

LAMPIRAN

Lampiran 1 Dokumentasi Penelitian

Pembuatan Bioaktivator



Bioaktivator MOL air cucian
beras dan sisa kecap botol



Bioaktivator EM4



Bioaktivator kombinasi
EM4 dan MOL

Pengumpulan bahan pengomposan



Pengambilan
sampah kertas



Sampah kertas
kardus bekas
kandang unggas



Pengambilan daun
kering



Daun kering
mangga



Pengambilan
sampah sayur



Sampah sayur



Pengambilan sisa
kecap botol



Penyaringan sisa
kecap botol

Proses pengomposan



Sampah sayur setelah dipotong



Daun kering mangga setelah dipotong



Sampah kertas setelah dihaluskan



Penimbangan sampah



Percampuran bahan pengomposan



Pengukuran pH, suhu dan kelembapan

Pengukuran kadar air



Penimbangan

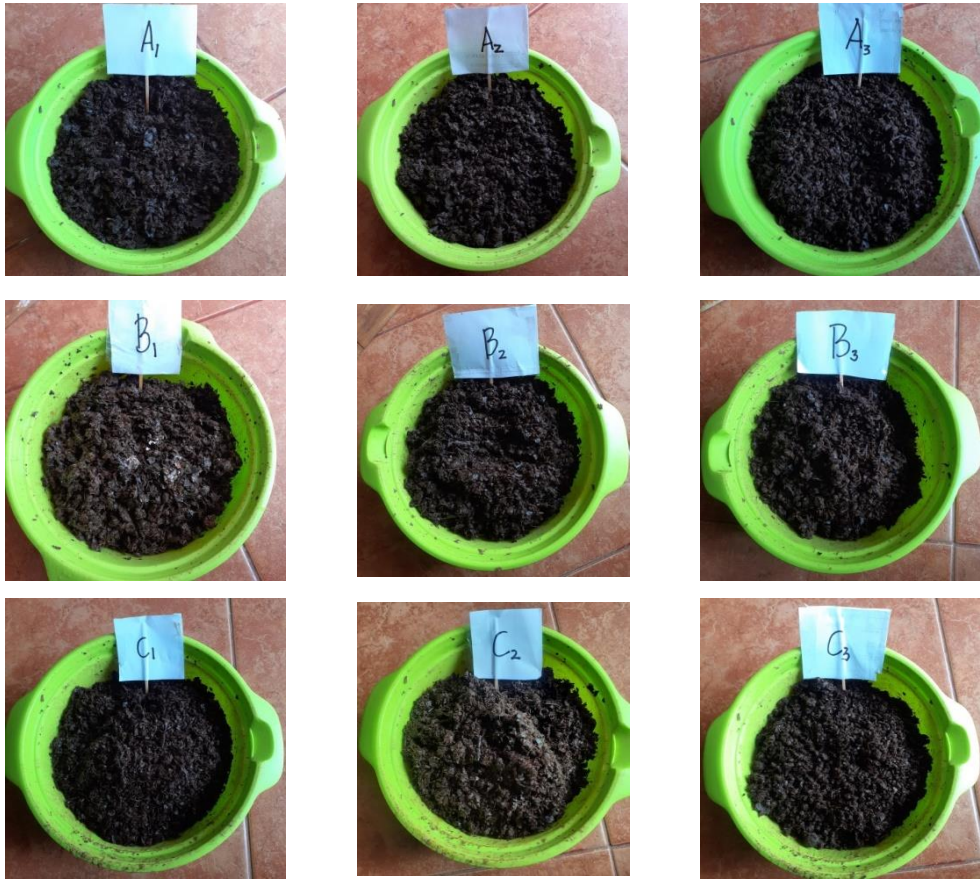


Pengovenan



Desikator

Hasil Pupuk Organik Padat



Hasil Tanaman Tomat



Hasil 100% POP A1, A2 dan A3



Hasil 100% POP B1,B2 dan B3



Hasil 100% POP C1,C2 dan C3



Hasil media tanam T



Hasil media tanam T1, T2 dan T3



Hasil media tanam T4, T5 dan T6



Hasil media tanah T7,T8 dan T9

Lampiran 2 Data dan Perhitungan

Pengukuran pH

No	Perlakuan	pH Pupuk Minggu Ke-								Rata-rata
		1		2		3		4		
1	A1	7	7	6,5	6,5	6,5	6,5	7	7	6,75
2	A2	7	7	7	7	6,5	6,5	7	7	6,87
3	A3	7	7	7	7	6,5	6,5	7	7	6,87
4	B1	4,5	5	5	5	6,5	6,5	6,5	6,5	5,68
5	B2	6	6,5	6,5	6,5	7	7	7	7	6,68
6	B3	6	6	6,5	6,5	6,5	6,5	7	7	6,5
7	C1	6	6	6,5	6,5	6,5	6,5	7	7	6,5
8	C2	6,5	6,5	7	7	7	7	7	7	6,87
9	C3	6,5	6,5	6,5	6,5	7	7	7	7	6,75

