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LAMPIRAN

LAMPIRAN A

Alat dan Bahan

1. Alat



Gambar 1. *Magnetic Stirrer*



Gambar 2. *Magnetic Bar*



Gambar 3. *Microwave*



Gambar 4. *Neraca Ohaus Digital*



Gambar 5. *Gelas Ukur 50 ml*



Gambar 6. *Gelas Kimia 500 ml*



Gambar 7. *Pipet Tetes*



Gambar 8. *Spatula*



Gambar 9. Cetakan



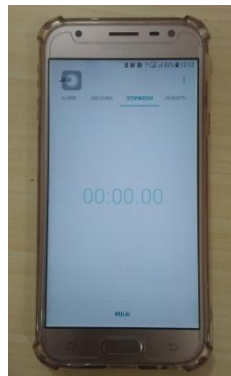
Gambar 10. Pinset



Gambar 11. Aluminium Foil



Gambar 12. Gunting



Gambar 13. Stopwatch



Gambar 14. Penggaris



Gambar 15. Cutter

2. Bahan



Gambar 16. Pati Singkong



Gambar 17. Serbuk ZnO



Gambar 18. Kitosan



Gambar 19. Aquades



Gambar 20. Asam Asetat



Gambar 21. Gliserin



Gambar 22. Asam Sulfat



Gambar 23. Tanah



Gambar 24. Pasir dan Air Laut



Gambar 25. Potongan Roti

LAMPIRAN B

Analisis Data

I. Pengujian Daya Serap

Adapun perhitungan persentase daya serap air, dirumuskan sebagai berikut:

$$\text{Daya serap (\%)} = \frac{\text{massa akhir} - \text{massa awal}}{\text{massa awal}} \times 100\%$$

I.1 Variasi PZ (Pati + ZnO)

Tabel 1. Pengukuran Massa Daya Serap Variasi Sampel PZ

Kode Sampel	Massa Awal	Jam Ke-									
		1	2	3	4	5	6	7	8	9	10
PZ	0.4873	0.7858	1.3053	2.2353	3.9303	6.9135	6.9135	6.9135	6.9125	6.9117	6.9107
PZ 1	0.5176	0.8191	1.3306	2.2211	3.7706	6.4058	6.4058	6.4058	6.3640	6.3638	6.3616
PZ 2	0.5299	0.8284	1.3299	2.1897	3.6721	6.1587	6.1587	6.1587	6.1575	6.1569	6.1552
PZ 3	0.5489	0.8489	1.3454	2.1891	3.6302	6.0211	6.0211	6.0211	6.0206	6.0194	6.0183
PZ 4	0.5601	0.8652	1.3589	2.1786	3.5625	5.8264	5.8264	5.8264	5.8254	5.8249	5.8236
PZ 5	0.5695	0.8688	1.3499	2.1461	3.4738	5.6237	5.6237	5.6237	5.6225	5.6216	5.6201

Tabel 2. Persentase Daya Serap Air Variasi Sampel PZ

Kode Sampel	Daya Serap Air (%)							
	1 jam	2 jam	3 jam	4 jam	5 jam	6 jam	7 jam	8 jam
PZ	61.2559	66.11097	71.247989	75.82875	75.9026	75.9026	75.9026	75.9026
PZ 1	58.24961	62.44659	66.924696	69.76273	69.88808	69.88808	69.88808	69.88808
PZ 2	56.33138	60.53839	64.651478	67.69877	67.71602	67.71602	67.71602	67.71602
PZ 3	54.65476	58.48745	62.709975	65.83071	65.86139	65.86139	65.86139	65.86139
PZ 4	54.47242	57.06195	60.320848	63.52245	63.54807	63.54807	63.54807	63.54807
PZ 5	52.55487	55.37523	58.982147	61.86571	61.889	61.889	61.889	61.889

I.2 Variasi PK (Pati + ZnO + Kitosan)

Tabel 3. Pengukuran Massa Daya Serap Variasi Sampel PK

Kode Sampel	Massa Awal	Jam Ke-									
		1	2	3	4	5	6	7	8	9	10
PK 1	0.6035	0.9532	1.5359	2.5450	4.2180	4.2180	4.2180	4.2169	4.2160	4.2151	
PK 2	0.6230	0.9671	1.5451	2.5270	4.1336	4.1336	4.1336	4.1327	4.1319	4.1308	
PK 3	0.6445	0.9902	1.5615	2.5263	4.0879	4.0879	4.0879	4.0870	4.0861	4.0855	
PK 4	0.6735	1.0371	1.6185	2.5798	4.1128	4.1128	4.1128	4.1120	4.1112	4.1109	
PK 5	0.6920	1.0479	1.6210	2.5561	4.0314	4.0314	4.0314	4.0306	4.0295	4.0287	

