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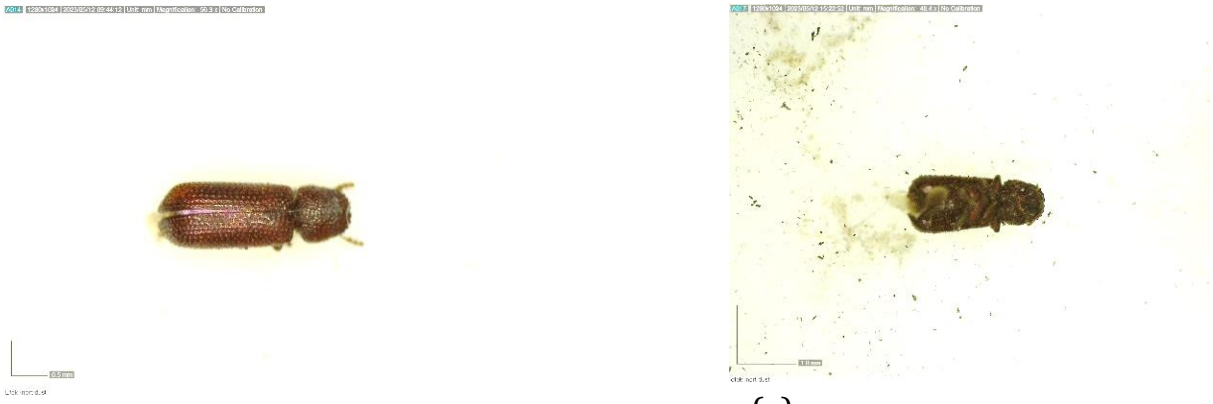
LAMPIRAN

(b)

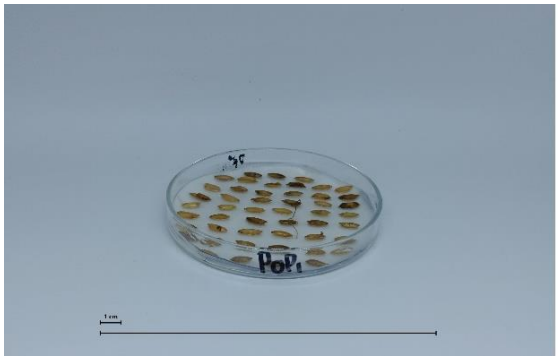
Gambar Lampiran 1. Perbandingan imago *Rhyzopertha dominica* : (a) Jantan dan (b) Betina



(a)

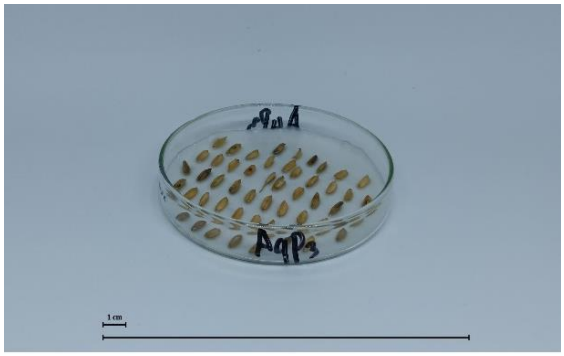
Gambar Lampiran 2. Perbandingan gejala mortalitas imago *Rhyzopertha dominica* akibat *inert dust*: (a) Dorsal dan (b) Ventral

Gambar Lampiran 3. Gejala kerusakan benih akibat serangan serangga *Rhyzopertha dominica*



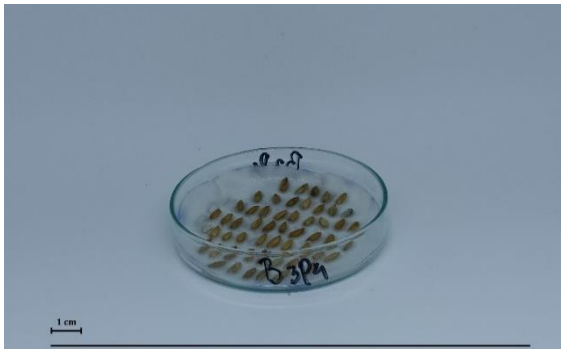
(a) (b)

