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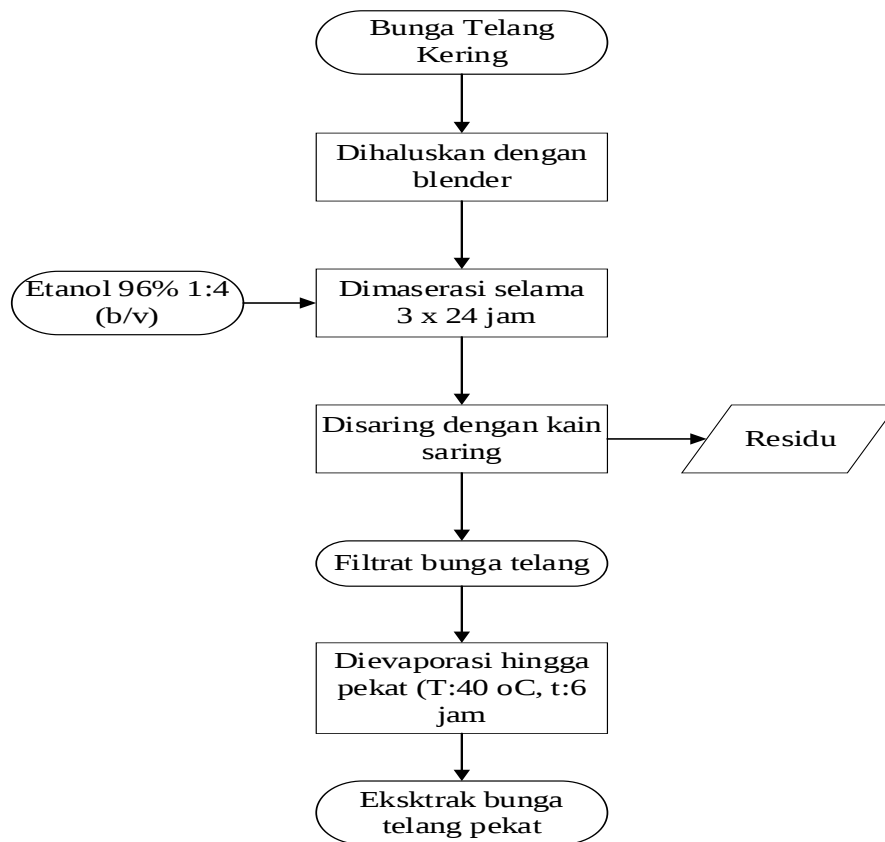
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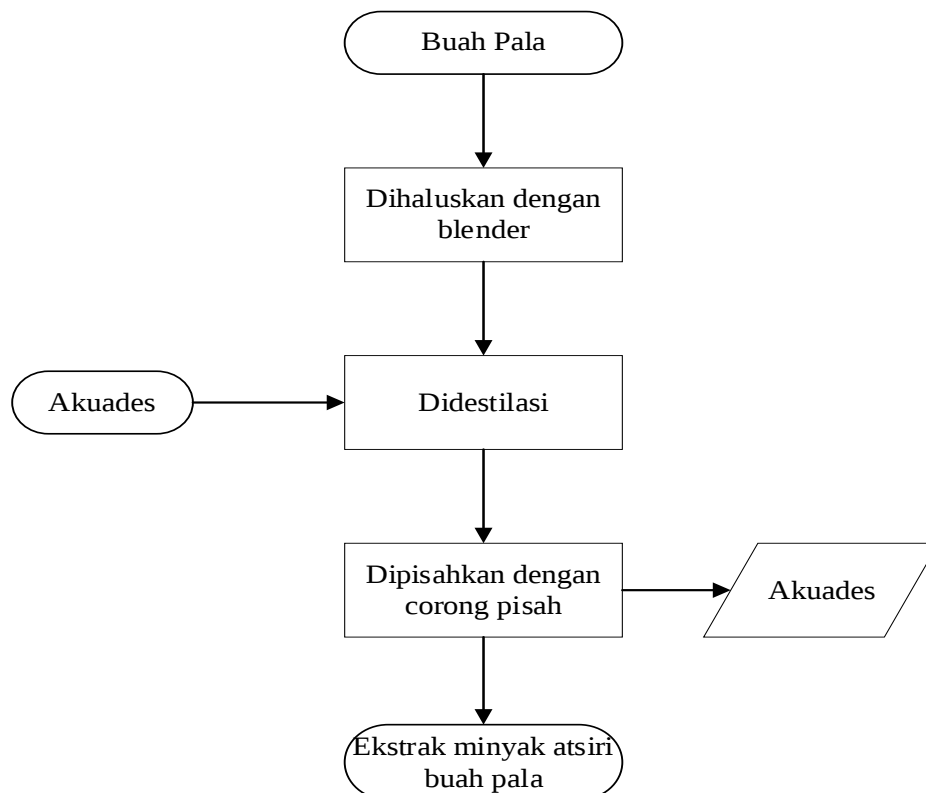
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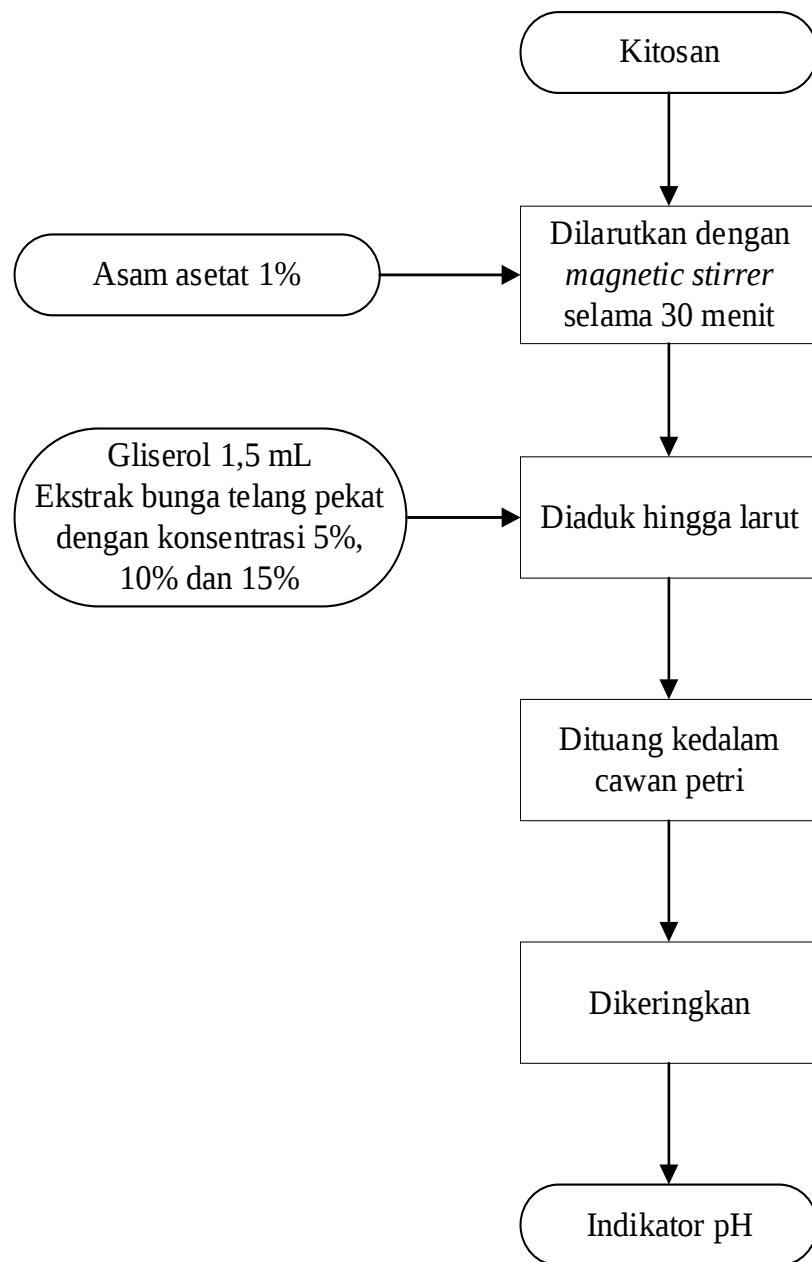
LAMPIRAN

