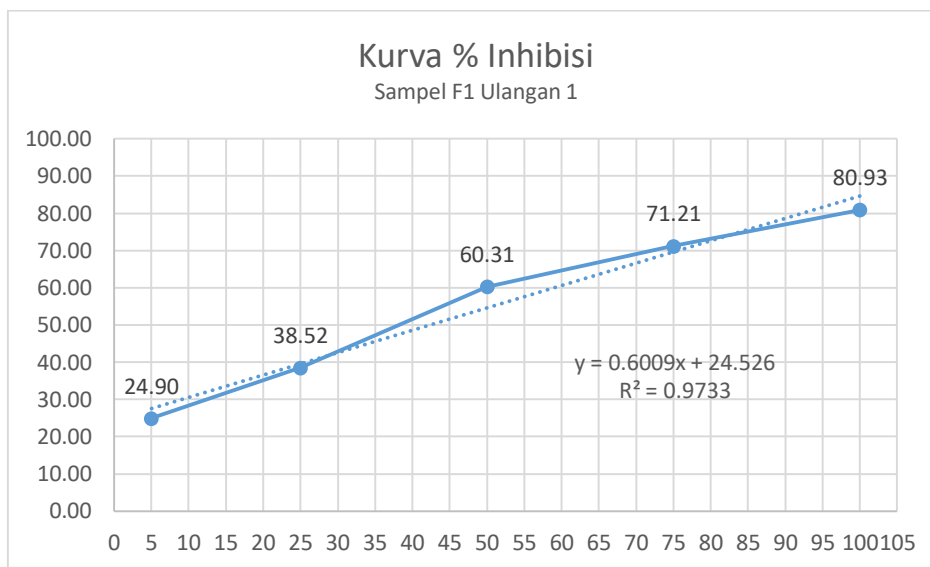
Means for groups in homogeneous subsets are displayed.

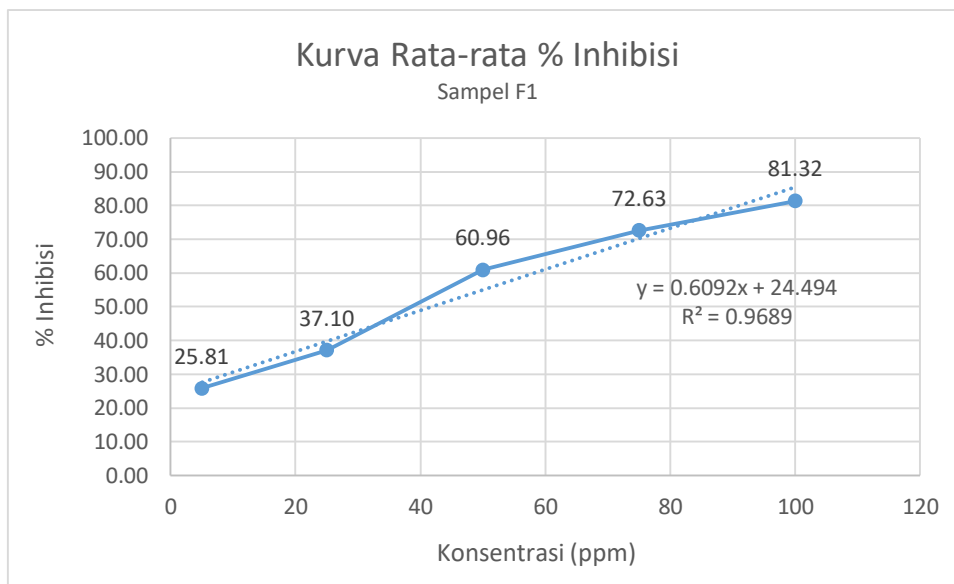
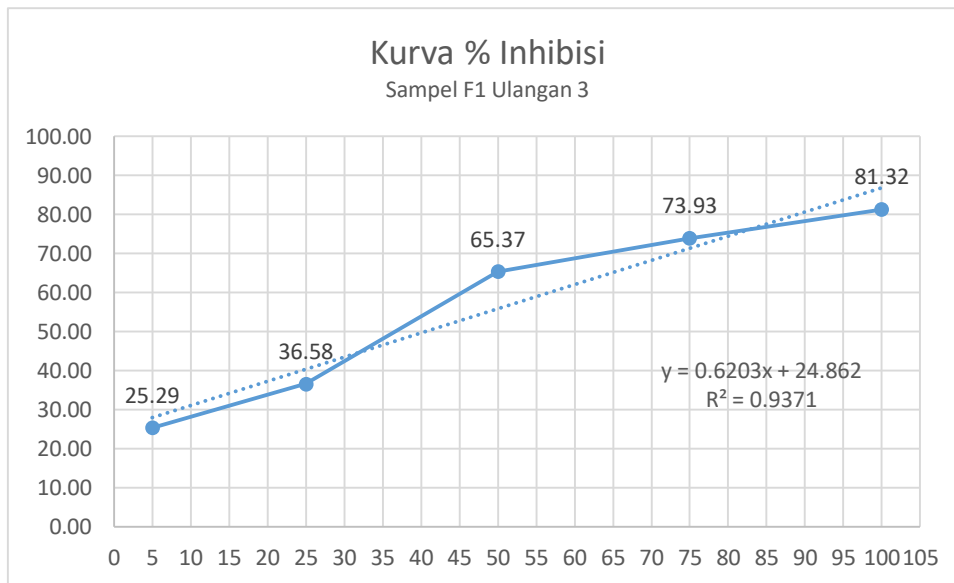
a. Uses Harmonic Mean Sample Size = 3,000.