Pengukuran temperatur

No	Perlakuan	Temperatur Pupuk Minggu Ke-								Rata-rata
		1		2		3		4		
1	A1	30°C	30°C	30°C	30°C	30°C	30°C	29°C	29°C	29,7 °C
2	A2	30°C	30°C	31°C	31°C	30°C	30°C	29°C	29°C	30 °C
3	A3	30°C	30°C	32°C	32°C	30°C	30°C	29°C	29°C	30,2 °C
4	B1	30°C	30°C	30°C	30°C	29°C	29°C	28°C	28°C	29,2 °C
5	B2	30°C	30°C	30°C	30°C	29°C	29°C	29°C	29°C	29,5 °C
6	B3	30°C	30°C	30°C	30°C	30°C	30°C	29°C	29°C	29,7 °C
7	C1	30°C	30°C	31°C	31°C	30°C	30°C	29°C	29°C	30 °C
8	C2	31°C	31°C	32°C	32°C	30°C	30°C	29°C	29°C	30,5 °C
9	C3	31°C	31°C	33°C	33°C	30°C	30°C	29°C	29°C	30,7 °C

Kelembapan pengomposan

No	Perlakuan	Kelembapan Pupuk Minggu Ke-			
		1	2	3	4
1	A1	<i>Nor</i>	<i>Wet</i>	<i>Wet</i>	<i>Nor</i>
2	A2	<i>Nor</i>	<i>Nor</i>	<i>Wet</i>	<i>Nor</i>
3	A3	<i>Nor</i>	<i>Wet</i>	<i>Nor</i>	<i>Nor</i>
4	B1	<i>Nor</i>	<i>Wet</i>	<i>Wet</i>	<i>Wet</i>
5	B2	<i>Nor</i>	<i>Wet</i>	<i>Wet</i>	<i>Nor</i>
6	B3	<i>Nor</i>	<i>Nor</i>	<i>Wet</i>	<i>Nor</i>
7	C1	<i>Nor</i>	<i>Wet</i>	<i>Wet</i>	<i>Nor</i>
8	C2	<i>Nor</i>	<i>Wet</i>	<i>Dry</i>	<i>Nor</i>
9	C3	<i>Nor</i>	<i>Wet</i>	<i>Dry</i>	<i>Nor</i>

Persentase penyusutan bahan

No	Perlakuan	Komposisi pembuatan pupuk (gram)			Massa Bahan Pengomposan (gram)		Penyusutan (%)
		Sampah kertas	Daun kering	Sampah sayur	Sebelum	Sesudah	
1	A1	375	675	450	1.500	1.117	25,53%
2	A2	525	585	390	1.500	1.145	23,66%
3	A3	675	495	330	1.500	1.157	22,86%
4	B1	375	675	450	1.500	1.219	18,73%
5	B2	525	585	390	1.500	1.187	20,86%
6	B3	675	495	330	1.500	1.208	19,46%
7	C1	375	675	450	1.500	1.089	27,4%
8	C2	525	585	390	1.500	1.115	25,66%
9	C3	675	495	330	1.500	1.133	24,46%

