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LAMPIRAN

Lampiran 1a. Tabel Hasil Pengujian Pengaruh Lama Inkubasi Terhadap Rendemen (%) VCO

Lama Inkubasi (Jam)	Ulangan 1	Ulangan 2	Rata-rata
2	33,98	32,57	33,28
4	35,38	37,72	36,55
6	34,70	35,52	35,11
8	38,65	35,26	36,95
10	37,40	37,09	37,25

Lampiran 1b. Hasil Uji ANOVA Pengaruh Lama Inkubasi Terhadap Rendemen (%) VCO

Rendemen

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21.685	4	5.421	2.746	.149
Within Groups	9.873	5	1.975		
Total	31.558	9			

Lampiran 1c. Hasil Uji Lanjut Pengaruh Lama Inkubasi Terhadap Nilai Rendemen (%) VCO

Duncan

Lama_inkubasi	N	Subset for alpha = 0.05	
		1	2
2 jam	2	33.2750	
6 jam	2	35.1100	35.1100
4 jam	2	36.5450	36.5450
8 jam	2	36.9500	36.9500
10 jam	2		37.2550
Sig.		.054	.200

Means for groups in homogeneous subsets are displayed.

Lampiran 2a. Tabel Hasil Pengujian Pengaruh Lama Inkubasi Terhadap Derajat Kejernihan (%) VCO

Lama Inkubasi (Jam)	Ulangan 1	Ulangan 2	Rata-rata
2	94,8	94,3	94,55
4	95,7	95,2	95,45
6	94,3	93,7	94,00
8	93,3	95,4	94,35
10	93,7	95,0	94,35

Lampiran 2b. Hasil Uji ANOVA Pengaruh Lama Inkubasi Terhadap Derajat Kejernihan (%) VCO

Kejernihan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.384	4	.596	.856	.547
Within Groups	3.480	5	.696		
Total	5.864	9			

Lampiran 3a. Tabel Hasil Pengujian Pengaruh Lama Inkubasi Terhadap Nilai Asam Lemak Bebas (%) VCO

Lama Inkubasi (Jam)	Ulangan 1	Ulangan 2	Rata-rata
2	0,07	0,07	0,07
4	0,07	0,05	0,06
6	0,09	0,08	0,08
8	0,10	0,10	0,10
10	0,06	0,08	0,07

Lampiran 3b. Hasil Uji ANOVA Pengaruh Lama Inkubasi Terhadap Nilai Asam Lemak Bebas (%) VCO

ALB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.002	4	.000	5.444	.046
Within Groups	.000	5	.000		
Total	.002	9			

Lampiran 3c. Hasil Uji Lanjut Pengaruh Lama Inkubasi Terhadap Nilai Asam Lemak Bebas (%) VCO

Duncan

Lama_inkubasi	N	Subset for alpha = 0.05	
		1	2
4 jam	2	.0600	
2 jam	2	.0700	
10 jam	2	.0700	
6 jam	2	.0850	.0850
8 jam	2		.1000
Sig.		.053	.175

Means for groups in homogeneous subsets are displayed.

Lampiran 4a. Tabel Hasil Pengujian Pengaruh Lama Inkubasi Terhadap Nilai Bilangan Peroksida (mg ek/kg) VCO

Lama Inkubasi (Jam)	Ulangan 1	Ulangan 2	Rata-rata
2	0,4	0,4	0,4
4	0,6	0,4	0,5
6	0,7	0,6	0,65
8	0,8	0,8	0,8
10	0,6	0,8	0,7

Lampiran 4b. Hasil Uji ANOVA Pengaruh Lama Inkubasi Terhadap Nilai Bilangan Peroksida (mg ek/kg) VCO

Peroksida

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.204	4	.051	5.667	.042
Within Groups	.045	5	.009		
Total	.249	9			

Lampiran 4c. Hasil Uji Lanjut Pengaruh Lama Inkubasi Terhadap Nilai Bilangan Peroksida (mg ek/kg) VCO

Duncan

Lama_ inkubasi	N	Subset for alpha = 0.05		
		1	2	3
2 jam	2	.4000		
4 jam	2	.5000	.5000	
6 jam	2	.6500	.6500	.6500
10 jam	2		.7000	.7000
8 jam	2			.8000
Sig.		.051	.096	.185

Means for groups in homogeneous subsets are displayed.

Lampiran 5a. Tabel Hasil Pengujian Pengaruh Lama Inkubasi Terhadap Nilai Bilangan Iod (g iod/100g) VCO

Lama Inkubasi (Jam)	Ulangan 1	Ulangan 2	Rata-rata
2	7,36	5,08	6,22
4	8,12	5,84	6,98
6	8,12	8,63	8,37
8	7,60	8,63	8,12
10	6,59	5,84	6,22

Lampiran 5b. Hasil Uji ANOVA Pengaruh Lama Inkubasi Terhadap Nilai Bilangan Iod (g iod/100g) VCO

Iod

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.409	4	2.102	1.706	.284
Within Groups	6.163	5	1.233		
Total	14.572	9			

Lampiran 6a. Tabel Hasil Pengujian Pengaruh Lama Inkubasi Terhadap Nilai Bilangan Penyabunan (mg KOH/g minyak) VCO

Lama Inkubasi (Jam)	Ulangan 1	Ulangan 2	Rata-rata
2	258,62	249,64	254,13
4	259,74	242,91	251,33
6	254,13	248,52	251,33
8	261,43	249,64	255,53
10	252,45	242,91	247,68

Lampiran 6b. Hasil Uji ANOVA Pengaruh Lama Inkubasi Terhadap Nilai Bilangan Penyabunan (mg KOH/g minyak) VCO

Penyabunan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	73.218	4	18.304	.293	.871
Within Groups	312.698	5	62.540		
Total	385.915	9			

Lampiran 7a. Tabel Hasil Pengujian Pengaruh Lama Inkubasi Terhadap Nilai Kadar Air (%) VCO

Lama Inkubasi (Jam)	Ulangan 1	Ulangan 2	Rata-rata
2	0,46	0,17	0,31
4	0,15	0,21	0,18
6	0,11	0,13	0,12
8	0,04	0,07	0,05
10	0,10	0,06	0,08

Lampiran 7b. Hasil Uji ANOVA Pengaruh Lama Inkubasi Terhadap Nilai Kadar Air (%) VCO

Kadar_air

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.086	4	.021	2.370	.185
Within Groups	.045	5	.009		
Total	.131	9			

Lampiran 7c. Hasil Uji Lanjut Pengaruh Lama Inkubasi Terhadap Nilai Kadar Air (%) VCO

Duncan

Lama_inkubasi	N	Subset for alpha = 0.05	
		1	2
8 jam	2	.0550	
10 jam	2	.0800	.0800
6 jam	2	.1200	.1200
4 jam	2	.1800	.1800
2 jam	2		.3150
Sig.		.259	.064

Means for groups in homogeneous subsets are displayed.