## Lampiran 6. Hasil Pengujian Aktivitas Antioksidan Sampel Bubuk Minuman

**% Inhibisi Formula F1**

Konsentrasi	Inhibisi (%)			Rata-rata
	U1	U2	U3	
5	24.90	27.24	25.29	25.81
25	38.52	36.19	36.58	37.10
50	60.31	57.20	65.37	60.96
75	71.21	72.76	73.93	72.63
100	80.93	81.71	81.32	81.32





Perhitungan IC<sub>50</sub> Formula F1

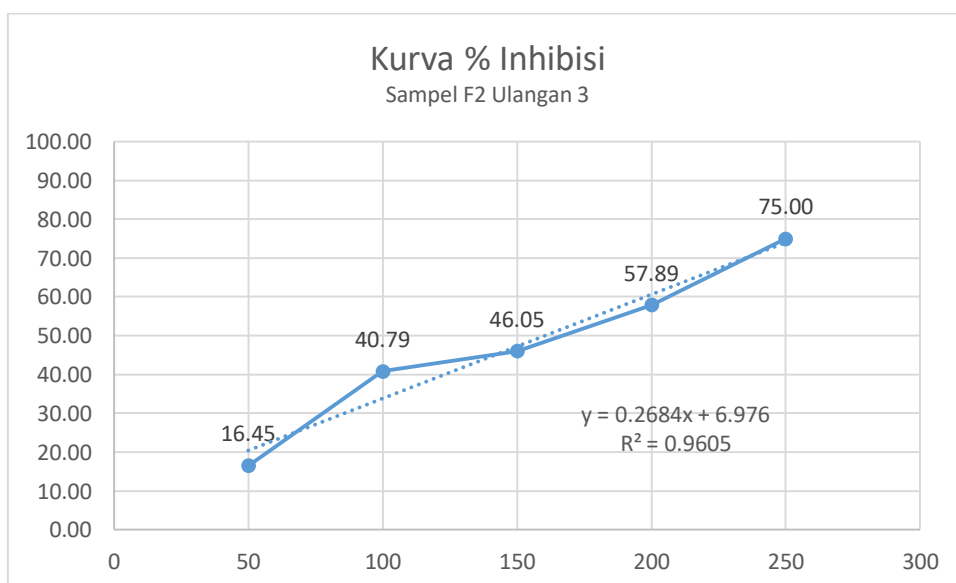
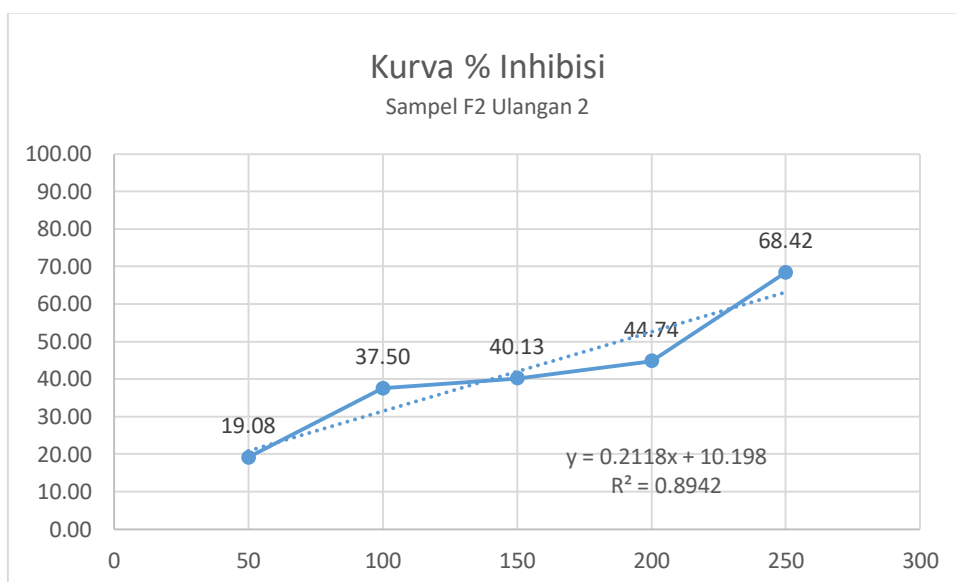
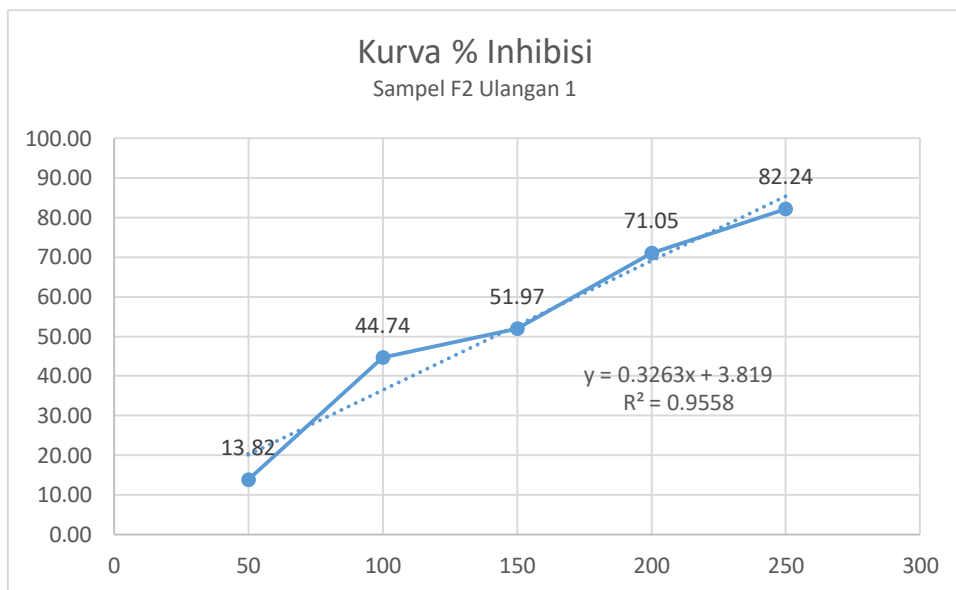
Persamaan  $y = 0,6092x + 24,494$

