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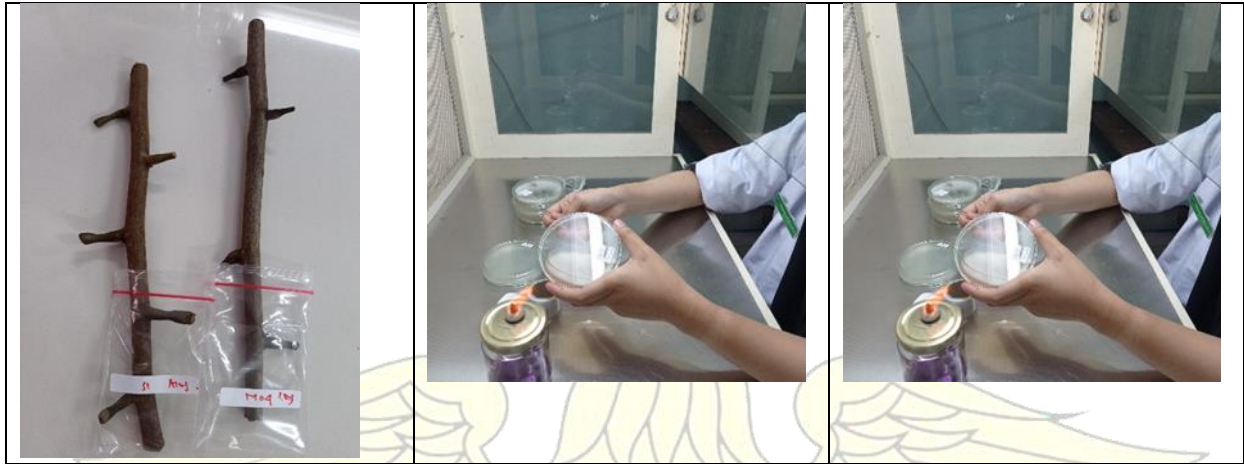
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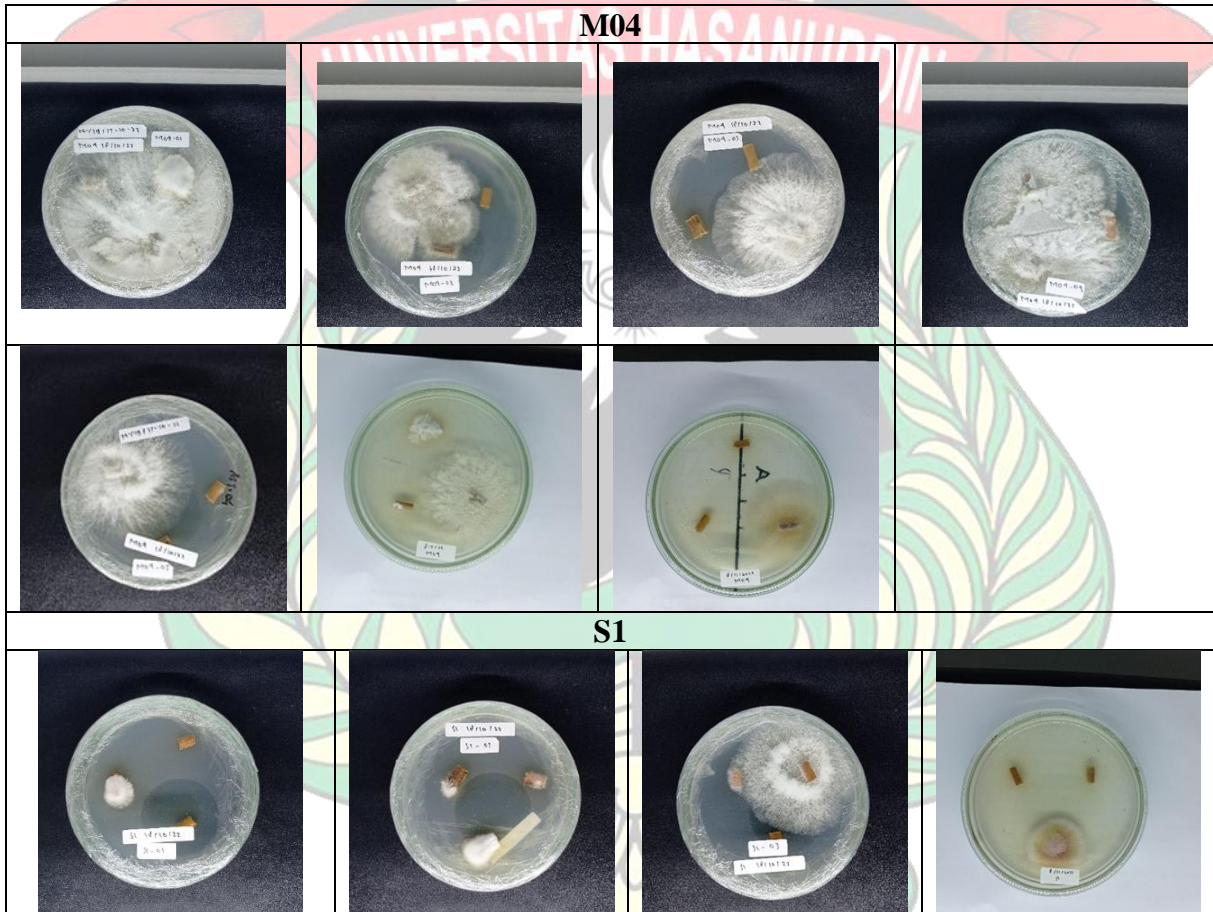
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## LAMPIRAN