Pengujian kadar air POP

a. Data pengujian kadar air

Simbol	Sampel (gram)	Oven 4 jam (gram)	Oven 8 jam (gram)	Oven 12 jam (gram)	Oven 16 jam (gram)	Oven 20 jam (gram)	Kadar air (%)	Fk
A1	5	2,2949	1,8695	1,8190	1,8182	1,818	63,64	2,7502750275
A2	5	2,0457	1,8889	1,8276	1,8272	1,8271	63,46	2,7365770894
A3	5	2,1060	1,9399	1,8783	1,8763	1,8762	62,48	2,6649610916
B1	5	1,9323	1,8337	1,6773	1,4763	1,4762	70,48	3,3870749221
B2	5	2,0418	1,7993	1,6914	1,6902	1,6902	66,2	2,9582297953
B3	5	2,0257	1,8362	1,7717	1,7664	1,7662	64,68	2,8309364738
C1	5	2,2514	2,0264	1,9498	1,9475	1,9473	61,05	2,5676577826
C2	5	2,2753	2,2205	2,1997	2,1974	2,1973	56,05	2,2755199563
C3	5	2,8961	2,6263	2,4875	2,4036	2,4036	51,93	2,0802130138
T	5	4,1752	3,7922	3,1354	3,1352	-	37,3	1,5947945905
T1	5	4,0892	3,6585	3,1998	3,1997	-	36	1,5626464981
T2	5	4,0656	3,6078	2,8990	2,8988	-	42,02	1,7248516628
T3	5	3,9677	3,4278	2,7059	2,7058	-	45,88	1,8478823269
T4	5	4,0788	3,6378	2,7945	2,7944	-	44,11	1,7892928715
T5	5	4,0310	3,5536	2,8980	2,8978	-	42,04	1,7404622668
T6	5	3,9337	3,5684	2,9239	2,9238	-	41,52	1,7101032902
T7	5	3,8072	3,5278	2,9923	2,9921	-	40,16	1,6710671435
T8	5	3,8477	3,5019	2,7364	2,7362	-	45,28	1,8273518018
T9	5	3,9522	3,7603	2,6251	2,6251	-	47,45	1,9046893452

b. Perhitungan

$$\text{Kadar Air} = \frac{W_1 - W_2}{W} \times 100\%$$

dengan :

W = Berat sampel (gram)

W₁ = Berat sampel sebelum dikeringkan (gram)

W₂ = Berat sampel sesudah dikeringkan (gram)