Tabel 4. Persentase Daya Serap Air Variasi Sampel PK

Kode Sampel	Daya Serap Air (%)						
	1 jam	2 jam	3 jam	4 jam	5 jam	6 jam	7 jam
PK 1	57.94532	61.13093	65.700892	65.73674	65.73674	65.73674	65.73674
PK 2	55.23274	59.76631	63.549285	63.57736	63.57736	63.57736	63.57736
PK 3	53.63848	57.69542	61.786744	61.81372	61.81372	61.81372	61.81372
PK 4	53.98664	56.06017	59.394501	59.42321	59.42321	59.42321	59.42321
PK 5	51.43064	54.69033	57.686613	57.71683	57.71683	57.71683	57.71683

II. Pengujian Biodegradasi Tanah

II.1 Variasi PZ (Pati + ZnO)

Tabel 5. Pengukuran Massa Biodegradasi Tanah Variasi Sampel PZ

Tanggal	Hari Ke-	Kode Sampel	Massa Awal	Massa Akhir
19/04/21	0	PZ	1.1225	1.1225
		PZ 1	1.2246	1.2246
		PZ 2	1.2741	1.2741
		PZ 3	1.3739	1.3739
		PZ 4	1.6738	1.6738
		PZ 5	1.6787	1.6787
26,27/04/21	7	PZ	1.1225	0.3515
		PZ 1	1.2246	0.8418
		PZ 2	1.2741	1.0608
		PZ 3	1.3739	1.0832
		PZ 4	1.6738	1.4553
		PZ 5	1.6787	1.4712
3,4/05/21	14	PZ	0.3515	0.1193
		PZ 1	0.8418	0.5830
		PZ 2	1.0608	0.7647
		PZ 3	1.0832	0.8003
		PZ 4	1.4553	1.1052
		PZ 5	1.4712	1.1283
10,11/05/21	21	PZ	0.1193	0.0205
		PZ 1	0.5830	0.1718
		PZ 2	0.7647	0.2419
		PZ 3	0.8003	0.2677
		PZ 4	1.1052	0.3902
		PZ 5	1.1283	0.4110
17,18/05/21	28	PZ	0.0205	0
		PZ 1	0.1718	0.0172
		PZ 2	0.2419	0.0291
		PZ 3	0.2677	0.0384
		PZ 4	0.3902	0.0597
		PZ 5	0.4110	0.0673

Adapun perhitungan persentase degradasi dirumuskan sebagai berikut:

$$\text{Biodegradasi Tanah (\%)} = \frac{\text{massa awal} - \text{massa akhir}}{\text{massa awal}} \times 100\%$$

Tabel 6. Persentase Biodegradasi Tanah Variasi Sampel PZ

Kode Sampel	Biodegradasi (%)			
	7 Hari	14 Hari	21 Hari	28 Hari
PZ	30.049751	66.059744	82.81642917	100
PZ 1	17.357157	30.743645	70.53173242	89.988359
PZ 2	16.741229	27.912896	68.36667974	87.970236
PZ 3	15.235934	26.117061	66.55004373	85.655585
PZ 4	13.054128	24.056895	64.694173	84.700154
PZ 5	12.360755	23.307504	63.57351768	83.625304

II.2 Variasi PK (Pati + ZnO + Kitosan)

Tabel 7. Pengukuran Massa Biodegradasi Tanah Variasi Sampel PK

Tanggal	Hari Ke-	Kode Sampel	Massa Awal	Massa Akhir
26/04/21	0	PK 1	1.7062	1.7062
		PK 2	1.7145	1.7145
		PK 3	1.7237	1.7237
		PK 4	1.7442	1.7442
		PK 5	1.7529	1.7529
3,4/05/21	7	PK 1	1.7062	1.0380
		PK 2	1.7145	1.1923
		PK 3	1.7237	1.2125
		PK 4	1.7442	1.2321
		PK 5	1.7529	1.2517
10,11/05/21	14	PK 1	1.0380	0
		PK 2	1.1923	0.1591
		PK 3	1.2125	0.1794
		PK 4	1.2321	0.1934
		PK 5	1.2517	0.211

17,18/05/21	21	PK 1	0	0
		PK 2	0.1591	0
		PK 3	0.1794	0.0069
		PK 4	0.1934	0.0091
		PK 5	0.211	0.0128

Tabel 8. Persentase Biodegradasi Tanah Variasi Sampel PK

Kode Sampel	Biodegradasi (%)		
	7 Hari	14 Hari	21 Hari
PK 0,1	39.1630524	100	100
PK 0,2	30.45785943	86.65604294	100
PK 0,3	29.65713291	85.20412371	96.15384615
PK 0,4	29.36016512	84.30322214	95.29472596
PK 0,5	28.59261795	83.14292562	93.93364929