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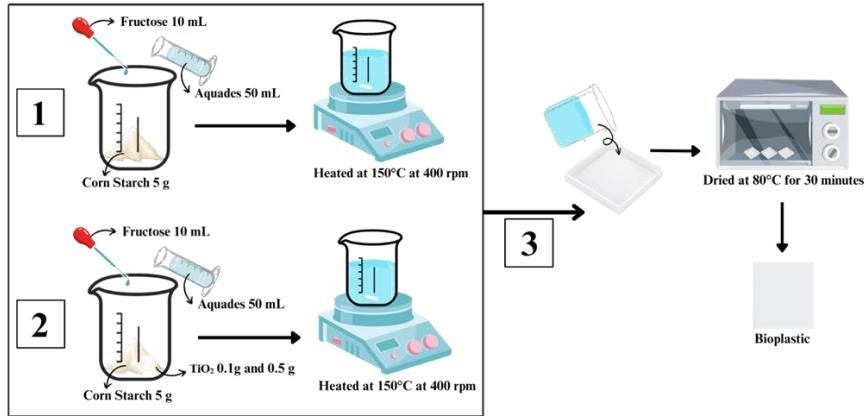
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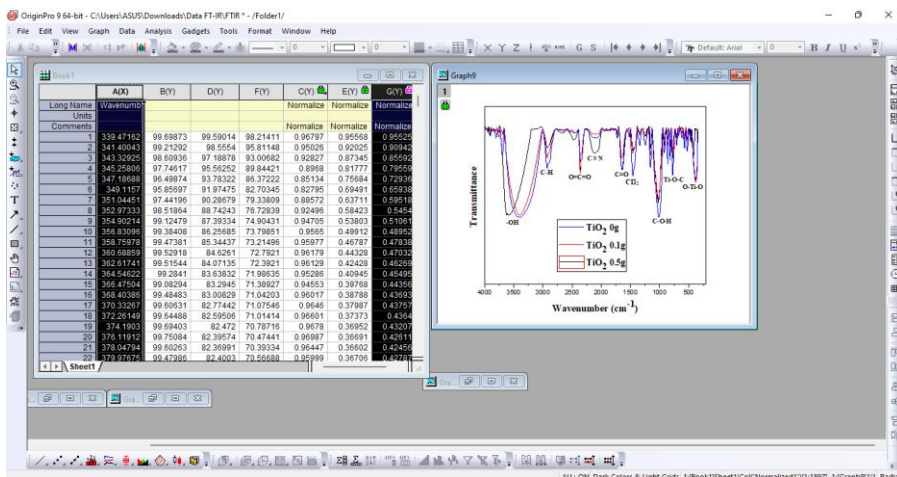
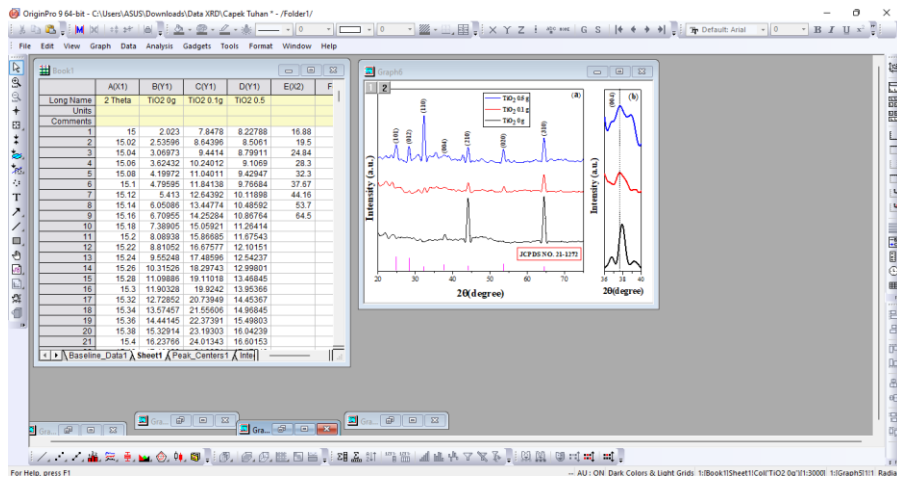
LAMPIRAN

