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7. LAMPIRAN

7.1. Lampiran 1. *Worksheet* Uji *Ranking* Roti Kukus

***Worksheet* Uji Ranking Hedonik**

Tanggal uji :

Jenis sampel : Roti Kukus

Identifikasi Sampel	**Kode**
Roti kukus tanpa substitusi tepung ubi jalar ungu	A
Roti kukus substitusi tepung ubi jalar ungu 10%; asam askorbat 50 ppm	B
Roti kukus substitusi tepung ubi jalar ungu 10%	C
Roti kukus substitusi tepung ubi jalar ungu 10%; guar gum 0,5%	D

Kode kombinasi urutan penyajian :

ABCD = 1	BACD = 7	CABD = 13	DABC = 7
ABDC = 2	BADC = 8	CADB = 14	DACB = 8
ACBD = 3	BCAD = 9	CBAD = 15	DBAC = 9
ACDB = 4	BCDA = 10	CBDA = 16	DBCA = 10
ADBC = 5	BDCA = 11	CDAB = 17	DCAB = 11
ADCB = 6	BDAC = 12	CDBA = 18	DCBA = 12

Penyajian :

Booth	Panelis	Kode sampel urutan penyajian
1	#1, 25, 49	862, 245, 458, 396
2	#2, 26, 50	133, 759, 488, 854
3	#3, 27	976, 688, 959, 714
4	#4, 28	478, 214, 841, 314
5	#5, 29	829, 267, 512, 638
6	#6, 30	653, 489, 538, 216

1	#7, 31	624, 396, 562, 134
2	#8, 32	797, 565, 399, 896
3	#9, 33	316, 969, 692, 786
4	#10, 34	375, 376, 871, 633
5	#11, 35	742, 421, 226, 286
6	#12, 36	994, 582, 961, 746
1	#13, 37	719, 543, 549, 826
2	#14, 38	397, 791, 659, 921
3	#15, 39	874, 373, 499, 437
4	#16, 40	975, 973, 235, 811
5	#17, 41	732, 323, 866, 583
6	#18, 42	377, 685, 449, 128
1	#19, 43	193, 984, 529, 758
2	#20, 44	487, 926, 721, 861
3	#21, 45	712, 585, 351, 847
4	#22, 46	417, 882, 714, 769
5	#23, 47	225, 444, 171, 151
6	#24, 48	991, 792, 256, 194

Rekap kode sampel :

Sampel A	862	133	976	478	829	653	396	565	969	376	286	…	194
Sampel B	245	759	959	314	512	216	624	797	692	871	742	…	256
Sampel C	458	854	688	214	638	538	562	896	316	633	226	…	792
Sampel D	396	488	714	841	267	439	134	399	786	375	421	…	991

7.2. Lampiran 2. *Scoresheet* Uji *Ranking* Roti Kukus

UJI RANKING HEDONIK

Nama : Tanggal : 18 September 2013
Produk : Roti Kukus
Atribut : Tekstur (*hardness*)

Instruksi

Dihadapan Anda terdapat 4 sampel roti kukus. Lakukanlah pengujian sensori terhadap **kelunakan roti kukus** dengan **menggigit bagian dalam roti (*crumb*) satu kali diantara gigi geraham Anda**. Anda dapat mengulang pengujian pada sampel sesering yang Anda perlukan.
Urutkanlah sampel dengan tekstur (*hardness*) yang paling Anda sukai (=4) hingga sampel yang paling tidak Anda sukai (=1). Tuliskanlah kode sampel pada kolom sebelah kiri dan nilai ranking sampel (**tidak boleh dobel**) pada kolom sebelah kanan.

Kode Sampel	Ranking (jangan ada yang dobel)
_____	_____
_____	_____
_____	_____
_____	_____

Terima Kasih

UJI RANKING HEDONIK

Nama : Tanggal : 18 September 2013
Produk : Roti Kukus
Atribut : Tekstur (*springiness*)

Instruksi

Dihadapan Anda terdapat 4 sampel roti kukus. Lakukanlah pengujian sensori terhadap **kekenyalan roti kukus** dengan **menggigit bagian dalam roti (*crumb*) satu kali diantara gigi seri Anda**. Anda dapat mengulang pengujian pada sampel sesering yang Anda perlukan.
Urutkanlah sampel dengan tekstur (*springiness*) yang paling Anda sukai (=4) hingga sampel yang paling tidak Anda sukai (=1). Tuliskanlah kode sampel pada

kolom sebelah kiri dan nilai ranking sampel (**tidak boleh dobel**) pada kolom sebelah kanan.