**Lampiran 1.** Dokumentasi Sampel dari Cabang Kakao Klone M04, S1 dan Proses Isolasi





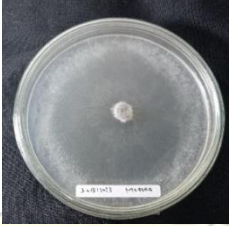











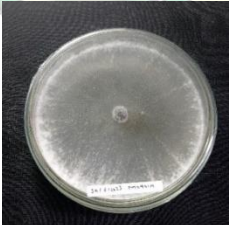









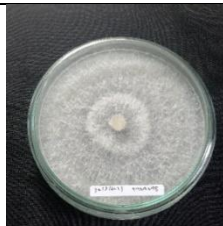


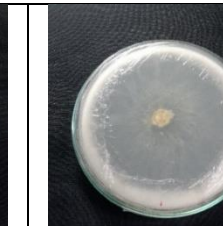








**Lampiran 2.** Penampakan Hasil Isolasi Cendawan Kakao Klone M04 dan S1



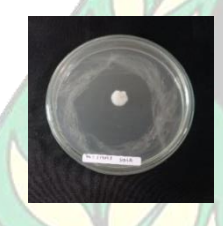

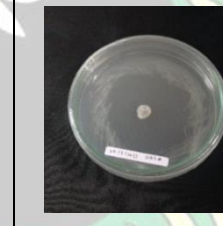

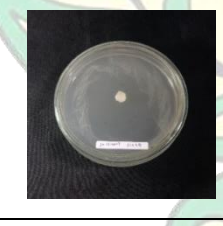

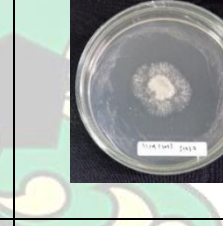


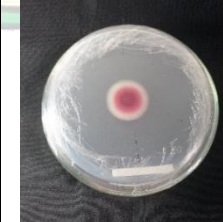
**Lampiran 3.** Dokumentasi Pengamatan Cendawan Asosiasi Kakao Klon M04

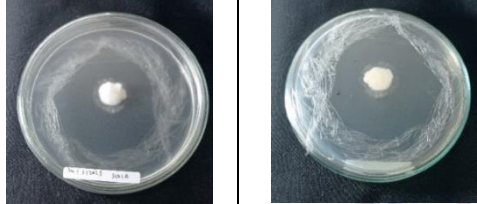
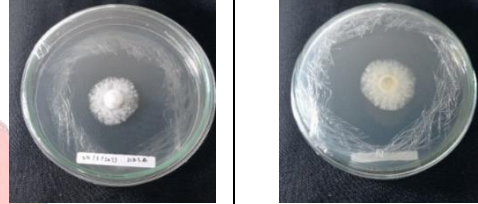