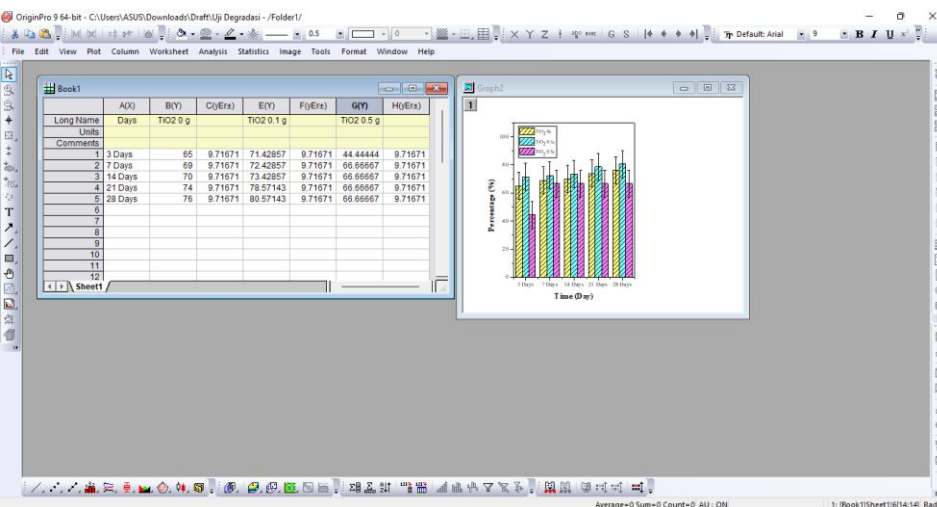
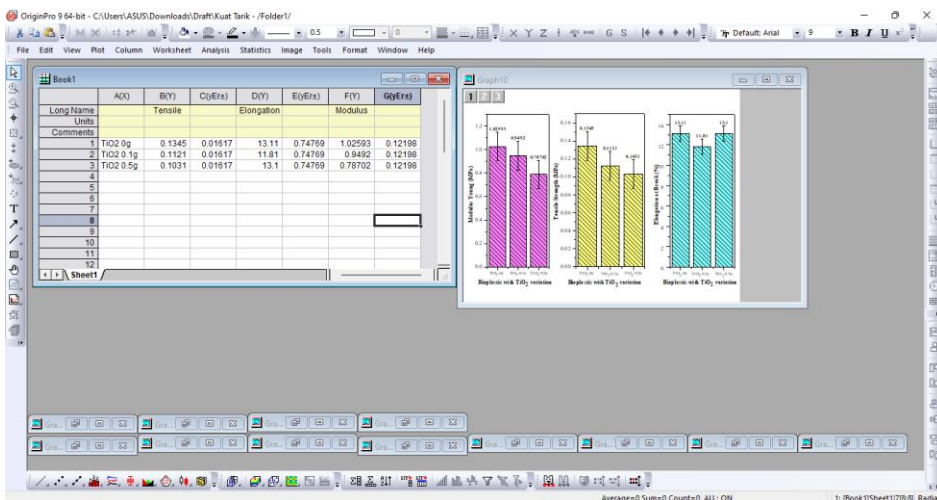
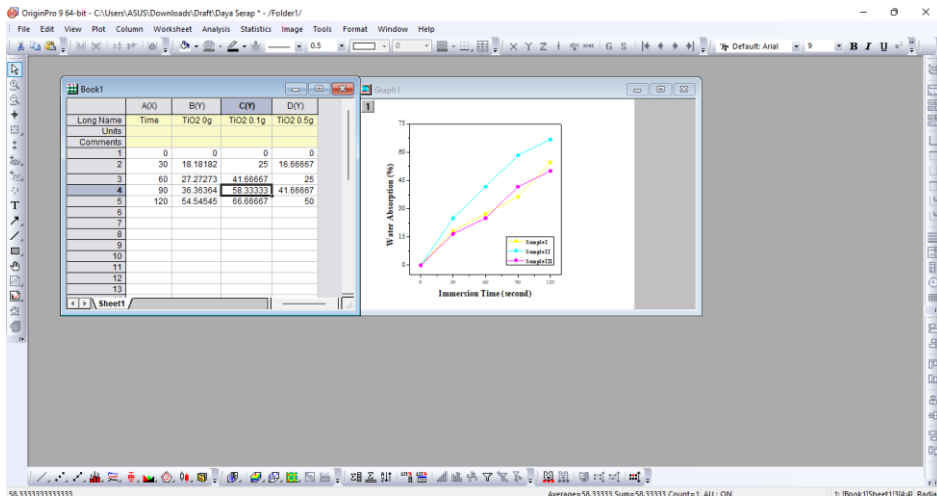
Lampiran 1. Prosedur Penelitian

