

## 7. LAMPIRAN

**Lampiran 1. Hasil Scoring Uji Sensori Roti Bebas Gluten**

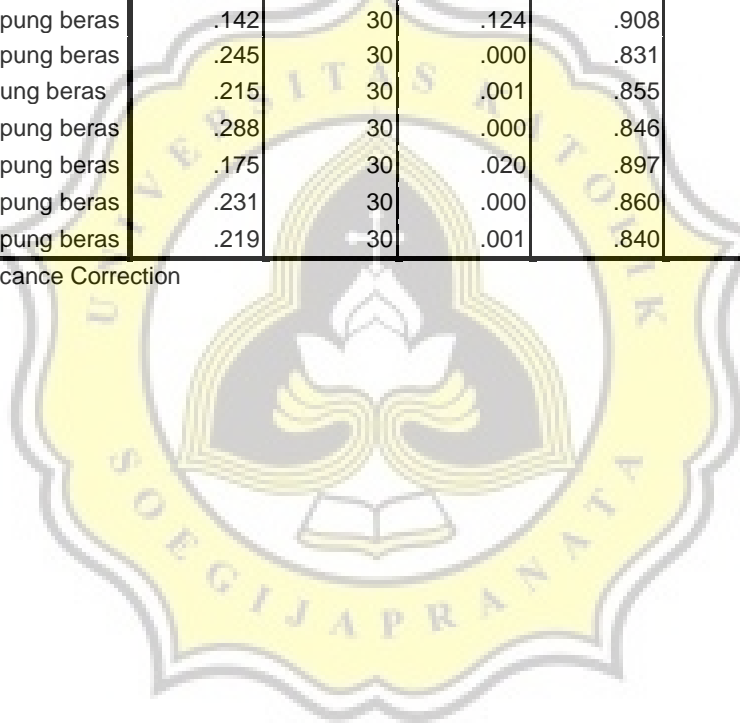
Panelis	Tekstur					Warna					Overall				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
1	4	2	3	1	5	1	3	4	2	5	4	2	3	1	5
2	3	2	1	4	5	1	2	3	4	5	2	3	1	4	5
3	1	5	2	4	3	3	5	1	2	4	3	5	1	4	2
4	5	2	4	1	3	5	3	4	1	2	5	1	4	2	3
5	5	1	4	3	2	4	1	3	5	2	5	1	3	4	2
6	3	1	2	4	5	1	4	3	5	2	1	3	2	4	5
7	4	1	3	2	5	2	1	3	5	4	2	1	3	4	5
8	4	3	5	2	1	5	2	3	4	1	5	3	4	2	1
9	2	1	3	4	5	5	1	2	3	4	4	1	2	3	5
10	3	4	2	5	1	3	2	4	5	1	3	2	4	5	1
11	1	3	2	4	5	1	3	2	4	5	1	3	2	4	5
12	1	4	3	2	5	1	2	3	5	4	1	3	2	4	5
13	1	3	2	5	4	1	2	3	4	5	1	3	2	5	4
14	1	3	5	4	2	3	5	4	1	2	1	3	5	4	2
15	4	2	3	1	5	3	4	1	2	5	4	5	3	1	2
16	3	4	5	2	1	1	2	3	4	5	4	3	5	2	1
17	3	2	1	4	5	2	1	4	3	5	2	4	1	3	5
18	4	3	5	1	2	1	2	5	3	4	2	1	3	5	4
19	1	2	5	3	4	4	3	5	2	1	4	3	5	1	2
20	4	3	5	1	2	5	4	3	1	2	5	4	3	1	2
21	3	1	5	2	4	2	1	4	5	3	4	1	5	2	3
22	3	2	4	1	5	2	1	5	3	4	2	3	4	1	5
23	5	1	4	3	2	4	3	2	1	5	5	3	4	1	2
24	4	3	5	2	1	2	3	5	4	1	3	4	5	2	1
25	4	1	5	2	3	5	1	4	2	3	4	1	5	2	3
26	4	1	3	5	2	1	2	5	3	4	1	3	4	5	2
27	4	2	3	5	1	1	2	5	3	4	1	3	5	4	2
28	1	3	4	2	5	2	1	4	3	5	1	3	4	2	5
29	5	3	2	1	4	1	4	2	3	5	5	3	2	1	4
30	3	2	5	1	4	5	4	3	2	1	4	1	2	5	3
<b>Total</b>	93	70	105	81	101	77	74	102	94	103	89	79	98	88	96
<b>Rata-rata</b>	3,1	2,33	3,5	2,7	3,36	2,56	2,46	3,4	3,13	3,43	2,96	2,63	3,26	2,93	3,2
<b>Stdev</b>	1,37	1,09	1,33	1,44	1,56	1,56	1,25	1,16	1,33	1,52	1,54	1,18	1,37	1,48	1,51

