

LAMPIRAN

Lampiran 1. Lembar *Similarity Index*

PENGARUH KONSENTRASI SACCHAROMYCES CEREVISIAE DAN ACETOBACTER ACETI TERHADAP KARAKTERISTIK KIMIA VINEGAR KURMA

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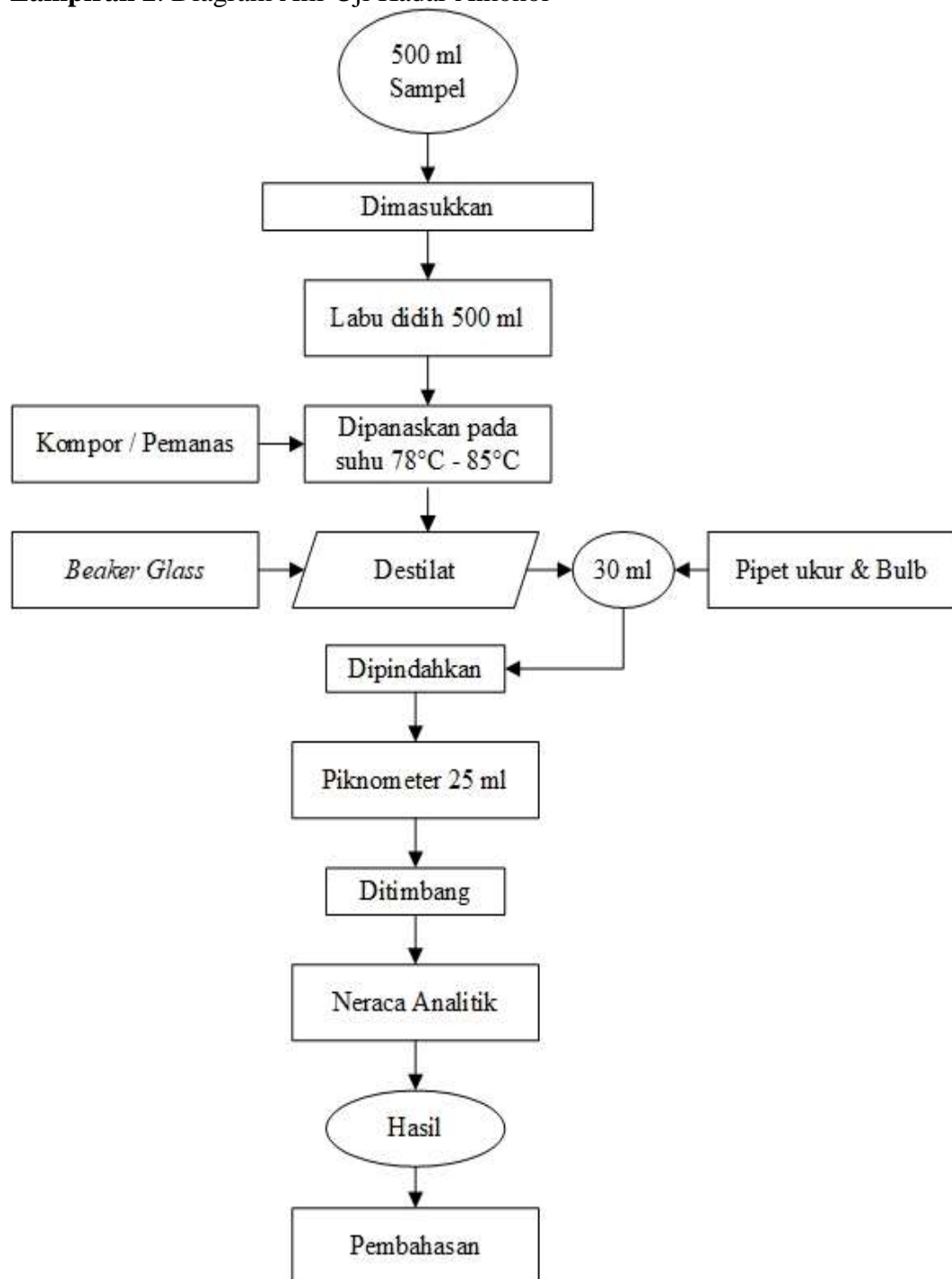
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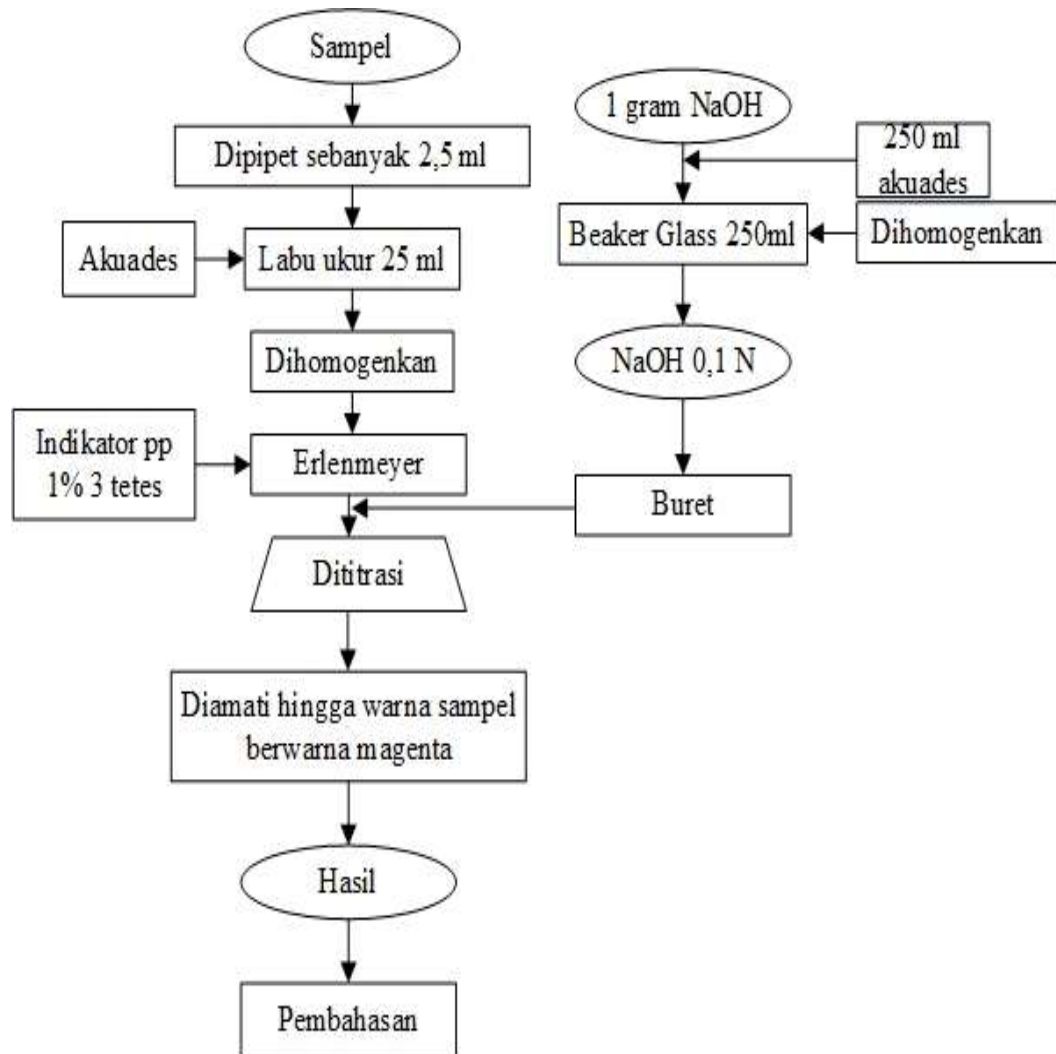
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Lampiran 2. Diagram Alir Uji Kadar Alkohol