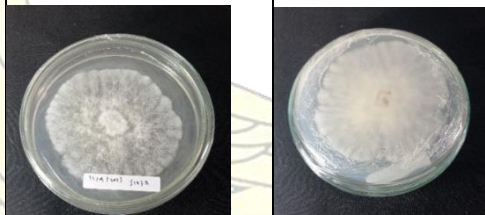

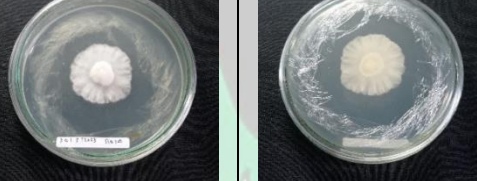


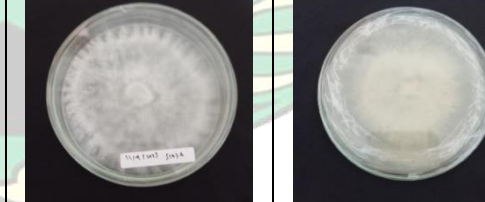
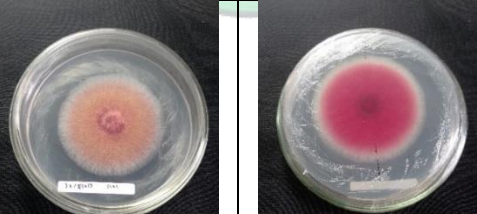
Hari Pengamatan	Isolat cendawan asosiasi kakao klon M04			
	<i>Mortierella</i> sp.		Isolat M1	
Hari Ketiga (3)				
	Isolat M2		Isolat M3	
	Isolat M4		Isolat M6	
	Isolat M7		<i>Nigrospora</i> sp.	
	Isolat M9		Isolat M10	
	Hari Pengamatan	Isolat cendawan asosiasi kakao klon M04		
<i>Mortierella</i> sp.		Isolat M2		

Hari Kelima (5)	<b>Isolat M3</b>		<b>Isolat M4</b>		
					
	<b>Isolat M5</b>		<b>Isolat M6</b>		
					
	<b>Isolat M7</b>		<b><i>Nigrospora</i> sp.</b>		
					
	<b>Isolat M9</b>		<b>Isolat M10</b>		
					
	Hari Pengamat an	<b>Isolat cendawan asosiasi kakao klon M04</b>			
		<b><i>Mortierella</i> sp.</b>		<b>Isolat M2</b>	
Hari Ketujuh (7)					
	<b>Isolat M3</b>		<b>Isolat M4</b>		
					

	<b>Isolat M5</b>		<b>Isolat M7</b>	
				
	<b>Isolat M8</b>		<b><i>Nigrospora</i> sp.</b>	
				
	<b>Isolat M9</b>		<b>Isolat M10</b>	
				


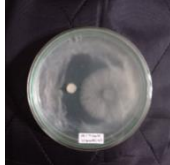




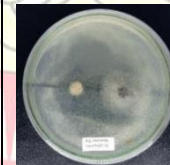














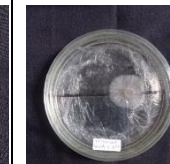






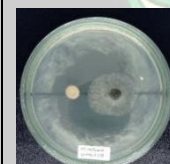






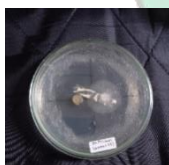



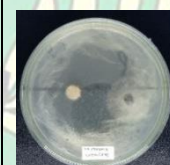




**Lampiran 4.** Dokumentasi Pengamatan Cendawan Asosiasi Kakao Klon S1

<b>Hari Pengamatan</b>	<b>Isolat cendawan asosiasi kakao klon S1</b>			
	<b>Isolat S1</b>		<b><i>Papulaspora</i> sp.</b>	
<b>Hari Ketiga (3)</b>				
	<b>Isolat S2</b>		<b>Isolat S3</b>	
				
	<b><i>Fusarium</i> sp.</b>			
				





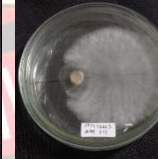
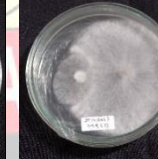


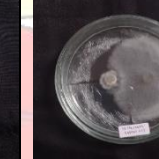



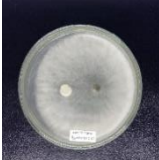







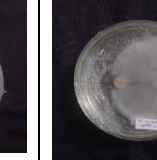


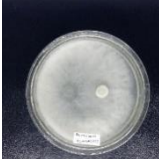
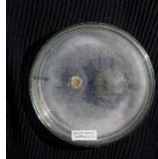