## Lampiran 2. Hasil Olah Data Menggunakan SPSS

- *Test Normality Uji Sensori*

		Tests of Normality					
formula		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
tekstur	0% tepung beras	.211	30	.002	.857	30	.001
	20% tepung beras	.186	30	.009	.892	30	.005
	30% tepung beras	.203	30	.003	.872	30	.002
	40% tepung beras	.220	30	.001	.867	30	.001
	50% tepung beras	.218	30	.001	.832	30	.000
warna	0% tepung beras	.208	30	.002	.824	30	.000
	20% tepung beras	.212	30	.001	.889	30	.005
	30% tepung beras	.168	30	.030	.910	30	.015
	40% tepung beras	.142	30	.124	.908	30	.013
	50% tepung beras	.245	30	.000	.831	30	.000
overall	0% tepung beras	.215	30	.001	.855	30	.001
	20% tepung beras	.288	30	.000	.846	30	.001
	30% tepung beras	.175	30	.020	.897	30	.007
	40% tepung beras	.231	30	.000	.860	30	.001
	50% tepung beras	.219	30	.001	.840	30	.000

a. Lilliefors Significance Correction



- *Test Normality Uji Fisik*

Case Processing Summary

formula		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
TA	0% tepung beras	6	100.0%	0	.0%	6	100.0%
	20% tepung beras	6	100.0%	0	.0%	6	100.0%
	30% tepung beras	6	100.0%	0	.0%	6	100.0%
	40% tepung beras	6	100.0%	0	.0%	6	100.0%
	50% tepung beras	1	16.7%	5	83.3%	6	100.0%
vol_peng_13	0% tepung beras	6	100.0%	0	.0%	6	100.0%
	20% tepung beras	6	100.0%	0	.0%	6	100.0%
	30% tepung beras	6	100.0%	0	.0%	6	100.0%
	40% tepung beras	6	100.0%	0	.0%	6	100.0%
	50% tepung beras	1	16.7%	5	83.3%	6	100.0%
vol_peng_23	0% tepung beras	6	100.0%	0	.0%	6	100.0%
	20% tepung beras	6	100.0%	0	.0%	6	100.0%
	30% tepung beras	6	100.0%	0	.0%	6	100.0%
	40% tepung beras	6	100.0%	0	.0%	6	100.0%
	50% tepung beras	1	16.7%	5	83.3%	6	100.0%
L	0% tepung beras	6	100.0%	0	.0%	6	100.0%
	20% tepung beras	6	100.0%	0	.0%	6	100.0%
	30% tepung beras	6	100.0%	0	.0%	6	100.0%
	40% tepung beras	6	100.0%	0	.0%	6	100.0%
	50% tepung beras	1	16.7%	5	83.3%	6	100.0%
A	0% tepung beras	6	100.0%	0	.0%	6	100.0%
	20% tepung beras	6	100.0%	0	.0%	6	100.0%
	30% tepung beras	6	100.0%	0	.0%	6	100.0%
	40% tepung beras	6	100.0%	0	.0%	6	100.0%
	50% tepung beras	1	16.7%	5	83.3%	6	100.0%
B	0% tepung beras	6	100.0%	0	.0%	6	100.0%
	20% tepung beras	6	100.0%	0	.0%	6	100.0%
	30% tepung beras	6	100.0%	0	.0%	6	100.0%
	40% tepung beras	6	100.0%	0	.0%	6	100.0%
	50% tepung beras	1	16.7%	5	83.3%	6	100.0%
rata_rata_diam eter_pori	0% tepung beras	6	100.0%	0	.0%	6	100.0%
	20% tepung beras	6	100.0%	0	.0%	6	100.0%
	30% tepung beras	6	100.0%	0	.0%	6	100.0%
	40% tepung beras	6	100.0%	0	.0%	6	100.0%
	50% tepung beras	1	16.7%	5	83.3%	6	100.0%