Kode Sampel	Ranking (jangan ada yang dobel)
_____	_____
_____	_____
_____	_____
_____	_____

Terima Kasih

UJI RANKING HEDONIK

Nama : Tanggal : 18 September 2013
Produk : Roti Kukus
Atribut : Rasa

Instruksi

Berkumur-kumurlah terlebih dahulu setiap akan menguji sampel. Dihadapan Anda terdapat 4 sampel roti kukus. Lakukanlah pengujian sensori terhadap **rasa sampel dengan mencicipi masing-masing sampel pada mulut Anda**. Anda dapat mengulang pengujian pada sampel sesering yang Anda perlukan.
Urutkanlah sampel dengan rasa yang paling Anda sukai (=4) hingga sampel yang paling tidak Anda sukai (=1). Tuliskanlah kode sampel pada kolom sebelah kiri dan nilai ranking sampel (**tidak boleh dobel**) pada kolom sebelah kanan.

Kode Sampel	Ranking (jangan ada yang dobel)
_____	_____
_____	_____
_____	_____
_____	_____

Terima Kasih

UJI RANKING HEDONIK

Nama : Tanggal : 18 September 2013
Produk : Roti Kukus
Atribut : Warna

Instruksi

Dihadapan Anda terdapat 4 sampel roti kukus. Lakukanlah pengujian sensori terhadap **warna masing-masing sampel roti kukus** Anda dapat mengulang pengujian pada sampel sesering yang Anda perlukan.
Urutkanlah sampel dengan warna yang paling Anda sukai (=4) hingga sampel yang paling tidak Anda sukai (=1). Tuliskanlah kode sampel pada kolom sebelah kiri dan nilai ranking sampel (**tidak boleh dobel**) pada kolom sebelah kanan.

Kode Sampel	Ranking (jangan ada yang dobel)
_____	_____
_____	_____
_____	_____
_____	_____

Terima Kasih

UJI RANKING HEDONIK

Nama : Tanggal : 18 September 2013
Produk : Roti Kukus
Atribut : *overall*

Instruksi

Berkumur-kumurlah terlebih dahulu setiap akan menguji sampel. Dihadapan Anda terdapat 4 sampel roti kukus. Lakukanlah pengujian sensori terhadap **roti kukus tersebut** dengan **mencicipi masing-masing sampel**. Anda dapat mengulang pengujian pada sampel sesering yang Anda perlukan.

Urutkanlah sampel dari yang paling Anda sukai (=4) hingga sampel yang paling tidak Anda sukai (=1). Tuliskanlah kode sampel pada kolom sebelah kiri dan nilai ranking sampel (**tidak boleh dobel**) pada kolom sebelah kanan.

Kode Sampel	Ranking (jangan ada yang dobel)
_____	_____
_____	_____
_____	_____
_____	_____

Terima Kasih

7.3. Lampiran 3. Hasil Pengolahan SPSS

7.3.1. Pengujian Fisik

- **Tekstur**

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	kombinasi	Statistic	df	Sig.	Statistic	df	Sig.
hardness	0%; tanpa improver	.186	6	.200*	.971	6	.900
	0%; GG	.200	6	.200*	.881	6	.274
	0%; AA	.165	6	.200*	.950	6	.737
	10%; tanpa improve	.163	6	.200*	.956	6	.788
	10%; GG	.276	6	.173	.857	6	.178
	10%; AA	.193	6	.200*	.953	6	.767
	20%; tanpa improve	.136	6	.200*	.974	6	.918
	20%; GG	.163	6	.200*	.961	6	.828
	20%;AA	.236	6	.200*	.893	6	.332
	30%; tanpa improve	.294	6	.114	.869	6	.223
	30%; GG	.281	6	.150	.851	6	.159
	30%; AA	.148	6	.200*	.990	6	.989
springiness	0%; tanpa improver	.277	6	.168	.771	6	.032
	0%; GG	.257	6	.200*	.953	6	.761
	0%; AA	.182	6	.200*	.980	6	.952
	10%; tanpa improve	.197	6	.200*	.927	6	.561
	10%; GG	.187	6	.200*	.943	6	.686
	10%; AA	.231	6	.200*	.858	6	.183
	20%; tanpa improve	.222	6	.200*	.886	6	.298
	20%; GG	.315	6	.064	.756	6	.023
	20%;AA	.223	6	.200*	.948	6	.725
	30%; tanpa improve	.227	6	.200*	.944	6	.692
	30%; GG	.244	6	.200*	.873	6	.240
	30%; AA	.161	6	.200*	.980	6	.951