Gambar Lampiran 4. Uji perkecambahan benih perlakuan kontrol akibat serangan serangga *Rhyzopertha dominica* : (a) Benih 0 hari setelah tanam (b) Benih 7 hari setelah tanam



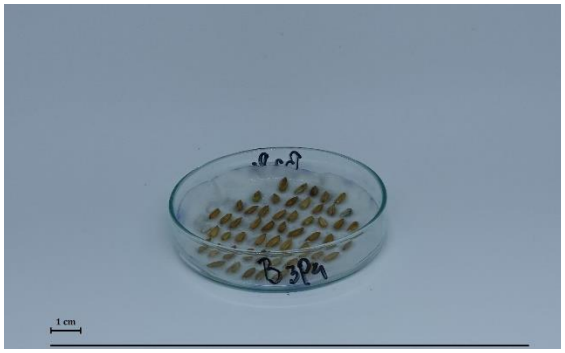
(a) (b)

Gambar Lampiran 5. Uji perkecambahan benih perlakuan abu tempurung kelapa sawit akibat serangan serangga *Rhyzopertha dominica* : (a) Benih 0 hari setelah tanam (b) Benih 7 hari setelah tanam



(a) (b)

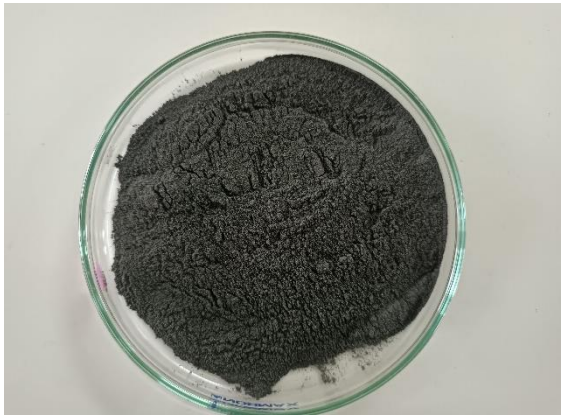
Gambar Lampiran 6. Uji perkecambahan benih perlakuan abu ampas tebu akibat serangan serangga *Rhyzopertha dominica* : (a) Benih 0 hari setelah tanam (b) Benih 7 hari setelah tanam



(a)

(b)

Gambar Lampiran 7. Uji perkecambahan benih perlakuan abu rumput gajah akibat serangan serangga *Rhyzopertha dominica* : (a) Benih 0 hari setelah tanam (b) Benih 7 hari setelah tanam



(a)

(b)

(c)

Gambar Lampiran 8. Tipe-tipe *inert dust* yang digunakan : (a) Tempurung kelapa sawit (b) Ampas tebu (c) Rumput gajah

Gambar Lampiran 9. Uji analisis kandungan metode *X-Ray Fluorescence*

LABORATORIUM PENELITIAN DAN PENGEMBANGAN SAINS
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS HASANUDDIN
Jl. Perintis Kemerdekaan Km. 10 Tamalanrea, Makassar 90245
Telp. 0411-586016 • Fax. 0411-588551 • Email : lpps.fmipa.unhas@gmail.com

KAN Komite Akreditasi Nasional Laboratorium Penguji LP-1484-IDN

LAPORAN HASIL PENGUJIAN

CERTIFICATE OF ANALYSIS

Nomor Pekerjaan : **LPPS.XJ-2306-20/3**
Job Number

Dipersembahkan Kepada
Presented To

Kepada Yth *Attention*	: **William Yeremia Patasik**	**Jabatan** *Job Title*	: **Peneliti**
Nama Pelanggan *Customer Name*	: **William Yeremia Patasik**	**Tujuan Pengujian** *Purpose of analysis*	: **Analisis Unsur**
Alamat/Universitas *Address/University*	: **BTP Blok B No.39**	**No. Faks/** *Fax No.*	: -
		No. Telp./ *Phone No.*	: **085757283712**
Tanggal Sampel Diterima *Date of Sample Receipt*	: **22 Juni 2023**	**Tanggal Sampel Dianalisis** *Date of Sample Analysed*	: **10 Juli 2023**
Email *Email*	: **williamyeremiapatasik0303@gmail.com**	**Total Halaman**	: **3**
Nama Pengujian *Name of analysis*	: **Analisis Unsur dan Oksida pada Sampel Abu (Tempurung Kelapa, Ampas Tebu dan Rumput Gajah) dengan XRF**		