Lampiran 8a. Tabel Hasil Pengujian Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap Rendemen (%) VCO

Penggunaan Berulang (Ke-)	Ulangan 1	Ulangan 2	Rata-rata
1	42,02	40,98	41,50
2	37,35	32,61	34,98
3	33,39	30,65	32,02
4	35,31	32,32	33,81
5	28,69	30,68	29,69
6	22,27	16,27	19,27
7	18,31	13,02	15,67
8	18,06	19,02	18,54

Lampiran 8b. Hasil Uji ANOVA Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap Rendemen (%) VCO

Rendemen

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1202.845	7	171.835	25.252	.000
Within Groups	54.439	8	6.805		
Total	1257.284	15			

Lampiran 8c. Hasil Uji Lanjut Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap Rendemen (%) VCO

Duncan

Penggunaan_ Berulang	N	Subset for alpha = 0.05		
		1	2	3
Penggunaan ke-7	2	15.6650		
Penggunaan ke-8	2	18.5400		
Penggunaan ke-6	2	19.2700		
Penggunaan ke-5	2		29.6900	
Penggunaan ke-3	2		32.0250	
Penggunaan ke-4	2		33.8150	
Penggunaan ke-2	2		34.9800	
Penggunaan ke-1	2			41.5000
Sig.		.222	.093	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 9a. Tabel Hasil Pengujian Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap *Initial Activity* (%) Enzim

Penggunaan Berulang (Ke-)	Ulangan 1	Ulangan 2	Rata-rata
1	100,0	100,0	100,0
2	88,88	79,58	84,23
3	79,48	74,79	77,14
4	84,04	78,86	81,45
5	68,30	74,86	71,58
6	53,01	39,69	46,35
7	43,58	30,99	37,29
8	42,97	46,42	44,70

Lampiran 9b. Hasil Uji ANOVA Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap *Initial Activity* (%) Enzim

Initial_activity

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7039.267	7	1005.610	30.578	.000
Within Groups	263.093	8	32.887		
Total	7302.360	15			

Lampiran 9c. Hasil Uji Lanjut Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap *Initial Activity* (%) Enzim

Duncan

Penggunaan_ Berulang	N	Subset for alpha = 0.05		
		1	2	3
Penggunaan ke-7	2	37.2850		
Penggunaan ke-8	2	44.6950		
Penggunaan ke-6	2	46.3500		
Penggunaan ke-5	2		71.5800	
Penggunaan ke-3	2		77.1350	
Penggunaan ke-4	2		81.4500	
Penggunaan ke-2	2		84.2300	
Penggunaan ke-1	2			1.0000E2
Sig.		.168	.072	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 10a. Tabel Hasil Pengujian Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap Derajat Kejernihan (%) VCO

Penggunaan Berulang (Ke-)	Ulangan 1	Ulangan 2	Rata-rata
1	97,5	98,6	98,05
2	98,9	99,4	99,15
3	96,8	99,1	97,95
4	98,5	95,8	97,15
5	93,8	95,6	94,70
6	96,0	96,4	96,20
7	95,4	96,8	96,10
8	92,5	92,5	92,35

Lampiran 10b. Hasil Uji ANOVA Pengaruh Penggunaan Berulang Enzim Terimobilisasi Secara Kovalen Terhadap Derajat Kejernihan (%) VCO

Kejernihan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	63.718	7	9.103	7.326	.006
Within Groups	9.940	8	1.242		
Total	73.658	15			

Lampiran 10c. Hasil Uji Lanjut Pengaruh Penggunaan Berulang Enzim Terimobilisasi Secara Kovalen Terhadap Derajat Kejernihan (%) VCO

Duncan

Penggunaan_ Berulang	N	Subset for alpha = 0.05			
		1	2	3	4
Penggunaan ke-8	2	92.3500			
Penggunaan ke-5	2	94.7000	94.7000		
Penggunaan ke-7	2		96.1000	96.1000	
Penggunaan ke-6	2		96.2000	96.2000	
Penggunaan ke-4	2		97.1500	97.1500	97.1500
Penggunaan ke-3	2			97.9500	97.9500
Penggunaan ke-1	2			98.0500	98.0500
Penggunaan ke-2	2				99.0000
Sig.		.068	.073	.142	.157

Means for groups in homogeneous subsets are displayed.

Lampiran 11a. Tabel Hasil Pengujian Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap Nilai Asam Lemak Bebas (%) VCO

Penggunaan Berulang (Ke-)	Ulangan 1	Ulangan 2	Rata-rata
1	0,02	0,04	0,030
2	0,02	0,03	0,025
3	0,03	0,03	0,030
4	0,02	0,01	0,015
5	0,02	0,02	0,020
6	0,08	0,10	0,090
7	0,20	0,20	0,200
8	0,16	0,10	0,130

Lampiran 11b. Hasil Uji ANOVA Pengaruh Penggunaan Berulang Enzim Terimobilisasi Secara Kovalen Terhadap Nilai Asam Lemak Bebas (%) VCO

ALB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.063	7	.009	31.404	.000
Within Groups	.002	8	.000		
Total	.066	15			

Lampiran 11c. Hasil Uji Lanjut Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap Nilai Asam Lemak Bebas (%) VCO