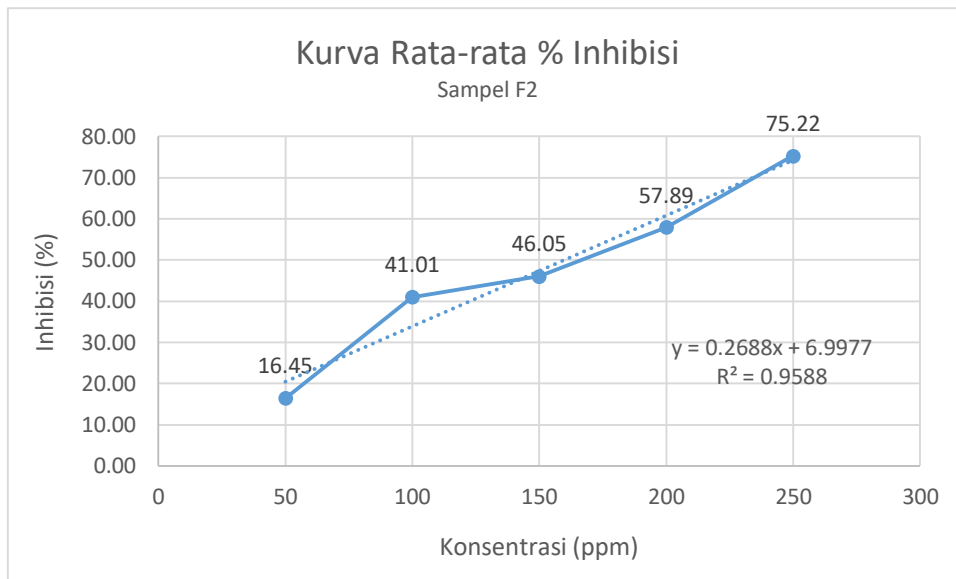
$50 = 0,6092x + 24,494$

$x = 41.87 \text{ ppm}$

**% Inhibisi Formula F2**

Konsentrasi	Inhibisi (%)			Rata-rata
	U1	U2	U3	
50	13.82	19.08	16.45	16.45
100	44.74	37.50	40.79	41.01
150	51.97	40.13	46.05	46.05
200	71.05	44.74	57.89	57.89
250	82.24	68.42	75.00	75.22