Gambar Lampiran 10. Uji analisis kandungan metode *X-Ray Fluorescence*

LABORATORIUM PENELITIAN DAN PENGEMBANGAN SAINS
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
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Jl. Perintis Kemerdekaan Km. 10 Tamalanrea, Makassar 90245
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LAPORAN HASIL PENGUJIAN
CERTIFICATE OF ANALYSIS

Nomor Pekerjaan : LPPS.XJ-2306-20/3

I. Pelanggan / *Principal*

1.1 Nama / *Name*	: William Yeremia Patasik
1.2 Alamat / *Address*	: BTP Blok B No. 39
1.3 Telepon / *Phone*	:085757283712
1.4 Personil Penghubung / *Contact Person*	: -
1.5 Email / *Email*	: williamyeremiapatasik0303@gmail.com

II. Contoh Uji / *Sample*

2.1 Kode Sampel / *Sampel Code*	: LPPS.X-2306-20/3a – 3c
2.2 Kemasan / *Packaging*	: Plastik Sampel
2.3 Nama Sampel / *Sample Name*	: Abu (Tempurung kelapa, Ampas tebu dan Rumput gajah)
2.4 Jumlah Sampel / *Number of Sample*	: 3
2.5 Tanggal Sampling / *Date of Sampling*	: -
2.6 Diterima / *Date of Received*	: 22 Juni 2023
2.7 Tanggal Uji / *Date of Analysis*	: 10 Juli 2023
2.8 Jenis Uji / *Type of Analysis*	: Unsur dan Oksida

III. Hasil Uji / *Result*

3.1 Kode Sampel : LPPS.X-2306-20/3a

Parameter	Satuan	Hasil
Ca	m/m%	71.11
Si	m/m%	20.17
K	m/m%	3.73
Fe	m/m%	3.34
Px	m/m%	1.27
Ti	m/m%	0.239
Rb	m/m%	0.0558
Nb	m/m%	0.0271
Mo	m/m%	0.0172
In	m/m%	0.0089
Sn	m/m%	0.0075
Ru	m/m%	0.0067
Sb	m/m%	0.0063
Te	m/m%	0.0057

Nama Sampel : Tempurung Kelapa

Parameter	Satuan	Hasil
CaO	m/m%	59.76
SiO2	m/m%	32.45
K2O	m/m%	2.99
Fe2O3	m/m%	2.46
P2O5	m/m%	2.04
TiO2	m/m%	0.206
Rb2O	m/m%	0.0312
Nb2O5	m/m%	0.0199
MoO3	m/m%	0.0133
In2O3	m/m%	0.0058
SnO2	m/m%	0.0052

Gambar Lampiran 11. Uji analisis kandungan metode *X-Ray Fluorescence*

LABORATORIUM PENELITIAN DAN PENGEMBANGAN SAINS
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3.2 Kode Sampel : LPPS.X-2306-20/3b

Parameter	Satuan	Hasil
K	m/m%	64.69
Si	m/m%	11.27
Ca	m/m%	10.16
Px	m/m%	7.15
Cl	m/m%	3.90
Fe	m/m%	1.58
Mn	m/m%	0.457
Ti	m/m%	0.312
Sr	m/m%	0.186
Zn	m/m%	0.142
Rb	m/m%	0.105
Cu	m/m%	0.042
In	m/m%	0.0062

Nama Sampel : Ampas Tebu

Parameter	Satuan	Hasil
K2O	m/m%	53.45
SiO2	m/m%	20.10
P2O5	m/m%	12.67
CaO	m/m%	8.55
Cl	m/m%	2.89
Fe2O3	m/m%	1.34
MnO	m/m%	0.350
TiO2	m/m%	0.308
SrO	m/m%	0.131
ZnO	m/m%	0.104
Rb2O	m/m%	0.0679
CuO	m/m%	0.031

3.3 Kode Sampel : LPPS.X-2306-20/3c

Parameter	Satuan	Hasil
Fe	m/m%	55.01
Mn	m/m%	12.22
Ru	m/m%	11.72
Rh	m/m%	7.60
Co	m/m%	3.48
Ti	m/m%	2.25
Zn	m/m%	1.97
Pd	m/m%	1.70
Mo	m/m%	1.13
Sr	m/m%	0.930
Ag	m/m%	0.880
Nb	m/m%	0.830
In	m/m%	0.241
Sb	m/m%	0.0220

