

7. LAMPIRAN

Lampiran 1. Perhitungan Nilai Intensitas Warna

Rumus :

$$E = \sqrt{L^2 + a^2 + b^2}$$

Keterangan :

E = intensitas warna

L, a, b = dapat dilihat dari hasil pengukuran
menggunakan *chromameter*

Tepung tempe B, 36, 50

♣ Ulangan 1 :

Diketahui : L = 61,33 a = -9,24 b = +44,63

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{61,33^2 + 9,24^2 + 44,63^2} = 76,41062361$$

♣ Ulangan 2 :

Diketahui : L = 61,32 a = -9,24 b = +44,63

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{61,32^2 + 9,24^2 + 44,63^2} = 76,40259747$$

♣ Ulangan 3 :

Diketahui : L = 61,32 a = -9,21 b = +44,61

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{61,32^2 + 9,21^2 + 44,61^2} = 76,38729345$$

Tepung tempe B, 36, 60

♣ Ulangan 1 :

Diketahui : L = 61,21 a = -9,16 b = +44,73

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{61,21^2 + 9,16^2 + 44,73^2} = 76,36322806$$

♣ Ulangan 2 :

Diketahui : $L = 61,21$ $a = -9,14$ $b = +44,72$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{61,21^2 + 9,14^2 + 44,72^2} = 76,3549743$$

♣ Ulangan 3 :

Diketahui : $L = 61,22$ $a = -9,18$ $b = +44,72$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{61,22^2 + 9,18^2 + 44,72^2} = 76,36778902$$

Tepung tempe B, 36, 70

♣ Ulangan 1 :

Diketahui : $L = 60,81$ $a = -9,09$ $b = +44,11$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{60,81^2 + 9,09^2 + 44,11^2} = 75,67150256$$

♣ Ulangan 2 :

Diketahui : $L = 60,79$ $a = -9,09$ $b = +44,12$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{60,79^2 + 9,09^2 + 44,12^2} = 75,66126222$$

♣ Ulangan 3 :

Diketahui : $L = 60,80$ $a = -9,10$ $b = +44,11$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{60,80^2 + 9,10^2 + 44,11^2} = 75,66466877$$

Tepung tempe B, 42, 50

♣ Ulangan 1 :

Diketahui : $L = 60,36$ $a = -9,09$ $b = +44,20$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{60,36^2 + 9,09^2 + 44,20^2} = 75,3631057$$

♣ Ulangan 2 :

Diketahui : $L = 60,35$ $a = -9,08$ $b = +44,18$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{60,35^2 + 9,08^2 + 44,18^2} = 75,3421615$$

♣ Ulangan 3 :

Diketahui : $L = 60,35$ $a = -9,08$ $b = +44,17$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{60,35^2 + 9,08^2 + 44,17^2} = 75,33629802$$

Tepung tempe B, 42, 60

♣ Ulangan 1 :

Diketahui : $L = 60,10$ $a = -8,78$ $b = +44,05$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{60,10^2 + 8,78^2 + 44,05^2} = 75,03$$

♣ Ulangan 2 :

Diketahui : $L = 60,11$ $a = -8,85$ $b = +44,06$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{60,11^2 + 8,85^2 + 44,06^2} = 75,05210324$$

♣ Ulangan 3 :

Diketahui : $L = 60,12$ $a = -8,87$ $b = +44,07$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{60,12^2 + 8,87^2 + 44,07^2} = 75,06834353$$

Tepung tempe B, 42, 70

♣ Ulangan 1 :

Diketahui : $L = 59,85$ $a = -8,97$ $b = +43,95$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{59,85^2 + 8,97^2 + 43,95^2} = 74,79362205$$

♣ Ulangan 2 :

Diketahui : $L = 59,82$ $a = - 8,96$ $b = + 43,93$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{59,82^2 + 8,96^2 + 43,93^2} = 74,75666459$$

♣ Ulangan 3 :

Diketahui : $L = 59,82$ $a = - 8,96$ $b = + 43,93$

$$E = \sqrt{L^2 + a^2 + b^2} = \sqrt{59,82^2 + 8,96^2 + 43,93^2} = 74,75666459$$

Keterangan :

B, 36, 50 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 36 jam, dan suhu pengeringan 50 °C

