

Lampiran 2. Metode Analisa Kimiawi

2.1 Uji Kadar Air

Sampel yang telah dihaluskan ditimbang sel 35 k 3 gram dalam cawan porselin yang telah diketahui berat konstan. Lalu sampel dikeringkan dalam oven pada suhu 100-105°C selama 3-5 jam kemudian didinginkan dalam desikator dan ditimbang sampai beratnya konstan (Sudarmadji *et al.*, 1989).

Perhitungan :

$$\text{Kadar air} = \frac{\text{Berat air}}{\text{Berat sampel}} \times 100\%$$

2.2 Analisa Protein (Metoda Kjeldahl)

Sampel ditimbang sebanyak 0,25 gram dan dimasukkan ke dalam labu Kjeldahl dengan ditambahkan 7,5 gram K₂SO₄; 0,35 gram HgO dan 15 ml H₂SO₄ pekat. Campuran adonan tersebut kemudian dipanaskan dalam ruang asam sampai larutan jernih. Setelah larutan jernih, larutan tersebut kemudian didinginkan dan dipindahkan ke labu destilasi, sambil dibilas dengan 100 ml aquadest dingin. Dan ditambahkan 0,2- 0,25 gram Zn; 15 ml Na₂S₂O₃ 4% dan 50 ml NaOH 50% dingin. Setelah itu, sebanyak 50 ml HCl 0,1N dimasukkan ke dalam erlenmeyer 100 ml dan dilakukan destilasi sampai tertampung 75 ml. Kedalam larutan ditambahkan indikator metil red dan dilakukan titrasi dengan NaOH 0,1N sampai berwarna kuning. Kemudian dihitung % protein dan dimasukkan dalam tabel pengamatan (Sudarmadji *et al.*, 1989).

Perhitungan :

$$\% \text{ N} = \frac{\text{ml NaOH (blanko - sampel)} \times \text{N. NaOH} \times 14,008 \times 100\%}{\text{W sampel (g)} \times 1000}$$

$$\% \text{ Protein} = \% \text{ N} \times \text{Faktor konversi}$$

Keterangan :

W sampel : berat sampel

N NaOH : 0,1

Faktor konversi tepung terigu : 5,7

Faktor konversi koro benguk : 6,25

2.3 Uji Kadar Lemak (Metode Soxhlet)

2 gr sampel ditimbang lalu dibungkus dengan kertas saring yang telah diketahui beratnya. Kemudian sampel dimasukkan dalam labu soxhlet, ditambah dengan pelarut eter sampai $\frac{1}{3}$ bagian labu lalu diekstraksi selama 4 jam. Sampel lalu dikeringkan dalam oven kemudian ditimbang (Sudarmadji *et al.*, 1989).

Perhitungan :

$$\text{Kadar lemak} = \frac{\text{Berat lemak}}{\text{Berat sampel}} \times 100\%$$

2.4 Uji Kadar Serat Kasar

Sampel yang telah diekstrak lemaknya dimasukkan dalam erlenmeyer dan ditambahkan anti buih dan batu didih. kemudian ditambahkan H_2SO_4 0,25 N sebanyak 200 ml dan dididihkan 30 menit. Residu yang terbentuk disaring dan dicuci dengan 200 ml akuades panas. Residu yang terbentuk dimasukkan dalam erlenmeyer dengan ditambahkan NaOH 0,25 N sebanyak 200 ml dan dididihkan kembali 30 menit. Residu disaring kembali dengan kertas saring yang telah diketahui beratnya. Lalu residu dicuci dengan 100 ml aquades panas dan 15 ml alkohol 95%. Kertas saring dikeringkan dan ditimbang sampai berat konstan (Sudarmadji *et al.*, 1989).

Perhitungan :

Berat residu = berat serat kasar

$$\text{Kadar serat kasar} = \frac{\text{Berat serat kasar}}{\text{Berat sampel}} \times 100\%$$

2.5 Uji Kadar Abu

Sampel yang telah dihaluskan ditimbang sebanyak 2 gr dalam cawan porselin yang telah diketahui berat konstannya. Sampel tadi diabukan dalam tanur pada suhu 550°C selama 3-5 jam, kemudian didinginkan dalam oven dan dimasukkan dalam desikator lalu ditimbang sampai beratnya konstan (Sudarmadji *et al.*, 1989).