$$\text{Faktor koreksi kadar air (fk)} = \frac{100}{100 - \text{kadar air}}$$

1. Sampel A1

$$\text{Kadar air} = \frac{5 - 1,818}{5} \times 100\% = 63,64 \%$$

$$\text{Fk} = \frac{100}{100 - 63,64} = 2,7502750275$$

2. Sampel A2

$$\text{Kadar air} = \frac{5 - 1,8271}{5} \times 100\% = 63,458 \%$$

$$\text{Fk} = \frac{100}{100 - 63,458} = 2,7365770894$$

3. Sampel A3

$$\text{Kadar air} = \frac{5 - 1,8762}{5} \times 100\% = 62,476 \%$$

$$\text{Fk} = \frac{100}{100 - 62,476} = 2,6649610916$$

4. Sampel B1

$$\text{Kadar air} = \frac{5 - 1,4762}{5} \times 100\% = 70,476 \%$$

$$\text{Fk} = \frac{100}{100 - 70,476} = 3,3870749221$$

5. Sampel B2

$$\text{Kadar air} = \frac{5 - 1,6902}{5} \times 100\% = 66,196 \%$$

$$\text{Fk} = \frac{100}{100 - 66,196} = 2,9582297953$$

6. Sampel B3

$$\text{Kadar air} = \frac{5 - 1,7662}{5} \times 100\% = 64,676 \%$$

$$\text{Fk} = \frac{100}{100 - 64,676} = 2,8309364738$$

7. Sampel C1

$$\text{Kadar air} = \frac{5 - 1,9473}{5} \times 100\% = 61,054\%$$

$$\text{Fk} = \frac{100}{100 - 61,054} = 2,5676577826$$

8. Sampel C2

$$\text{Kadar air} = \frac{5 - 2,1973}{5} \times 100\% = 56,054 \%$$

$$\text{Fk} = \frac{100}{100 - 56,054} = 2,2755199563$$

9. Sampel C3

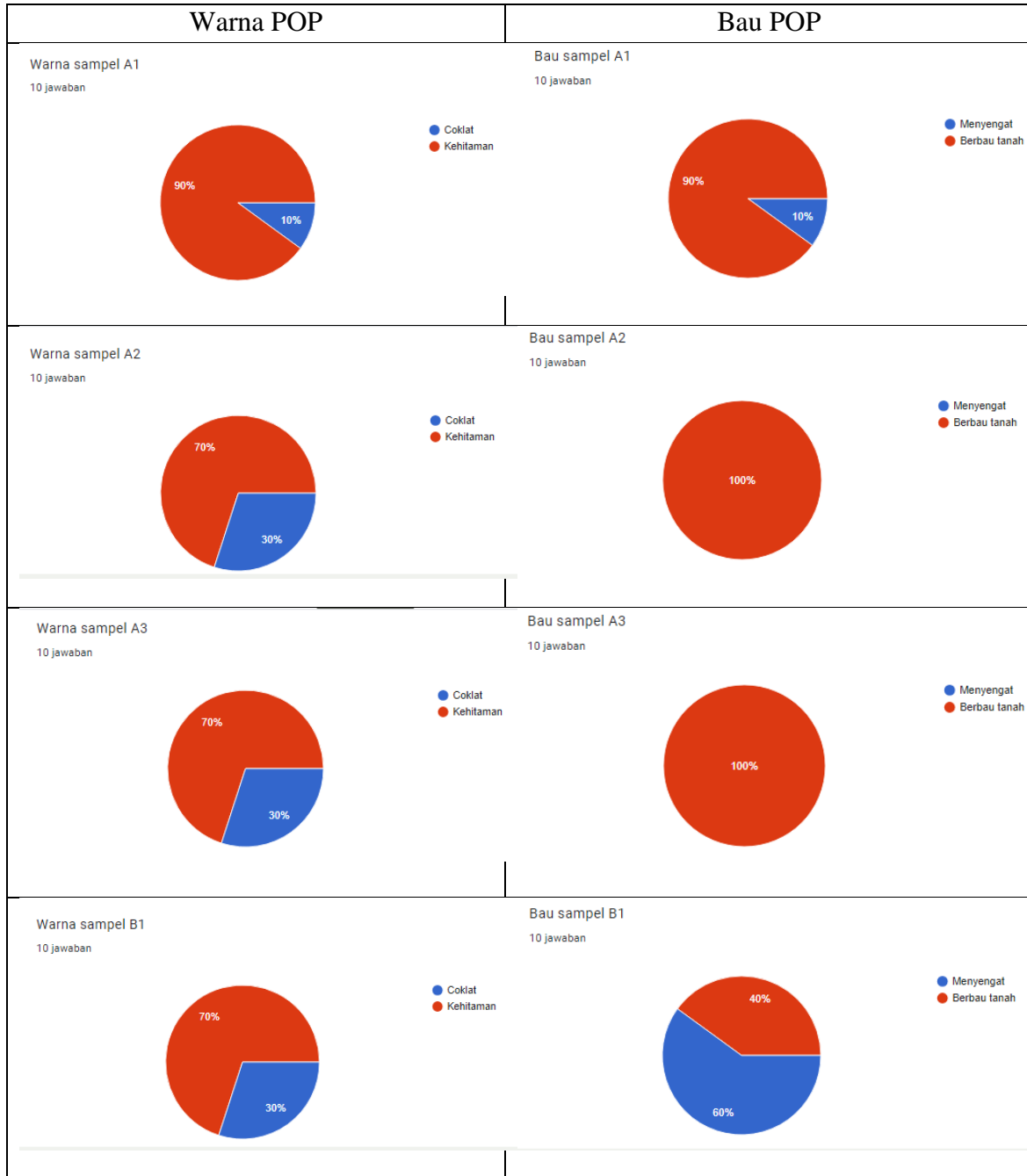
$$\text{Kadar air} = \frac{5 - 2,4036}{5} \times 100\% = 51,928 \%$$

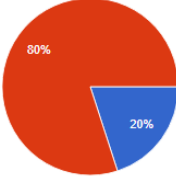
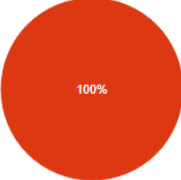
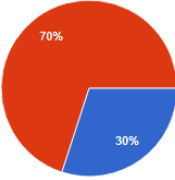
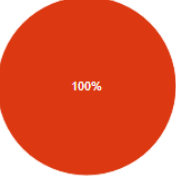
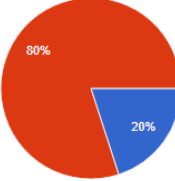
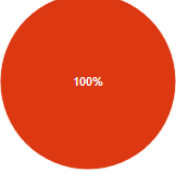
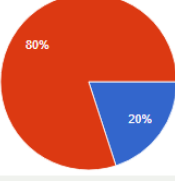
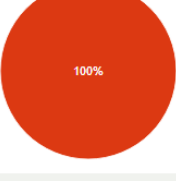
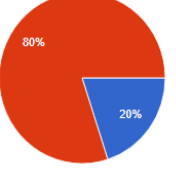
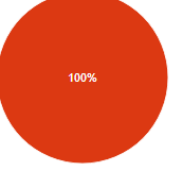
$$\text{Fk} = \frac{100}{100 - 51,928} = 2,0802130138$$