Duncan

Penggunaan_ Berulang	N	Subset for alpha = 0.05			
		1	2	3	4
Penggunaan ke-4	2	.0150			
Penggunaan ke-5	2	.0200			
Penggunaan ke-2	2	.0250			
Penggunaan ke-1	2	.0300			
Penggunaan ke-3	2	.0300			
Penggunaan ke-6	2		.0900		
Penggunaan ke-8	2			.1300	
Penggunaan ke-7	2				.2000
Sig.		.431	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 12a. Tabel Hasil Pengujian Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap Nilai Bilangan Peroksida (mg ek/kg) VCO

Penggunaan Berulang (Ke-)	Ulangan 1	Ulangan 2	Rata-rata
1	0,4	0,4	0,4
2	0,6	0,6	0,6
3	0,4	0,4	0,4
4	0,6	0,4	0,5
5	0,4	0,4	0,4
6	0,6	0,4	0,5
7	0,4	0,4	0,4
8	0,4	0,6	0,5

Lampiran 12b. Hasil Uji ANOVA Pengaruh Penggunaan Berulang Enzim yang Terimobilisasi Secara Kovalen Terhadap Nilai Bilangan Peroksida (mg ek/kg) VCO

Peroksida

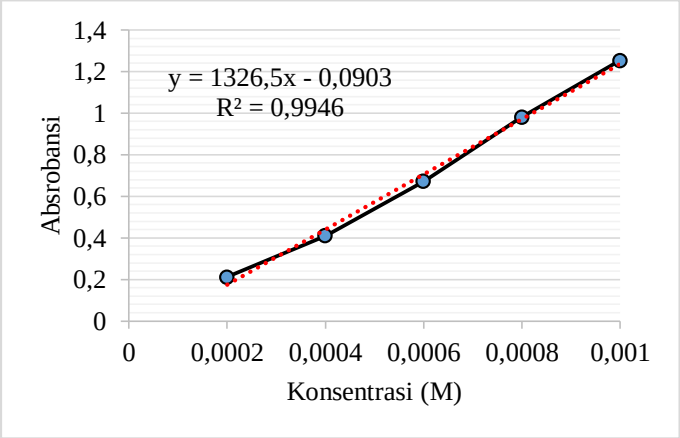
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.077	7	.011	1.476	.297
Within Groups	.060	8	.007		
Total	.137	15			

Lampiran 13a. Tabel Hasil Pengujian Aktivitas Enzim (U/g enzim) pada Enzim Papain Bebas, Enzim Papain Imobililisasi, dan Enzim Papain Penggunaan Ke-8

Jenis Enzim	Ulangan 1	Ulangan 2	Rata-rata
Enzim papain bebas	2967,06	2977,99	2972,53
Enzim papain imobilisasi	3167,39	3103,65	3135,53
Enzim papain imobilisasi penggunaan ke-8	3089,08	3012,59	3050,84

Lampiran 13b. Hasil Perhitungan Aktivitas Enzim (U/g enzim) pada Enzim Papain Bebas, Enzim Papain Imobililisasi, dan Enzim Papain Imobilisasi Penggunaan Ke-8

1. Kurva Standar L-Tirosin



Konsentrasi (M)	Absorbansi
0,0010	1,253
0,0008	0,981
0,0006	0,672
0,0004	0,410
0,0002	0,212

2. Hasil Pengukuran Absorbansi pada Sampel Enzim

Jenis Enzim	Ulangan	Absorbansi (y)
Enzim papain bebas	1	3,168
	2	3,180
Enzim papain imobilisasi	1	3,388
	2	3,318
Enzim papain imobilisasi penggunaan ke-8	1	3,302
	2	3,218

3. Perhitungan Aktivitas Enzim

- **Enzim papain bebas ulangan 1**

$$\text{Konsentrasi Tirosin (M)/x} = \frac{y+0{,}0903}{1326{,}5} = \frac{3{,}168+0{,}0903}{1326{,}5} = 0{,}00245\text{M} = 4450{,}59\mu\text{g}$$

$$\text{Aktivitas Enzim (U)} = \frac{\text{Massa tirosin (µg)}}{\text{Waktu reaksi (menit)}} = \frac{4450{,}59}{30} = 148{,}35\text{U}$$

$$\text{Aktivitas Enzim (U/g Enzim)} = \frac{\text{U}}{\text{Massa Enzim (gram)}} = \frac{148{,}35}{0{,}05} = \mathbf{2967{,}06\ U/g}$$

- **Enzim papain bebas ulangan 2**

$$\text{Konsentrasi Tirosin (M)/x} = \frac{y+0{,}0903}{1326{,}5} = \frac{3{,}180+0{,}0903}{1326{,}5} = 0{,}00246\text{M} = 4466{,}98\mu\text{g}$$

$$\text{Aktivitas Enzim (U)} = \frac{\text{Massa tirosin (µg)}}{\text{Waktu reaksi (menit)}} = \frac{4466{,}98}{30} = 148{,}89\text{U}$$

$$\text{Aktivitas Enzim (U/g Enzim)} = \frac{\text{U}}{\text{Massa Enzim (gram)}} = \frac{148{,}89}{0{,}05} = \mathbf{2977{,}99\ U/g}$$

- **Enzim papain imobilisasi ulangan 1**

Konsentrasi Tirosin (M)/x $= \frac{y+0,0903}{1326,5} = \frac{3,388+0,0903}{1326,5} = 0,00262\text{M} = 4751,09\mu\text{g}$

Aktivitas Enzim (U) $= \frac{\text{Massa tirosin } (\mu\text{g})}{\text{Waktu reaksi (menit)}} = \frac{4751,09}{30} = 158,36\text{U}$

Aktivitas Enzim (U/g Enzim) $= \frac{\text{U}}{\text{Massa Enzim (gram)}} = \frac{158,36}{0,05} = \mathbf{3167,39\ U/g}$

- **Enzim papain imobilisasi ulangan 2**

Konsentrasi Tirosin (M)/x $= \frac{y+0,0903}{1326,5} = \frac{3,318+0,0903}{1326,5} = 0,00256\text{M} = 4655,48\mu\text{g}$

Aktivitas Enzim (U) $= \frac{\text{Massa tirosin } (\mu\text{g})}{\text{Waktu reaksi (menit)}} = \frac{4655,48}{30} = 155,18\text{U}$

Aktivitas Enzim (U/g Enzim) $= \frac{\text{U}}{\text{Massa Enzim (gram)}} = \frac{155,18}{0,05} = \mathbf{3103,65\ U/g}$