Perhitungan :

Berat residu = berat abu

$$\text{Kadar abu} = \frac{\text{Berat abu}}{\text{Berat sampel}} \times 100\%$$

2.6 Uji Kadar Karbohidrat

Dengan menggunakan metode *by difference*, yaitu dengan mengurangi 100% bahan dengan kadar air, kadar abu, kadar lemak, dan kadar protein bahan yang telah diketahui sebelumnya (Nielsen, 1998).

Perhitungan :

$$\text{Carbohydrate by difference} = 100\% - (\% \text{air} + \% \text{abu} + \% \text{lemak} + \% \text{protein})$$

Lampiran 3. Analisa Data Pengembangan *Puff Pastry*

Descriptives

PENGEMB

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					kontrol	15		
5%	15	455.7500	51.1449	13.2056	427.4269	484.0731	362.50	525.00
10%	15	321.1667	51.1769	13.2138	292.8258	349.5075	233.75	392.50
15%	15	253.6667	23.1333	5.9730	240.8559	266.4775	212.50	291.25
Total	60	429.2708	176.5078	22.7871	383.6740	474.8676	212.50	857.50

Test of Homogeneity of Variances

PENGEMB

Levene Statistic	df1	df2	Sig.
5.000	3	56	.004

ANOVA

PENGEMB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1640870	3	546956.623	155.263	.000
Within Groups	197274.8	56	3522.764		
Total	1838145	59			

PENGEMB

Duncan^a

PERLKN	N	Subset for alpha = .05			
		1	2	3	4
15%	15	253.6667			
10%	15		321.1667		
5%	15			455.7500	
kontrol	15				686.5000
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 15.000.

Lampiran 4. Analisa Data *Hardness Puff Pastry*

Descriptives

HARDNESS

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
kontrol	15	.2940	9.800E-02	2.530E-02	.2397	.3483	.20	.49
5%	15	1.1107	.1877	8.845E-02	1.0067	1.2146	.69	1.37
10%	15	1.5092	.1918	9.951E-02	1.4030	1.6154	1.27	1.86
15%	15	2.0253	.4651	.1201	1.7678	2.2829	1.47	2.94
Total	60	1.2348	.6911	8.922E-02	1.0563	1.4133	.20	2.94

Test of Homogeneity of Variances

HARDNESS

Levene Statistic	df1	df2	Sig.
13.596	3	56	.000

ANOVA

HARDNESS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24.011	3	8.004	107.467	.000
Within Groups	4.171	56	7.448E-02		
Total	28.182	59			

HARDNESS

Duncan^a

PERLKN	N	Subset for alpha = .05			
		1	2	3	4
kontrol	15	.2940			
5%	15		1.1107		
10%	15			1.5092	
15%	15				2.0253
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 15.000.

Lampiran 5. Analisa Data Kadar Air *Puff Pastry*

Descriptives

AIR

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
kontrol	9	10,3205	,24187	,08062	10,1346	10,5065	10,13	10,92
5%	9	9,9969	,27850	,09283	9,7829	10,2110	9,71	10,66
10%	9	9,7101	,12443	,04148	9,6145	9,8058	9,50	9,84
15%	9	8,1213	,18766	,06255	7,9771	8,2656	7,87	8,44
Total	36	9,5372	,88205	,14701	9,2388	9,8357	7,87	10,92

Test of Homogeneity of Variances

AIR

Levene Statistic	df1	df2	Sig.
,501	3	32	,684

ANOVA

AIR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25,737	3	8,579	183,742	,000
Within Groups	1,494	32	,047		
Total	27,231	35			

AIR

Duncan^a

PERLAKN	N	Subset for alpha = .05			
		1	2	3	4
15%	9	8,1213			
10%	9		9,7101		
5%	9			9,9969	
kontrol	9				10,3205
Sig.		1,000	1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 9,000.