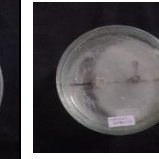
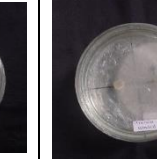
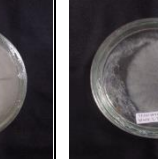

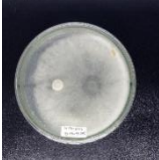

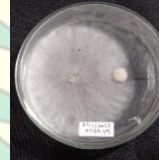



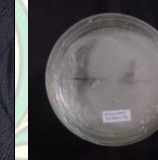
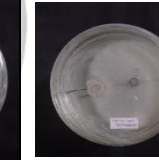
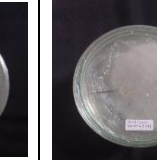
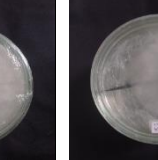
Hari Pengamatan	Isolat cendawan asosiasi kakao klon S1			
	Isolat S1		Papulaspora S2	
Hari Kelima (5)				
				
	<i>Fusarium sp.</i> 			
Hari Pengamatan	Isolat cendawan asosiasi kakao klon S1			
	Isolat S1		<i>Papulaspora sp.</i>	
Hari Ketujuh (7)				
				
	<i>Fusarium sp.</i> 			







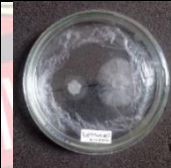


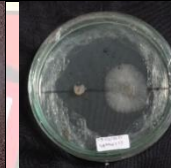

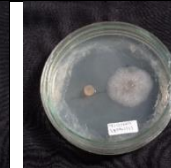
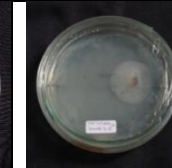
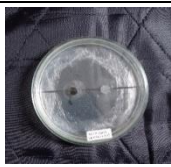

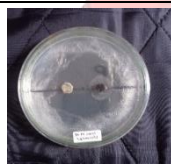



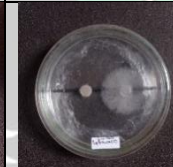
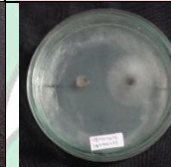

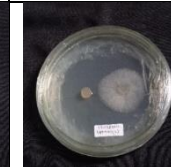
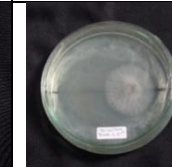



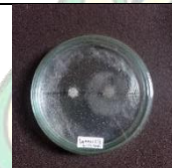















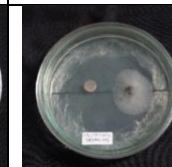
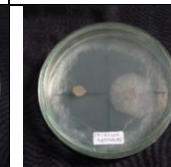
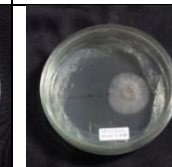
**Lampiran 5.** Dokumentasi Pengamatan Single Dual Culture Kakao Klon M04 x *L. theobromae* 24 Jam

Ula nga n	Perlakuan										
	<i>L. theobromae</i> x <i>Mortierella</i> sp.	<i>L. theobromae</i> x Isolat M2	<i>L. theobromae</i> x Isolat M3	<i>L. theobromae</i> x Isolat M4	<i>L. theobromae</i> x Isolat M5	<i>L. theobromae</i> x Isolat M6	<i>L. theobromae</i> x Isolat M7	<i>L. theobromae</i> x <i>Nigrospora</i> sp.	<i>L. theobromae</i> x Isolat M9	<i>L. theobromae</i> x Isolat M10	<i>Kontrol L. theobromae</i>
1											
2											
3											
4											


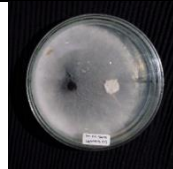









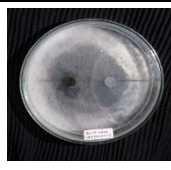
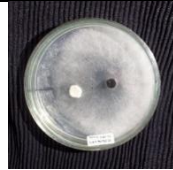


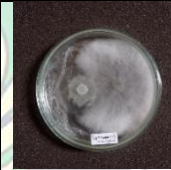
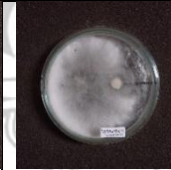
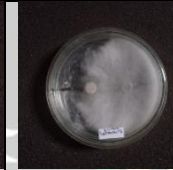
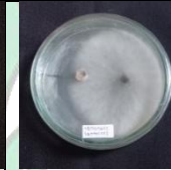