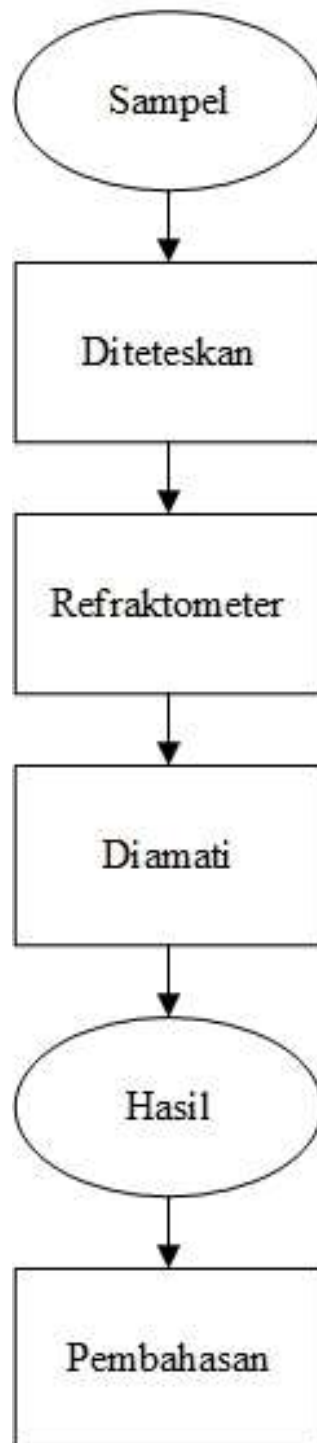
Lampiran 3. Diagram Alir Uji Total Asam Teritrasi