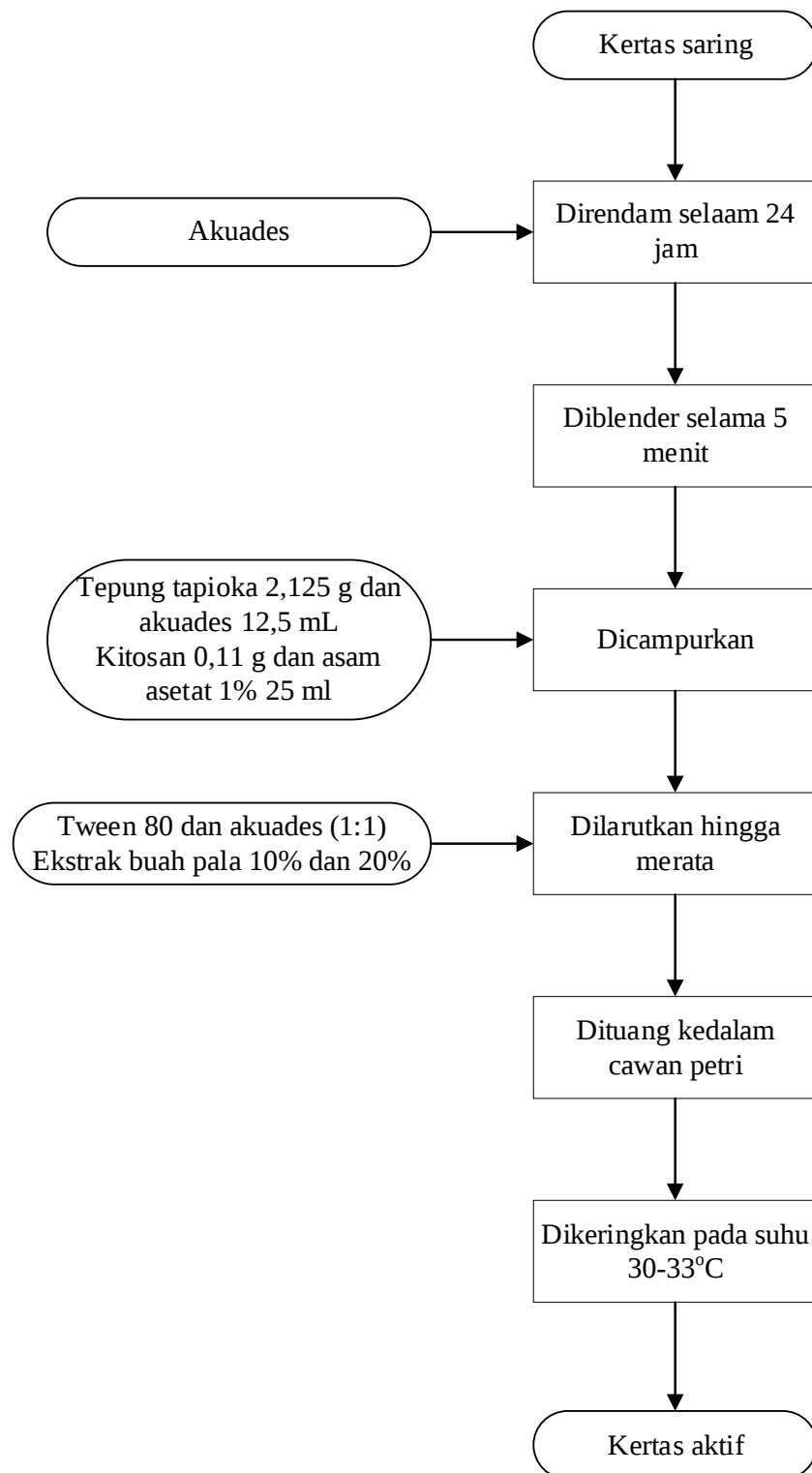
Lampiran 1. Diagram Alir Prosedur Ekstraksi Bunga Telang