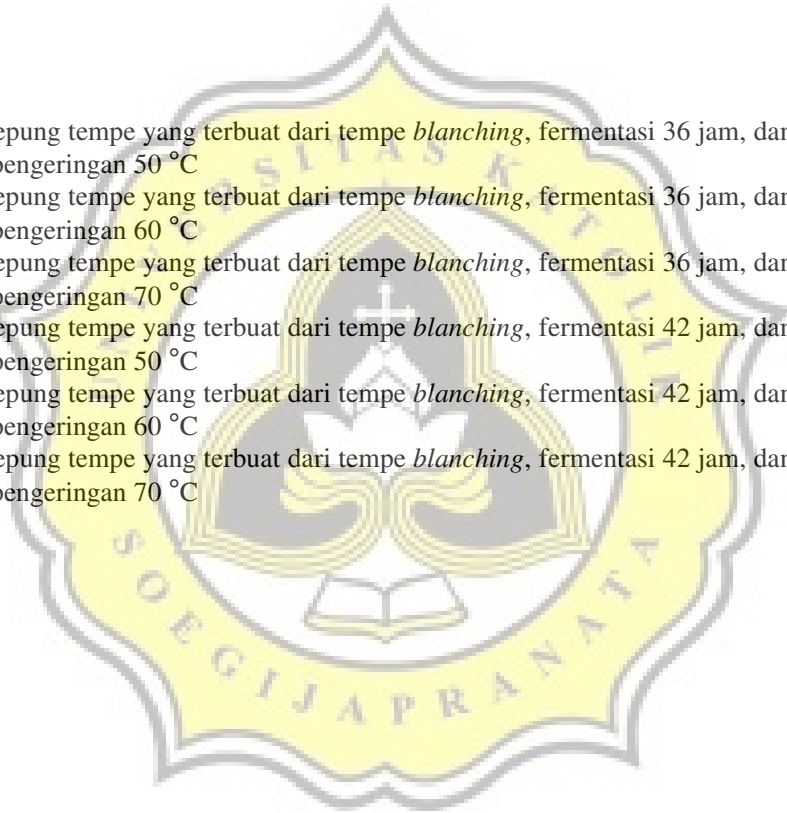
B, 36, 60 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 36 jam, dan suhu pengeringan 60 °C

B, 36, 70 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 36 jam, dan suhu pengeringan 70 °C

B, 42, 50 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 42 jam, dan suhu pengeringan 50 °C

B, 42, 60 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 42 jam, dan suhu pengeringan 60 °C

B, 42, 70 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 42 jam, dan suhu pengeringan 70 °C



Lampiran 2. Kromatogram Jumlah Asam Amino Lisin

1. Kromatogram Tepung Tempe B, 36, 50



2. Kromatogram Tepung Tempe B, 36, 60



3. Kromatogram Tepung Tempe B, 36, 70



4. Kromatogram Tepung Tempe B, 42, 50



5. Kromatogram Tepung Tempe B, 42, 60



6. Kromatogram Tepung Tempe B, 42, 70



7. Kromatogram Standard



Lampiran 3. Perhitungan Jumlah Asam Amino Lisin

Persamaan :

$$y = 626645 x - 4789$$

Dimana : y = luas area yang dapat dilihat dari kromatogram hasil analisa dengan
HPLC

x = konsentrasi persen

Tepung tempe B, 36, 50

$$y = 626645 x - 4789$$

$$3093176 = 626645 x - 4789$$

$$x = 4,9437 \%$$

Jadi pada tepung tempe B, 36, 50 jumlah asam amino lisinnya adalah 4,94 g/100 g protein tepung tempe.

Tepung tempe B, 36, 60

$$y = 626645 x - 4789$$

$$2815236 = 626645 x - 4789$$

$$x = 4,5001 \%$$

Jadi pada tepung tempe B, 36, 60 jumlah asam amino lisinnya adalah 4,50 g/100 g protein tepung tempe.