Lampiran 4. Diagram Alir Uji PH



Lampiran 5. Diagram Alir Uji Brix



Lampiran 6. Tabel Pengamatan Kadar Alkohol dan Perhitungan Efektivitas Penurunan Kadar Alkohol

Perlakuan	Hari ke-7			Hari ke-10			Hari ke-13		
	Ulangan 1	Ulangan 2	Ulangan 3	Ulangan 1	Ulangan 2	Ulangan 3	Ulangan 1	Ulangan 2	Ulangan 3
Y1V1	3,49	3,59	3,88	3,33	3,34	3,53	1,59	1,61	1,77
Y1V2	3,07	3,17	3,19	2,89	2,90	2,98	1,28	1,53	1,59
Y1V3	2,52	2,86	2,97	2,48	2,51	2,53	1,04	1,18	1,23
Y2V1	5,49	5,50	5,56	4,16	4,42	4,50	2,48	2,59	2,77
Y2V2	4,89	4,92	5,09	3,83	3,93	4,06	1,96	2,08	2,40
Y2V3	4,37	4,44	4,45	3,67	3,79	3,82	1,78	1,88	1,96
Y3V1	6,66	6,69	6,74	5,25	5,51	5,58	3,71	3,84	3,84
Y3V2	5,81	6,02	6,64	4,84	4,86	4,94	3,19	3,58	3,69
Y3V3	5,57	5,61	5,76	4,52	4,70	4,81	2,83	2,98	3,09

$$\frac{3,65 - 1,66}{3,65} \times 100$$

$$= 54,52\%$$

Y1V1

$$\frac{3,14 - 1,46}{3,14} \times 100$$

$$= 53,50\%$$

Y1V2

$$\frac{2,78 - 1,15}{2,78} \times 100$$

$$= 58,63\%$$

Y1V3

$$\frac{5,52 - 2,61}{5,52} \times 100$$

$$= 52,72\%$$

Y2V1

$$\frac{4,97 - 2,14}{4,97} \times 100$$

$$= 56,94\%$$

Y2V2

$$\frac{4,42 - 1,87}{4,42} \times 100$$

$$= 57,69\%$$

Y2V3

$$\frac{6,70 - 3,80}{6,70} \times 100$$

$$= 43,28\%$$

Y3V1

$$\frac{6,16 - 3,49}{6,16} \times 100$$

$$= 43,34\%$$

Y3V2

$$\frac{5,65 - 2,97}{5,65} \times 100$$

$$= 47,43\%$$

Y3V3

Lampiran 7. Tabel Pengamatan Total Asam Titrasi dan Perhitungan Efektivitas Peningkatan Total Asam