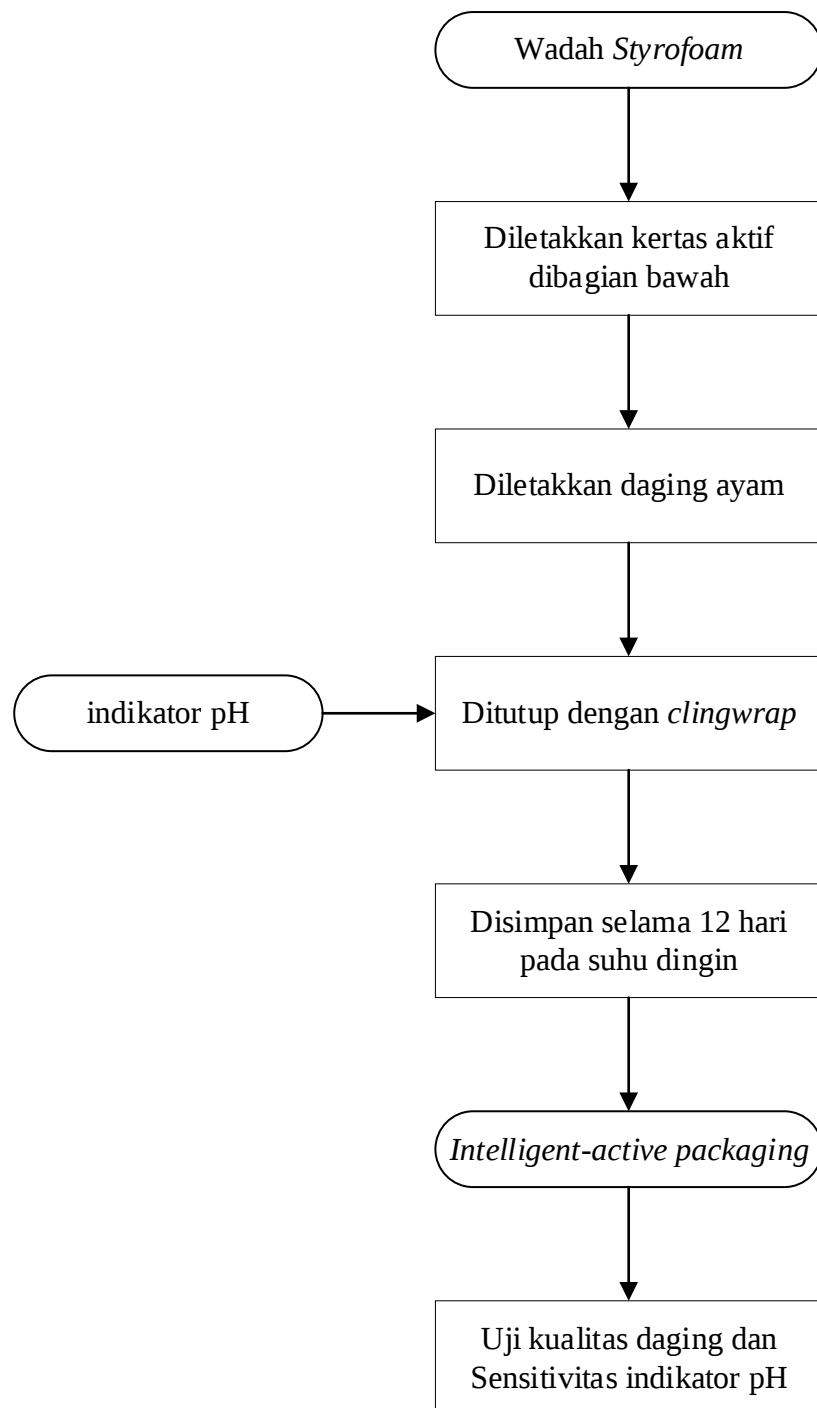


Lampiran 2. Diagram Alir Prosedur Ekstraksi Buah Pala

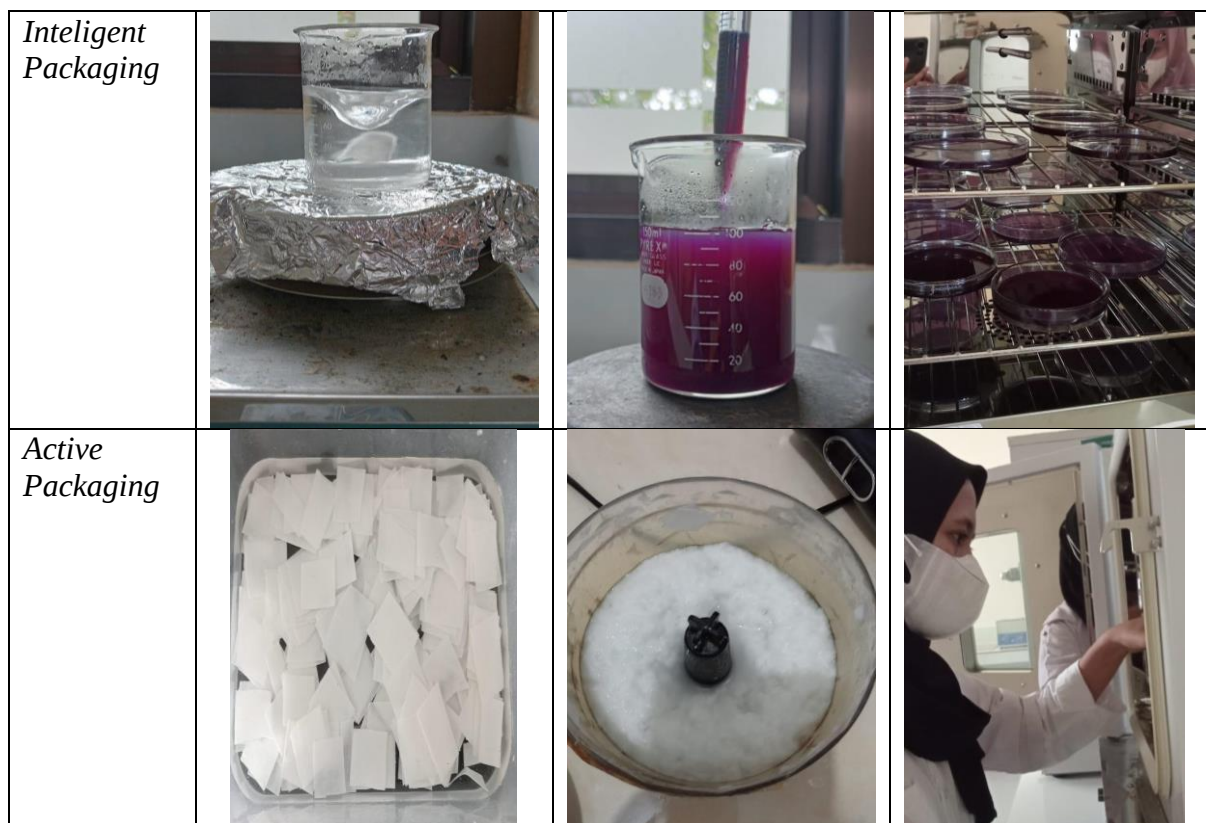


Lampiran 3. Diagram Alir Prosedur Pembuatan Indikator pH sebagai *Intelligent Packaging*

Lampiran 4. Diagram Alir Prosedur Pembuatan Kertas Aktif sebagai *Active Packaging*

Lampiran 5. Diagram Alir Pengaplikasian *Intelligent-Active Packaging* pada Daging Ayam

Lampiran 6. Dokumentasi Ekstraksi

Lampiran 7. Dokumentasi Pembuatan *Intelligent-Active Packaging*

Lampiran 8. Dokumentasi Pengaplikasian *Intelligent-Active Packaging* pada Daging Ayam

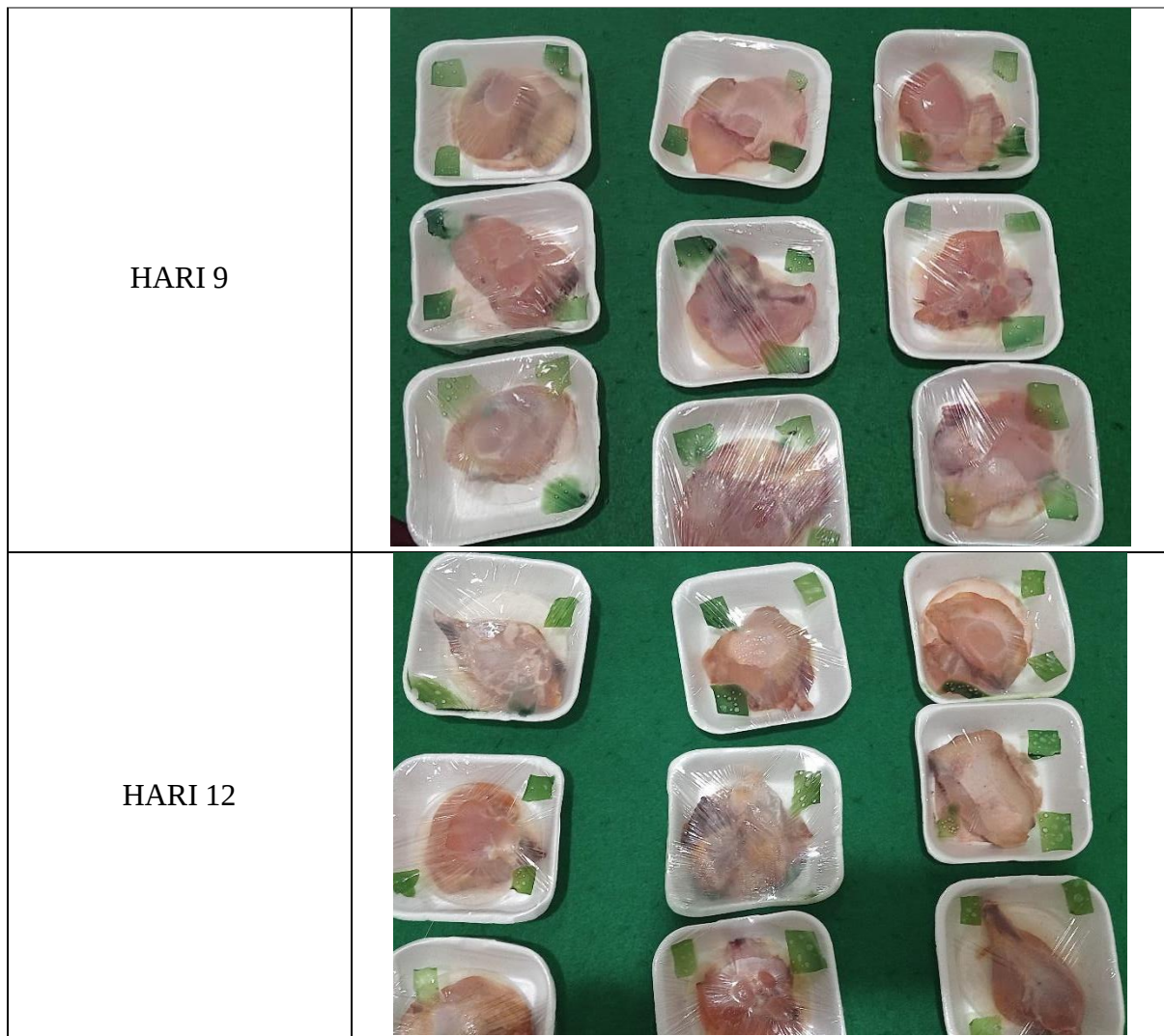
Diletakkan kertas aktif pada bagian bawah Styrofoam			
Diletakkan daging ayam			
Dibungkus dengan plastik <i>clingwrap</i> yang telah dipasang indikator pH			

Disimpan selama 12 hari
pada suhu dingin



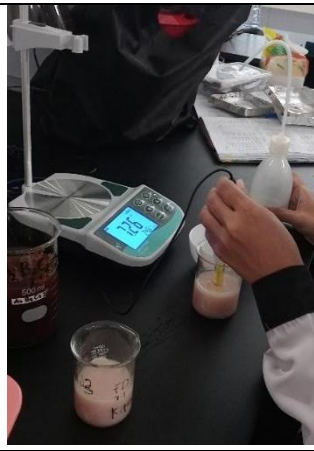
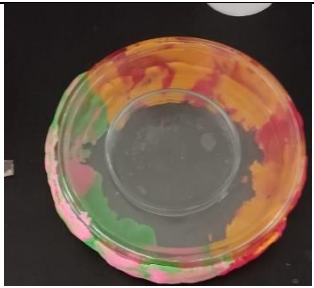
Lampiran 9. Dokumentasi Hasil Daging Ayam selama Penyimpanan

HARI 0	
HARI 3	
HARI 6	



Lampiran 10. Dokumentasi Pengujian



Pengujian Kadar Air			
Pengujian Derajat Keasaman (pH)			
Pengujian Kolorimetri			
Pengujian TVBN			



Lampiran 11. Hasil Analisis Data Pengujian Organoleptik Warna

Konsentrasi Pala	Ulangan	Waktu Penyimpanan				
		W1	W2	W3	W4	W5
P1	U1	4.65	3.85	3.4	1.9	1
	U2	4.85	3.55	2.6	2.1	1
	U3	4.4	3.6	2.9	2.35	1
P2	U1	4.5	4	3.5	1.9	1
	U2	4.8	4.25	3.3	1.9	1
	U3	4.45	3.6	3.05	1.85	1
P3	U1	4.65	4.8	3.4	2.15	2
	U2	4.85	3.9	3.25	2.15	2
	U3	4.8	4.35	3.6	2	1