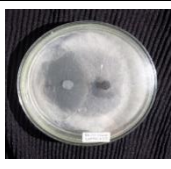

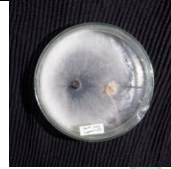






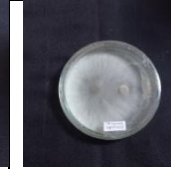


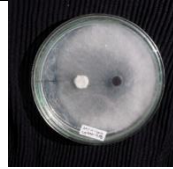
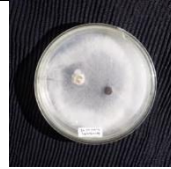








**Lampiran 6.** Dokumentasi Pengamatan Single Dual Culture Kakao Klon M04 x *L. theobromae* 48 Jam

Ulangan	Perlakuan										Kontrol <i>L. theobromae</i>
	<i>L. theobromae</i> x <i>Mortierella</i> sp.	<i>L. theobromae</i> x Isolat M2	<i>L. theobromae</i> x Isolat M3	<i>L. theobromae</i> x Isolat M4	<i>L. theobromae</i> x Isolat M5	<i>L. theobromae</i> x Isolat M6	<i>L. theobromae</i> x Isolat M7	<i>L. theobromae</i> x <i>Nigrospora</i> sp.	<i>L. theobromae</i> x Isolat M9	<i>L. theobromae</i> x Isolat M10	
1											
2											
3											
4											

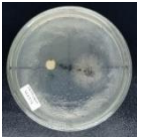







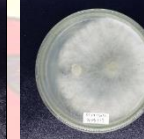
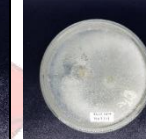
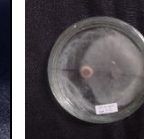

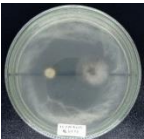






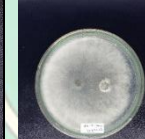

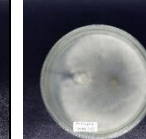
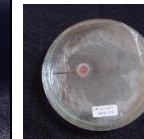








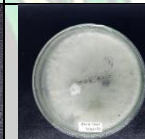
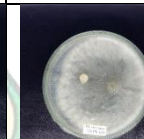
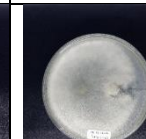

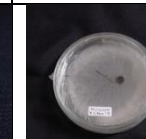
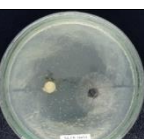

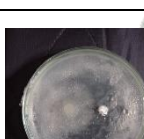

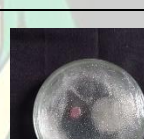
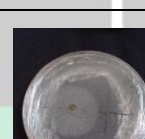
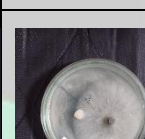




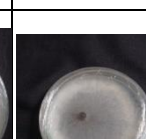
**Lampiran 7.** Dokumentasi Pengamatan Single Dual Culture Kakao Klon M04 x *L. pseudotheobromae* 24 Jam

Ulangan	Perlakuan										
	<i>L. pseudotheobromae</i> x <i>Mortierella</i> sp.	<i>L. pseudotheobromae</i> x Isolat M2	<i>L. pseudotheobromae</i> x Isolat M3	<i>L. pseudotheobromae</i> x Isolat M4	<i>L. pseudotheobromae</i> x Isolat M5	<i>L. pseudotheobromae</i> x Isolat M6	<i>L. pseudotheobromae</i> x Isolat M7	<i>L. pseudotheobromae</i> x <i>Nigrospora</i> sp.	<i>L. pseudotheobromae</i> x Isolat M9	<i>L. pseudotheobromae</i> x Isolat M10	Kontrol <i>L. pseudotheobromae</i>
1											
2											
3											
4											