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

a. Lilliefors Significance Correction

Two Way Anova (*Hardness*)

Tests of Between-Subjects Effects

Dependent Variable: hardness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2255180.525[a]	11	205016.411	13.346	.000
Intercept	154874339	1	154874338.7	10082.244	.000
substitusi	1791139.651	3	597046.550	38.867	.000
improver	202946.009	2	101473.005	6.606	.003
substitusi * improver	261094.865	6	43515.811	2.833	.017
Error	921665.887	60	15361.098		
Total	158051185	72			
Corrected Total	3176846.411	71			

a. R Squared = .710 (Adjusted R Squared = .657)

Post Hoc Two Way Anova (*Hardness*)

hardness

Duncan[a,b]

substitusi	N	Subset 1	2	3	4
0%	18	1250.1167			
10%	18		1406.2817		
20%	18			1532.1056	
30%	18				1678.0556
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 15361.098.

a. Uses Harmonic Mean Sample Size = 18.000.

b. Alpha = .05.

hardness

Duncan[a,b]

improver	N	Subset 1	Subset 2
asam askorbat	24	1392.1333	
tanpa improver	24		1495.8542
guar gum	24		1511.9321
Sig.		1.000	.655

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 15361.098.

a. Uses Harmonic Mean Sample Size = 24.000.

b. Alpha = .05.

Post Hoc One Way Anova (*Hardness*)

hardness

Duncan[a]

kombinasi	N	Subset for alpha = .05 1	2	3	4	5	6
0%; tanpa improver	6	1151.5167					
0%; AA	6	1196.8167					
10%; AA	6	1290.9000	1290.9000				
0%; GG	6		1402.0167	1402.0167			
10%; GG	6		1430.0283	1430.0283	1430.0283		
10%; tanpa improver	6			1497.9167	1497.9167		
20%;AA	6			1501.0167	1501.0167		
20%; GG	6			1517.8833	1517.8833		
20%; tanpa improver	6				1577.4167	1577.4167	
30%; AA	6				1579.8000	1579.8000	
30%; GG	6					1697.8000	1697.8000
30%; tanpa improver	6						1756.5667
Sig.		.070	.070	.155	.070	.117	.415

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

Two Way Anova (*Springiness*)

Tests of Between-Subjects Effects

Dependent Variable: springiness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	924.969[a]	11	84.088	54.830	.000
Intercept	13256.194	1	13256.194	8643.834	.000
substitusi	778.983	3	259.661	169.315	.000
improver	17.437	2	8.719	5.685	.005
substitusi * improver	128.548	6	21.425	13.970	.000
Error	92.016	60	1.534		
Total	14273.179	72			
Corrected Total	1016.985	71			

a. R Squared = .910 (Adjusted R Squared = .893)

Post Hoc Two Way Anova (*Springiness*)

springiness

Duncan[a,b]

substitusi	N	Subset 1	2	3	4
30%	18	9.415828			
20%	18		11.624389		
10%	18			15.265089	
0%	18				17.970111
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 1.534.

a. Uses Harmonic Mean Sample Size = 18.000.

b. Alpha = .05.

springiness

Duncan[a,b]

improver	N	Subset 1	Subset 2
tanpa improver	24	13.201729	
asam askorbat	24	13.240375	
guar gum	24		14.264458
Sig.		.914	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 1.534.

a. Uses Harmonic Mean Sample Size = 24.000.

b. Alpha = .05.