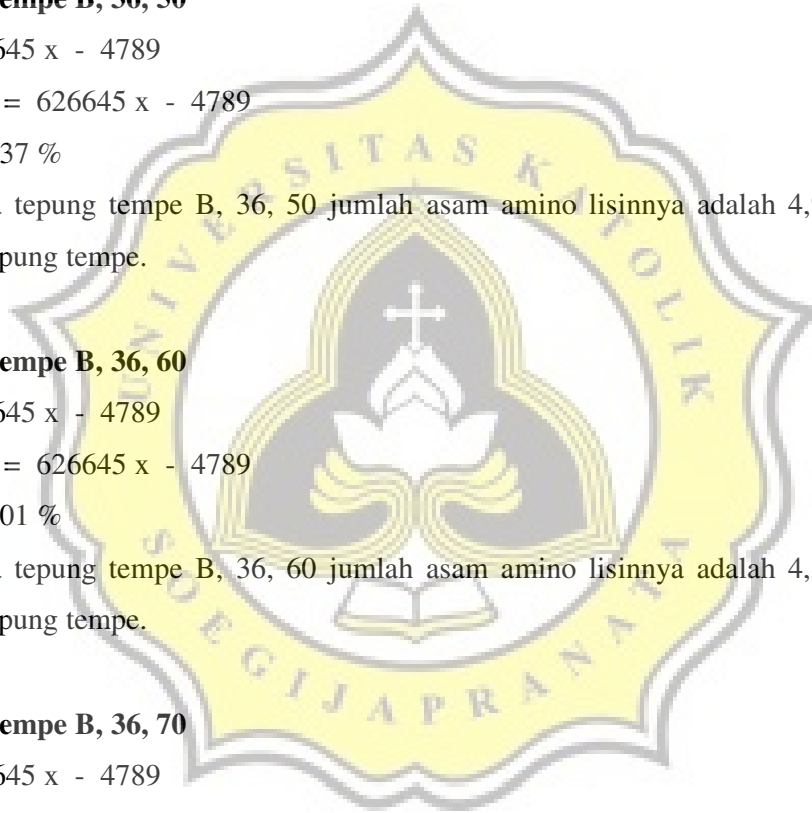
Tepung tempe B, 36, 70

$$y = 626645 x - 4789$$

$$2517779 = 626645 x - 4789$$

$$x = 4,0255 \%$$

Jadi pada tepung tempe B, 36, 70 jumlah asam amino lisinnya adalah 4,03 g/100 g protein tepung tempe.



Tepung tempe B, 42, 50

$$y = 626645 x - 4789$$

$$3756225 = 626645 x - 4789$$

$$x = 6,0007 \%$$

Jadi pada tepung tempe B, 36, 50 jumlah asam amino lisinnya adalah 6,01 g/100 g protein tepung tempe.

Tepung tempe B, 42, 60

$$y = 626645 x - 4789$$

$$3295797 = 626645 x - 4789$$

$$x = 5,2670 \%$$

Jadi pada tepung tempe B, 36, 50 jumlah asam amino lisinnya adalah 5,27 g/100 g protein tepung tempe.

Tepung tempe B, 42, 70

$$y = 626645 x - 4789$$

$$3003837 = 626645 x - 4789$$

$$x = 4,8011 \%$$

Jadi pada tepung tempe B, 36, 50 jumlah asam amino lisinnya adalah 4,80 g/100 g protein tepung tempe.

Keterangan :

B, 36, 50 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 36 jam, dan suhu pengeringan 50 °C

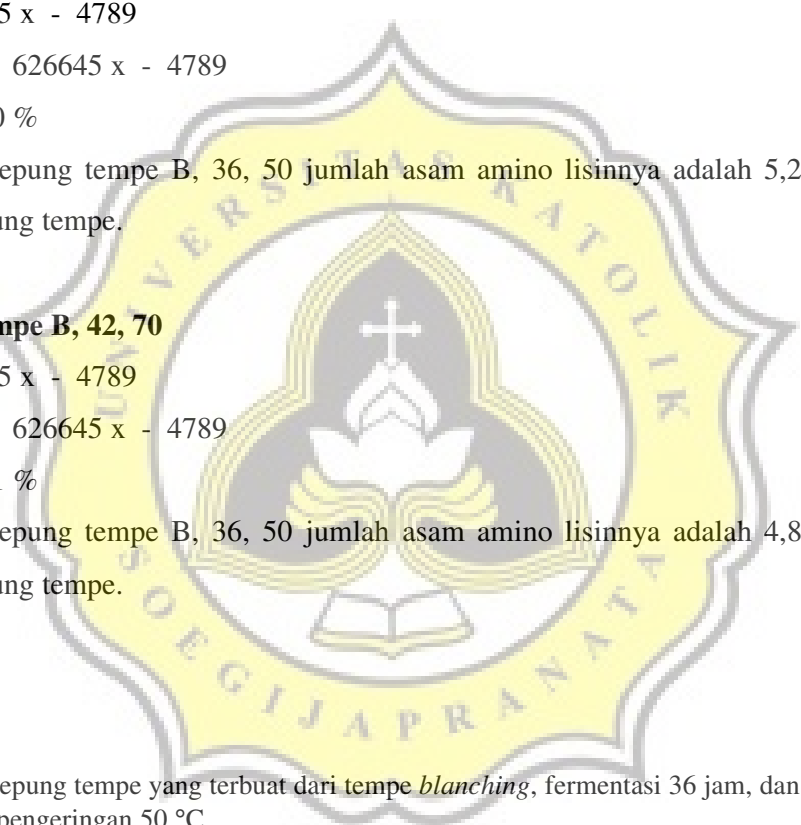
B, 36, 60 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 36 jam, dan suhu pengeringan 60 °C