Perhitungan  $IC_{50}$  Formula F2

Persamaan  $y = 0,2688x + 6,9977$

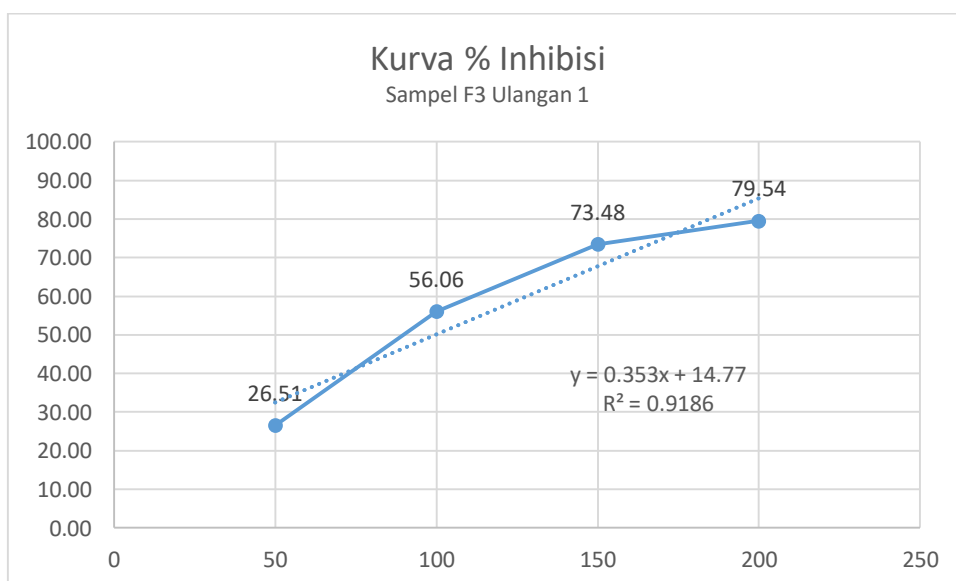
$$50 = 0,2688x + 6,9977$$