- **Enzim papain imobilisasi penggunaan ke-8 ulangan 1**

Konsentrasi Tirosin (M)/x $= \frac{y+0,0903}{1326,5} = \frac{3,302+0,0903}{1326,5} = 0,00255\text{M} = 4633,62\mu\text{g}$

Aktivitas Enzim (U) $= \frac{\text{Massa tirosin } (\mu\text{g})}{\text{Waktu reaksi (menit)}} = \frac{4633,62}{30} = 154,45\text{U}$

Aktivitas Enzim (U/g Enzim) $= \frac{\text{U}}{\text{Massa Enzim (gram)}} = \frac{154,45}{0,05} = \mathbf{3089,08\ U/g}$

- **Enzim papain imobilisasi penggunaan ke-8 ulangan 2**

Konsentrasi Tirosin (M)/x $= \frac{y+0,0903}{1326,5} = \frac{3,218+0,0903}{1326,5} = 0,00249\text{M} = 4518,89\mu\text{g}$

Aktivitas Enzim (U) $= \frac{\text{Massa tirosin } (\mu\text{g})}{\text{Waktu reaksi (menit)}} = \frac{4518,89}{30} = 150,62\text{U}$

Aktivitas Enzim (U/g Enzim) $= \frac{\text{U}}{\text{Massa Enzim (gram)}} = \frac{150,62}{0,05} = \mathbf{3012,59\ U/g}$

Lampiran 14. Hasil Analisa FT-IR

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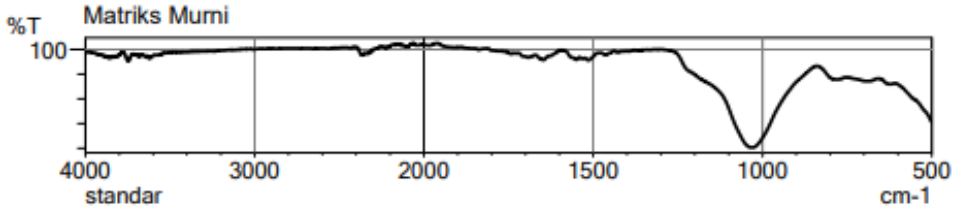

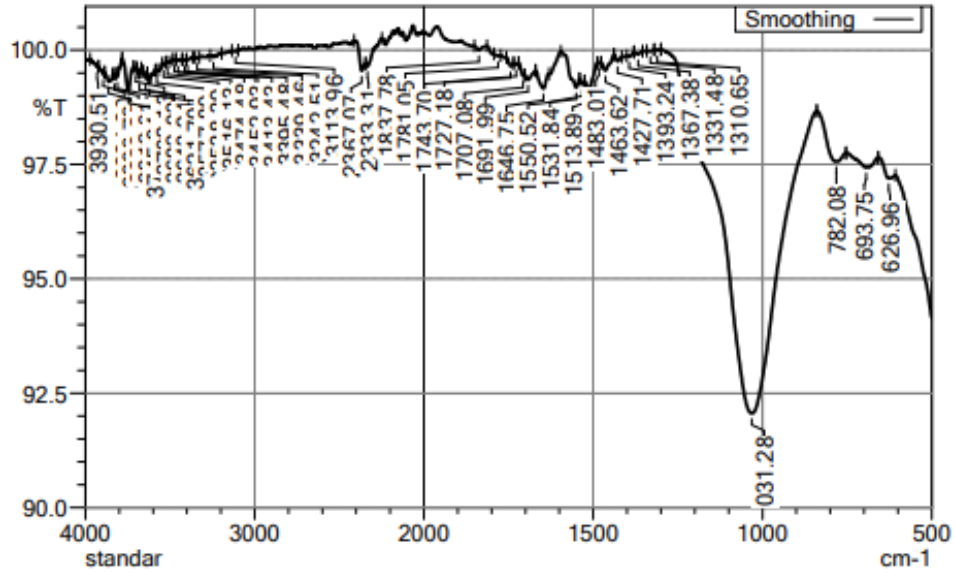

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standar

	Item	Value
2	Sample name	Enzim
3	Sample ID	
4	Option	
5	Intensity Mode	%Transmittance
6	Apodization	Happ-Genzel
9	No. of Scans	32
10	Resolution	2 cm-1

	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area	Comment
1	626.96	97.20	0.22	657.84	607.57	132.748	5.119	
2	693.75	97.43	0.26	753.35	657.84	231.959	12.649	
3	782.08	97.57	0.49	839.53	753.35	178.120	23.972	
4	1031.28	92.06	7.17	1299.88	839.53	1665.998	1363.356	
5	1310.65	99.99	0.02	1319.27	1299.88	-0.062	0.187	
6	1331.48	99.97	0.03	1341.53	1319.27	0.343	0.287	
7	1367.38	99.91	0.06	1379.59	1354.46	1.561	0.757	
8	1393.24	99.86	0.05	1401.14	1379.59	2.369	0.556	
9	1427.71	99.76	0.13	1438.48	1415.50	4.198	1.497	
10	1463.62	99.55	0.24	1476.54	1438.48	11.700	4.856	
11	1483.01	99.71	0.02	1487.32	1476.54	3.025	0.103	
12	1513.89	99.13	0.31	1525.38	1487.32	24.210	6.112	
13	1531.84	99.25	0.09	1540.46	1525.38	10.545	0.709	
14	1550.52	99.18	0.30	1595.04	1540.46	24.792	6.890	
15	1646.75	99.16	0.35	1670.45	1630.95	26.379	7.344	
16	1691.99	99.35	0.14	1702.77	1670.45	18.190	2.177	
17	1707.08	99.44	0.08	1720.00	1702.77	7.780	0.713	
18	1727.18	99.68	0.04	1735.08	1720.00	4.500	0.277	
19	1743.70	99.65	0.12	1755.91	1735.08	5.838	1.224	
20	1781.05	99.87	0.03	1793.25	1772.43	2.389	0.277	
21	1837.78	100.00	0.10	1850.71	1813.36	-1.900	1.571	
22	2333.31	99.65	0.12	2344.80	2247.85	3.702	2.125	
23	2367.07	99.55	0.33	2411.59	2344.80	8.758	6.011	
24	3113.96	99.97	0.02	3134.07	3097.44	0.658	0.470	
25	3242.51	99.85	0.05	3263.34	3195.83	7.683	1.427	
26	3339.46	99.83	0.02	3350.95	3326.53	3.961	0.215	
27	3395.48	99.78	0.02	3403.38	3366.03	7.152	0.378	
28	3413.43	99.78	0.01	3428.51	3403.38	5.331	0.172	
29	3452.93	99.77	0.03	3465.86	3428.51	8.021	0.492	
30	3474.48	99.78	0.02	3483.81	3465.86	3.727	0.139	
31	3516.13	99.72	0.02	3525.47	3506.08	5.212	0.162	
32	3538.39	99.67	0.06	3547.73	3525.47	6.695	0.604	
33	3577.89	99.54	0.02	3586.51	3567.84	8.414	0.226	
34	3621.70	99.27	0.24	3633.91	3586.51	26.650	4.146	
35	3643.24	99.39	0.13	3656.89	3633.91	12.493	1.369	
36	3682.03	99.39	0.22	3695.67	3669.82	12.984	2.840	
37	3702.13	99.56	0.06	3714.34	3695.67	7.507	0.514	
38	3745.94	99.10	0.62	3783.29	3714.34	37.219	18.444	
39	3812.01	99.42	0.15	3820.63	3783.29	15.612	2.589	
40	3829.25	99.39	0.10	3837.15	3820.63	9.366	0.807	
41	3863.72	99.31	0.19	3886.70	3837.15	30.288	5.349	
42	3894.60	99.47	0.08	3923.33	3886.70	16.545	1.267	
43	3930.51	99.63	0.04	3972.88	3923.33	14.350	0.747	