10. Tanah (T)
 Kadar air = $\frac{5-3,1352}{5} \times 100\% = 37,296\%$
 Fk = $\frac{100}{100-37,296} = 1,5947945905$
11. Tanah + sampel A1 (T1)
 Kadar air = $\frac{5-3,1997}{5} \times 100\% = 36,006\%$
 Fk = $\frac{100}{100-36,006} = 1,5626464981$
12. Tanah + sampel A2 (T2)
 Kadar air = $\frac{5-2,8988}{5} \times 100\% = 42,024\%$
 Fk = $\frac{100}{100-42,024} = 1,7248516628$
13. Tanah + sampel A3 (T3)
 Kadar air = $\frac{5-2,7058}{5} \times 100\% = 45,884\%$
 Fk = $\frac{100}{100-45,884} = 1,8478823269$
14. Tanah + sampel B1 (T4)
 Kadar air = $\frac{5-2,7944}{5} \times 100\% = 44,112\%$
 Fk = $\frac{100}{100-44,112} = 1,7892928715$
15. Tanah + sampel B2 (T5)
 Kadar air = $\frac{5-2,8978}{5} \times 100\% = 42,044\%$
 Fk = $\frac{100}{100-42,044} = 1,7404622668$
16. Tanah + sampel B3 (T6)
 Kadar air = $\frac{5-2,9238}{5} \times 100\% = 41,524\%$
 Fk = $\frac{100}{100-41,524} = 1,7101032902$
17. Tanah + sampel C1 (T7)
 Kadar air = $\frac{5-2,9921}{5} \times 100\% = 40,158\%$
 Fk = $\frac{100}{100-40,158} = 1,6710671435$
18. Tanah + sampel C2 (T8)
 Kadar air = $\frac{5-2,7362}{5} \times 100\% = 45,276\%$
 Fk = $\frac{100}{100-40,158} = 1,8273518018$
19. Tanah + sampel C3 (T9)
 Kadar air = $\frac{5-2,6251}{5} \times 100\% = 47,498\%$
 Fk = $\frac{100}{100-47,498} = 1,9046893452$

Hasil Uji Organoleptik

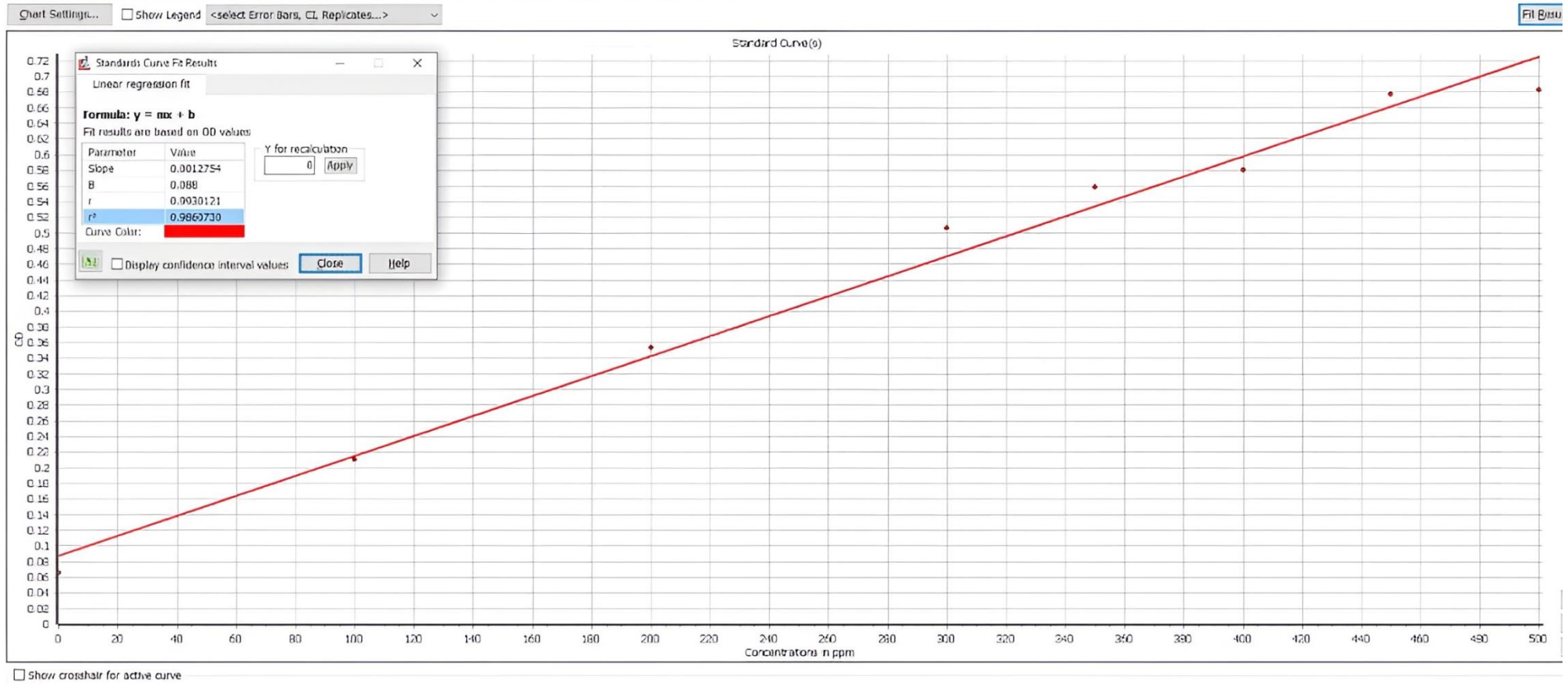
Hasil uji organoleptik berdasarkan hasil kuesioner dari 10 responden terhadap warna dan bau POP.