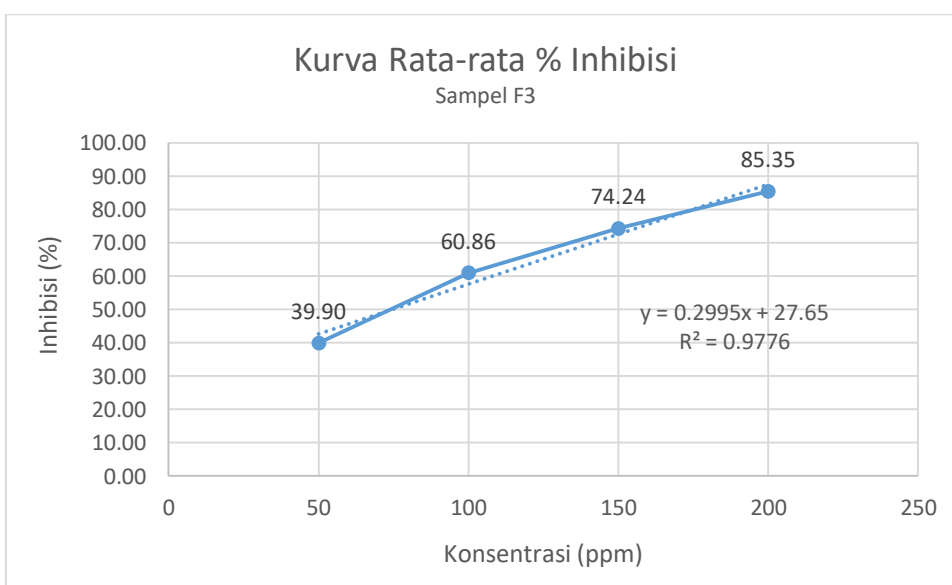
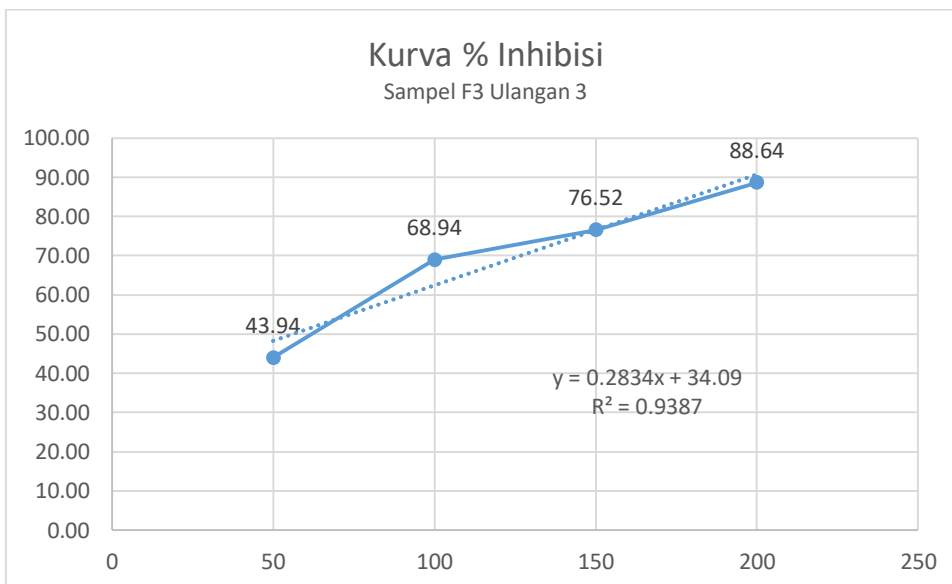
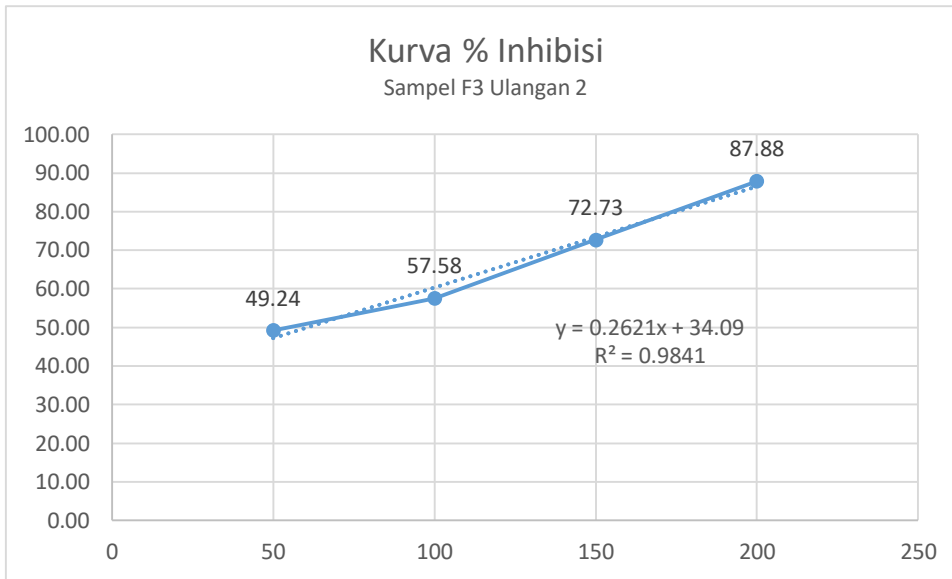
$$x = 159.98 \text{ ppm}$$