- **Test Normality Uji Proksimat**

**Tests of Normality**

formula		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
kadar_air	kontrol	.287	6	.134	.816	6	.082
	tepung beras 30%	.286	6	.137	.820	6	.089
kadar_abu	kontrol	.291	6	.123	.842	6	.135
	tepung beras 30%	.189	6	.200*	.948	6	.725
kadar_protein	kontrol	.189	6	.200*	.908	6	.423
	tepung beras 30%	.237	6	.200*	.902	6	.387
kadar lemak	kontrol	.245	6	.200*	.863	6	.199
	tepung beras 30%	.157	6	.200*	.949	6	.733
kadar_karbo	kontrol	.231	6	.200*	.845	6	.144
	tepung beras 30%	.196	6	.200*	.888	6	.306

a. Lilliefors Significance Correction

\*. This is a lower bound of the true significance.

- **Test Normality Total Kalori Roti Bebas Gluten**

**Tests of Normality**

formula		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
total_kalori	0% tepung beras	.311	6	.071	.774	6	.034
	30% tepung beras	.279	6	.159	.849	6	.154

a. Lilliefors Significance Correction

- **Uji Kruskal Wallis Sensori Roti Bebas Gluten**

**Test Statistics<sup>b,c</sup>**

		tekstur	warna	overall
Chi-Square		13.840	12.483	3.742
df		4	4	4
Asymp. Sig.		.008	.014	.442
Monte Carlo Sig.	Sig.	.006 <sup>a</sup>	.011 <sup>a</sup>	.450 <sup>a</sup>
	95% Confidence Interval			
	Lower Bound	.004	.009	.440
	Upper Bound	.007	.013	.460

a. Based on 10000 sampled tables with starting seed 2000000.

b. Kruskal Wallis Test

c. Grouping Variable: formula

- **Post Hoc Uji Fisik Roti Bebas Gluten**

TA

Duncan

formula	N	Subset for alpha = 0.05			
		1	2	3	4
30% tepung beras	6	81.2330			
40% tepung beras	6		95.3545		
50% tepung beras	6			1.0738E2	
20% tepung beras	6			1.0764E2	
0% tepung beras	6				1.2747E2
Sig.		1.000	1.000	.961	1.000

Means for groups in homogeneous subsets are displayed.

vol\_peng\_13

Duncan

formula	N	Subset for alpha = 0.05		
		1	2	3
0% tepung beras	6	.881108		
20% tepung beras	6		1.289424E0	
30% tepung beras	6		1.332965E0	
40% tepung beras	6		1.343139E0	
50% tepung beras	6			1.590902E0
Sig.		1.000	.299	1.000

Means for groups in homogeneous subsets are displayed.

vol\_peng\_23

Duncan

formula	N	Subset for alpha = 0.05	
		1	2
0% tepung beras	6	.308951	
20% tepung beras	6		.405748
30% tepung beras	6		.413770
40% tepung beras	6		.416959
50% tepung beras	6		.428826
Sig.		1.000	.051

Means for groups in homogeneous subsets are displayed.

L

Duncan

formula	N	Subset for alpha = 0.05
		1
20% tepung beras	6	69.8467
40% tepung beras	6	72.0667
0% tepung beras	6	72.1750
30% tepung beras	6	72.3983
50% tepung beras	6	73.1650
Sig.		.102

Means for groups in homogeneous subsets are displayed.

a

Duncan

formula	N	Subset for alpha = 0.05		
		1	2	3
40% tepung beras	6	-1.5300		
50% tepung beras	6	-1.3067	-1.3067	
30% tepung beras	6	-1.1383	-1.1383	
20% tepung beras	6		-.9950	-.9950
0% tepung beras	6			-.6500
Sig.		.059	.130	.079

Means for groups in homogeneous subsets are displayed.

b

Duncan

formula	N	Subset for alpha = 0.05		
		1	2	3
40% tepung beras	6	14.4367		
30% tepung beras	6	15.5083	15.5083	
20% tepung beras	6		15.7050	
50% tepung beras	6		16.1200	16.1200
0% tepung beras	6			17.0367
Sig.		.075	.326	.124

Means for groups in homogeneous subsets are displayed.

## rata\_rata\_diameter\_pori

Duncan

formula	N	Subset	
		1	2
Kontrol	5	1.168806E 0	
tepung beras 30%	5	1.320190E 0	1.320190E 0
tepung beras 40%	5	1.422517E 0	1.422517E 0
tepung beras 20%	5	1.439563E 0	1.439563E 0
tepung beras 50%	5		1.520543E 0
Sig.		.051	.143

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,036.