**Lampiran 8.** Dokumentasi Pengamatan Single Dual Culture Kakao Klon M04 x *L. pseudotheobromae* 48 Jam

Ulangan	Perlakuan										
	<i>L. pseudotheobromae</i> x <i>Mortierella</i> sp.	<i>L. pseudotheobromae</i> x Isolat M2	<i>L. pseudotheobromae</i> x Isolat M3	<i>L. pseudotheobromae</i> x Isolat M4	<i>L. pseudotheobromae</i> x Isolat M5	<i>L. pseudotheobromae</i> x Isolat M6	<i>L. pseudotheobromae</i> x Isolat M7	<i>L. pseudotheobromae</i> x <i>Nigrospora</i> sp.	<i>L. pseudotheobromae</i> x Isolat M9	<i>L. pseudotheobromae</i> x Isolat M10	Kontrol <i>L. pseudotheobromae</i>
1											
2											
3											
4											


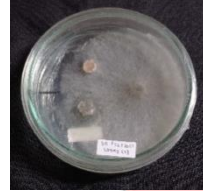
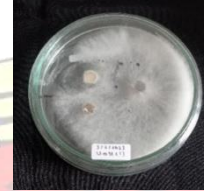
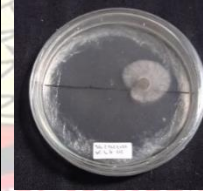

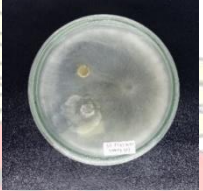
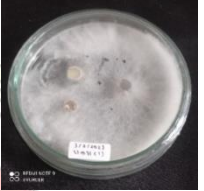
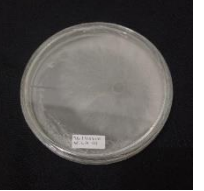



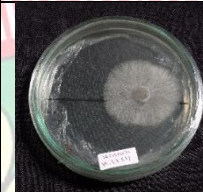

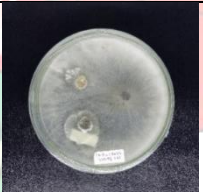

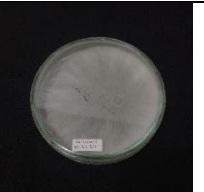
















**Lampiran 9.** Dokumentasi Pengamatan Single Dual Culture Kakao Klon S1 x *L. theobromae* 24 & 48 Jam

Ulangan	Perlakuan											
	24 Jam						48 Jam					
	<i>L. theobromae</i> x Isolat S1	<i>L. theobromae</i> x <i>Papula spora</i> sp.	<i>L. theobromae</i> x Isolat S2	<i>L. theobromae</i> x Isolat S3	<i>L. theobromae</i> x <i>Fusarium</i> sp.	Kontrol <i>L. theobromae</i>	<i>L. theobromae</i> x Isolat S1	<i>L. theobromae</i> x <i>Papulaspora</i> sp.	<i>L. theobromae</i> x Isolat S2	<i>L. theobromae</i> x Isolat S3	<i>L. theobromae</i> x <i>Fusarium</i> sp.	Kontrol <i>L. theobromae</i>
1												
2												
3												
4												

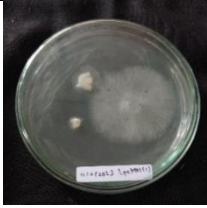



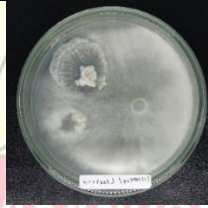




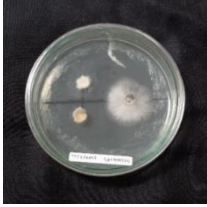






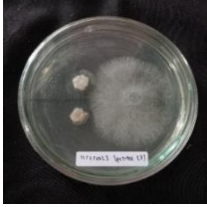








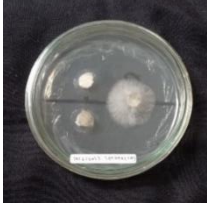






**Lampiran 10.** Dokumentasi Pengamatan Single Dual Culture Kakao Klo S1 x *L. pseudotheobromae* 24 dan 48 Jam

Ulangan	Perlakuan											
	24 Jam						48 Jam					
	<i>L. pseudotheobromae</i> x Isolat S1	<i>L. pseudotheobromae</i> x <i>Papulaspora</i> sp.	<i>L. pseudotheobromae</i> x Isolat S2	<i>L. pseudotheobromae</i> x Isolat S3	<i>L. pseudotheobromae</i> x <i>Fusarium</i> sp.	Kontrol <i>L. pseudotheobromae</i>	<i>L. pseudotheobromae</i> x Isolat S1	<i>L. pseudotheobromae</i> x <i>Papulaspora</i> sp.	<i>L. pseudotheobromae</i> x Isolat S2	<i>L. pseudotheobromae</i> x Isolat S3	<i>L. pseudotheobromae</i> x <i>Fusarium</i> sp.	Kontrol <i>L. pseudotheobromae</i>
1												
2												
3												
4												