Post Hoc One Way Anova (*Springiness*)

springiness

Duncan[a]

kombinasi	N	Subset for alpha = .05: 1	2	3	4	5	6	7
30%; tanpa improver	6	7.063583						
30%; GG	6		10.540900					
30%; AA	6		10.643000	10.643000				
20%; tanpa improver	6		11.204500	11.204500				
20%;AA	6		11.511167	11.511167				
20%; GG	6			12.157500				
10%; tanpa improver	6				14.053167			
10%; AA	6				15.402333	15.402333		
0%; AA	6				15.405000	15.405000		
10%; GG	6					16.339767		
0%; GG	6						18.019667	
0%; tanpa improver	6							20.485667
Sig.		1.000	.223	.056	.078	.222	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

- **Volume**

Tests of Normality

	kombinasi	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
volume_awal	0%; tanpa improver	.278	6	.164	.825	6	.098
	0%; GG	.224	6	.200*	.933	6	.601
	0%; AA	.174	6	.200*	.940	6	.662
	10%; tanpa improver	.218	6	.200*	.872	6	.233
	10%; GG	.190	6	.200*	.956	6	.788
	10%; AA	.174	6	.200*	.980	6	.951
	20%; tanpa improver	.214	6	.200*	.930	6	.584
	20%; GG	.246	6	.200*	.913	6	.460
	20%;AA	.161	6	.200*	.931	6	.588
	30%; tanpa improver	.242	6	.200*	.930	6	.578
	30%; GG	.200	6	.200*	.936	6	.624
	30%; AA	.167	6	.200*	.980	6	.953
volume_akhir	0%; tanpa improver	.236	6	.200*	.849	6	.156
	0%; GG	.250	6	.200*	.790	6	.048
	0%; AA	.210	6	.200*	.930	6	.584
	10%; tanpa improver	.221	6	.200*	.918	6	.493
	10%; GG	.306	6	.084	.847	6	.148
	10%; AA	.153	6	.200*	.958	6	.802
	20%; tanpa improver	.239	6	.200*	.864	6	.205
	20%; GG	.247	6	.200*	.860	6	.188
	20%;AA	.243	6	.200*	.944	6	.692
	30%; tanpa improver	.184	6	.200*	.915	6	.469
	30%; GG	.248	6	.200*	.834	6	.116
	30%; AA	.146	6	.200*	.988	6	.984

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

a. Lilliefors Significance Correction

Two Way Anova (Volume setelah *Proofing*)

Tests of Between-Subjects Effects

Dependent Variable: volume_awal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	579.980[a]	11	52.725	88.378	.000
Intercept	44466.043	1	44466.043	74533.431	.000
substitusi	332.284	3	110.761	185.657	.000
improver	235.377	2	117.689	197.268	.000
substitusi * improver	12.319	6	2.053	3.441	.005
Error	35.796	60	.597		
Total	45081.819	72			
Corrected Total	615.775	71			

a. R Squared = .942 (Adjusted R Squared = .931)

Post Hoc Two Way Anova (Volume setelah *Proofing*)

volume_awal

Duncan[a,b]

substitusi	N	Subset 1	2	3	4
30%	18	22.2065			
20%	18		23.8979		
10%	18			25.2213	
0%	18				28.0792
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .597.

a. Uses Harmonic Mean Sample Size = 18.000.

b. Alpha = .05.

volume_awal

Duncan[a,b]

improver	N	Subset 1	Subset 2	Subset 3
tanpa improver	24	22.8624		
guar gum	24		24.4538	
asam askorbat	24			27.2375
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .597.

a. Uses Harmonic Mean Sample Size = 24.000.

b. Alpha = .05.