**% Inhibisi Formula F3**

Konsentrasi	Inhibisi (%)			Rata-rata
	U1	U2	U3	
50	26.51	49.24	43.94	39.90
100	56.06	57.58	68.94	60.86
150	73.48	72.73	76.52	74.24
200	79.54	87.88	88.64	85.35

\*Pada konsentrasi 250 absorbansi sudah tidak terbaca jadi tidak diambil





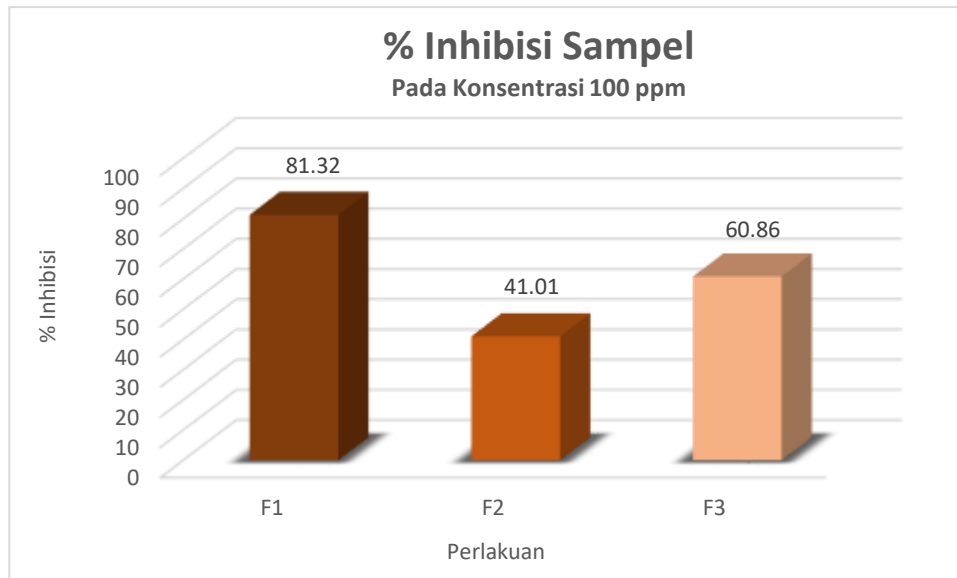
Perhitungan  $IC_{50}$  Formula F3

Persamaan  $y = 0,2995x + 27,65$

$50 = 0,2995x + 27,65$

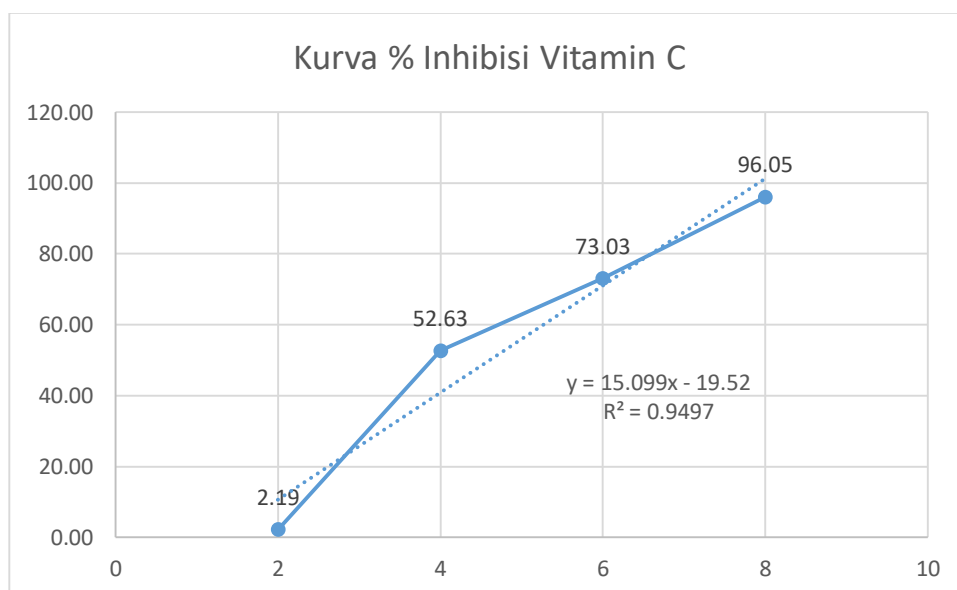
$x = 74,62 \text{ ppm}$

Grafik Persen Penghambatan Radikal Bebas Ketiga Sampel Pada Konsentrasi 100 ppm



Rekapitulasi % Inhibisi dan  $IC_{50}$  Sampel Bubuk Minuman

Sampel	% Inhibisi pada Konsentrasi 100 ppm	$IC_{50}$
F1 (5% M: 45% C)	81.32	41.87
F2 (10% M: 40% C)	41.01	159.98
F3 (15% M: 35% C)	60.86	74.62





Perhitungan IC<sub>50</sub> Vitamin C

Persamaan  $y = 15,099x - 19,52$

$50 = 15,099x - 19,52$

$x = 4,60$  ppm

Lampiran 7. Analisis Statistik Data Aktivitas Antioksidan Bubuk Minuman Cokelat Kelor

### Oneway

ANOVA					