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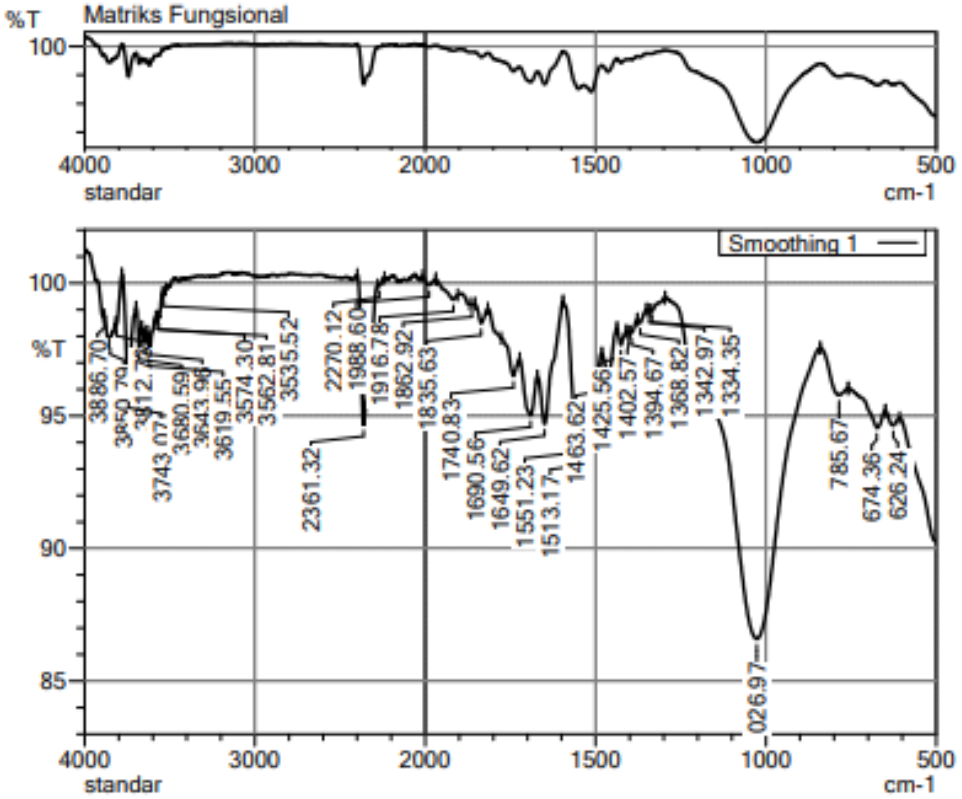

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standar

	Item	Value
2	Sample name	Enzim
3	Sample ID	
4	Option	
5	Intensity Mode	%Transmittance
6	Apodization	Happ-Genzel
9	No. of Scans	32
10	Resolution	2 cm-1

	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area	Comment
1	626.24	94.64	0.40	649.22	607.57	214.999	9.195	
2	674.36	94.54	0.85	758.38	649.22	508.505	29.885	
3	785.67	95.78	0.76	840.25	758.38	294.845	32.502	
4	1026.97	86.59	11.75	1295.57	840.25	2826.245	2148.392	
5	1334.35	98.97	0.05	1337.94	1295.57	33.213	0.295	
6	1342.97	98.96	0.03	1350.15	1337.94	12.481	0.228	
7	1368.82	98.50	0.24	1376.72	1350.15	34.134	2.869	
8	1394.67	98.13	0.13	1399.70	1376.72	38.409	1.522	
9	1402.57	98.14	0.02	1409.04	1399.70	17.185	0.124	
10	1425.56	97.67	0.58	1437.05	1409.04	56.752	7.698	
11	1463.62	96.43	1.30	1481.57	1437.05	124.516	27.765	
12	1513.17	93.64	2.03	1534.00	1481.57	258.380	46.314	
13	1551.23	94.06	1.82	1595.76	1534.00	234.070	44.750	
14	1649.62	94.70	2.60	1671.17	1595.76	248.772	90.134	
15	1690.56	95.01	1.72	1722.87	1671.17	216.809	52.114	
16	1740.83	96.50	0.90	1776.74	1722.87	150.736	17.807	
17	1835.63	98.49	0.65	1855.02	1816.24	45.228	11.629	
18	1862.92	99.17	0.05	1869.38	1855.02	11.538	0.325	
19	1916.78	99.38	0.29	1969.20	1904.57	20.035	10.544	
20	1988.60	99.93	0.27	2014.45	1969.20	-3.163	6.256	
21	2270.12	99.91	0.08	2278.73	2239.95	-1.014	1.379	
22	2361.32	94.67	2.96	2399.39	2337.62	191.294	76.511	
23	3535.52	99.57	0.11	3542.70	3523.31	6.860	0.885	
24	3562.81	98.69	0.29	3570.71	3542.70	26.761	3.657	
25	3574.30	98.72	0.01	3577.17	3570.71	8.259	0.045	
26	3619.55	97.31	1.01	3633.19	3583.64	97.605	20.484	
27	3643.96	97.77	0.46	3665.51	3633.19	62.601	6.249	
28	3680.59	97.57	1.12	3697.83	3665.51	57.708	16.167	
29	3743.07	95.75	4.01	3781.13	3697.83	161.376	136.581	
30	3812.73	98.46	0.26	3817.04	3781.13	27.057	5.941	
31	3850.79	97.77	0.12	3856.54	3817.04	74.765	1.366	
32	3886.70	98.75	0.04	3891.01	3883.11	9.729	0.128	