Univariate Analysis of Variance**Descriptive Statistics**

Dependent Variable: Warna

Konsentrasi Pala	Waktu Penyimpanan	Mean	Std. Deviation	N
P1	W1	4.6333	.22546	3
	W2	3.6667	.16073	3
	W3	2.9667	.40415	3
	W4	2.1167	.22546	3

	W5	1.0000	.00000	3
	Total	2.8767	1.31024	15
P2	W1	4.5833	.18930	3
	W2	3.9500	.32787	3
	W3	3.2833	.22546	3
	W4	1.8833	.02887	3
	W5	1.0000	.00000	3
	Total	2.9400	1.37701	15
P3	W1	4.7667	.10408	3
	W2	4.3500	.45000	3
	W3	3.4167	.17559	3
	W4	2.1000	.08660	3
	W5	1.6667	.57735	3
	Total	3.2600	1.28927	15
Total	W1	4.6611	.17638	9
	W2	3.9889	.41516	9
	W3	3.2222	.31831	9
	W4	2.0333	.16583	9
	W5	1.2222	.44096	9
	Total	3.0256	1.30661	45

Tests of Between-Subjects Effects

Dependent Variable: Warna

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	72.976 ^a	14	5.213	73.017	.000
Intercept	411.929	1	411.929	5770.217	.000
Konsentrasi_Pala	1.267	2	.633	8.872	.001
Waktu_Penyimpanan	70.904	4	17.726	248.303	.000
Konsentrasi_Pala * Waktu_Penyimpanan	.805	8	.101	1.410	.233
Error	2.142	30	.071		
Total	487.047	45			
Corrected Total	75.118	44			

Konsentrasi Pala
Homogeneous Subsets

Respon

Duncan^{a,b}

Konsentrasi Pala	N	Subset	
		1	2
P1	15	2.8767	
P2	15	2.9400	
P3	15		3.2600
Sig.		.521	1.000

Waktu Penyimpanan

Respon

Duncan^{a,b}

Waktu Penyimpanan	N	Subset				
		1	2	3	4	5
W5	9	1.2222				
W4	9		2.0333			
W3	9			3.2222		
W2	9				3.9889	
W1	9					4.6611
Sig.		1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .071.

a. Uses Harmonic Mean Sample Size = 9.000.

b. Alpha = .05.

Oneway

ANOVA

Organoleptik_Warna

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	72.976	14	5.213	73.017	.000
Within Groups	2.142	30	.071		
Total	75.118	44			

Post Hoc Tests
Homogeneous Subsets

Organoleptik_Warna

Duncan^a

Konsentrasi PalaXWaktu Penyimpanan	N	Subset for alpha = 0.05						
		1	2	3	4	5	6	7
P1W5	3	1.0000						
P2W5	3	1.0000						
P3W5	3		1.6667					
P2W4	3		1.8833					
P3W4	3		2.1000					
P1W4	3		2.1167					
P1W3	3			2.9667				
P2W3	3			3.2833	3.2833			
P3W3	3			3.4167	3.4167			
P1W2	3				3.6667	3.6667		
P2W2	3					3.9500	3.9500	
P3W2	3						4.3500	4.3500
P2W1	3							4.5833
P1W1	3							4.6333
P3W1	3							4.7667
Sig.		1.000	.067	.059	.106	.204	.077	.090

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 12. Hasil Analisis Data Pengujian Organoleptik Aroma

Konsentrasi Pala	Ulangan	Waktu Penyimpanan				
		W1	W2	W3	W4	W5
P1	U1	4.75	3.35	2.3	1.05	1
	U2	4.85	3.25	2.4	1.2	1
	U3	4.65	3.5	3.35	1.6	1
P2	U1	4.7	3.85	1.95	1.1	1
	U2	4.85	3.8	2.55	1.05	1
	U3	4.65	4	2.55	1.05	1
P3	U1	4.85	4.1	2.66	1.85	1
	U2	4.85	4.1	3.3	1.8	1
	U3	4.8	4.1	3.65	1.05	1

Univariate Analysis of Variance

Descriptive Statistics

Dependent Variable: Aroma

Konsentrasi Pala	Waktu Penyimpanan	Mean	Std. Deviation	N
P1	W1	4.7500	.10000	3
	W2	3.3667	.12583	3
	W3	2.6833	.57951	3
	W4	1.2833	.28431	3
	W5	1.0000	.00000	3
	Total	2.6167	1.44947	15
P2	W1	4.7333	.10408	3
	W2	3.8833	.10408	3
	W3	2.3500	.34641	3
	W4	1.0667	.02887	3
	W5	1.0000	.00000	3
	Total	2.6067	1.55378	15
P3	W1	4.8333	.02887	3
	W2	4.1000	.00000	3
	W3	3.1833	.53463	3
	W4	1.5667	.44814	3
	W5	1.0000	.00000	3
	Total	2.9367	1.53279	15
Total	W1	4.7722	.08700	9
	W2	3.7833	.33634	9
	W3	2.7389	.56335	9
	W4	1.3056	.34319	9
	W5	1.0000	.00000	9
	Total	2.7200	1.48601	45

Tests of Between-Subjects Effects

Dependent Variable: Aroma

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	95.017 ^a	14	6.787	94.922	.000
Intercept	332.928	1	332.928	4656.336	.000
Konsentrasi_Pala	1.057	2	.528	7.392	.002
Waktu_Penyimpanan	92.715	4	23.179	324.179	.000
Konsentrasi_Pala *	1.245	8	.156	2.176	.059

Error	2.145	30	.072		
Total	430.090	45			
Corrected Total	97.162	44			

a. R Squared = .978 (Adjusted R Squared = .968)

Post Hoc Tests

Konsentrasi Pala

Homogeneous Subsets

Aroma

Duncan^{a,b}

Konsentrasi Pala	N	Subset	
		1	2
P2	15	2.6067	2.9367
P1	15	2.6167	
P3	15		
Sig.		.919	1.000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .072.

a. Uses Harmonic Mean Sample Size = 15.000.

b. Alpha = .05.

Waktu Penyimpanan

Homogeneous Subsets

Aroma

Duncan^{a,b}

Waktu Penyimpanan	N	Subset				
		1	2	3	4	5
W5	9	1.0000	1.3056	2.7389	3.7833	4.7722
W4	9					
W3	9					
W2	9					
W1	9					
Sig.		1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .072.

a. Uses Harmonic Mean Sample Size = 9.000.

b. Alpha = .05.

Oneway**ANOVA**

Organoleptik_Aroma

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	95.017	14	6.787	94.922	.000
Within Groups	2.145	30	.072		
Total	97.162	44			

Post Hoc Tests**Homogeneous Subsets****Organoleptik_Aroma**Duncan^a

Konsentrasi PalaXWaktu Penyimpanan	N	Subset for alpha = 0.05					
		1	2	3	4	5	6
P1W5	3	1.0000					
P2W5	3	1.0000					
P3W5	3	1.0000					
P2W4	3	1.0667					
P1W4	3	1.2833	1.2833				
P3W4	3		1.5667				
P2W3	3			2.3500			
P1W3	3			2.6833			
P3W3	3				3.1833		
P1W2	3				3.3667		
P2W2	3					3.8833	
P3W2	3					4.1000	
P2W1	3						4.7333
P1W1	3						4.7500
P3W1	3						4.8333
Sig.		.257	.204	.137	.408	.329	.670

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 13. Hasil Analisis Data Pengujian Organoleptik Tekstur

Konsentrasi Pala	Ulangan	Waktu Penyimpanan				
		W1	W2	W3	W4	W5
P1	U1	4.85	3.9	3.35	2	1
	U2	4.95	3.6	2.95	1.5	1
	U3	4.85	3.55	2.8	1.65	1
P2	U1	4.9	4.4	3.1	1.35	1
	U2	5	4.25	3.8	1.4	1
	U3	4.9	4.2	3.95	2	1
P3	U1	5	4.4	3.05	1.85	2
	U2	4.85	4.35	3.05	1.9	1
	U3	4.9	4.6	4.2	1.3	1