Nama Sampel : Rumput Gajah

Parameter	Satuan	Hasil
Fe2O3	m/m%	57.28
MnO	m/m%	11.55
RuO4	m/m%	11.18
Rh2O3	m/m%	6.80
Co3O4	m/m%	3.44
TiO2	m/m%	2.78
ZnO	m/m%	1.74
PdO	m/m%	1.42
MoO3	m/m%	1.23
Nb2O5	m/m%	0.870
SrO	m/m%	0.800
Ag2O	m/m%	0.700
In2O3	m/m%	0.210
Sb2O3	m/m%	0.0191

Makassar, 17 Juli 2023
Penanggung Jawab Mutu

Prof. Dr. Nunuk Hariani Soekamto, MS
NIP. 19601215 198702 2 001

Catatan:
- Hasil Uji hanya berlaku untuk contoh tersebut di atas
- Dilarang mengutip/menyalin sebagian isi hasil uji ini

Tabel Lampiran 1. Analisis ragam mortalitas imago *Rhyzopertha dominica* 1 HSI pada benih padi

EFFECT	SS	DF	MS	F	ProbF	
Perlakuan	3093.589744	12	257.7991	20.33427	3.87E-13	**
Residual	494.4444444	39	12.67806			
Total	3588.034188	51	70.35361			

CV: 43,39%

Tabel Lampiran 2. Analisis ragam mortalitas imago *Rhyzopertha dominica* 3 HSI pada benih padi

EFFECT	SS	DF	MS	F	ProbF	
Perlakuan	17815.81197	12	1484.651	77.20185	2.61E-23	**
Residual	750	39	19.23077			
Total	18565.81197	51	364.0355			

CV: 20,36%

Tabel Lampiran 3. Analisis ragam mortalitas imago *Rhyzopertha dominica* 5 HSI pada benih padi

EFFECT	SS	DF	MS	F	ProbF	
Perlakuan	32765.81197	12	2730.484	107.6854	5.24E-26	**
Residual	988.8888889	39	25.35613			
Total	33754.70085	51	661.8569			

CV : 12,69%

Tabel Lampiran 4. Analisis ragam mortalitas imago *Rhyzopertha dominica* 7 HSI pada benih padi

EFFECT	SS	DF	MS	F	ProbF	
Perlakuan	35514.52991	12	2959.544	104.1404	9.82E-26	**
Residual	1108.333333	39	28.4188			
Total	36622.86325	51	718.0954			

CV : 10,08%

Tabel Lampiran 5. Analisis ragam mortalitas imago *Rhyzopertha dominica* 14 HSI pada benih padi

EFFECT	SS	DF	MS	F	ProbF	
Perlakuan	35355.55556	12	2946.296	162.2196	2.26E-29	**
Residual	708.3333333	39	18.16239			
Total	36063.88889	51	707.1351			

CV : 7,01%

Tabel Lampiran 6. Analisis ragam pertumbuhan populasi imago *Rhyzopertha dominica* HSI pada benih padi 45

EFFECT	SS	DF	MS	F	ProbF	
Perlakuan	5907.230769	12	492.2692	100.1226	2.05E-25	**
Residual	191.75	39	4.916667			
Total	6098.980769	51	119.5879			

CV : 18,45%

Tabel Lampiran 7. Analisis ragam kehilangan bobot benih pada benih padi

EFFECT	SS	DF	MS	F	ProbF	
Perlakuan	1196.95703	12	99.74642	42.67676	1.25E-18	**
Residual	91.15289974	39	2.337254			
Total	1288.10993	51	25.25706			

CV : 6,36%

Tabel Lampiran 8. Analisis ragam kerusakan benih pada benih padi

EFFECT	SS	DF	MS	F	ProbF	
Perlakuan	4312.307692	12	359.359	18.73663	1.44E-12	**
Residual	748	39	19.17949			
Total	5060.307692	51	99.22172			

CV : 17,79%

Tabel Lampiran 9. Korelasi kandungan SiO_2 dengan mortalitas, pertumbuhan populasi imago, kehilangan bobot benih dan kerusakan benih pada benih padi