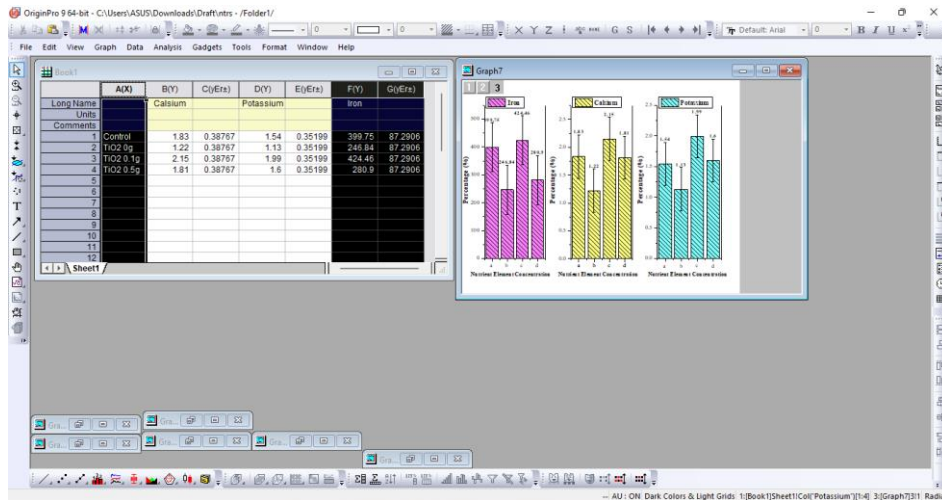
1. Prosedur Penelitian



Lampiran 2 Analisis Data







Lampiran 3 Hasil Perhitungan ukuran kristal pada Bioplastik

1 sampel	2 theta	FWHM	K	Lamda	Ukuran kristal	ukuran rata-rata	Dislocation Density	FWHM ractheta rad
(I)	16.16	0.25	0.9	0.15405	32.09369453		0.000970869	0.004363 0.141023
	44.0825	0.1792	0.9	0.15405	47.82438968	44.43409391	0.000437221	0.003128 0.384692
	37.8346	0.1573	0.9	0.15405	53.38419753		0.000350893	0.002745 0.330169
(II)	16.8133	1.4533	0.9	0.15405	5.525392756		0.000586328	0.025365 0.146724
	64.4158	0.5783	0.9	0.15405	16.23460975	12.5441778	0.003794166	0.010093 0.562134
	44.1167	0.54	0.9	0.15405	15.8725309		0.003969243	0.009425 0.384991
(III)	32.2921	0.1969	0.9	0.15405	42.00088656		0.013506038	0.000566869
	64.446	0.1849	0.9	0.15405	50.78439166	48.40046224	0.000387739	0.003437 0.281802
	44.0793	0.1635	0.9	0.15405	52.41610851		0.000363974	0.003227 0.562397
							0.000439528	0.002854 0.384664
Sampel	Ukuran Kristal (nm)	Dislocation Density	Band Gap					
(I)	44.43	0.00058						
(II)	12.54	0.0135						
(III)	48.4	0.00043						