Perlakuan	Hari ke-7			Hari ke-10			Hari ke-13		
	Ulangan 1	Ulangan 2	Ulangan 3	Ulangan 1	Ulangan 2	Ulangan 3	Ulangan 1	Ulangan 2	Ulangan 3
Y1V1	0,70	0,67	0,65	1,22	1,20	1,22	1,63	1,61	1,58
Y1V2	0,70	0,70	0,72	1,39	1,39	1,39	1,87	1,82	1,80
Y1V3	0,74	0,72	0,72	1,49	1,46	1,46	2,04	1,99	1,97
Y2V1	0,77	0,72	0,74	1,39	1,42	1,42	1,85	1,80	1,78
Y2V2	0,74	0,74	0,74	1,61	1,63	1,61	1,92	1,92	1,90
Y2V3	0,77	0,82	0,84	1,66	1,68	1,66	2,16	2,18	2,18
Y3V1	0,77	0,79	0,80	1,44	1,44	1,46	2,04	2,04	2,02
Y3V2	0,82	0,86	0,84	1,68	1,68	1,70	2,16	2,16	2,14
Y3V3	0,94	0,96	0,96	1,87	1,87	1,90	2,30	2,30	2,33

$$\frac{1,61 - 0,67}{0,67} \times 100$$

$$= 140,30\%$$

Y1V1

$$\frac{1,83 - 0,70}{0,70} \times 100$$

$$= 161,43\%$$

Y1V2

$$\frac{2,00 - 0,73}{0,73} \times 100$$

$$= 173,97\%$$

Y1V3

$$\frac{1,81 - 0,74}{0,74} \times 100$$

$$= 144,59\%$$

Y2V1

$$\frac{1,91 - 0,74}{0,74} \times 100$$

$$= 158,11\%$$

Y2V2

$$\frac{2,18 - 0,81}{0,81} \times 100$$

$$= 169,14\%$$

Y2V3

$$\frac{2,03 - 0,79}{0,79} \times 100$$

$$= 156,96\%$$

Y3V1

$$\frac{2,15 - 0,84}{0,84} \times 100$$

$$= 155,95\%$$

Y3V2

$$\frac{2,31 - 0,95}{0,95} \times 100$$

$$= 143,16\%$$

Y3V3

Lampiran 8. Tabel Pengamatan pH

Perlakuan	Hari ke-7			Hari ke-10			Hari ke-13		
	Ulangan 1	Ulangan 2	Ulangan 3	Ulangan 1	Ulangan 2	Ulangan 3	Ulangan 1	Ulangan 2	Ulangan 3
Y1V1	4,13	3,94	3,96	3,97	3,94	3,94	3,84	3,77	3,74
Y1V2	3,94	3,94	3,94	3,9	3,9	3,9	3,79	3,76	3,7
Y1V3	3,98	4,03	4,02	3,89	3,89	3,88	3,77	3,74	3,73
Y2V1	3,93	3,9	3,9	3,81	3,82	3,84	3,82	3,76	3,73
Y2V2	3,94	3,94	3,91	3,8	3,83	3,83	3,76	3,76	3,74
Y2V3	3,94	3,94	3,93	3,84	3,86	3,83	3,76	3,75	3,75
Y3V1	3,87	3,88	3,88	3,81	3,81	3,81	3,8	3,78	3,75
Y3V2	3,94	3,89	3,91	3,82	3,84	3,82	3,76	3,75	3,75
Y3V3	3,91	3,91	3,91	3,8	3,83	3,83	3,75	3,75	3,75

Lampiran 9. Tabel Pengamatan Kadar Brix

Perlakuan	Hari ke-7			Hari ke-10			Hari ke-13		
	Ulangan 1	Ulangan 2	Ulangan 3	Ulangan 1	Ulangan 2	Ulangan 3	Ulangan 1	Ulangan 2	Ulangan 3
Y1V1	6,5	6,4	6,3	5,8	5,7	5,7	5,05	5	5
Y1V2	6,8	6,8	6,8	5,8	5,8	5,8	5,1	5,05	5,05
Y1V3	7	6,9	6,8	6,1	6	6	5,15	5,1	5,1
Y2V1	5,9	5,9	5,8	5,5	5,5	5,5	4,95	4,95	4,95
Y2V2	6,1	6,1	6	5,6	5,6	5,6	5	5	5
Y2V3	6,2	6,1	6,1	5,7	5,7	5,6	5	5	5
Y3V1	5,4	5,3	5,3	5,1	5	5	4,75	4,75	4,7
Y3V2	5,7	5,7	5,6	5,2	5,1	5,1	4,9	4,8	4,8
Y3V3	5,8	5,8	5,75	5,5	5,4	5,2	4,9	4,9	4,9