Aktivitas Antioksidan (IC 50)					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	23939.474	2	11969.737	32.007	.001
Within Groups	2243.818	6	373.970		
Total	26183.292	8			

### Post Hoc Tests

#### Homogeneous Subsets

Aktivitas Antioksidan (IC 50)			
Duncan <sup>a</sup>			
		Subset for alpha = 0.05	
Formula	N	1	2
F1 (5% : 45%)	3	41.8767	
F3 (15% : 35%)	3	72.2133	
F2 (10% : 40%)	3		163.2500
Sig.		.103	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 8. Hasil Analisis Kadar Vitamin C Metode Iodimetri

Sampel	Ulangan	Berat Sampel (g)	V I <sub>2</sub> 0,01 N (mL)	Rata-rata	Kadar Vit. C (mg/100g)
F1 (5% M: 45% C)	1	0,5	2,2	1,90	1337,60
	2		1,8		
	3		1,7		

F2 (10% M: 40% C)	1	0,5	2	1,93	1358,72
	2		1,7		
	3		2,1		
F3 (15% M: 35% C)	1	0,5	1,8	2,03	1429,12
	2		2		
	3		2,3		

Rumus Perhitungan:

$$\text{Vitamin C (mg/100g)} = \frac{V_{I_2} \times 0,88 \times FP}{W_s} \times 100$$

Keterangan:

$V_{I_2}$  = Volume Iodium (mL)

0,88 = 1 mL larutan  $I_2$  0,01 N setara dengan 0,88 mg asam askorbat

Fp = Faktor Pengenceran

$W_s$  = Berat sampel (g)