B, 36, 70 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 36 jam, dan suhu pengeringan 70 °C

B, 42, 50 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 42 jam, dan suhu pengeringan 50 °C

B, 42, 60 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 42 jam, dan suhu pengeringan 60 °C

B, 42, 70 = tepung tempe yang terbuat dari tempe *blanching*, fermentasi 42 jam, dan suhu pengeringan 70 °C



Lampiran 4. Analisa Data Pengukuran Kadar Air

Explore

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
kdr_air	.152	36	.035	.953	36	.133

a. Lilliefors Significance Correction

Oneway

Descriptives

kdr_air	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
36,b,50	6	9.002618	1.0736212	.4383040	7.875922	10.129314	7.1456	10.2650
36,b,60	6	9.330967	.9866255	.4027882	8.295567	10.366367	8.1546	10.5450
36,b,70	6	9.551098	1.3327920	.5441100	8.152419	10.949778	7.9021	11.6546
42,b,50	6	9.199172	.7803700	.3185847	8.380224	10.018120	8.1564	10.2560
42,b,60	6	9.666509	1.3455474	.5493174	8.254443	11.078574	8.1748	12.1546
42,b,70	6	9.922353	1.6687815	.6812772	8.171075	11.673632	7.4547	12.0255
Total	36	9.445453	1.1817374	.1969562	9.045610	9.845295	7.1456	12.1546

ANOVA

kdr_air	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.344	5	.669	.441	.817
Within Groups	45.534	30	1.518		
Total	48.878	35			

Post Hoc Tests

Homogeneous Subsets

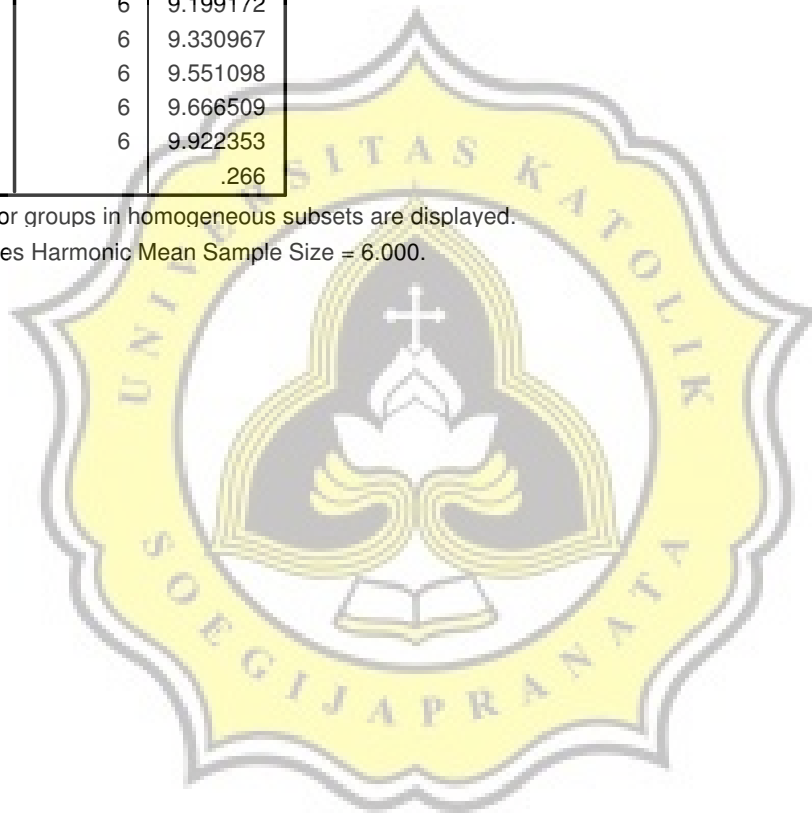
kdr_air

Duncan^a

variasi	N	Subset for alpha = .05
		1
36,b,50	6	9.002618
42,b,50	6	9.199172
36,b,60	6	9.330967
36,b,70	6	9.551098
42,b,60	6	9.666509
42,b,70	6	9.922353
Sig.		.266

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.