Lampiran 10. Output SPSS *Mauchly's Test of Sphericity*

Mauchly's Test of Sphericity^a

Measure: Etanol

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Waktu	.716	5.669	2	.059	.779	1.000	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Mauchly's Test of Sphericity^a

Measure: Total Asam

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Waktu	.958	.730	2	.694	.960	1.000	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Mauchly's Test of Sphericity^a

Measure: PH

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Waktu	.992	.139	2	.933	.992	1.000	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Mauchly's Test of Sphericity^a

Measure: Brix

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Waktu	.985	.249	2	.883	.986	1.000	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Yeast + Acetobacter + Yeast * Acetobacter

Within Subjects Design: Waktu

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Lampiran 11. Outpus SPSS *Tests of Within-Subjects Effects*

Tests of Within-Subjects Effects

Measure: Etanol

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	82.742	2	41.371	4523.970	.000
	Greenhouse-Geisser	82.742	1.558	53.102	4523.970	.000
	Huynh-Feldt	82.742	2.000	41.371	4523.970	.000
	Lower-bound	82.742	1.000	82.742	4523.970	.000
Waktu * Yeast	Sphericity Assumed	3.450	4	.863	94.323	.000
	Greenhouse-Geisser	3.450	3.116	1.107	94.323	.000
	Huynh-Feldt	3.450	4.000	.863	94.323	.000
	Lower-bound	3.450	2.000	1.725	94.323	.000
Waktu * Acetobacter	Sphericity Assumed	.297	4	.074	8.129	.000
	Greenhouse-Geisser	.297	3.116	.095	8.129	.000
	Huynh-Feldt	.297	4.000	.074	8.129	.000
	Lower-bound	.297	2.000	.149	8.129	.003
Waktu * Yeast * Acetobacter	Sphericity Assumed	.219	8	.027	2.995	.011
	Greenhouse-Geisser	.219	6.233	.035	2.995	.021
	Huynh-Feldt	.219	8.000	.027	2.995	.011
	Lower-bound	.219	4.000	.055	2.995	.047
Error(Waktu)	Sphericity Assumed	.329	36	.009		
	Greenhouse-Geisser	.329	28.047	.012		
	Huynh-Feldt	.329	36.000	.009		
	Lower-bound	.329	18.000	.018		

Tests of Within-Subjects Effects

Measure: Asam

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	20.054	2	10.027	29802.548	.000
	Greenhouse-Geisser	20.054	1.919	10.448	29802.548	.000
	Huynh-Feldt	20.054	2.000	10.027	29802.548	.000
	Lower-bound	20.054	1.000	20.054	29802.548	.000
Waktu * Yeast	Sphericity Assumed	.113	4	.028	84.273	.000
	Greenhouse-Geisser	.113	3.839	.030	84.273	.000
	Huynh-Feldt	.113	4.000	.028	84.273	.000
	Lower-bound	.113	2.000	.057	84.273	.000
Waktu * Acetobacter	Sphericity Assumed	.188	4	.047	139.858	.000
	Greenhouse-Geisser	.188	3.839	.049	139.858	.000
	Huynh-Feldt	.188	4.000	.047	139.858	.000
	Lower-bound	.188	2.000	.094	139.858	.000

Waktu * Yeast * Acetobacter	Sphericity Assumed	.053	8	.007	19.869	.000
	Greenhouse-Geisser	.053	7.677	.007	19.869	.000
	Huynh-Feldt	.053	8.000	.007	19.869	.000
	Lower-bound	.053	4.000	.013	19.869	.000
Error(Waktu)	Sphericity Assumed	.012	36	.000		
	Greenhouse-Geisser	.012	34.549	.000		
	Huynh-Feldt	.012	36.000	.000		
	Lower-bound	.012	18.000	.001		