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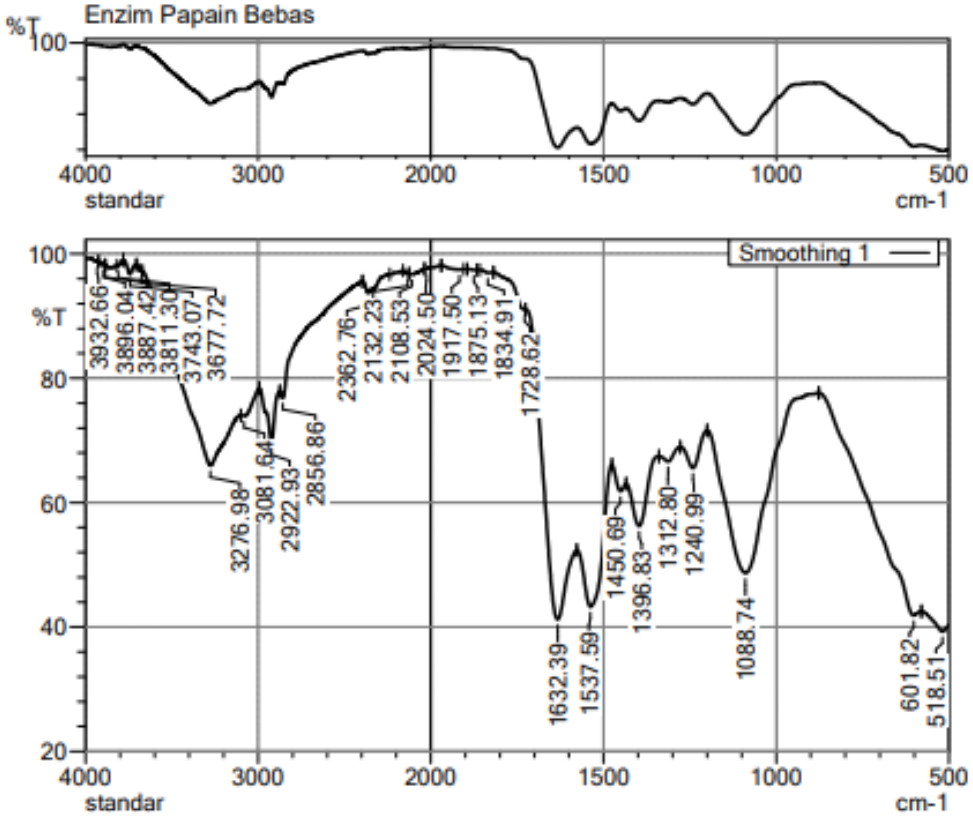


	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area	Comment
1	518.51	39.27	1.57	579.56	499.84	4722.450	53.288	
2	601.82	41.88	3.28	876.16	579.56	12073.497	230.892	
3	1088.74	48.69	24.99	1200.05	876.16	11356.034	3136.206	
4	1240.99	65.57	4.65	1277.61	1200.05	2469.560	165.748	
5	1312.80	66.63	1.49	1339.38	1277.61	2004.285	41.235	
6	1396.83	56.26	8.52	1434.17	1339.38	3644.951	351.096	
7	1450.69	61.84	2.42	1475.83	1434.17	1529.890	54.274	
8	1537.59	43.27	14.46	1577.09	1475.83	4985.712	858.614	
9	1632.39	41.24	25.54	1725.75	1577.09	5948.337	1745.891	
10	1728.62	91.07	0.20	1818.39	1725.75	483.899	-64.828	
11	1834.91	96.95	0.26	1857.89	1818.39	113.195	4.322	
12	1875.13	97.41	0.07	1894.52	1867.23	68.655	0.583	
13	1917.50	97.49	0.19	1969.92	1904.57	150.912	10.401	
14	2024.50	97.59	0.13	2036.71	1969.92	146.808	5.155	
15	2108.53	96.75	0.22	2126.48	2036.71	264.575	14.525	
16	2132.23	96.79	0.10	2160.24	2126.48	101.215	1.940	
17	2362.76	93.73	2.12	2395.79	2237.80	739.116	134.234	
18	2856.86	76.92	1.65	2874.81	2395.79	5102.882	-1238.566	
19	2922.93	69.62	8.46	2994.02	2874.81	3013.740	406.411	
20	3081.64	73.97	0.79	3099.59	2994.02	2578.179	64.203	
21	3276.98	65.99	15.23	3671.97	3099.59	12431.566	4212.297	
22	3677.72	97.21	0.27	3699.26	3671.97	63.688	3.061	
23	3743.07	96.74	1.88	3781.13	3709.32	155.314	58.258	
24	3811.30	98.11	0.19	3817.76	3781.13	54.637	3.459	
25	3887.42	98.18	0.02	3890.29	3883.11	12.973	0.075	
26	3896.04	98.18	0.12	3923.33	3890.29	51.437	1.813	
27	3932.66	98.79	0.04	4000.17	3928.36	63.903	-4.477	