- **Post Hoc Total Kalori Roti Bebas Gluten**

## Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
total_kalori	10.409	.009	-.167	10	.871	-.3812842	2.2822836	5.4665291	4.7039606
Equal variances assumed									
Equal variances not assumed			-.167	8.640	.871	-.3812842	2.2822836	5.5771600	4.8145915

- Post Hoc Uji Proksimat Roti Bebas Gluten

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadar_air	Equal variances assumed	21.318	.001	-.207	10	.840	-.0992043	.4798592	-1.1683972	.9699887
	Equal variances not assumed			-.207	7.967	.841	-.0992043	.4798592	-1.2065681	1.0081595
kadar_abu	Equal variances assumed	.015	.904	2.854	10	.017	.0961902	.0336982	.0211060	.1712744
	Equal variances not assumed			2.854	9.981	.017	.0961902	.0336982	.0210869	.1712936
kadar_protein	Equal variances assumed	5.106	.047	.455	10	.659	.1248713	.2742875	-.4862794	.7360220
	Equal variances not assumed			.455	7.850	.661	.1248713	.2742875	-.5097418	.7594843
kadar_lemak	Equal variances assumed	10.226	.010	-.380	10	.712	-.0883370	.2322526	-.6058280	.4291539
	Equal variances not assumed			-.380	7.849	.714	-.0883370	.2322526	-.6257125	.4490384
kadar_karbo	Equal variances assumed	3.568	.088	-.057	10	.956	-.0214340	.3771054	-.8616773	.8188093
	Equal variances not assumed			-.057	8.419	.956	-.0214340	.3771054	-.8835605	.8406925



### Lampiran 3. Perhitungan Total Kalori Roti Bebas Gluten

Rumus :

$$\text{Energi (kcal/100g)} = (4 \text{ kcal/g} \times K) + (4 \text{ kcal/g} \times P) + (9 \text{ kcal/g} \times L)$$

Keterangan :

K = Karbohidrat (berat basah)

P = Protein (berat basah)

L = Lemak (berat basah)

- Roti bebas gluten tanpa substitusi tepung beras dalam 100g

Air = 51,03 g

Abu = 0,82 g

Karbohidrat = 37,11 g

Protein = 4,05 g

Lemak = 6,99 g

$$\text{Energi (kcal/100g)} = (4 \text{ kcal/g} \times 37,11) + (4 \text{ kcal/g} \times 4,05) + (9 \text{ kcal/g} \times 6,99)$$

$$\text{Energi (kcal/100g)} = (148,44 \text{ kcal/g}) + (16,2 \text{ kcal/g}) + (62,91 \text{ kcal/g})$$

$$\text{Energi (kcal/100g)} = 227,55 \text{ kcal/g}$$

- Roti bebas gluten dengan substitusi 30% tepung beras dalam 100g

Air = 51,13 g

Abu = 0,74 g

Karbohidrat = 37,13 g

Protein = 3,93 g

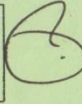
Lemak = 7,08 g

$$\text{Energi (kcal/100g)} = (4 \text{ kcal/g} \times 37,13) + (4 \text{ kcal/g} \times 3,93) + (9 \text{ kcal/g} \times 7,08)$$

$$\text{Energi (kcal/100g)} = (148,52 \text{ kcal/g}) + (15,72 \text{ kcal/g}) + (63,72 \text{ kcal/g})$$

$$\text{Energi (kcal/100g)} = 227,96 \text{ kcal/g}$$

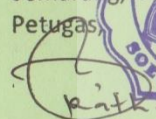
## FORMULIR SCAN ANTI PLAGIARISME

9,8% 

Nama : Dayvelin Samantha  
 Alamat email : dayvelinsamantha@gmail.com  
 Fak. / Prodi : Teknologi Pangan NIM : 13.70.00462  
 berupa ( TESIS, TUGAS AKHIR, SKRIPSI, SUMMARY, LAPORAN KERJA PRAKTEK )

dengan judul : Karakteristik Fisikimia, Sensori, dan Kandungan  
 Kalori dan Lemak Bebas Gluten yang Disubstitusi Dengan