Warna POP	Bau POP
<p>Warna sampel B2 10 jawaban</p>  <p>● Coklat ● Kehitaman</p>	<p>Bau sampel B2 10 jawaban</p>  <p>● Menyengat ● Berbau tanah</p>
<p>Warna sampel B3 10 jawaban</p>  <p>● Coklat ● Kehitaman</p>	<p>Bau sampel B3 10 jawaban</p>  <p>● Menyengat ● Berbau tanah</p>
<p>Warna sampel C1 10 jawaban</p>  <p>● coklat ● Kehitaman</p>	<p>Bau sampel C1 10 jawaban</p>  <p>● menyengat ● Berbau tanah</p>
<p>Warna sampel C2 10 jawaban</p>  <p>● Coklat ● Kehitaman</p>	<p>Bau sampel C2 10 jawaban</p>  <p>● Menyengat ● Berbau tanah</p>
<p>Warna sampel C3 10 jawaban</p>  <p>● coklat ● Kehitaman</p>	<p>Bau sampel C3 10 jawaban</p>  <p>● menyengat ● Berbau tanah</p>

Pengujian C-Organik

a. Kurva standar



b. ppm kurva

Sampel	ppm kurva	Volume ekstrak	Masa contoh	fk	C-Organik
A1	321,759 ppm	25 ml	125 mg	2,7502750275	17,7 %
A2	324,112 ppm	25 ml	125 mg	2,7365770894	17,74 %
A3	388,484 ppm	25 ml	125 mg	2,6649610916	20,7 %
B1	343,165 ppm	25 ml	125 mg	3,3870749221	23,25 %
B2	375,312 ppm	25 ml	125 mg	2,9582297953	22,2 %
B3	400,716 ppm	25 ml	125 mg	2,8309364738	22,69 %
C1	356,416 ppm	25 ml	125 mg	2,5676577826	18,3 %
C2	372,96 ppm	25 ml	125 mg	2,2755199563	16,97 %
C3	354,22 ppm	25 ml	125 mg	2,0802130138	14,74 %
T	43,647 ppm	25 ml	125 mg	1,5947945905	1,4 %
T1	293,219 ppm	25 ml	125 mg	1,5626464981	9,16 %
T2	275,812 ppm	25 ml	125 mg	1,7248516628	9,51 %
T3	260,836 ppm	25 ml	125 mg	1,8478823269	9,64 %
T4	200,227 ppm	25 ml	125 mg	1,7892928715	7,16 %
T5	242,489 ppm	25 ml	125 mg	1,7404622668	8,44 %
T6	334,383 ppm	25 ml	125 mg	1,7101032902	11,44 %
T7	248,762 ppm	25 ml	125 mg	1,6710671435	8,31 %
T8	289,377 ppm	25 ml	125 mg	1,8273518018	10,57 %
T9	222,338 ppm	25 ml	125 mg	1,9046893452	8,47 %

c. Perhitungan C-organik

$$\text{Kadar C-organik (\%)} = \text{ppm kurva} \times \frac{\text{ml ekstrak}}{1000} \times \frac{100}{\text{mg contoh}} \times \text{fk}$$

$$\text{C-organik (A1)} = 321,759 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 2,7502750275 = 17,6985\%$$

$$\text{C-organik (A2)} = 324,112 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 2,7365770894 = 17,7391\%$$

$$\text{C-organik (A3)} = 388,484 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 2,6649610916 = 20,7058\%$$

$$\text{C-organik (B1)} = 343,165 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 3,3870749221 = 23,2465\%$$

$$\text{C-organik (B2)} = 375,312 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 2,9582297953 = 22,2051\%$$

$$\text{C-organik (B3)} = 400,716 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 2,8309364738 = 22,688\%$$

$$\text{C-organik (C1)} = 356,416 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 2,5676577826 = 18,303\%$$