Lampiran 4 Hasil Perhitungan Uji biodegradasi Bioplastik

A(X)	B(Y)	C(yEr±)	E(Y)	F(yEr±)	G(Y)	H(yEr±)
Days	TiO2 0 g		TiO2 0.1 g		TiO2 0.5 g	
3 Days	65	9.71671	71.42857	9.71671	44.44444	9.71671
7 Days	69	9.71671	72.42857	9.71671	66.66667	9.71671
14 Days	70	9.71671	73.42857	9.71671	66.66667	9.71671
21 Days	74	9.71671	78.57143	9.71671	66.66667	9.71671
28 Days	76	9.71671	80.57143	9.71671	66.66667	9.71671

Ket: W0 = Massa awal sebelum penguburan (gram)

W = Massa akhir setelah penguburan (gram)

1. Tanpa TiO₂

Dik: W0 = 0,20 gram

W → 3 hari = 0.07 gram, 7 hari = 0.06 gram, 14 hari = 0.06 gram, 21 hari = 0.03 gram, 28 hari = 0.03 gram.

Dit: *weight loss* (%)....?

Penyelesaian:

$$\begin{aligned} \text{weight loss (\%)} &= (W-W_0)/W_0 \times 100\% \\ &= (0.07-0,20)/ 0,20 \times 100\% = 65\% \text{ (3 hari)} \\ &= (0.06-0,20)/ 0,20 \times 100\% = 70\% \text{ (7 hari)} \\ &= (0.06-0,20)/ 0,20 \times 100\% = 70\% \text{ (14 hari)} \\ &= (0.03-0,20)/ 0,20 \times 100\% = 85\% \text{ (21 hari)} \\ &= (0.03-0,20)/ 0,20 \times 100\% = 85\% \text{ (28 hari)} \end{aligned}$$

2. TiO₂ 0.1g

Dik: W₀ = 0,12 gram

W → 3 hari = 0.04 gram, 7 hari = 0.04 gram, 14 hari = 0.04 gram, 21 hari = 0.03 gram, 28 hari = 0.03 gram.

Dit: *weight loss* (%)....?

Penyelesaian:

$$\begin{aligned} \text{weight loss (\%)} &= (W-W_0)/W_0 \times 100\% \\ &= (0.04 -0,14)/ 0,14 \times 100\% = 71.4\% \text{ (3 hari)} \\ &= (0.04 -0,14)/ 0,14 \times 100\% = 71.4\% \text{ (7 hari)} \\ &= (0.04 -0,14)/ 0,14 \times 100\% = 71.4\% \text{ (14 hari)} \\ &= (0.03-0,14)/ 0,14 \times 100\% = 78.5\% \text{ (21 hari)} \\ &= (0.03-0,14)/ 0,14 \times 100\% = 78.5\% \text{ (28 hari)} \end{aligned}$$

3. TiO₂ 0.5g

Dik: W₀ = 0,18 gram

W → 3 hari = 0.07 gram, 7 hari = 0.06 gram, 14 hari = 0.06 gram, 21 hari = 0.03 gram, 28 hari = 0.03 gram.

Dit: *weight loss* (%)....?

Penyelesaian:

$$\begin{aligned} \text{weight loss (\%)} &= (W-W_0)/W_0 \times 100\% \\ &= (0.10-0,18)/ 0,18 \times 100\% = 44.4\% \text{ (3 hari)} \\ &= (0.06-0,18)/ 0,18 \times 100\% = 66.7\% \text{ (7 hari)} \\ &= (0.06-0,18)/ 0,18 \times 100\% = 66.7\% \text{ (14 hari)} \\ &= (0.06-0,18)/ 0,18 \times 100\% = 66.7 \text{ (21 hari)} \\ &= (0.06-0,18)/ 0,18 \times 100\% = 66.7\% \text{ (28 hari)} \end{aligned}$$

Lampiran 5 Hasil Perhitungan Uji Ketahanan Terhadap Air pada Bioplastik

A(X)	B(Y)	C(Y)	D(Y)
Time	TiO2 0g	TiO2 0.1g	TiO2 0.5g
0	0	0	0
30	18.18182	25	16.66667
60	27.27273	41.66667	25
90	36.36364	58.33333	41.66667
120	54.54545	66.66667	50

Ket: M0 = Massa awal sebelum perendaman (gram)

M1 = Massa akhir setelah perendaman (gram)

1. Tanpa TiO₂

Dik: M0 = 0,11 gram

M1 → 30 detik = 0.13 gram, 60 detik = 0.14 gram, 90 detik = 0.15 gram, 120 detik = 0.17 gram.