Post Hoc One Way Anova (Volume setelah *Proofing*)

volume_awal

Duncan[a]

kombinasi	N	Subset for alpha = .05: 1	2	3	4	5	6	7	8
30%; tanpa improver	6	20.6015							
30%; GG	6		21.4938						
20%; tanpa improver	6		21.6350						
10%; tanpa improver	6			23.1620					
20%; GG	6			23.5378					
30%; AA	6				24.5242				
10%; GG	6					25.6050			
0%; tanpa improver	6					26.0512	26.0512		
20%;AA	6					26.5210	26.5210	26.5210	
10%; AA	6						26.8968	26.8968	
0%; GG	6							27.1787	
0%; AA	6								31.0078
Sig.		1.000	.753	.403	1.000	.056	.077	.169	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

Two Way Anova (Volume setelah *Steaming*)

Tests of Between-Subjects Effects

Dependent Variable: volume_akhir

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5390.263[a]	11	490.024	555.222	.000
Intercept	124483.701	1	124483.701	141046.5	.000
substitusi	5139.632	3	1713.211	1941.157	.000
improver	169.344	2	84.672	95.938	.000
substitusi * improver	81.287	6	13.548	15.350	.000
Error	52.954	60	.883		
Total	129926.918	72			
Corrected Total	5443.217	71			

a. R Squared = .990 (Adjusted R Squared = .988)

Post Hoc Two Way Anova (Volume setelah *Steaming*)

volume_akhir

Duncan[a,b]

substitusi	N	Subset 1	2	3	4
30%	18	30.9294			
20%	18		36.4184		
10%	18			46.2924	
0%	18				52.6819
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .883.

a. Uses Harmonic Mean Sample Size = 18.000.

b. Alpha = .05.

volume_akhir

Duncan[a,b]

improver	N	Subset 1	Subset 2	Subset 3
tanpa improver	24	39.6288		
guar gum	24		41.7371	
asam askorbat	24			43.3756
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .883.

a. Uses Harmonic Mean Sample Size = 24.000.

b. Alpha = .05.

Post Hoc One Way Anova (Volume setelah *Steaming*)

volume_akhir

Duncan[a]

kombinasi	N	Subset for alpha = .05: 1	2	3	4	5	6	7	8	9	10
30%; tanpa improv	6	29.9742									
30%; GG	6	30.7260									
30%; AA	6		32.0882								
20%; tanpa improv	6			34.8602							
20%; GG	6				36.2695						
20%;AA	6					38.1255					
10%; tanpa improv	6						41.8135				
10%; GG	6							47.9445			
10%; AA	6								49.1192		
0%; tanpa improve	6									51.8675	
0%; GG	6									52.0085	
0%; AA	6										54.1697
Sig.		.171	1.000	1.000	1.000	1.000	1.000	1.000	1.000	.796	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

- **Warna**

Tests of Normality

	kombinasi	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
L	0%; tanpa improver	.199	6	.200*	.974	6	.916
	0%; GG	.270	6	.195	.892	6	.330
	0%; AA	.224	6	.200*	.872	6	.234
	10%; tanpa improver	.213	6	.200*	.965	6	.859
	10%; GG	.190	6	.200*	.935	6	.616
	10%; AA	.169	6	.200*	.978	6	.939
	20%; tanpa improver	.248	6	.200*	.888	6	.309
	20%; GG	.153	6	.200*	.958	6	.807
	20%;AA	.214	6	.200*	.926	6	.550
	30%; tanpa improver	.259	6	.200*	.808	6	.069
	30%; GG	.286	6	.137	.817	6	.083
	30%; AA	.349	6	.022	.771	6	.031
a	0%; tanpa improver	.220	6	.200*	.941	6	.664
	0%; GG	.242	6	.200*	.932	6	.599
	0%; AA	.261	6	.200*	.905	6	.404
	10%; tanpa improver	.180	6	.200*	.967	6	.874
	10%; GG	.197	6	.200*	.881	6	.272
	10%; AA	.211	6	.200*	.957	6	.799
	20%; tanpa improver	.163	6	.200*	.950	6	.738
	20%; GG	.205	6	.200*	.970	6	.890
	20%;AA	.248	6	.200*	.876	6	.250
	30%; tanpa improver	.211	6	.200*	.891	6	.322
	30%; GG	.232	6	.200*	.949	6	.735
	30%; AA	.154	6	.200*	.977	6	.938
b	0%; tanpa improver	.210	6	.200*	.960	6	.818
	0%; GG	.255	6	.200*	.864	6	.202
	0%; AA	.258	6	.200*	.875	6	.246
	10%; tanpa improver	.226	6	.200*	.892	6	.328
	10%; GG	.231	6	.200*	.940	6	.661
	10%; AA	.163	6	.200*	.932	6	.593
	20%; tanpa improver	.204	6	.200*	.960	6	.816
	20%; GG	.283	6	.146	.853	6	.167
	20%;AA	.256	6	.200*	.864	6	.203
	30%; tanpa improver	.208	6	.200*	.875	6	.246
	30%; GG	.171	6	.200*	.982	6	.959
	30%; AA	.252	6	.200*	.835	6	.118