$$\text{C-organik (C2)} = 372,96 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 2,2755199563 = 16,9735\%$$

$$\text{C-organik (C3)} = 354,22 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 2,0802130138 = 14,737\%$$

$$\text{C-organik (T)} = 43,647 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,5947945905 = 1,3921\%$$

$$\begin{aligned}
\text{C-organik (T1)} &= 293,219 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,5626464981 = 9,1639\% \\
\text{C-organik (T2)} &= 275,812 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,7248516628 = 9,5146\% \\
\text{C-organik (T3)} &= 260,836 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,8478823269 = 9,6398\% \\
\text{C-organik (T4)} &= 200,227 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,7892928715 = 7,1652\% \\
\text{C-organik (T5)} &= 242,489 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,7404622668 = 8,4408\% \\
\text{C-organik (T6)} &= 334,383 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,7101032902 = 11,4365\% \\
\text{C-organik (T7)} &= 248,762 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,6710671435 = 8,3139\% \\
\text{C-organik (T8)} &= 289,377 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,8273518018 = 10,5758\% \\
\text{C-organik (T9)} &= 222,338 \text{ ppm} \times \frac{25 \text{ ml}}{1000} \times \frac{100}{125 \text{ mg}} \times 1,9046893452 = 8,4696\%
\end{aligned}$$



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LAPORAN HASIL PENGUJIAN
No.203/LHP/Lab DITSL/VI/2023

NAMA PENGIRIM : Mutiara Safitri Gunawan
ALAMAT PENGIRIM : Politeknik Negeri Cilacap
TANGGAL KIRIM : 17 April 2023
TANGGAL PENGUJIAN : 17 April - 08 Juni 2023

LOKASI SAMPEL :
JUMLAH SAMPEL : 9 (Sembilan)
JENIS SAMPEL : Pupuk Organik Padat
TANGGAL SELESAI : 09 Juni 2023

No. Lab	No. Lapang	HNO ₃ :HClO ₄			Gravimetri Kadar Air ...(%)...
		SNI 7763:2018			
		N-Total	P ₂ O ₅	K ₂ O	
		..(%)..	...(%)...		
DH 0186	A1	1.03	0.16	0.51	10.47
DH 0187	A2	1.56	0.17	0.58	9.21
DH 0188	A3	1.43	0.18	0.57	21.06
DH 0189	B1	1.14	0.17	0.56	4.11
DH 0190	B2	1.18	0.16	0.61	5.64
DH 0191	B3	1.12	0.17	0.52	3.90
DH 0192	C1	1.06	0.20	0.59	5.49
DH 0193	C2	1.17	0.20	0.55	5.55
DH 0194	C3	1.20	0.22	0.49	4.56

Catatan :

Hasil pengujian hanya berlaku untuk sampel yang diuji dan tidak untuk diperbanyak

Bogor, 09 Juni 2023
Koordinator Laboratorium
Departemen Ilmu Tanah dan Sumberdaya Lahan
Fakultas Pertanian IPB

Dr Ir Arief Hartono, M.Sc.agr.

LABORATORIUM
Departemen Tanah
Fakultas Pertanian
Institut Pertanian Bogor



LABORATORIUM DEPARTEMEN ILMU TANAH DAN SUMBERDAYA LAHAN
FAKULTAS PERTANIAN I NSTITUT PERTANIAN BOGOR

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Komite Akreditasi Nasional
LP-1067-IDN

LAPORAN HASIL PENGUJIAN

No.202/LHP/Lab DITSL/VI/2023

NAMA PENGIRIM : Mutiara Safitri Gunawan
ALAMAT PENGIRIM : Politeknik Negeri Cilacap
TANGGAL KIRIM : 17 April 2023
TANGGAL PENGUJIAN : 17 April - 22 Mei 2023

LOKASI SAMPEL :
JUMLAH SAMPEL : 10 (Sepuluh)
JENIS SAMPEL : Tanah
TANGGAL SELESAI : 23 Mei 2023

No. Lab	No. Lapang	IKM-ITSL-25	IKM-ITSL-03	Bray I	
		Kjeldahl	Bray I		
		N-Total	P		K*
		..(%)..	...(ppm)...		...(ppm)...
DH 0176	T	0.09	29.8	207	
DH 0177	T1	0.11	59.2	754	
DH 0178	T2	0.13	46.7	966	
DH 0179	T3	0.14	42.2	859	
DH 0180	T4	0.16	64.2	1,123	
DH 0181	T5	0.22	53.6	1,132	
DH 0182	T6	0.13	46.4	864	
DH 0183	T7	0.16	56.5	1,020	
DH 0184	T8	0.14	62.8	959	
DH 0185	T9	0.14	52.9	884	