Contoh Vit. C Sampel F1:

$$\begin{aligned} \text{Vitamin C (mg/100g)} &= \frac{1,90 \times 0,88 \times \left(\frac{100}{25}\right)}{0,5} \times 100 \\ &= \frac{6,688}{0,5} \times 100 \\ &= 13,376 \times 100 \\ &= 1337,6 \text{ (mg/100g)} \end{aligned}$$

$$\text{Persaji (30 g bubuk)} = 401,28 \text{ (mg/30g)}$$

Lampiran 9. Rekapitulasi Data Hasil Analisis Proksimat Sampel Formula Terbaik (F1)

Parameter	Berat Kering (% bk)	Berat Basa (% bb)
Protein Kasar	21,07	20,04
Lemak Kasar	8,10	7,70
Serat Kasar	3,46	3,29

Lampiran 10. Dokumentasi Penelitian



a. Gambar sampel daun kelor yang dipetik dan dikumpulkan



b. Daun kelor dipisahkan dari tangkainya



c. Gambar daun kelor setelah dicuci dan ditiriskan



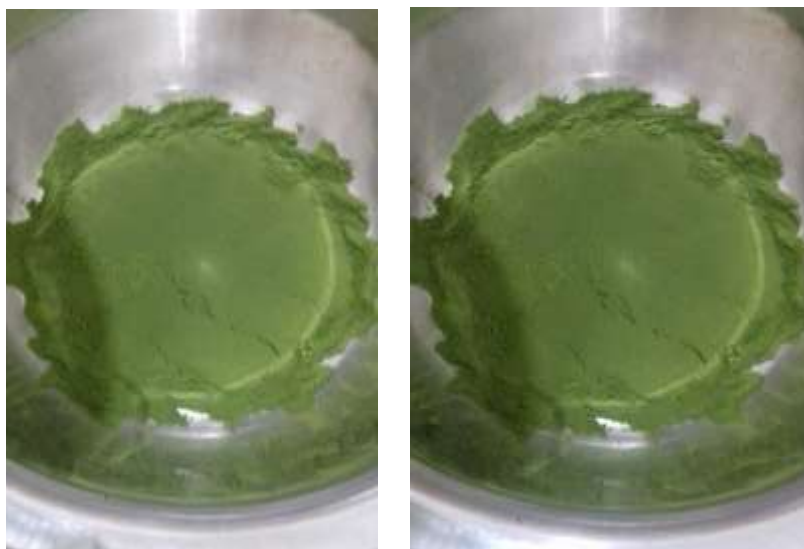
d. Daun kelor sebelum dan setelah diblansir selama tiga menit (ditutup saat diblansir)







e. Gambar daun kelor setelah dikeringkan selama 8 jam



f. Gambar bubuk daun kelor setelah dihaluskan dan diayak dengan ayakan 200 mesh



g. Gambar bubuk minuman yang dihasilkan setelah semua bahan dicampur sesuai dengan perlakuan



h. Warna ketiga bubuk minuman setelah dicampur dengan air



i. Dokumentasi pengujian organoleptik



j. Dokumentasi pengujian kadar air



k. Dokumentasi pengujian kadar abu



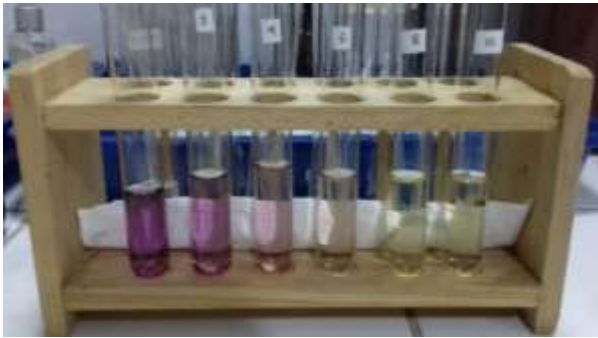
1. Dokumentasi pengujian aktivitas antioksidan



m. Gambar reagen DPPH



n. Pengujian aktivitas antioksidan sampel bubuk minuman



o. Pengujian aktivitas antioksidan sampel pembanding (Vitamin C)