Univariate Analysis of Variance**Descriptive Statistics**

Dependent Variable: Tekstur

Konsentrasi Pala	Waktu Penyimpanan	Mean	Std. Deviation	N
P1	W1	4.8833	.05774	3
	W2	3.6833	.18930	3
	W3	3.0333	.28431	3
	W4	1.7167	.25658	3
	W5	1.0000	.00000	3
	Total	2.8633	1.44116	15
P2	W1	4.9333	.05774	3
	W2	4.2833	.10408	3
	W3	3.6167	.45369	3
	W4	1.5833	.36171	3
	W5	1.0000	.00000	3
	Total	3.0833	1.60164	15
P3	W1	4.9167	.07638	3
	W2	4.4500	.13229	3
	W3	3.4333	.66395	3
	W4	1.6833	.33292	3
	W5	1.3333	.57735	3
	Total	3.1633	1.53163	15
Total	W1	4.9111	.06009	9
	W2	4.1389	.37146	9
	W3	3.3611	.49861	9
	W4	1.6611	.28370	9
	W5	1.1111	.33333	9
	Total	3.0367	1.49664	45

Tests of Between-Subjects Effects

Dependent Variable: Tekstur

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	95.667 ^a	14	6.833	70.935	.000
Intercept	414.961	1	414.961	4307.548	.000
Konsentrasi_Pala	.724	2	.362	3.758	.035
Waktu_Penyimpanan	93.903	4	23.476	243.692	.000
Konsentrasi_Pala * Waktu_Penyimpanan	1.040	8	.130	1.350	.258
Error	2.890	30	.096		
Total	513.518	45			
Corrected Total	98.557	44			

a. R Squared = .971 (Adjusted R Squared = .957)

Post Hoc Tests

Konsentrasi Pala

Homogeneous Subsets

Tekstur

Duncan^{a,b}

Konsentrasi Pala	N	Subset	
		1	2
P1	15	2.8633	
P2	15	3.0833	3.0833
P3	15		3.1633
Sig.		.062	.486

Waktu Penyimpanan

Homogeneous Subsets

Tekstur

Duncan^{a,b}

Waktu Penyimpanan	N	Subset				
		1	2	3	4	5
W5	9	1.1111				
W4	9		1.6611			
W3	9			3.3611		
W2	9				4.1389	
W1	9					4.9111
Sig.		1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .096.

a. Uses Harmonic Mean Sample Size = 9.000.

b. Alpha = ,05.

Oneway

ANOVA

Tekstur

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	95.667	14	6.833	70.935	.000
Within Groups	2.890	30	.096		
Total	98.557	44			

Post Hoc Tests

Homogeneous Subsets

Tekstur

Duncan^a

Konsentrasi PalaXWaktu Penyimpanan	N	Subset for alpha = 0.05					
		1	2	3	4	5	6
P1W5	3	1.0000					
P2W5	3	1.0000					
P3W5	3	1.3333	1.3333				
P2W4	3		1.5833				
P3W4	3		1.6833				
P1W4	3		1.7167				
P1W3	3			3.0333			
P3W3	3			3.4333	3.4333		
P2W3	3				3.6167		
P1W2	3				3.6833		
P2W2	3					4.2833	
P3W2	3					4.4500	4.4500
P1W1	3						4.8833
P3W1	3						4.9167
P2W1	3						4.9333
Sig.		.224	.177	.125	.360	.516	.090

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 14. Hasil Analisis Data Pengujian Derajat Keasaman (pH)

Konsentrasi Pala	Ulangan	Waktu Penyimpanan				
		W1	W2	W3	W4	W5
P1	U1	5.97	6.5	7.48	6.87	7.06
	U2	5.69	6.08	7.18	6.76	6.94
	U3	6.2	6.03	7.32	7.17	6.99
P2	U1	5.9	6.01	7.27	7.13	7.17
	U2	5.93	5.99	5.53	6.67	6.95
	U3	5.69	5.82	6.96	7.29	7.06
P3	U1	5.78	6.6	5.8	7.05	6.65
	U2	6.14	6.66	6.2	7.19	6.92
	U3	5.84	6.19	6.19	6.76	7.15

Univariate Analysis of Variance**Descriptive Statistics**

Dependent Variable: Nilai pH

Konsentrasi Pala	Waktu Penyimpanan	Mean	Std. Deviation	N
P1	W1	5.9533	.25541	3
	W2	6.2033	.25813	3
	W3	7.3267	.15011	3
	W4	6.9033	.23116	3
	W5	6.9967	.06028	3
	Total	6.6767	.56020	15
P2	W1	5.8400	.13077	3
	W2	5.9400	.10440	3
	W3	6.5867	.92813	3
	W4	7.0300	.32187	3
	W5	7.0600	.11000	3
	Total	6.4913	.65807	15
P3	W1	5.9200	.19287	3
	W2	6.0067	.01528	3
	W3	6.0633	.22811	3
	W4	7.0000	.21932	3
	W5	6.9067	.25027	3
	Total	6.3793	.51682	15
Total	W1	5.9044	.18008	9
	W2	6.0500	.18303	9
	W3	6.6589	.73225	9
	W4	6.9778	.23360	9
	W5	6.9878	.15506	9
	Total	6.5158	.58138	45

Tests of Between-Subjects Effects

Dependent Variable: Nilai pH					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	1922.530 ^a	15	128.169	1356.952	<,001
Konsentrasi_Pala	.676	2	.338	3.581	.040
Waktu_Penyimpanan	9.426	4	2.357	24.950	<,001
Konsentrasi_Pala * Waktu_Penyimpanan	1.936	8	.242	2.562	.029
Error	2.834	30	.094		
Total	1925.364	45			

a. R Squared = .999 (Adjusted R Squared = .998)

Post Hoc Tests

Konsentrasi Pala

Homogeneous Subsets

Nilai pH

Duncan^{a,b}

Konsentrasi Pala	N	Subset	
		1	2
P3	15	6.3793	
P2	15	6.4913	6.4913
P1	15		6.6767
Sig.		.326	.109

The error term is Mean Square(Error) = .094.

a. Uses Harmonic Mean Sample Size = 15.000.

b. Alpha = ,05.

Waktu Penyimpanan

Homogeneous Subsets

Nilai pH

Duncan^{a,b}

Waktu Penyimpanan	N	Subset		
		1	2	3
W1	9	5.9044		
W2	9	6.0500		
W3	9		6.6589	
W4	9			6.9778
W5	9			6.9878
Sig.		.323	1.000	.945

The error term is Mean Square(Error) = .094.

a. Uses Harmonic Mean Sample Size = 9.000.

b. Alpha = ,05.

Oneway**ANOVA**

Nilai pH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.128	14	.938	8.602	<,001
Within Groups	3.270	30	.109		
Total	16.398	44			

Post Hoc Tests (Homogeneous Subsets)**Nilai pH**Duncan^a

Konsentrasi Pala X Waktu Penyimpanan		Subset for alpha = 0.05			
	N	1	2	3	4
P3W2	3	5.7400			
P2W1	3	5.8400			
P3W1	3	5.9200			
P2W2	3	5.9400			
P1W1	3	5.9533			
P3W3	3	6.0633	6.0633		
P1W2	3	6.2033	6.2033		
P2W3	3		6.5867	6.5867	
P3W5	3			6.9067	6.9067
P1W4	3			6.9333	6.9333
P1W5	3			6.9967	6.9967
P3W4	3			7.0000	7.0000
P2W4	3			7.0300	7.0300
P2W5	3			7.0600	7.0600
P1W3	3				7.3267
Sig.		.145	.075	.137	.186

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 15. Hasil Analisis Data Pengujian TVBN

Konsentrasi Pala	Ulangan	Waktu Penyimpanan				
		W1	W2	W3	W4	W5
P1	U1	14.007	58.829	103.651	51.825	72.836
	U2	14.007	53.226	91.045	51.825	44.82
	U3	14.007	43.42	58.829	85.442	19.609
P2	U1	2.801	30.815	47.623	58.829	37.818
	U2	2.801	9.804	18.209	23.811	23.811
	U3	2.801	72.836	68.634	22.411	2.801
P3	U1	2.801	2.801	9.804	58.829	58.829
	U2	2.801	5.602	23.811	30.815	16.808
	U3	2.801	19.609	7.003	37.818	44.822