Lampiran 5. Analisa Data Pengukuran Kadar Protein

Explore

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
kdr_protein	.094	36	.200*	.986	36	.923

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

a. Lilliefors Significance Correction

Oneway

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					36,b,50	6		
36,b,60	6	38.417603	1.4686657	.5995802	36.876333	39.958873	36.1423	40.1460
36,b,70	6	40.014218	2.0061926	.8190247	37.908848	42.119588	37.4523	43.1534
42,b,50	6	37.999620	1.1668540	.4763661	36.775082	39.224158	36.1534	39.1453
42,b,60	6	39.013167	1.5456791	.6310208	37.391076	40.635257	37.2543	41.0534
42,b,70	6	39.535238	3.0907666	1.2618002	36.291678	42.778799	35.1430	43.4600
Total	36	38.755494	2.2055004	.3675834	38.009260	39.501728	34.1456	43.4600

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26.340	5	5.268	1.098	.382
Within Groups	143.908	30	4.797		
Total	170.248	35			

Post Hoc Tests

Homogeneous Subsets

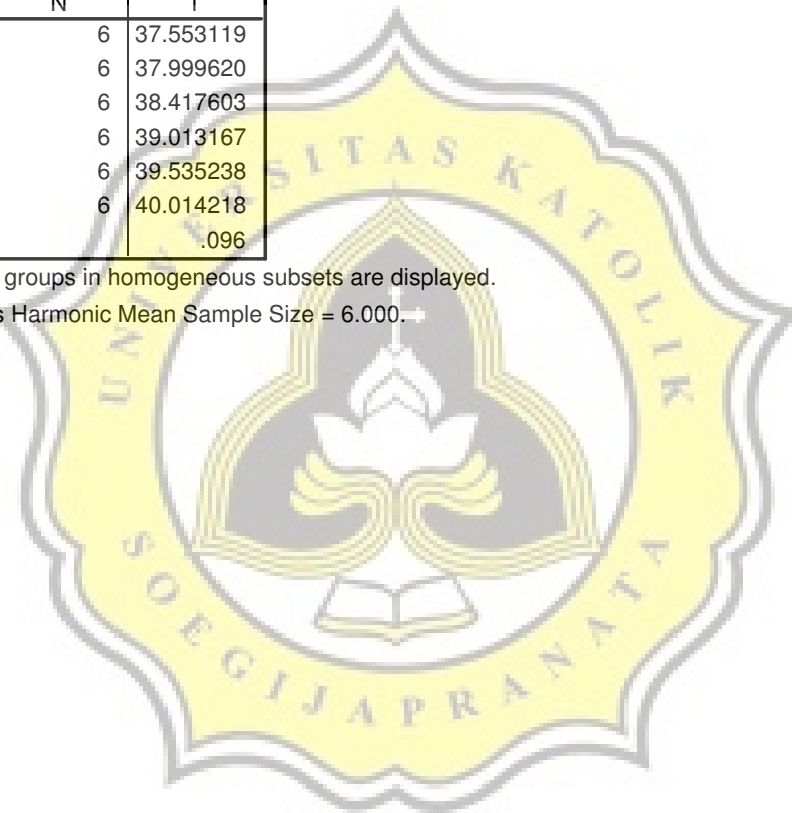
kdr_protein

Duncan^a

variasi	N	Subset for alpha = .05
		1
36,b,50	6	37.553119
42,b,50	6	37.999620
36,b,60	6	38.417603
42,b,60	6	39.013167
42,b,70	6	39.535238
36,b,70	6	40.014218
Sig.		.096

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000. →



Lampiran 6. Analisa Data Pengukuran Kadar Lemak

Explore

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
kdr_lemak	.104	36	.200*	.984	36	.879

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

a. Lilliefors Significance Correction

Oneway

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
36,b,50	6	27.737904	3.2702174	1.3350607	24.306021	31.169786	23.1255	32.1546
36,b,60	6	28.018894	1.7465053	.7130078	26.186049	29.851739	26.4558	31.1546
36,b,70	6	28.118575	1.1192267	.4569224	26.944018	29.293131	27.1580	30.2535
42,b,50	6	24.995351	2.8474785	1.1624782	22.007105	27.983596	21.0245	29.1545
42,b,60	6	25.019170	1.2523633	.5112752	23.704895	26.333445	23.0125	26.2545
42,b,70	6	27.462442	1.4856744	.6065240	25.903322	29.021561	26.1546	30.1549
Total	36	26.892056	2.3900141	.3983357	26.083391	27.700720	21.0245	32.1546

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	65.521	5	13.104	2.925	.029
Within Groups	134.405	30	4.480		
Total	199.926	35			