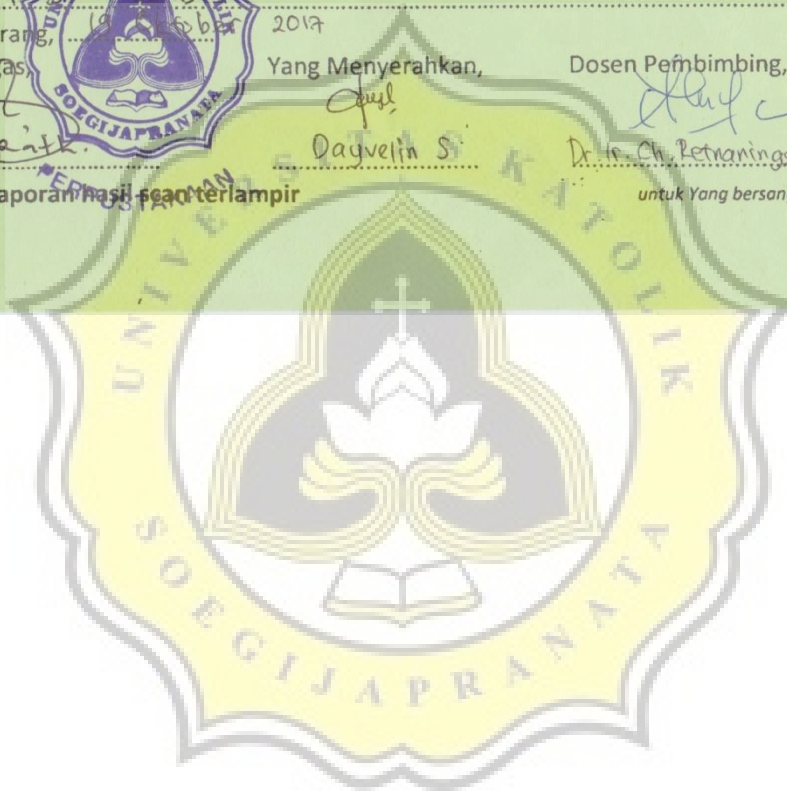
Tepung beras  
 Semarang, 2017

Petugas,  Yang Menyerahkan, Dosen Pembimbing,

Dayvelin S. Dr. Ir. Ch. Retnaningsih, MP.

NB. Laporan hasil scan terlampir

untuk Yang bersangkutan \*



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- ✓ [17] (24 matches, 1.1%/1.5%) from a PlagScan document of your organisation...Benny Irawan.docx" dated 2016-07-14
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- ✓ [24] (25 matches, 0.7%/1.3%) from a PlagScan document of your organisation...penaeus\_vann.docx" dated 2017-06-15
- ✓ [25] (21 matches, 0.6%/1.3%) from a PlagScan document of your organisation...ISOLAT\_PROTE.docx" dated 2017-03-03
- ✓ [26] (21 matches, 0.8%/1.2%) from a PlagScan document of your organisation...PERKAYA\_DENG.docx" dated 2016-11-30
- ✓ [27] (22 matches, 0.8%/1.3%) from a PlagScan document of your organisation...ISOLAT\_PROTE.docx" dated 2017-03-03
- ✓ [28] (22 matches, 1.0%/1.3%) from a PlagScan document of your organisation...ana Vinda (3).doc" dated 2016-07-19
- ✓ [29] (23 matches, 0.9%/1.2%) from a PlagScan document of your organisation...DAP\_PERUBAHA.docx" dated 2017-02-09
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## I. PENDAHULUAN

### 1.1.Latar Belakang

Roti bebas gluten berbeda dengan roti pada umumnya karena bahan utama yang digunakan adalah tepung yang tidak mengandung gluten. Contoh tepung yang bebas gluten adalah tepung beras, jagung, kedelai, Modified Cassava Flour (MOCAF), dan kentang. Roti bebas gluten tersebut dikonsumsi oleh penderita celiac disease. Beberapa studi menunjukkan bahwa celiac disease merupakan intoleransi terhadap fraksi gliadin pada gandum dan prolamin lainnya, seperti rye (*secalin*), barley (*hordein*), dan oats (*avenin*). Reaksi pencernaan gluten pada penderita celiac disease adalah inflamasi usus halus yang akan menyebabkan malabsorpsi dari beberapa nutrisi penting. Berdasarkan penelitian, sekitar 1% dari populasi dunia mengalami penyakit celiac disease dan satu-satunya jalan yang dapat dilakukan adalah treatment yang ketat dan konstan untuk membatasi makanan yang mengandung gluten (Feighery, 1999 dalam Man et al, 2014).

Untuk memenuhi permintaan konsumen bebas gluten, perusahaan berusaha untuk menghasilkan produk roti bebas gluten dengan kualitas yang tinggi dan memiliki