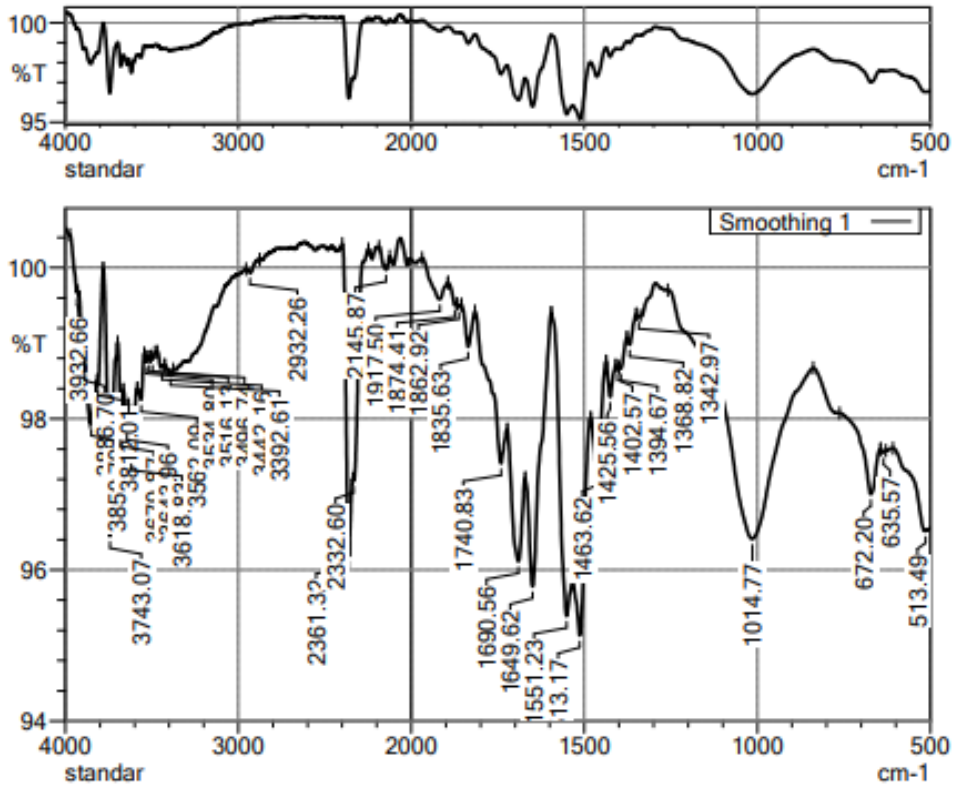
C:¥LabSolutions¥LabSolutionsIR¥Data ¥20230728 – Nisa4.ispd

standar

	Item	Value
2	Sample name	Enzim
3	Sample ID	
4	Option	
5	Intensity Mode	%Transmittance
6	Apodization	Happ-Genzel
9	No. of Scans	32
10	Resolution	2 cm-1

SHIMADZU

Enzim Papain Imobilisasi



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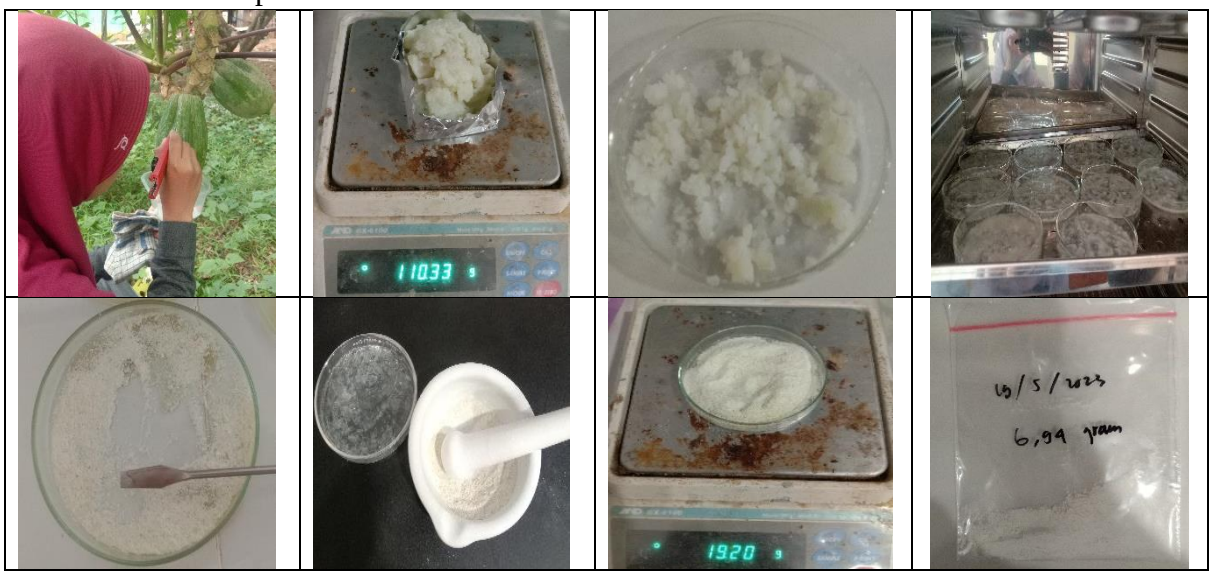
standar

	Item	Value
2	Sample name	Enzim
3	Sample ID	
4	Option	
5	Intensity Mode	%Transmittance
6	Apodization	Happ-Genzel
9	No. of Scans	32
10	Resolution	2 cm-1