Univariate Analysis of Variance

Descriptive Statistics

Dependent Variable: Respon

Konsentrasi Pala	Waktu Penyimpanan	Mean	Std. Deviation	N
P1	W1	1.40070	.000000	3
	W2	51.82500	7.799450	3
	W3	84.50833	23.114907	3
	W4	63.03067	19.408784	3
	W5	45.75500	26.625815	3
	Total	49.30394	32.277658	15
P2	W1	2.80100	.000000	3
	W2	37.81833	32.094287	3
	W3	44.82200	25.328923	3
	W4	35.01700	20.633674	3
	W5	21.47667	17.624824	3
	Total	28.38700	24.101271	15
P3	W1	2.80100	.000000	3
	W2	9.33733	9.005096	3
	W3	13.53933	9.005096	3
	W4	42.48733	14.579028	3
	W5	40.15300	21.396046	3
	Total	21.66360	20.200277	15
Total	W1	2.33423	.700150	9
	W2	32.99356	25.388208	9
	W3	47.62322	35.538886	9
	W4	46.84500	20.287295	9
	W5	35.79489	22.148205	9
	Total	33.11818	28.068233	45

Tests of Between-Subjects Effects

Dependent Variable: Respon

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	74178.417 ^a	15	4945.228	15.073	<,001
Konsentrasi_Pala	6233.554	2	3116.777	9.500	<,001
Waktu_Penyimpanan	12182.882	4	3045.720	9.283	<,001
Konsentrasi_Pala * Waktu_Penyimpanan	6405.358	8	800.670	2.440	.036
Error	9842.536	30	328.085		
Total	84020.953	45			

a. R Squared = .883 (Adjusted R Squared = .824)

Post Hoc Tests**Konsentrasi Pala****Homogeneous Subsets****Respon**Duncan^{a,b}

Konsentrasi Pala	N	Subset	
		1	2
P3	15	21.66360	
P2	15	28.38700	
P1	15		49.30394
Sig.		.317	1.000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 328.085.

a. Uses Harmonic Mean Sample Size = 15.000.

b. Alpha = ,05.

Waktu Penyimpanan**Respon**Duncan^{a,b}

Waktu Penyimpanan	N	Subset	
		1	2
W1	9	2.33423	
W2	9		32.99356
W5	9		35.79489
W4	9		46.84500
W3	9		47.62322
Sig.		1.000	.127

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 328.085.

a. Uses Harmonic Mean Sample Size = 9.000.

b. Alpha = ,05.

Oneway**ANOVA**

Nilai TVBN

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22867.726	14	1633.409	4.979	<,001
Within Groups	9842.536	30	328.085		
Total	32710.262	44			

Post Hoc Tests
Homogeneous Subsets

Nilai TVBN

Duncan^a

Konsentrasi Pala X		Subset for alpha = 0.05					
Waktu Penyimpanan	N	1	2	3	4	5	6
P2W1	3	2.80100					
P3W1	3	2.80100					
P3W2	3	9.33733	9.33733				
P3W3	3	13.53933	13.53933	13.53933			
P1W1	3	14.00700	14.00700	14.00700			
P2W5	3	21.47667	21.47667	21.47667	21.47667		
P2W4	3	35.01700	35.01700	35.01700	35.01700	35.01700	
P2W2	3		37.81833	37.81833	37.81833	37.81833	
P3W5	3		40.15300	40.15300	40.15300	40.15300	
P3W4	3		42.48733	42.48733	42.48733	42.48733	
P2W3	3			44.82200	44.82200	44.82200	
P1W5	3			45.75500	45.75500	45.75500	
P1W2	3				51.82500	51.82500	
P1W4	3					63.03067	63.03067
P1W3	3						84.50833
Sig.		.066	.061	.071	.086	.112	.157

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 16. Hasil Analisis Data Pengujian TBARS

Konsentrasi Pala	Ulangan	Waktu Penyimpanan				
		W1	W2	W3	W4	W5
P1	U1	0.0624	0.3588	0.078	0.507	0.3354
	U2	0.0468	0.351	0.117	0.5148	0.5148
	U3	0.0546	0.0078	0.2964	0.4056	0.6474
P2	U1	0.0078	0.1092	0.078	0.1638	0.2808
	U2	0.0156	0.117	0.0702	0.1248	0.0312
	U3	0.0078	0.1404	0.3354	0.1092	0.5616
P3	U1	0.0078	0.1248	0.039	0.078	0.3588
	U2	0.0078	0.1326	0.0858	0.117	0.2418
	U3	0.0078	0.039	0.1326	0.1794	0.6786

Univariate Analysis of Variance

Descriptive Statistics

Dependent Variable: TBARS

Konsentrasi_Pala	Waktu_Penyimpanan	Mean	Std. Deviation	N
P1	W1	.05460	.007800	3
	W2	.23920	.200436	3
	W3	.16380	.116479	3
	W4	.47580	.060920	3
	W5	.49920	.156584	3
	Total	.28652	.210527	15
P2	W1	.01040	.004503	3
	W2	.12220	.016237	3
	W3	.16120	.150912	3
	W4	.13260	.028123	3
	W5	.29120	.265353	3
	Total	.14352	.148750	15
P3	W1	.00780	.000000	3
	W2	.09880	.051935	3
	W3	.08580	.046800	3
	W4	.10140	.086857	3
	W5	.42640	.226110	3
	Total	.14404	.178035	15
Total	W1	.02427	.023219	9
	W2	.15340	.122587	9
	W3	.13693	.105380	9
	W4	.23660	.188092	9
	W5	.40560	.211824	9
	Total	.19136	.189364	45

Tests of Between-Subjects Effects

Dependent Variable: TBARS

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	2.746 ^a	15	.183	11.448	<.001
Konsentrasi_Pala	.204	2	.102	6.371	.005
Waktu_Penyimpanan	.722	4	.181	11.295	<.001
Konsentrasi_Pala * Waktu_Penyimpanan	.172	8	.021	1.344	.261
Error	.480	30	.016		
Total	3.226	45			

a. R Squared = .851 (Adjusted R Squared = .777)

Post Hoc Tests**Konsentrasi_Pala****Homogeneous Subsets****TBARS**Duncan^{a,b}

Konsentrasi_Pala	N	Subset	
		1	2
P2	15	.14352	
P3	15	.14404	
P1	15		.28652
Sig.		.991	1.000

The error term is Mean Square(Error) = .016.

a. Uses Harmonic Mean Sample Size = 15.000.

b. Alpha = ,05.

Waktu_Penyimpanan**Homogeneous Subsets****TBARS**Duncan^{a,b}

Waktu_Penyimpanan	N	Subset		
		1	2	3
W1	9	.02427		
W3	9	.13693	.13693	
W2	9		.15340	
W4	9		.23660	
W5	9			.40560
Sig.		.068	.124	1.000

The error term is Mean Square(Error) = .016.

a. Uses Harmonic Mean Sample Size = 9.000.

b. Alpha = ,05.

Oneway**ANOVA****TBARS**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.087	14	.078	4.957	<,001
Within Groups	.470	30	.016		
Total	1.557	44			

Post Hoc Tests
Homogeneous Subsets

TBARS

Duncan^a

KonsentrasixWaktu	N	Subset for alpha = 0.05			
		1	2	3	4
P3W1	3	.00780			
P2W1	3	.01040			
P1W1	3	.05460	.05460		
P3W3	3	.08580	.08580		
P3W2	3	.09880	.09880		
P2W2	3	.12220	.12220		
P3W4	3	.12480	.12480		
P2W4	3	.13260	.13260		
P2W3	3	.16120	.16120		
P1W3	3	.16380	.16380		
P1W2	3	.23920	.23920	.23920	
P2W5	3		.29120	.29120	.29120
P3W5	3			.42640	.42640
P1W4	3				.47580
P1W5	3				.49920
Sig.		.063	.057	.093	.071

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 17. Hasil Analisis Data Pengujian Kadar air

Konsentrasi Pala	Ulangan	Waktu Penyimpanan				
		W1	W2	W3	W4	W5
P1	U1	45.7	54.8	41.7	33	29.2
	U2	45.7	48.1	39.5	45.9	29.5
	U3	45.7	54.5	40.5	46.3	43.5
P2	U1	51.2	50.2	46.1	37.1	21.9
	U2	51.3	53.7	33.3	43.1	36.9
	U3	51.4	50.8	44.3	52	42.9
P3	U1	58.4	55.6	46.7	41.9	37.8
	U2	58.5	51.9	43.7	45.2	39.6
	U3	58.6	48.7	46.1	53.5	28.3