Lampiran 6. Analisa Data Kandungan Protein *Puff Pastry*

Descriptives

PROTEIN

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
kontrol	9	9,3405	,20025	,06675	9,1865	9,4944	8,87	9,47
5%	9	11,5542	,35453	,11818	11,2817	11,8267	11,13	12,17
10%	9	13,6032	,38338	,12779	13,3085	13,8979	12,95	14,26
15%	9	16,5547	,26237	,08746	16,3531	16,7564	16,22	16,91
Total	36	12,7632	2,71175	,45196	11,8456	13,6807	8,87	16,91

Test of Homogeneity of Variances

PROTEIN

Levene Statistic	df1	df2	Sig.
1,360	3	32	,272

ANOVA

PROTEIN

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	254,323	3	84,774	888,594	,000
Within Groups	3,053	32	,095		
Total	257,376	35			

PROTEIN

Duncan^a

PERLAKN	N	Subset for alpha = .05			
		1	2	3	4
kontrol	9	9,3405			
5%	9		11,5542		
10%	9			13,6032	
15%	9				16,5547
Sig.		1,000	1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 9,000.

Lampiran 7. Analisa Data Kandungan Lemak *Puff Pastry*

Descriptives

LEMAK

	N	Mean	Std. Deviation	Std. Error	5% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
kontrol	9	30,1388	,81540	,27180	29,5120	30,7655	29,03	31,40
5%	9	28,0520	1,45983	,48661	26,9299	29,1741	26,06	30,45
10%	9	26,1921	,44145	,14715	25,8528	26,5315	25,34	26,86
15%	9	24,9875	,28321	,09440	24,7698	25,2052	24,68	25,45
Total	36	27,3426	2,14673	,35779	26,6162	28,0689	24,68	31,40

Test of Homogeneity of Variances

LEMAK

Levene Statistic	df1	df2	Sig.
8,448	3	32	,000

ANOVA

LEMAK

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	136,727	3	45,576	59,362	,000
Within Groups	24,569	32	,768		
Total	161,296	35			

LEMAK

Duncan^a

PERLAKN	N	Subset for alpha = .05			
		1	2	3	4
15%	9	24,9875			
10%	9		26,1921		
5%	9			28,0520	
kontrol	9				30,1388
Sig.		1,000	1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 9,000.

Lampiran 8. Analisa Data Kandungan Serat Kasar *Puff Pastry*

Descriptives

SERAT

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
kontrol	9	,5306	,05755	,01918	,4864	,5748	,44	,61
5%	9	1,8021	,14246	,04749	1,6926	1,9116	1,63	2,03
10%	9	2,4458	,10113	,03371	2,3681	2,5236	2,32	2,63
15%	9	2,7833	,20494	,06831	2,6258	2,9408	2,51	3,11
Total	36	1,8905	,88270	,14712	1,5918	2,1891	,44	3,11

Test of Homogeneity of Variances

SERAT

Levene Statistic	df1	df2	Sig.
5,570	3	32	,003

ANOVA

SERAT

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26,664	3	8,888	468,810	,000
Within Groups	,607	32	,019		
Total	27,270	35			

SERAT

Duncan^a

PERLAKN	N	Subset for alpha = .05			
		1	2	3	4
kontrol	9	,5306			
5%	9		1,8021		
10%	9			2,4458	
15%	9				2,7833
Sig.		1,000	1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 9,000.

Lampiran 9. Analisa Kadar Abu *Puff Pastry*

Descriptives

ABU

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
kontrol	9	1,0328	,18568	,06189	,8901	1,1756	,85	1,34
5%	9	2,5847	,14996	,04999	2,4695	2,7000	2,36	2,85
10%	9	3,0708	,11863	,03954	2,9797	3,1620	2,93	3,25
15%	9	3,2419	,12124	,04041	3,1487	3,3351	3,04	3,37
Total	36	2,4826	,89442	,14907	2,1800	2,7852	,85	3,37

Test of Homogeneity of Variances

ABU

Levene Statistic	df1	df2	Sig.
,876	3	32	,464

ANOVA

ABU

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	27,314	3	9,105	424,769	,000
Within Groups	,686	32	,021		
Total	28,000	35			

ABU

Duncan^a

PERLAKN	N	Subset for alpha = .05			
		1	2	3	4
kontrol	9	1,0328			
5%	9		2,5847		
10%	9			3,0708	
15%	9				3,2419
Sig.		1,000	1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 9,000.