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

a. Lilliefors Significance Correction

Two Way Anova (L*)

Tests of Between-Subjects Effects

Dependent Variable: L

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10953.536[a]	11	995.776	2110.340	.000
Intercept	271206.182	1	271206.182	574765.0	.000
substitusi	10891.573	3	3630.524	7694.140	.000
improver	41.021	2	20.510	43.467	.000
substitusi * improver	20.943	6	3.490	7.397	.000
Error	28.311	60	.472		
Total	282188.030	72			
Corrected Total	10981.847	71			

a. R Squared = .997 (Adjusted R Squared = .997)

Post Hoc Two Way Anova (L*)

L

Duncan[a,b]

substitusi	N	Subset 1	2	3	4
30%	18	48.9503			
20%	18		54.1514		
10%	18			61.0581	
0%	18				81.3358
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .472.

a. Uses Harmonic Mean Sample Size = 18.000.

b. Alpha = .05.

L

Duncan[a,b]

improver	N	Subset 1	Subset 2
asam askorbat	24	60.3068	
guar gum	24		61.8817
tanpa improver	24		61.9331
Sig.		1.000	.796

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .472.

a. Uses Harmonic Mean Sample Size = 24.000.

b. Alpha = .05.

Post Hoc One Way Anova (L*)

L

Duncan[a]

kombinasi	N	Subset for alpha = .05: 1	2	3	4	5	6	7	8
30%; AA	6	46.9008							
30%; GG	6		49.8300						
30%; tanpa improver	6		50.1200						
20%;AA	6			52.9583					
20%; GG	6				54.6858				
20%; tanpa improver	6				54.8100				
10%; AA	6					60.3142			
10%; tanpa improver	6					60.9083			
10%; GG	6						61.9517		
0%; AA	6							81.0540	
0%; GG	6							81.0592	
0%; tanpa improver	6								81.8942
Sig.		1.000	.467	1.000	.755	.139	1.000	.990	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

Two Way Anova (a*)

Tests of Between-Subjects Effects

Dependent Variable: a

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1659.500[a]	11	150.864	5762.508	.000
Intercept	2160.819	1	2160.819	82536.357	.000
substitusi	1658.375	3	552.792	21114.866	.000
improver	.316	2	.158	6.034	.004
substitusi * improver	.810	6	.135	5.154	.000
Error	1.571	60	.026		
Total	3821.890	72			
Corrected Total	1661.071	71			

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

Post Hoc Two Way Anova (a*)

a

Duncan[a,b]

substitusi	N	Subset 1	2	3	4
0%	18	-2.5644			
10%	18		6.2183		
20%	18			8.7869	
30%	18				9.4722
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .026.

a. Uses Harmonic Mean Sample Size = 18.000.

b. Alpha = .05.

a

Duncan[a,b]

improver	N	Subset 1	Subset 2
asam askorbat	24	5.3846	
tanpa improver	24		5.5246
guar gum	24		5.5256
Sig.		1.000	.982

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .026.

a. Uses Harmonic Mean Sample Size = 24.000.

b. Alpha = .05.

Post Hoc One Way Anova (a*)

a

Duncan[a]

kombinasi	N	Subset for alpha = .05: 1	2	3	4	5	6
0%; AA	6	-2.7408					
0%; GG	6	-2.5958					
0%; tanpa improver	6		-2.3567				
10%; AA	6			6.1733			
10%; tanpa improver	6			6.2075			
10%; GG	6			6.2742			
20%; tanpa improver	6				8.7258		
20%; GG	6				8.7625		
20%;AA	6				8.8725		
30%; AA	6					9.2333	
30%; tanpa improver	6						9.5217
30%; GG	6						9.6617
Sig.		.126	1.000	.315	.144	1.000	.139