Univariate Analysis of Variance

Descriptive Statistics

Dependent Variable: Kadar_Air

Konsentrasi_Pala	Waktu_Peyimpanan	Mean	Std. Deviation	N
P1	W1	45.700	.0000	3
	W2	52.467	3.7846	3
	W3	40.567	1.1015	3
	W4	38.400	6.9936	3
	W5	34.067	8.1709	3
	Total	42.240	7.8610	15
P2	W1	51.200	.0000	3
	W2	51.567	1.8717	3
	W3	41.233	6.9292	3
	W4	44.067	7.4969	3
	W5	33.900	10.8167	3
	Total	44.393	8.8778	15
P3	W1	58.400	.0000	3
	W2	52.067	3.4530	3
	W3	45.500	1.5875	3
	W4	46.867	5.9769	3
	W5	35.233	6.0715	3
	Total	47.613	8.6910	15
Total	W1	51.767	5.5157	9
	W2	52.033	2.7550	9
	W3	42.433	4.2790	9
	W4	43.111	7.0117	9
	W5	34.400	7.4534	9
	Total	44.749	8.5883	45

Tests of Between-Subjects Effects

Dependent Variable: Kadar_Air

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	92470.330 ^a	15	6164.689	208.755	<,001
Konsentrasi_Pala	219.390	2	109.695	3.715	.036
Waktu_Peyimpanan	1957.104	4	489.276	16.568	<,001
Konsentrasi_Pala * Waktu_Peyimpanan	182.999	8	22.875	.775	.628
Error	885.920	30	29.531		
Total	93356.250	45			

a. R Squared = .991 (Adjusted R Squared = .986)

Post Hoc Tests**Konsentrasi_Pala****Homogeneous Subsets****Kadar_Air**Duncan^{a,b}

Konsentrasi_Pala	N	Subset	
		1	2
P1	15	42.240	
P2	15	44.393	44.393
P3	15		47.613
Sig.		.286	.115

The error term is Mean Square(Error) = 29.531.

a. Uses Harmonic Mean Sample Size = 15.000.

b. Alpha = ,05.

Waktu_Peyimpanan**Homogeneous Subsets****Kadar_Air**Duncan^{a,b}

Waktu_Peyimpanan	N	Subset		
		1	2	3
W5	9	34.400		
W3	9		42.433	
W4	9		43.111	
W1	9			51.767
W2	9			52.033
Sig.		1.000	.793	.918

The error term is Mean Square(Error) = 29.531.

a. Uses Harmonic Mean Sample Size = 9.000.

b. Alpha = ,05.

Oneway**ANOVA**

Kadar Air

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2275.472	14	162.534	5.402	<,001
Within Groups	902.627	30	30.088		
Total	3178.099	44			

Post Hoc Tests
Homogeneous Subsets

Kadar Air

Duncan^a

Konsentrasi Pala X Waktu Penyimpanan		Subset for alpha = 0.05						
	N	1	2	3	4	5	6	7
P2W5	3	33.900						
P1W5	3	34.067						
P3W5	3	35.233	35.233					
P1W3	3	40.567	40.567	40.567				
P2W3	3	41.233	41.233	41.233	41.233			
P1W4	3	41.733	41.733	41.733	41.733	41.733		
P2W4	3	44.067	44.067	44.067	44.067	44.067	44.067	
P3W3	3		45.500	45.500	45.500	45.500	45.500	
P1W1	3			45.700	45.700	45.700	45.700	
P3W4	3			46.867	46.867	46.867	46.867	
P2W1	3				51.300	51.300	51.300	51.300
P2W2	3				51.567	51.567	51.567	51.567
P3W2	3					52.067	52.067	52.067
P1W2	3						52.467	52.467
P3W1	3							58.500
Sig.		.056	.051	.232	.054	.054	.116	.161

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 18. Hasil Analisis Data Pengujian TPC

Konsentrasi Pala	Ulangan	Waktu Penyimpanan				
		W1	W2	W3	W4	W5
P1	U1	3.76×10^3	2.25×10^7	1.7×10^6	2.16×10^9	1×10^{10}
	U2	3.76×10^3	1.32×10^6	1.12×10^6	1.08×10^9	7.75×10^9
	U3	3.76×10^3	1.46×10^6	1.38×10^6	1.44×10^9	7.13×10^9
P2	U1	3.15×10^3	8.13×10^5	1.85×10^6	1.22×10^9	7.22×10^9
	U2	3.15×10^3	5.18×10^5	2.14×10^6	9.52×10^8	9.8×10^9
	U3	3.15×10^3	1.05×10^6	2.39×10^6	1.08×10^9	7.95×10^9
P3	U1	5.77×10^3	6.85×10^5	7.59×10^5	1.96×10^7	4.81×10^7
	U2	5.77×10^3	6.54×10^5	6.22×10^5	2.24×10^7	8.13×10^7
	U3	5.77×10^3	7.09×10^5	8.18×10^5	1.85×10^7	1.03×10^8

Univariate Analysis of Variance

Descriptive Statistics

Dependent Variable: Nilai TPC

Konsentrasi Pala	Waktu Penyimpanan	Mean	Std. Deviation	N
P1	W1	3760.00	.000	3
	W2	8426666.67	12188065.201	3
	W3	1400000.00	290516.781	3
	W4	1560000000.00	549909083.395	3
	W5	8293333333.33	1510176590.116	3
	Total	1972632752.00	3385223315.686	15
P2	W1	3150.00	.000	3
	W2	2347666.67	2455733.360	3
	W3	2126666.67	270246.801	3
	W4	1084000000.00	134044768.641	3
	W5	8323333333.33	1329899745.595	3
	Total	1882362163.33	3399398440.490	15
P3	W1	5770.00	.000	3
	W2	682666.67	27574.142	3
	W3	733000.00	100553.468	3
	W4	20166666.67	2010804.151	3
	W5	77466666.67	27650015.069	3
	Total	19810954.00	32597538.618	15
Total	W1	4226.67	1187.255	9
	W2	3819000.00	7148921.614	9
	W3	1419888.89	637409.689	9
	W4	88805555.56	739099802.312	9
	W5	5564711111.11	4236681256.433	9
	Total	1291601956.44	2855169646.925	45

Tests of Between-Subjects Effects

Dependent Variable: Nilai TPC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	425017210022 356700000.000 ^a	15	283344806681 57112000.000	97.246	<,001

konsentrasi_pala	364537938065 56240000.000	2	182268969032 78120000.000	62.556	<,001
waktu_pegimpanan	210721418561 558580000.000	4	526803546403 89644000.000	180.802	<,001
konsentrasi_pala * waktu_pegimpanan	102771395029 141980000.000	8	128464243786 42747000.000	44.090	<,001
Error	874111596239 5332600.000	30	291370532079 844420.000		
Total	433758325984 752040000.000	45			

a. R Squared = .980 (Adjusted R Squared = .970)

Post Hoc Tests

Konsentrasi Pala

Homogeneous Subsets

Nilai TPC

Duncan^{a,b}

Konsentrasi Pala	N	Subset	
		1	2
P3	15	19810954.00	
P2	15		1882362163.33
P1	15		1972632752.00
Sig.		1.000	.650

The error term is Mean Square(Error) =
291370532079844420.000.

a. Uses Harmonic Mean Sample Size = 15.000.

b. Alpha = ,05.

Waktu Penyimpanan

Homogeneous Subsets

Nilai TPC

Duncan^{a,b}

Waktu Penyimpanan	N	Subset		
		1	2	3
W1	9	4226.67		
W3	9	1419888.89		
W2	9	3819000.00		
W4	9		888055555.56	
W5	9			5564711111.11
Sig.		.989	1.000	1.000

The error term is Mean Square(Error) = 291370532079844420.000.

a. Uses Harmonic Mean Sample Size = 9.000.

b. Alpha = ,05.