Lampiran 10. Analisa Data Kandungan Karbohidrat *Puff Pastry*

Descriptives

KARBOHDT

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
kontrol	9	49,1674	,71152	,23717	48,6205	49,7143	48,24	50,27
5%	9	47,8121	1,35101	,45034	46,7736	48,8506	45,68	49,80
10%	9	47,4237	,69799	,23266	46,8872	47,9602	46,26	48,72
15%	9	47,0945	,35182	,11727	46,8241	47,3650	46,48	47,54
Total	36	47,8744	1,14546	,19091	47,4869	48,2620	45,68	50,27

Test of Homogeneity of Variances

KARBOHDT

Levene Statistic	df1	df2	Sig.
3,639	3	32	,023

ANOVA

KARBOHDT

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22,383	3	7,461	10,143	,000
Within Groups	23,540	32	,736		
Total	45,923	35			

KARBOHDT

Duncan^a

PERLAKN	N	Subset for alpha = .05	
		1	2
15%	9	47,0945	
10%	9	47,4237	
5%	9	47,8121	
kontrol	9		49,1674
Sig.		,102	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 9,000.

Lampiran 11. Analisa Data Uji Sensoris Warna *Puff Pastry*

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PERLKN * WARNA	120	100.0%	0	.0%	120	100.0%

PERLKN * WARNA Crosstabulation

		WARNA					Total
		tidak suka sekali	tidak suka	suka	suka sekali	sangat suka sekali	
PERLKN 0%	Count	1	3	10	8	8	30
	% of Total	.8%	2.5%	8.3%	6.7%	6.7%	25.0%
5%	Count		4	11	12	3	30
	% of Total		3.3%	9.2%	10.0%	2.5%	25.0%
10%	Count	4	12	9	2	3	30
	% of Total	3.3%	10.0%	7.5%	1.7%	2.5%	25.0%
15%	Count	4	19	6	1		30
	% of Total	3.3%	15.8%	5.0%	.8%		25.0%
Total	Count	9	38	36	23	14	120
	% of Total	7.5%	31.7%	30.0%	19.2%	11.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	48.484 ^a	12	.000
Likelihood Ratio	53.946	12	.000
Linear-by-Linear Association	33.647	1	.000
N of Valid Cases	120		

a. 8 cells (40.0%) have expected count less than 5. The minimum expected count is 2.25.

Lampiran 12. Analisa Data Uji Sensoris Aroma *Puff Pastry*

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PERLKN * AROMA	120	100.0%	0	.0%	120	100.0%

PERLKN * AROMA Crosstabulation

		AROMA					Total
		tidak suka sekali	tidak suka	suka	suka sekali	sangat suka sekali	
PERLKN 0%	Count		7	9	8	6	30
	% of Total		5.8%	7.5%	6.7%	5.0%	25.0%
5%	Count		4	17	5	4	30
	% of Total		3.3%	14.2%	4.2%	3.3%	25.0%
10%	Count		8	18	4		30
	% of Total		6.7%	15.0%	3.3%		25.0%
15%	Count	1	13	12	4		30
	% of Total	.8%	10.8%	10.0%	3.3%		25.0%
Total	Count	1	32	56	21	10	120
	% of Total	.8%	26.7%	46.7%	17.5%	8.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.955 ^a	12	.015
Likelihood Ratio	28.143	12	.005
Linear-by-Linear Association	14.835	1	.000
N of Valid Cases	120		

a. 8 cells (40.0%) have expected count less than 5. The minimum expected count is .25.

Lampiran 13. Analisa Data Uji Sensoris Tekstur *Puff Pastry*

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PERLKN * TEKSTUR	120	100.0%	0	.0%	120	100.0%

PERLKN * TEKSTUR Crosstabulation

			TEKSTUR					Total
			tidak suka sekali	tidak suka	suka	suka sekali	sangat suka sekali	
PERLKN 0%	Count		1	4	10	10	5	30
	% of Total		.8%	3.3%	8.3%	8.3%	4.2%	25.0%
5%	Count			5	12	11	2	30
	% of Total			4.2%	10.0%	9.2%	1.7%	25.0%
10%	Count		1	9	14	4	2	30
	% of Total		.8%	7.5%	11.7%	3.3%	1.7%	25.0%
15%	Count		5	12	9	4		30
	% of Total		4.2%	10.0%	7.5%	3.3%		25.0%
Total	Count		7	30	45	29	9	120
	% of Total		5.8%	25.0%	37.5%	24.2%	7.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.770 ^a	12	.008
Likelihood Ratio	28.169	12	.005
Linear-by-Linear Association	19.169	1	.000
N of Valid Cases	120		

a. 8 cells (40.0%) have expected count less than 5. The minimum expected count is 1.75.