Tests of Within-Subjects Effects

Measure: PH

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	.029	2	.014	376.326	.000
	Greenhouse-Geisser	.029	1.984	.015	376.326	.000
	Huynh-Feldt	.029	2.000	.014	376.326	.000
	Lower-bound	.029	1.000	.029	376.326	.000
Waktu * Yeast	Sphericity Assumed	.002	4	.000	12.140	.000
	Greenhouse-Geisser	.002	3.968	.000	12.140	.000
	Huynh-Feldt	.002	4.000	.000	12.140	.000
	Lower-bound	.002	2.000	.001	12.140	.000
Waktu * Acetobacter	Sphericity Assumed	.000	4	8.952E-5	2.341	.073
	Greenhouse-Geisser	.000	3.968	9.025E-5	2.341	.074
	Huynh-Feldt	.000	4.000	8.952E-5	2.341	.073
	Lower-bound	.000	2.000	.000	2.341	.125
Waktu * Yeast * Acetobacter	Sphericity Assumed	.000	8	5.849E-5	1.530	.182
	Greenhouse-Geisser	.000	7.935	5.897E-5	1.530	.182
	Huynh-Feldt	.000	8.000	5.849E-5	1.530	.182
	Lower-bound	.000	4.000	.000	1.530	.236
Error(Waktu)	Sphericity Assumed	.001	36	3.824E-5		
	Greenhouse-Geisser	.001	35.709	3.855E-5		
	Huynh-Feldt	.001	36.000	3.824E-5		
	Lower-bound	.001	18.000	7.648E-5		

Tests of Within-Subjects Effects

Measure: Brix

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	17.798	2	8.899	4971.121	.000
	Greenhouse-Geisser	17.798	1.971	9.029	4971.121	.000
	Huynh-Feldt	17.798	2.000	8.899	4971.121	.000
	Lower-bound	17.798	1.000	17.798	4971.121	.000
Waktu * Yeast	Sphericity Assumed	1.802	4	.451	251.681	.000

	Greenhouse-Geisser	1.802	3.943	.457	251.681	.000
	Huynh-Feldt	1.802	4.000	.451	251.681	.000
	Lower-bound	1.802	2.000	.901	251.681	.000
Waktu * Acetobacter	Sphericity Assumed	.274	4	.069	38.293	.000
	Greenhouse-Geisser	.274	3.943	.070	38.293	.000
	Huynh-Feldt	.274	4.000	.069	38.293	.000
	Lower-bound	.274	2.000	.137	38.293	.000
Waktu * Yeast * Acetobacter	Sphericity Assumed	.031	8	.004	2.190	.052
	Greenhouse-Geisser	.031	7.885	.004	2.190	.053
	Huynh-Feldt	.031	8.000	.004	2.190	.052
	Lower-bound	.031	4.000	.008	2.190	.111
Error(Waktu)	Sphericity Assumed	.064	36	.002		
	Greenhouse-Geisser	.064	35.483	.002		
	Huynh-Feldt	.064	36.000	.002		
	Lower-bound	.064	18.000	.004		

Lampiran 12. Output SPSS Pairwise Comparison

Pairwise Comparisons

Measure: Etanol

(I) Yeast	(J) Yeast	Mean Difference (I- J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
0.1%	0.2%	-1.212*	.063	.000	-1.345	-1.078
	0.3%	-2.341*	.063	.000	-2.475	-2.208
0.2%	0.1%	1.212*	.063	.000	1.078	1.345
	0.3%	-1.129*	.063	.000	-1.263	-.996
0.3%	0.1%	2.341*	.063	.000	2.208	2.475
	0.2%	1.129*	.063	.000	.996	1.263

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: Etanol

(I) Acetobacter	(J) Acetobacter	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
5%	10%	.449*	.063	.000	.315	.582
	15%	.818*	.063	.000	.684	.951
10%	5%	-.449*	.063	.000	-.582	-.315
	15%	.369*	.063	.000	.235	.502
15%	5%	-.818*	.063	.000	-.951	-.684
	10%	-.369*	.063	.000	-.502	-.235