Oneway**ANOVA**

TPC

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3499466073972 56400000.000	14	2499618624266 1175000.000	85.788	<,001
Within Groups	8741115962395 333600.000	30	2913705320798 44480.000		
Total	3586877233596 51760000.000	44			

Post Hoc Tests**Homogeneous Subsets****TPC**Duncan^a

Konsentrasi Pala x Waktu Penyimpanan		Subset for alpha = 0.05		
	N	1	2	3
P2W1	3	3150.00		
P1W1	3	3760.00		
P3W1	3	5770.00		
P3W2	3	682666.67		
P3W3	3	733000.00		
P1W3	3	1400000.00		
P2W3	3	2126666.67		
P2W2	3	2347666.67		
P1W2	3	8426666.67		
P3W4	3	20166666.67		
P3W5	3	77466666.67		
P2W4	3		1084000000.00	
P1W4	3		1560000000.00	
P1W5	3			8293333333.33
P2W5	3			8323333333.33
Sig.		.882	.289	.946

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 19. Hasil Analisis Data Pengujian Kolorimetri

Descriptive Statistics

Dependent Variable: Nilai Hue

Intelligent Packaging	Active Packaging	Waktu Penyimpanan	Mean	Std. Deviation	N
T1	P1	W1	152.3950	2.12839	2
		W2	140.5950	3.38704	2
		W3	133.5700	.36770	2
		W4	113.5050	.12021	2
		W5	135.5550	1.13844	2
		Total	135.1240	13.39092	10
	P2	W1	156.7550	2.34052	2
		W2	146.1800	3.70524	2
		W3	127.0650	3.62746	2
		W4	136.8250	4.85782	2
		W5	127.4550	2.79307	2
		Total	138.8560	12.28398	10
	P3	W1	145.6750	4.17900	2
		W2	179.8750	38.19084	2
		W3	149.3450	64.65077	2
		W4	127.8250	2.76479	2
		W5	137.2650	1.23744	2
		Total	147.9970	31.19100	10
	Total	W1	151.6083	5.51534	6
		W2	155.5500	25.65171	6
		W3	136.6600	30.71826	6
		W4	126.0517	10.81216	6
		W5	133.4250	4.90867	6
		Total	140.6590	20.84851	30
T2	P1	W1	250.9950	118.10805	2
		W2	146.2200	23.78707	2
		W3	137.4050	1.63342	2
		W4	123.0400	2.36174	2
		W5	122.2300	2.06475	2
		Total	155.9780	64.90363	10
	P2	W1	169.2000	10.56418	2
		W2	169.0250	58.38581	2
		W3	147.1550	.54447	2
		W4	122.1050	1.40714	2

T3	P3	W5	137.2300	4.27092	2
		Total	148.9430	27.66792	10
		W1	208.2200	.21213	2
		W2	140.1900	11.62484	2
		W3	139.5350	26.79228	2
		W4	142.3250	2.75065	2
		W5	190.0550	6.47003	2
		Total	164.0650	32.38904	10
	Total	W1	209.4717	64.43024	6
		W2	151.8117	31.73365	6
		W3	141.3650	12.85224	6
		W4	129.1567	10.35580	6
		W5	149.8383	32.06714	6
		Total	156.3287	43.70301	30
	P1	W1	322.8950	1.15258	2
		W2	194.4550	122.22341	2
		W3	130.2400	13.27947	2
		W4	131.2750	2.89207	2
		W5	142.5950	1.33643	2
		Total	184.2920	87.36683	10
	P2	W1	312.4800	2.23446	2
		W2	308.8400	10.25305	2
		W3	153.1900	.19799	2
		W4	110.9850	.19092	2
		W5	148.7600	1.27279	2
		Total	206.8510	90.74936	10
	P3	W1	314.1400	2.06475	2
		W2	334.0600	36.00588	2
		W3	322.5350	.81317	2
		W4	112.3500	2.41831	2
		W5	143.7650	32.47741	2
		Total	245.3700	103.00869	10
	Total	W1	316.5050	5.21222	6
		W2	279.1183	87.72662	6
		W3	201.9883	94.12571	6
		W4	118.2033	10.28316	6
		W5	145.0400	14.83963	6
		Total	212.1710	94.20995	30
Total	P1	W1	242.0950	93.01962	6
		W2	160.4233	61.67976	6
		W3	133.7383	6.79072	6

		W4	122.6067	8.12764	6
		W5	133.4600	9.33001	6
		Total	158.4647	64.43469	30
	P2	W1	212.8117	77.56066	6
		W2	208.0150	83.12243	6
		W3	142.4700	12.34388	6
		W4	123.3050	11.81220	6
		W5	137.8150	9.82438	6
		Total	164.8833	61.39042	30
	P3	W1	222.6783	76.19627	6
		W2	218.0417	94.70561	6
		W3	203.8050	97.24699	6
		W4	127.5000	13.56374	6
		W5	157.0283	29.70760	6
		Total	185.8107	76.15662	30
	Total	W1	225.8617	78.60348	18
		W2	195.4933	80.36138	18
		W3	160.0044	62.20102	18
		W4	124.4706	10.93260	18
		W5	142.7678	20.60513	18
		Total	169.7196	67.88642	90

Tests of Between-Subjects Effects

Dependent Variable: Nilai Hue

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	367844.823 ^a	44	8360.110	8.890	.000
Intercept	2592425.478	1	2592425.478	2756.753	.000
Intelligent_Packaging	84778.708	2	42389.354	45.076	.000
Active_Packaging	12269.563	2	6134.781	6.524	.003
Waktu_Penyimpanan	120320.603	4	30080.151	31.987	.000
Intelligent_Packaging * Active_Packaging	8830.135	4	2207.534	2.347	.069
Intelligent_Packaging * Waktu_Penyimpanan	79359.223	8	9919.903	10.549	.000
Active_Packaging * Waktu_Penyimpanan	21231.281	8	2653.910	2.822	.013
Intelligent_Packaging * Active_Packaging * Waktu_Penyimpanan	41055.310	16	2565.957	2.729	.004

Error	42317.591	45	940.391		
Total	3002587.893	90			
Corrected Total	410162.414	89			

a. R Squared = .897 (Adjusted R Squared = .796)

Intelligent Packaging

Homogeneous Subsets

Nilai Hue

Duncan^{a,b}

Intelligent Packaging	N	Subset	
		1	2
T1	30	140.6590	212.1710
T2	30	156.3287	
T3	30		
Sig.		.054	1.000

The error term is Mean Square(Error) = 940.391.

a. Uses Harmonic Mean Sample Size = 30.000.

b. Alpha = ,05.

Active Packaging

Nilai Hue

Duncan^{a,b}

Active Packaging	N	Subset	
		1	2
P1	30	158.4647	185.8107
P2	30	164.8833	
P3	30		
Sig.		.422	1.000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 940.391.

a. Uses Harmonic Mean Sample Size = 30.000.

b. Alpha = ,05.

Post Hoc Tests

Homogeneous Subsets

Nilai Hue

Duncan^a

PackagingxWaktu	N	Subset for alpha = 0.05					
		1	2	3	4	5	6
T3P2W4	2	110.9850					
T3P3W4	2	112.3500					

T1P1W4	2	113.5050					
T2P2W4	2	122.1050	122.1050				
T2P1W5	2	122.2300	122.2300				
T2P1W4	2	123.0400	123.0400				
T1P2W3	2	127.0650	127.0650				
T1P2W5	2	127.4550	127.4550				
T1P3W4	2	127.8250	127.8250				
T3P1W3	2	130.2400	130.2400				
T3P1W4	2	131.2750	131.2750				
T1P1W3	2	133.5700	133.5700	133.5700			
T1P1W5	2	135.5550	135.5550	135.5550			
T1P2W4	2	136.8250	136.8250	136.8250			
T2P2W5	2	137.2300	137.2300	137.2300			
T1P3W5	2	137.2650	137.2650	137.2650			
T2P1W3	2	137.4050	137.4050	137.4050			
T2P3W3	2	139.5350	139.5350	139.5350			
T2P3W2	2	140.1900	140.1900	140.1900			
T1P1W2	2	140.5950	140.5950	140.5950			
T2P3W4	2	142.3250	142.3250	142.3250			
T3P1W5	2	142.5950	142.5950	142.5950			
T3P3W5	2	143.7650	143.7650	143.7650			
T1P3W1	2	145.6750	145.6750	145.6750			
T1P2W2	2	146.1800	146.1800	146.1800			
T2P1W2	2	146.2200	146.2200	146.2200			
T2P2W3	2	147.1550	147.1550	147.1550			
T3P2W5	2	148.7600	148.7600	148.7600			
T1P3W3	2	149.3450	149.3450	149.3450			
T1P1W1	2	152.3950	152.3950	152.3950			
T3P2W3	2	153.1900	153.1900	153.1900			
T1P2W1	2	156.7550	156.7550	156.7550			
T2P2W2	2	169.0250	169.0250	169.0250			
T2P2W1	2	169.2000	169.2000	169.2000			
T1P3W2	2	179.8750	179.8750	179.8750			
T2P3W5	2		190.0550	190.0550	190.0550		
T3P1W2	2		194.4550	194.4550	194.4550		

T2P3W1	2			208.2200	208.2200		
T2P1W1	2				250.9950	250.9950	
T3P2W2	2					308.8400	308.8400
T3P2W1	2					312.4800	312.4800
T3P3W1	2					314.1400	314.1400
T3P3W3	2						322.5350
T3P1W1	2						322.8950
T3P3W2	2						334.0600
Sig.		.074	.062	.054	.075	.065	.480

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 2.000.