	Mortalitas	Pertumbuhan Populasi Imago	Kehilangan Bobot Benih	Kerusakan Benih	SiO_2
Mortalitas	1	–,954**	–,948**	–,641*	,714**
Pertumbuhan Populasi Imago	–,954**	1	,937**	,505	–,716**
Kehilangan Bobot Benih	–,948**	,937**	1	,573	–,597*
Kerusakan Benih	–,641*	,505	,573	1	–,739**
SiO_2	,714**	–,716**	–,597*	–,739**	1

Keterangan : Korelasi signifikan pada jika bertanda * $P < 0,05$; ** $P < 0,01$

Tabel Lampiran 10. Korelasi kandungan CaO dengan mortalitas, pertumbuhan populasi imago, kehilangan bobot benih dan kerusakan benih pada benih padi

	Mortalitas	Pertumbuhan Populasi Imago	Kehilangan Bobot Benih	Kerusakan Benih	CaO
Mortalitas	1	–,954**	–,948**	–,641*	,713**
Pertumbuhan Populasi Imago	–,954**	1	,937**	,505	–,711**
Kehilangan Bobot Benih	–,948**	,937**	1	,573	–,545
Kerusakan Benih	–,641*	,505	,573	1	–,439
CaO	,714**	–,711**	–,545	–,439	1

Keterangan : Korelasi signifikan pada jika bertanda * $P < 0,05$; ** $P < 0,01$

Tabel Lampiran 11. Korelasi kandungan SiO_2 dan CaO dengan mortalitas, pertumbuhan populasi imago, kehilangan bobot benih dan kerusakan benih pada benih padi

	Mortalitas	Pertumbuhan Populasi Imago	Kehilangan Bobot Benih	Kerusakan Benih	SiO_2	CaO
Mortalitas	1	–,954**	–,948**	–,641*	,714**	,713**
Pertumbuhan Populasi Imago	–,954**	1	,937**	,505	–,716**	–,711**
Kehilangan Bobot Benih	–,948**	,937**	1	,573	–,597*	–,545
Kerusakan Benih	–,641*	,505	,573	1	–,739**	–,439
SiO_2	,714**	–,716**	–,597*	–,739**	1	,864**
CaO	,713**	–,711**	–,545	–,439	,864**	1

Keterangan : Korelasi signifikan pada jika bertanda * $P < 0,05$; ** $P < 0,01$

Tabel Lampiran 12. Suhu laboratorium selama penelitian dilaksanakan

Tanggal	Suhu (C°)			
	8.00	12.00	18.00	Rerata Suhu Harian
9-Mar-23	26,6	26.4	25.6	26.2
10-Mar-23	26.3	29.1	25.8	27.0
11-Mar-23	26.8	27	26.3	26.6
13-Mar-23	26.4	28.7	25.3	26.7
14-Mar-23	26.5	26.9	25.9	26.4
15-Mar-23	26.3	27	26.1	26.5
16-Mar-23	26.6	27.9	26.3	26.7
17-Mar-23	25.9	26.5	26.1	26.2
18-Mar-23	26.1	28.4	25.9	27.0
20-Mar-23	27.7	30.1	26.9	28.0
21-Mar-23	27.1	28.3	26.5	27.2
22-Mar-23	26.8	30.3	29.0	28.4
23-Mar-23	27.6	30,2	28.6	28.6
24-Mar-23	28.1	29.0	28.0	27.8
25-Mar-23	26.2	28.0	27.1	27.0
27-Mar-23	26.8	29.6	27.0	27.2
28-Mar-23	25.4	27.0	25.0	26.4
29-Mar-23	28.1	30.0	27.6	28.1
30-Mar-23	26.5	27.7	26.7	27.0
31-Mar-23	26.9	28.6	28.1	27.9
1-Apr-23	28.1	29.7	27.1	27.6
3-Apr-23	25.4	29.1	26.6	27.4
4-Apr-23	28.3	30.1	28.5	28.5
5-Apr-23	27.0	28.2	25.9	27.4
6-Apr-23	28.4	30.5	28.7	28.8
7-Apr-23	27.4	29.7	28.8	28.1
8-Apr-23	26.5	27.1	26.8	26.6
10-Apr-23	26.1	28.0	27.6	26.8
11-Apr-23	25.3	29.6	28.8	27.3