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: Etanol

(I) Waktu	(J) Waktu	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	.788*	.032	.000	.721	.856
	3	2.427*	.024	.000	2.375	2.478
2	1	-.788*	.032	.000	-.856	-.721
	3	1.638*	.020	.000	1.595	1.681
3	1	-2.427*	.024	.000	-2.478	-2.375
	2	-1.638*	.020	.000	-1.681	-1.595

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: Asam

(I) Yeast	(J) Yeast	Mean Difference (I- J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
0.1%	0.2%	-.140*	.006	.000	-.154	-.127
	0.3%	-.275*	.006	.000	-.288	-.261
0.2%	0.1%	.140*	.006	.000	.127	.154
	0.3%	-.134*	.006	.000	-.148	-.121
0.3%	0.1%	.275*	.006	.000	.261	.288
	0.2%	.134*	.006	.000	.121	.148

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: Asam

(I) Acetobacter	(J) Acetobacter	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
5%	10%	-.128*	.006	.000	-.141	-.115
	15%	-.252*	.006	.000	-.266	-.239
10%	5%	.128*	.006	.000	.115	.141
	15%	-.124*	.006	.000	-.138	-.111
15%	5%	.252*	.006	.000	.239	.266
	10%	.124*	.006	.000	.111	.138

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: Asam

(I) Waktu	(J) Waktu	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-.756*	.005	.000	-.765	-.746
	3	-1.206*	.005	.000	-1.217	-1.195
2	1	.756*	.005	.000	.746	.765
	3	-.450*	.005	.000	-.462	-.439
3	1	1.206*	.005	.000	1.195	1.217
	2	.450*	.005	.000	.439	.462

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: PH

(I) Yeast	(J) Yeast	Mean Difference (I- J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
0.1%	0.2%	.012*	.003	.000	.007	.018
	0.3%	.015*	.003	.000	.010	.021
0.2%	0.1%	-.012*	.003	.000	-.018	-.007
	0.3%	.003	.003	.260	-.002	.008
0.3%	0.1%	-.015*	.003	.000	-.021	-.010
	0.2%	-.003	.003	.260	-.008	.002

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: PH

(I) Acetobacter	(J) Acetobacter	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
5%	10%	.004	.003	.184	-.002	.009
	15%	.002	.003	.550	-.004	.007
10%	5%	-.004	.003	.184	-.009	.002
	15%	-.002	.003	.450	-.007	.003
15%	5%	-.002	.003	.550	-.007	.004
	10%	.002	.003	.450	-.003	.007

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: PH

(I) Waktu	(J) Waktu	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	.022*	.002	.000	.018	.025
	3	.046*	.002	.000	.043	.050
2	1	-.022*	.002	.000	-.025	-.018
	3	.025*	.002	.000	.021	.028
3	1	-.046*	.002	.000	-.050	-.043
	2	-.025*	.002	.000	-.028	-.021

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: Brix

(I) Yeast	(J) Yeast	Mean Difference (I- J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
0.1%	0.2%	.343*	.021	.000	.299	.386
	0.3%	.676*	.021	.000	.632	.719
0.2%	0.1%	-.343*	.021	.000	-.386	-.299
	0.3%	.333*	.021	.000	.290	.377
0.3%	0.1%	-.676*	.021	.000	-.719	-.632
	0.2%	-.333*	.021	.000	-.377	-.290

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: Brix

(I) Acetobacter	(J) Acetobacter	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
5%	10%	-.156*	.021	.000	-.199	-.112
	15%	-.259*	.021	.000	-.303	-.216
10%	5%	.156*	.021	.000	.112	.199
	15%	-.104*	.021	.000	-.147	-.060
15%	5%	.259*	.021	.000	.216	.303
	10%	.104*	.021	.000	.060	.147

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Measure: Brix

(I) Waktu	(J) Waktu	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	.565*	.012	.000	.539	.590
	3	1.148*	.011	.000	1.125	1.171
2	1	-.565*	.012	.000	-.590	-.539
	3	.583*	.011	.000	.559	.607
3	1	-1.148*	.011	.000	-1.171	-1.125
	2	-.583*	.011	.000	-.607	-.559

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Lampiran 13. Rancangan Alat Destilasi



Lampiran 14. Sampel Hasil Titrasi



Lampiran 15. Preparasi Sampel untuk Uji Total Asam, pH, dan Brix