Post Hoc Tests

Homogeneous Subsets

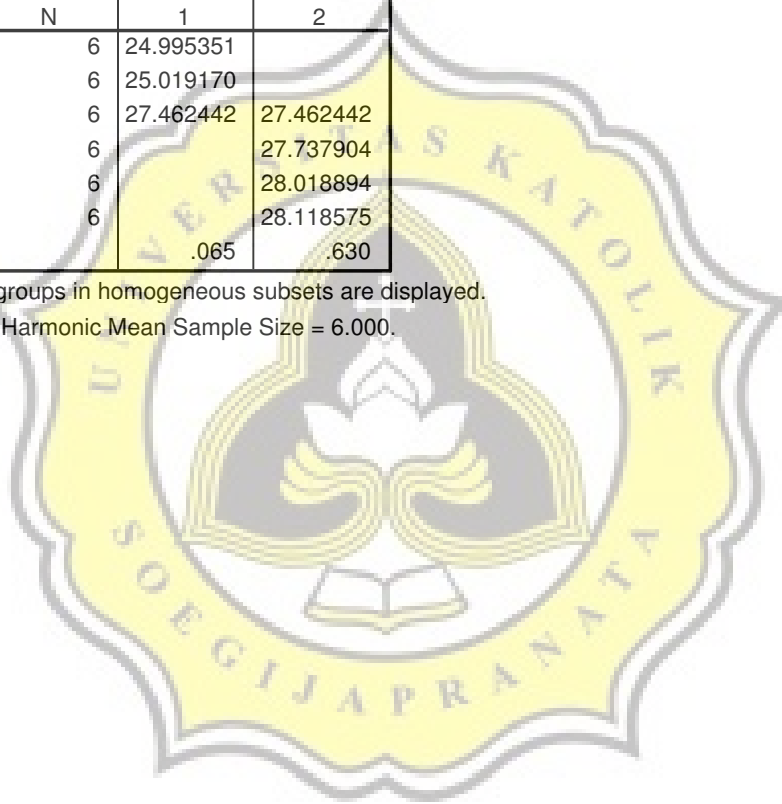
kdr_lemak

Duncan^a

variasi	N	Subset for alpha = .05	
		1	2
42,b,50	6	24.995351	
42,b,60	6	25.019170	
42,b,70	6	27.462442	27.462442
36,b,50	6		27.737904
36,b,60	6		28.018894
36,b,70	6		28.118575
Sig.		.065	.630

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.



Lampiran 7. Analisa Data Pengukuran Bulk Density

Explore

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
bulk_density	.111	30	.200*	.943	30	.108

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

a. Lilliefors Significance Correction

Oneway

Descriptives

bulk_density

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
36,b,50	10	.377641	.0314868	.0055521	.372862	.403692	.3797	.4103
36,b,60	10	.381379	.0228152	.0102032	.353051	.409708	.3635	.4212
36,b,70	10	.388277	.0124150	.0140813	.338545	.416737	.3254	.4068
42,b,50	10	.380359	.0130440	.0088371	.374820	.423891	.3798	.4289
42,b,60	10	.394053	.0079413	.0035515	.384193	.403914	.3879	.4068
42,b,70	10	.399355	.0197603	.0058335	.364162	.396555	.3654	.3996
Total	60	.386844	.0194714	.0035550	.379573	.394115	.3254	.4289

ANOVA

bulk_density

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.002	5	.000	.962	.460
Within Groups	.009	24	.000		
Total	.011	29			