Keterangan :

* : tidak termasuk ruang lingkup akreditasi

Bogor, 23 Mei 2023
Koordinator Laboratorium
Departemen Ilmu Tanah dan Sumberdaya Lahan
Fakultas Pertanian IPB

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Catatan :

Hasil pengujian hanya berlaku untuk sampel yang diuji dan tidak untuk diperbanyak

C/N Rasio

a. Data Perhitungan C/N Rasio

Sampel	C-organik	N-total	C/N rasio
A1	17,7 %	1,03 %	17,18
A2	17,74 %	1,56 %	11,37
A3	20,7 %	1,43 %	14,47
B1	23,25 %	1,14 %	20,4
B2	22,2 %	1,18 %	18,81
B3	22,69 %	1,12 %	20,26
C1	18,3 %	1,06 %	17,26
C2	16,97 %	1,17 %	14,5
C3	14,74 %	1,2%	12,28
T	1,4 %	0,09 %	15,55
T1	9,16 %	0,11 %	83,27
T2	9,51 %	0,13 %	73,15
T3	9,64 %	0,14 %	68,86
T4	7,16 %	0,16 %	44,75
T5	8,44 %	0,22 %	38,36
T6	11,44 %	0,13 %	88
T7	8,31 %	0,16 %	51,94
T8	10,57 %	0,14 %	75,5
T9	8,47 %	0,14 %	60,5

b. Perhitungan

C/N Rasio = % C-organik / % N-total

$$C/N \text{ rasio (A1)} = \frac{17,7 \%}{1,03 \%} = 17,1844$$

$$C/N \text{ rasio (A2)} = \frac{17,74 \%}{1,56 \%} = 11,3717$$

$$C/N \text{ rasio (A3)} = \frac{20,7 \%}{1,43 \%} = 14,4755$$

$$C/N \text{ rasio (B1)} = \frac{23,25 \%}{1,14 \%} = 20,3947$$

$$C/N \text{ rasio (B2)} = \frac{22,2 \%}{1,18 \%} = 18,8135$$

$$C/N \text{ rasio (B3)} = \frac{22,69 \%}{1,12 \%} = 20,259$$

$$C/N \text{ rasio (C1)} = \frac{18,3 \%}{1,06 \%} = 17,2641$$

$$C/N \text{ rasio (C2)} = \frac{16,97 \%}{1,17 \%} = 14,5042$$

$$C/N \text{ rasio (C3)} = \frac{14,74 \%}{1,2 \%} = 12,2833$$

$$C/N \text{ rasio (T)} = \frac{1,4 \%}{0,09 \%} = 15,5556$$

$$C/N \text{ rasio (T1)} = \frac{9,16 \%}{0,11 \%} = 83,2727$$

$$C/N \text{ rasio (T2)} = \frac{9,51 \%}{0,13 \%} = 73,1538$$

$$C/N \text{ rasio (T3)} = \frac{9,64 \%}{0,14 \%} = 68,8571$$

$$C/N \text{ rasio (T4)} = \frac{7,16 \%}{0,16 \%} = 44,75$$

$$C/N \text{ rasio (T5)} = \frac{8,44 \%}{0,22 \%} = 38,3636$$

$$C/N \text{ rasio (T6)} = \frac{11,44 \%}{0,13 \%} = 88$$

$$C/N \text{ rasio (T7)} = \frac{8,31 \%}{0,16 \%} = 51,9375$$

$$C/N \text{ rasio (T8)} = \frac{10,57 \%}{0,14 \%} = 75,5$$

$$C/N \text{ rasio (T9)} = \frac{8,47 \%}{0,14 \%} = 60,5$$

Biodata Penulis



Nama : Mutiara Safitri Gunawan
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Tempat/Tanggal Lahir : Cilacap, 28 Maret 2001
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No Telp : 081575387429

Riwayat Pendidikan :

1. SD Negeri Mertasinga 06 (2007 – 2013)
2. SMP Negeri 5 Cilacap (2013 – 2016)
3. SMA Negeri 2 Cilacap (2016 – 2019)
4. Politeknik Negeri Cilacap (2019 – 2023)

Pengalaman Organisasi

- Pengurus Himpunan Mahasiswa Prodi Khusus Teknik Pengendalian Pencemaran Lingkungan (HMTLink) Periode 2020/2021
- Pengurus Himpunan Mahasiswa Prodi Khusus Teknik Pengendalian Pencemaran Lingkungan (HMTLink) Periode 2021/2022