12-Apr-23	25.6	28.7	27.8	26.9
13-Apr-23	25.3	28.1	27.5	26.9
14-Apr-23	26.5	30.3	28.1	27.8
15-Apr-23	26.1	27.3	26.5	26.9
17-Apr-23	27.7	30.3	29.5	28.5
18-Apr-23	26.6	29.2	27.5	27.4
19-Apr-23	26.1	29.6	27.1	27.8
20-Apr-23	28.2	29.6	28.6	28.5
21-Apr-23	27.4	30.4	29.1	28.2
22-Apr-23	25.7	29.3	27.6	27.7
24-Apr-23	28.1	30.1	28.5	28.1
25-Apr-23	25.6	28.2	26.1	26.8
26-Apr-23	27.2	30.3	28.5	27.8
27-Apr-23	25.2	27.9	26.7	26.7
28-Apr-23	27.1	28.8	27.3	27.4
29-Apr-23	26.3	29.1	27.8	27.2
1-May-23	25.7	28.2	27.5	27.1
2-May-23	27.1	29.3	28.7	28.0
3-May-23	26.8	28.6	27.9	27.1
4-May-23	25.2	28.3	26.9	26.8
5-May-23	26.6	28.3	27.2	27.0
6-May-23	25.9	27.5	28.8	27.2
8-May-23	26.6	30.4	28.4	28.2
9-May-23	27.4	30.1	28.7	28.2
10-May-23	26.6	28.9	27.2	27.4
11-May-23	26.9	28.8	27.2	27.7
12-May-23	27.8	29.2	28.2	27.9
13-May-23	26.2	29.1	28.7	27.6
15-May-23	26.5	28.2	27.6	27.5
16-May-23	27.7	28.4	27.2	27.6
17-May-23	26.9	29.1	27.3	27.3
18-May-23	25.9	28.2	26.1	26.8
19-May-23	26.8	29.1	28.3	28.0

20-May-23	27.7	29.8	27.9	27.8
22-May-23	25.7	29.3	28.5	27.9
23-May-23	27.9	30.2	28.7	28.3
24-May-23	26.5	29.3	28.8	28.2
25-May-23	28.1	28.9	27.5	28.1
26-May-23	27.9	28.5	27.8	27.8
27-May-23	27.1	29.4	28.8	27.8
29-May-23	25.8	29.2	28.9	27.6
30-May-23	26.5	28.9	27.8	27.3
31-May-23	26.1	28.1	27.4	27.2
1-Jun-23	27.3	29.6	28.2	27.9
2-Jun-23	26.5	30.1	27.3	27.9
3-Jun-23	27.6	29.4	28.7	28.0
5-Jun-23	26.3	29.1	27.3	27.6
6-Jun-23	27.5	28.7	28.1	27.8
7-Jun-23	26.8	28.5	27.8	27.2
8-Jun-23	25.7	27.4	26.9	26.8
9-Jun-23	27.1	28.1	27.7	27.4
10-Jun-23	26.7	28.5	27.6	27.7
12-Jun-23	27.8	29.3	28.4	28.4
13-Jun-23	28.1	30.1	28.5	28.6
14-Jun-23	27.7	28.4	27.2	27.2
15-Jun-23	25.3	28.1	27.5	26.9
16-Jun-23	26.6	28.4	27.8	27.5
17-Jun-23	27.1	29.8	28.2	28.1
19-Jun-23	27.4	30.1	28.7	28.3
20-Jun-23	26.8	29.1	28.3	27.6
21-Jun-23	26.2	29.1	28.7	27.3
22-Jun-23	25.3	29.6	28.8	27.8
23-Jun-23	27.4	30.4	29.1	28.7
24-Jun-23	27.9	28.5	27.8	27.5
26-Jun-23	25.8	29.2	28.9	27.6
27-Jun-23	26.5	27.7	26.7	27.2

28-Jun-23	27.9	28.5	27.8	27.6
29-Jun-23	26.0	29.0	30.0	28.0
30-Jun-23	26.8	28.5	27.8	27.3
1-Jul-23	26.1	27.3	26.5	26.8
3-Jul-23	27.1	28.1	27.7	27.0
4-Jul-23	25.0	25.0	26.0	25.5
Rerata	26.7	28.8	27.6	