Post Hoc Tests

Homogeneous Subsets

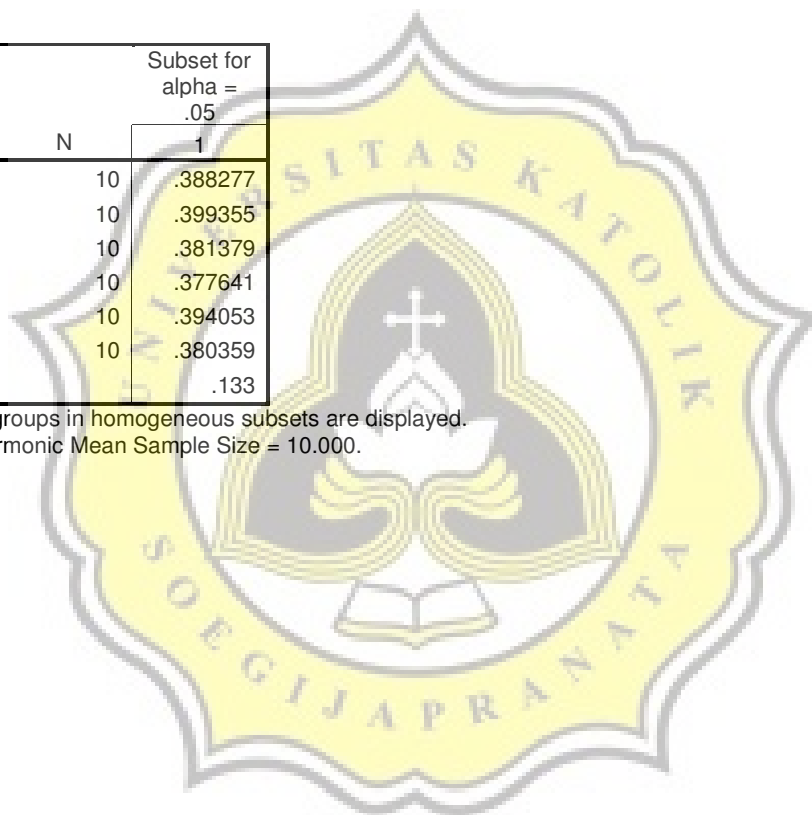
bulk_density

Duncan

variasi	N	Subset for alpha = .05
		1
36,b,70	10	.388277
42,b,70	10	.399355
36,b,60	10	.381379
36,b,50	10	.377641
42,b,60	10	.394053
42,b,50	10	.380359
Sig.		.133

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 10.000.



Lampiran 8. Analisa Data Pengukuran Kemampuan Pembasahan

Explore

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
pembasahan	.105	30	.200*	.957	30	.255

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

a. Lilliefors Significance Correction

Oneway

Descriptives

pembasahan

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
36.b,50	10	14.140000	2.9821133	1.8435981	7.729351	17.966649	8.3200	19.4100
36.b,60	10	13.970000	2.1200236	.9481034	11.337643	16.602357	11.2500	16.2000
36.b,70	10	12.848000	4.1224107	1.3336416	10.437217	17.842783	10.7000	18.6000
42.b,50	10	13.896000	3.3774147	.6697761	9.080403	12.799597	9.6000	12.9000
42.b,60	10	13.000000	1.7038779	.7619974	10.884356	15.115644	11.5000	15.3800
42.b,70	10	10.940000	1.4976648	1.5104258	9.702386	18.089614	10.2800	18.4400
Total	60	13.132333	2.7777710	.5071493	12.095097	14.169570	8.3200	19.4100

ANOVA

pembasahan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	36.025	5	7.205	.921	.484
Within Groups	187.740	24	7.822		
Total	223.764	29			

Post Hoc Tests

Homogeneous Subsets

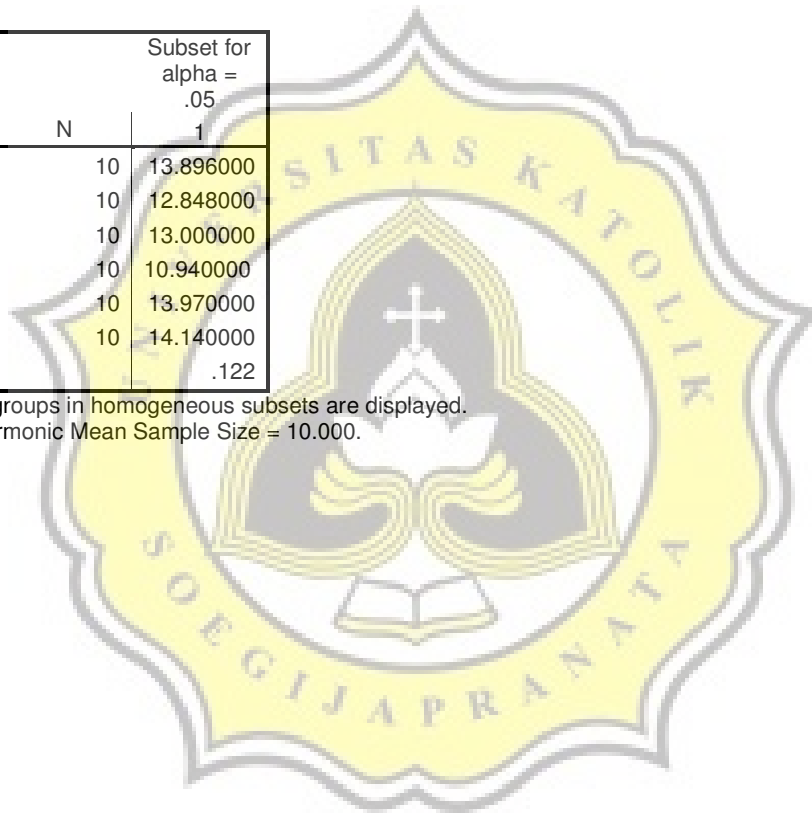
pembahasan

Duncan

variasi	N	Subset for alpha = .05 1
42,b,50	10	13.896000
36,b,50	10	12.848000
42,b,60	10	13.000000
42,b,70	10	10.940000
36,b,60	10	13.970000
36,b,70	10	14.140000
Sig.		.122

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 10.000.