Dit: Penyerapan air (%)....?

Penyelesaian:

Penyerapan air (%) = $(M1 - M0) / M0 \times 100\%$

$$= (0,13 - 0,11) / 0,11 \times 100\% = 18.18\% \text{ (30 detik)}$$

$$= (0,14 - 0,11) / 0,11 \times 100\% = 27.27\% \text{ (60 detik)}$$

$$= (0,15 - 0,11) / 0,11 \times 100\% = 36.36\% \text{ (90 detik)}$$

$$= (0,17 - 0,11) / 0,11 \times 100\% = 54.54\% \text{ (120 detik)}$$

2. TiO₂ 0.1g

Dik: M0 = 0,12 gram

M1 → 30 detik = 0,15 gram, 60 detik = 0,17 gram, 90 detik = 0,19 gram, 120 detik = 0,20 gram.

Dit: Penyerapan air (%)....?

Penyelesaian:

Penyerapan air (%) = $(M1 - M0) / M0 \times 100\%$

$$= (0,15 - 0,12) / 0,12 \times 100\% = 25\% \text{ (30 detik)}$$

$$= (0,17 - 0,12) / 0,12 \times 100\% = 41.66\% \text{ (60 detik)}$$

$$= (0,19 - 0,12) / 0,12 \times 100\% = 58.33\% \text{ (90 detik)}$$

$$= (0,20 - 0,12) / 0,12 \times 100\% = 66.66\% \text{ (120 detik)}$$

3. TiO₂ 0.5g

Dik: M₀ = 0,12 gram

M₁ → 30 detik = 0,14 gram, 60 detik = 0,15 gram, 90 detik = 0,17 gram, 120 detik = 0,18 gram.

Dit: Penyerapan air (%)....?

Penyelesaian:

Penyerapan air (%) = $(M_1 - M_0) / M_0 \times 100\%$

$$= (0,14 - 0,12) / 0,12 \times 100\% = 16.66\% \text{ (30 detik)}$$

$$= (0,15 - 0,12) / 0,12 \times 100\% = 25\% \text{ (60 detik)}$$

$$= (0,17 - 0,12) / 0,12 \times 100\% = 41.66\% \text{ (90 detik)}$$

$$= (0,18 - 0,12) / 0,12 \times 100\% = 50\% \text{ (120 detik)}$$

Lampiran 6 Hasil pengukuran Panjang Daun, Lebar Daun, dan Tinggi dari tanaman kacang hijau

Sampel	Panjang Daun (mm)					Lebar Daun (mm)					Panjang (mm)	Jml Daun
Kontrol	32.8		36.8			14.2		14.5			297	2
	39.5	34.1	11.6	9.3	7.9	10.8	10.7	2.3	1.7	3.8	275	5
	31.8	32.7	14.6	8.1		12.7	9.9	3.1	1.5		300	4
	5.8	7.0	2.2		1.5	1.3		2.4		280	3	
	30.7		14.5			7.9		6.8			100	2
(I)	17.7	35.4	16.4	13.5	10.2	11.3	11.9	7.7	5.9	4.6	301	1
(II)	42.2	38.1	24.3	14.7		11.2	12.1	8.1	5.1		301	8
	13.5	12.4	6.4	4.6		4.5	2.1	1.2	3.4			
	16.0		13.2			7.8		7.3			248	2
	34.2	36.1	15.6	12.9	14.9	14.9	15.9	15.2	14.5	13.1	320	5

	34.6	33.9	14.5	6.6	12.5	11.8	13.0	7.2	7.5	8.8	308	5
(III)	13.2	39.0	38.1	21.5	15.0	14.5	15.1	8.9	6.9	6.3	339	5
	29.5	17.3	13.2	13.2	12.5	14.7	13.5	7.9	5.9	6.6	303	5