Lampiran 14. Analisa Data Uji Sensoris Kerenyahan *Puff Pastry*

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PERLKN * RENYAH	120	100.0%	0	.0%	120	100.0%

PERLKN * RENYAH Crosstabulation

		RENYAH					Total
		tidak suka sekali	tidak suka	suka	suka sekali	sangat suka sekali	
PERLKN 0%	Count	1	9	8	7	5	30
	% of Total	.8%	7.5%	6.7%	5.8%	4.2%	25.0%
5%	Count		10	10	8	2	30
	% of Total		8.3%	8.3%	6.7%	1.7%	25.0%
10%	Count	2	8	11	8	1	30
	% of Total	1.7%	6.7%	9.2%	6.7%	.8%	25.0%
15%	Count	4	14	8	2	2	30
	% of Total	3.3%	11.7%	6.7%	1.7%	1.7%	25.0%
Total	Count	7	41	37	25	10	120
	% of Total	5.8%	34.2%	30.8%	20.8%	8.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.314 ^a	12	.225
Likelihood Ratio	16.925	12	.152
Linear-by-Linear Association	7.298	1	.007
N of Valid Cases	120		

a. 8 cells (40.0%) have expected count less than 5. The minimum expected count is 1.75.

Lampiran 15. Analisa Data Uji Sensoris Rasa *Puff Pastry*

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PERLKN * RASA	120	100.0%	0	.0%	120	100.0%

PERLKN * RASA Crosstabulation

		RASA					Total
		tidak suka sekali	tidak suka	suka	suka sekali	sangat suka sekali	
PERLKN 0%	Count	2	1	13	8	6	30
	% of Total	1.7%	.8%	10.8%	6.7%	5.0%	25.0%
5%	Count		5	13	7	5	30
	% of Total		4.2%	10.8%	5.8%	4.2%	25.0%
10%	Count	2	8	15	5		30
	% of Total	1.7%	6.7%	12.5%	4.2%		25.0%
15%	Count	5	9	13	2	1	30
	% of Total	4.2%	7.5%	10.8%	1.7%	.8%	25.0%
Total	Count	9	23	54	22	12	120
	% of Total	7.5%	19.2%	45.0%	18.3%	10.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.113 ^a	12	.014
Likelihood Ratio	31.313	12	.002
Linear-by-Linear Association	18.296	1	.000
N of Valid Cases	120		

a. 8 cells (40.0%) have expected count less than 5. The minimum expected count is 2.25.

Lampiran 16. Analisa Data Uji Sensoris Kesukaan *Puff Pastry*

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PERLKN * KESUKAAN	120	100.0%	0	.0%	120	100.0%

PERLKN * KESUKAAN Crosstabulation

		KESUKAAN					Total
		tidak suka sekali	tidak suka	suka	suka sekali	sangat suka sekali	
PERLKN 0%	Count		4	10	7	9	30
	% of Total		3.3%	8.3%	5.8%	7.5%	25.0%
5%	Count		3	13	10	4	30
	% of Total		2.5%	10.8%	8.3%	3.3%	25.0%
10%	Count	1	8	16	4	1	30
	% of Total	.8%	6.7%	13.3%	3.3%	.8%	25.0%
15%	Count	6	9	12	2	1	30
	% of Total	5.0%	7.5%	10.0%	1.7%	.8%	25.0%
Total	Count	7	24	51	23	15	120
	% of Total	5.8%	20.0%	42.5%	19.2%	12.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	37.738 ^a	12	.000
Likelihood Ratio	37.304	12	.000
Linear-by-Linear Association	26.354	1	.000
N of Valid Cases	120		

a. 8 cells (40.0%) have expected count less than 5. The minimum expected count is 1.75.