Lampiran 9. Analisa Data Pengukuran Intensitas Warna

Explore

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
int_warna	.085	18	.200*	.984	18	.983

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

a. Lilliefors Significance Correction

Oneway

Descriptives

int_warna	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
36,b,50	3	77.023074	3.1238744	1.8035697	69.262940	84.783208	74.2560	80.4106
36,b,60	3	76.088067	1.8777307	1.0841083	71.423525	80.752608	74.1500	77.8990
36,b,70	3	75.547001	2.3627115	1.3641121	69.677700	81.416302	73.1245	77.8450
42,b,50	3	76.414801	1.8448549	1.0651275	71.831928	80.997675	75.3363	78.5450
42,b,60	3	75.485834	2.5762305	1.4873874	69.086123	81.885546	73.1540	78.2514
42,b,70	3	74.154888	3.4397095	1.9859172	65.610176	82.699600	70.4540	77.2540
Total	18	75.785611	2.3757605	.5599721	74.604173	76.967049	70.4540	80.4106

ANOVA

int_warna	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.474	5	2.895	.426	.822
Within Groups	81.478	12	6.790		
Total	95.952	17			

Post Hoc Tests

Homogeneous Subsets

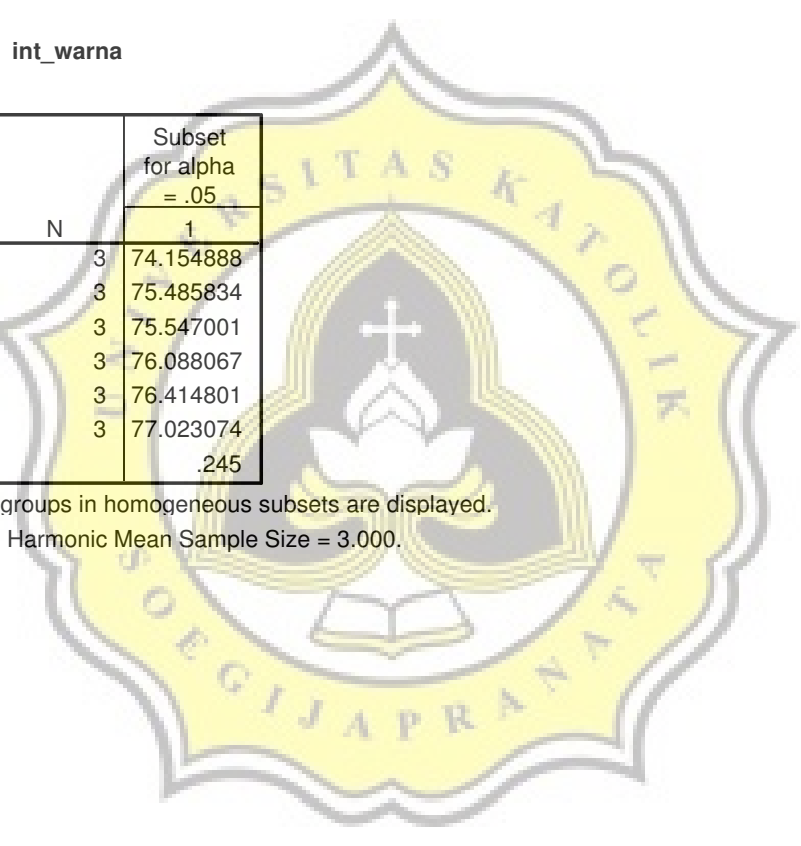
int_warna

Duncan^a

varian	N	Subset for alpha = .05
		1
42,b,70	3	74.154888
42,b,60	3	75.485834
36,b,70	3	75.547001
36,b,60	3	76.088067
42,b,50	3	76.414801
36,b,50	3	77.023074
Sig.		.245

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.



Lampiran 10. Analisa Data Pengukuran Asam Amino Lysin

Explore

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
lysin	.143	6	.200*	.988	6	.984

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

a. Lilliefors Significance Correction

NPar Tests

Kruskal-Wallis Test

Ranks

var	N	Mean Rank	
lysin	36,b,50	1	3.00
	36,b,60	1	2.00
	36,b,70	1	1.00
	42,b,50	1	6.00
	42,b,60	1	5.00
	42,b,70	1	4.00
Total	6		

Test Statistics^{a,b}

	lysin
Chi-Square	5.000
df	5
Asymp. Sig.	.416

a. Kruskal Wallis Test

b. Grouping Variable: var