Tabel Lampiran 13. Kelembapan laboratorium selama penelitian dilaksanakan

Tanggal	Kelembapan (%)			
	8.00	12.00	18.00	Rerata Kelembapan Harian
9-Mar-23	68	50	46	55
10-Mar-23	56	56	47	55
11-Mar-23	60	52	50	56
13-Mar-23	62	59	59	57
14-Mar-23	47	60	49	55
15-Mar-23	65	66	61	62
16-Mar-23	55	56	69	57
17-Mar-23	49	59	51	53
18-Mar-23	51	47	57	51
20-Mar-23	47	66	54	58
21-Mar-23	64	58	68	62
22-Mar-23	58	53	53	54
23-Mar-23	50	49	66	54
24-Mar-23	52	66	52	57
25-Mar-23	58	57	60	60
27-Mar-23	66	56	63	64
28-Mar-23	69	66	66	65
29-Mar-23	57	57	60	61
30-Mar-23	68	47	53	57
31-Mar-23	61	56	52	55
1-Apr-23	51	64	60	60
3-Apr-23	65	48	45	51
4-Apr-23	46	48	62	54
5-Apr-23	59	66	46	58
6-Apr-23	59	55	52	54
7-Apr-23	48	47	63	54
8-Apr-23	59	67	53	61
10-Apr-23	64	64	47	56
11-Apr-23	48	52	68	56

12-Apr-23	54	56	58	59
13-Apr-23	66	61	58	61
14-Apr-23	57	61	60	59
15-Apr-23	58	51	67	57
17-Apr-23	52	65	63	57
18-Apr-23	46	62	55	56
19-Apr-23	62	65	46	58
20-Apr-23	58	59	59	56
21-Apr-23	46	47	66	53
22-Apr-23	51	45	62	51
24-Apr-23	46	62	67	60
25-Apr-23	63	58	62	61
26-Apr-23	59	55	69	59
27-Apr-23	54	46	56	55
28-Apr-23	64	52	54	54
29-Apr-23	45	59	51	53
1-May-23	55	57	45	52
2-May-23	50	68	63	60
3-May-23	59	51	49	54
4-May-23	56	68	46	59
5-May-23	67	69	51	63
6-May-23	66	52	47	53
8-May-23	46	59	68	57
9-May-23	56	66	46	56
10-May-23	57	48	49	51
11-May-23	48	48	52	52
12-May-23	58	65	53	56
13-May-23	48	58	52	55
15-May-23	61	53	55	56
16-May-23	56	65	50	59
17-May-23	65	50	64	60
18-May-23	61	64	46	60
19-May-23	69	46	58	58

20-May-23	60	69	64	64
22-May-23	64	61	58	62
23-May-23	65	57	46	57
24-May-23	61	50	47	53
25-May-23	53	45	57	50
26-May-23	46	45	54	53
27-May-23	67	68	62	66
29-May-23	68	48	69	58
30-May-23	46	68	45	56
31-May-23	64	54	56	55
1-Jun-23	46	58	57	57
2-Jun-23	65	58	47	59
3-Jun-23	65	45	47	52
5-Jun-23	50	50	55	54
6-Jun-23	60	60	62	61
7-Jun-23	63	51	46	56
8-Jun-23	62	60	67	61
9-Jun-23	56	55	57	59
10-Jun-23	69	66	64	65
12-Jun-23	61	51	63	57
13-Jun-23	51	57	63	55
14-Jun-23	50	59	55	57
15-Jun-23	63	57	51	55
16-Jun-23	49	60	55	55
17-Jun-23	56	67	51	58
19-Jun-23	59	45	46	51
20-Jun-23	52	56	62	59
21-Jun-23	64	49	63	57
22-Jun-23	51	58	54	58
23-Jun-23	69	50	49	59
24-Jun-23	69	65	64	61
26-Jun-23	45	55	54	54
27-Jun-23	61	56	55	58

28-Jun-23	58	50	47	52
29-Jun-23	54	63	55	58
30-Jun-23	59	51	62	55
1-Jul-23	47	57	62	59
3-Jul-23	68	68	61	62
4-Jul-23	52	61	47	59
Rerata	57	57	56	