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

Two Way Anova (b*)

Tests of Between-Subjects Effects

Dependent Variable: b

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1112.480[a]	11	101.135	923.350	.000
Intercept	14629.336	1	14629.336	133564.7	.000
substitusi	1106.793	3	368.931	3368.311	.000
improver	.161	2	.080	.733	.485
substitusi * improver	5.526	6	.921	8.409	.000
Error	6.572	60	.110		
Total	15748.388	72			
Corrected Total	1119.052	71			

a. R Squared = .994 (Adjusted R Squared = .993)

Post Hoc Two Way Anova (b*)

b

Duncan[a,b]

substitusi	N	Subset 1	2	3	4
30%	18	10.0481			
20%	18		11.9669		
10%	18			14.5447	
0%	18				20.4575
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .110.

a. Uses Harmonic Mean Sample Size = 18.000.

b. Alpha = .05.

b

Duncan[a,b]

improver	N	Subset 1
tanpa improver	24	14.1888
guar gum	24	14.2760
asam askorbat	24	14.2981
Sig.		.286

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = .110.

a. Uses Harmonic Mean Sample Size = 24.000.

b. Alpha = .05.

Post Hoc One Way Anova (b*)

b

Duncan[a]

kombinasi	N	Subset for alpha = .05							
		1	2	3	4	5	6	7	8
30%; AA	6	9.6625							
30%; GG	6		10.1583						
30%; tanpa improv	6		10.3233						
20%; GG	6			11.5142					
20%; tanpa improv	6				11.9950				
20%;AA	6					12.3917			
10%; tanpa improv	6						14.1317		
10%; AA	6							14.7342	
10%; GG	6							14.7683	
0%; tanpa improve	6								20.3050
0%; AA	6								20.4042
0%; GG	6								20.6633
Sig.		1.000	.391	1.000	1.000	1.000	1.000	.859	.081

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

7.3.2. Pengujian Kimia (Aktivitas Antioksidan)

Tests of Normality

	kombinasi	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
antioksidan	0%; tanpa improver	.224	6	.200*	.898	6	.362
	0%; GG	.216	6	.200*	.960	6	.817
	0%; AA	.185	6	.200*	.909	6	.429
	10%; tanpa improve	.216	6	.200*	.891	6	.323
	10%; GG	.226	6	.200*	.951	6	.751
	10%; AA	.197	6	.200*	.904	6	.397
	20%; tanpa improve	.169	6	.200*	.935	6	.618
	20%; GG	.278	6	.164	.792	6	.049
	20%;AA	.274	6	.179	.926	6	.547
	30%; tanpa improve	.189	6	.200*	.927	6	.554
	30%; GG	.189	6	.200*	.924	6	.533
	30%; AA	.279	6	.157	.884	6	.287

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

a. Lilliefors Significance Correction

Two Way Anova (Aktivitas Antioksidan)

Tests of Between-Subjects Effects

Dependent Variable: antioksidan

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15373.994[a]	11	1397.636	1025.119	.000
Intercept	42884.597	1	42884.597	31454.427	.000
substitusi	15174.625	3	5058.208	3710.028	.000
improver	108.301	2	54.150	39.718	.000
substitusi * improver	91.068	6	15.178	11.133	.000
Error	81.803	60	1.363		
Total	58340.394	72			
Corrected Total	15455.797	71			

a. R Squared = .995 (Adjusted R Squared = .994)

Post Hoc Two Way Anova (Aktivitas Antioksidan)

antioksidan

Duncan[a,b]

substitusi	N	Subset 1	2	3	4
0%	18	6.005612			
10%	18		14.696075		
20%	18			35.706607	
30%	18				41.212966
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 1.363.

a. Uses Harmonic Mean Sample Size = 18.000.

b. Alpha = .05.

antioksidan

Duncan[a,b]

improver	N	Subset 1	2	3
tanpa improver	24	23.048541		
guar gum	24		24.147945	
asam askorbat	24			26.019460
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 1.363.

a. Uses Harmonic Mean Sample Size = 24.000.

b. Alpha = .05.