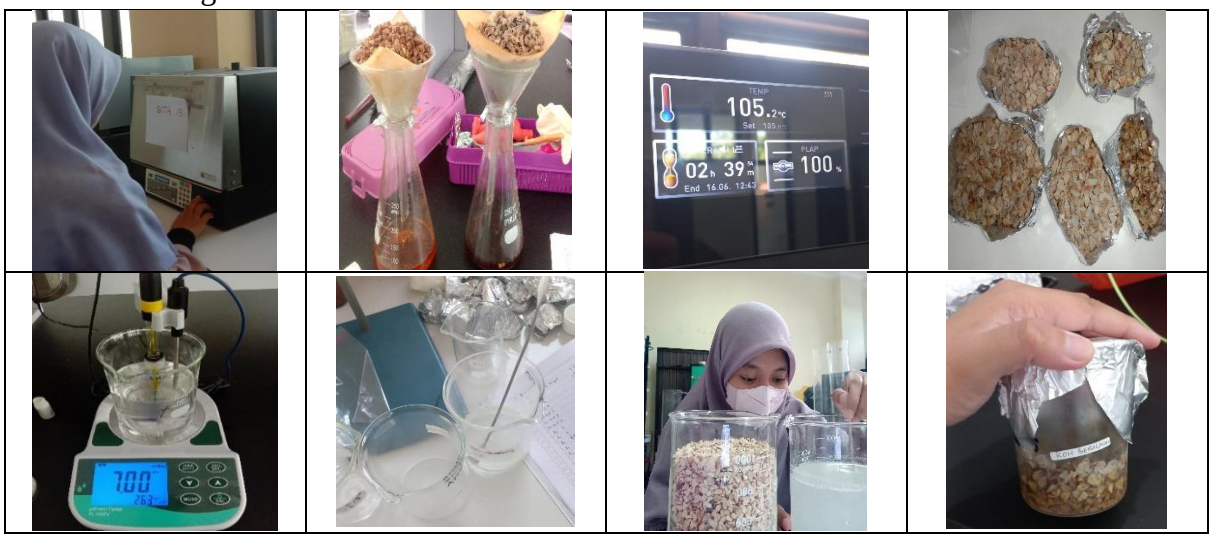
	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area	Comment
1	513.49	96.52	0.17	608.28	499.84	314.490	-2.022	
2	635.57	97.55	0.04	644.19	628.39	38.326	0.252	
3	672.20	97.00	0.71	762.69	644.19	277.824	21.736	
4	1014.77	96.41	2.70	1258.94	838.82	798.916	458.729	
5	1342.97	99.35	0.02	1350.15	1337.94	7.778	0.160	
6	1368.82	98.98	0.19	1376.72	1350.15	22.641	2.224	
7	1394.67	98.67	0.10	1399.70	1376.72	26.926	1.195	
8	1402.57	98.67	0.02	1409.04	1399.70	12.281	0.097	
9	1425.56	98.29	0.45	1437.05	1409.04	41.349	5.879	
10	1463.62	97.28	1.03	1481.57	1437.05	94.044	22.159	
11	1513.17	95.13	1.57	1534.00	1481.57	197.005	35.691	
12	1551.23	95.39	1.44	1595.76	1534.00	183.061	36.055	
13	1649.62	95.78	2.06	1671.17	1595.76	197.901	70.459	
14	1690.56	96.11	1.34	1722.87	1671.17	168.123	40.776	
15	1740.83	97.41	0.75	1816.24	1722.87	154.573	27.384	
16	1835.63	98.96	0.51	1855.74	1816.24	30.467	9.242	
17	1862.92	99.48	0.03	1868.66	1855.74	6.480	0.190	
18	1874.41	99.50	0.08	1893.80	1868.66	8.987	0.468	
19	1917.50	99.58	0.32	1968.49	1893.80	15.768	13.272	
20	2145.87	99.98	0.22	2186.81	2124.33	-5.555	7.911	
21	2332.60	97.18	0.24	2339.06	2248.57	80.778	-34.580	
22	2361.32	96.19	2.16	2399.39	2339.06	129.797	55.037	
23	2932.26	99.94	0.08	2955.96	2876.25	-1.538	2.140	
24	3392.61	98.60	0.07	3425.64	3376.09	67.032	1.749	
25	3442.16	98.68	0.10	3468.01	3425.64	53.494	2.607	
26	3496.74	98.78	0.07	3507.51	3483.09	28.787	0.785	
27	3516.13	98.78	0.04	3525.47	3507.51	21.525	0.367	
28	3534.80	98.76	0.09	3544.14	3525.47	22.374	0.727	
29	3562.09	98.25	0.40	3584.36	3544.14	62.723	7.708	
30	3618.83	97.48	0.77	3633.19	3584.36	98.697	15.260	
31	3643.96	97.88	0.37	3665.51	3633.19	60.418	4.870	
32	3679.87	97.80	0.86	3697.83	3665.51	54.655	12.531	
33	3743.07	96.45	3.09	3781.13	3697.83	146.585	104.969	
34	3812.01	98.47	0.25	3817.04	3781.13	32.049	5.103	
35	3850.79	97.94	0.11	3857.26	3817.04	72.136	1.005	
36	3886.70	98.67	0.03	3890.29	3883.11	9.482	0.103	
37	3932.66	99.67	0.09	3974.32	3928.36	-1.650	1.239	

Lampiran 15. Dokumentasi Penelitian

Ekstraksi Enzim Papain Kasar



Imobilisasi dengan Metode Ikatan Kovalen

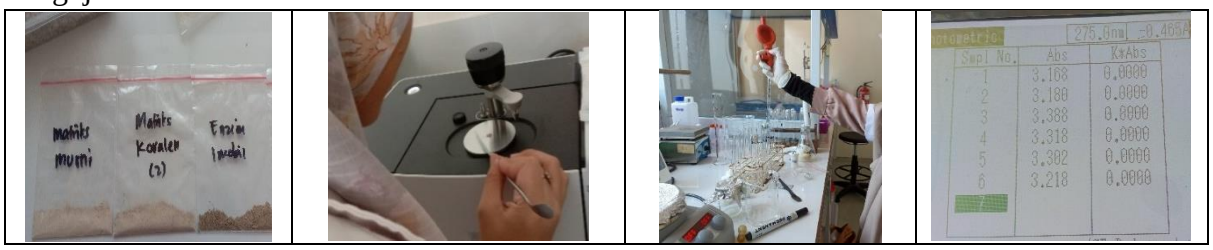


Penyiapan Santan

Penentuan Lama Waktu Inkubasi Terbaik pada Produksi VCO

Penentuan Efektivitas Penggunaan Berulang Enzim Papain Imobilisasi pada Produksi VCO

Pengujian Parameter



 395.0nm No. %T K*%T 1 79.4 0.0000 2 93.3 0.0000 3 90.1 0.0000 4 82.4 0.0000 5 85.4 0.0000 6 83.0 0.0000		 TEMP 105.2°C 02 h 39 m End 16.06. 12:43 FLAP 100 %	 Maks 100gr sartorius