Post Hoc One Way Anova (Aktivitas Antioksidan)

antioksidan

Duncan[a]

kombinasi	N	Subset for alpha = .05							
		1	2	3	4	5	6	7	8
0%; tanpa improver	6	3.061113							
0%; GG	6		4.643599						
0%; AA	6			10.312124					
10%; tanpa improver	6				13.580956				
10%; GG	6					15.138843			
10%; AA	6					15.368427			
20%; tanpa improver	6						35.301192		
20%; GG	6						35.511643		
20%;AA	6						36.306986		
30%; tanpa improver	6							40.250902	
30%; GG	6							41.297693	41.297693
30%; AA	6								42.090303
Sig.		1.000	1.000	1.000	1.000	.735	.165	.126	.244

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

7.3.3. Pengujian Sensoris

Kruskal Wallis

Test Statistics[a,b]

	sensori_ hardness	sensori_ springiness	rasa	warna	overall
Chi-Square	12.577	7.546	6.909	16.907	3.916
df	3	3	3	3	3
Asymp. Sig.	.006	.056	.075	.001	.271

a. Kruskal Wallis Test

b. Grouping Variable: perlakuan

Kolmogorov Smirnov (0%-10% tanpa *improver*)

Test Statistics[a]

	sensori_ hardness	sensori_ springiness	rasa	warna	overall
Mann-Whitney U	900.000	1186.500	952.000	771.500	1091.000
Wilcoxon W	2175.000	2461.500	2227.000	2046.500	2366.000
Z	-2.508	-.455	-2.124	-3.455	-1.133
Asymp. Sig. (2-tailed)	.012	.649	.034	.001	.257

a. Grouping Variable: perlakuan

Kolmogorov Smirnov (0%-10%; Asam Askorbat)

Test Statistics[a]

	sensori_ hardness	sensori_ springiness	rasa	warna	overall
Mann-Whitney U	1165.500	1210.500	1037.000	987.000	1165.000
Wilcoxon W	2440.500	2485.500	2312.000	2262.000	2440.000
Z	-.603	-.283	-1.517	-1.882	-.606
Asymp. Sig. (2-tailed)	.547	.778	.129	.060	.544

a. Grouping Variable: perlakuan

Kolmogorov Smirnov (0%-10%; Guar Gum)

Test Statistics[a]

	sensori_ hardness	sensori_ springiness	rasa	warna	overall
Mann-Whitney U	1215.500	1026.000	1211.000	1041.500	1156.000
Wilcoxon W	2490.500	2301.000	2486.000	2316.500	2431.000
Z	-.247	-1.599	-.279	-1.496	-.672
Asymp. Sig. (2-tailed)	.805	.110	.780	.135	.501

a. Grouping Variable: perlakuan

Kolmogorov Smirnov (10%-10%; Asam Askorbat)

Test Statistics[a]

	sensori_ hardness	sensori_ springiness	rasa	warna	overall
Mann-Whitney U	938.000	1073.500	1139.500	842.000	1176.000
Wilcoxon W	2213.000	2348.500	2414.500	2117.000	2451.000
Z	-2.232	-1.260	-.791	-2.925	-.529
Asymp. Sig. (2-tailed)	.026	.208	.429	.003	.597

a. Grouping Variable: perlakuan

Kolmogorov Smirnov (10%-10%; Guar Gum)

Test Statistics[a]

	sensori_ hardness	sensori_ springiness	rasa	warna	overall
Mann-Whitney U	762.000	840.000	958.500	836.500	983.000
Wilcoxon W	2037.000	2115.000	2233.500	2111.500	2258.000
Z	-3.482	-2.933	-2.076	-2.958	-1.904
Asymp. Sig. (2-tailed)	.000	.003	.038	.003	.057

a. Grouping Variable: perlakuan

Kolmogorov Smirnov (10%; Asam Askorbat-10%; Guar Gum)

Test Statistics[a]

	sensori_ hardness	sensori_ springiness	rasa	warna	overall
Mann-Whitney U	1072.500	1034.000	1052.500	1245.000	1061.000
Wilcoxon W	2347.500	2309.000	2327.500	2520.000	2336.000
Z	-1.271	-1.549	-1.408	-.036	-1.347
Asymp. Sig. (2-tailed)	.204	.121	.159	.971	.178

a. Grouping Variable: perlakuan