**Lampiran 11.** Dokumentasi Pengamatan Multiple Culture Kakao Klon M04 x *L. theobromae* 24 Jam dan 48 Jam

Ulangan	Perlakuan							
	24 Jam				48 Jam			
	LtcM01	LtcM02	LtcM03	Kontrol <i>L. theobromae</i>	LtcM01	LtcM02	LtcM03	Kontrol <i>L. theobromae</i>
1								
2								
3								
4								

**Lampiran 12.** Dokumentasi Pengamatan Multiple Culture Kakao Klon M04 x *L. pseudotheobromae* 24 Jam dan 48 Jam

Ulangan	Perlakuan							
	24 Jam				48 Jam			
	LpcM01	LpcM02	LpcM03	Kontrol <i>L. pseudotheobromae</i>	LpcM01	LpcM02	LpcM03	Kontrol <i>L. pseudotheobromae</i>
1								
2								
3								
4								



**Lampiran 13.** Dokumentasi Pengamatan Uji Detached Pod M04 x *L. theobromae*

Ulangan	Perlakuan														
	Mortierella sp.			Isolat M5			Isolat M6			Kontrol <i>L. theobromae</i>			Kontrol Positif		
	3 HSI	5 HSI	7 HSI	3 HSI	5 HSI	7 HSI	3 HSI	5 HSI	7 HSI	3 HSI	5 HSI	7 HSI	3 HSI	5 HSI	7 HSI
1															
2															
3															
4															

**Lampiran 14.** Dokumentasi Pengamatan Uji Detached Pod M04 x *L. pseudotheobromae*

Ulangan	Perlakuan														
	Mortierella sp.			Isolat M4			Isolat M5			Kontrol <i>L. pseudotheobromae</i>			Kontrol Positif		
	3 HSI	5 HSI	7 HSI	3 HSI	5 HSI	7 HSI	3 HSI	5 HSI	7 HSI	3 HSI	5 HSI	7 HSI	3 HSI	5 HSI	7 HSI
1															
2															
3															
4															

**Lampiran 15.** Uji Penghambatan Koloni Pengamatan 24 Jam dengan Single Dual Culture pada *L. theobromae* (M04 x *L. theobromae*)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
Mortierella sp	0.38	0.06	0.31	0.16	0.91	0.23
Isolat M2	0.39	0.32	0.17	0.08	0.96	0.24
Isolat M3	0.50	0.36	0.30	0.32	1.48	0.37
Isolat M4	0.49	0.30	0.39	0.26	1.44	0.36
Isolat M5	0.55	0.30	0.39	0.40	1.64	0.41
Isolat M6	0.53	0.40	0.41	0.28	1.61	0.40
Isolat M7	0.50	0.36	0.31	0.40	1.57	0.39
Nigrospora sp.	0.59	0.40	0.44	0.42	1.86	0.46
Isolat M9	0.66	0.36	0.39	0.42	1.83	0.46
Isolat M10	0.64	0.42	0.48	0.38	1.92	0.48
TOTAL	5.23	3.28	3.59	3.12		
Jumlah					15.22	0.38

**Lampiran 16.** Sidik Ragam Penghambatan Koloni Pengamatan 24 Jam dengan Single Dual Culture pada *L. theobromae* (M04 x *L. theobromae*)

**ANOVA**

ANOVA					
Ulangan	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.271	9	.030	2.387	.036
Within Groups	.379	30	.013		
Total	.650	39			

**Lampiran 17.** Uji Penghambatan Koloni Pengamatan 48 Jam dengan Single Dual Culture pada *L. theobromae* (M04 x *L. theobromae*)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
Mortierella sp	0.44	0.41	0.42	0.39	1.67	0.42
Isolat M2	0.14	0.23	0.22	0.17	0.77	0.19
Isolat M3	0.33	0.23	0.11	0.22	0.90	0.23
Isolat M4	0.23	0.24	0.27	0.22	0.97	0.24
Isolat M5	0.44	0.41	0.40	0.43	1.69	0.42
Isolat M6	0.44	0.43	0.44	0.47	1.79	0.45
Isolat M7	0.22	0.16	0.17	0.14	0.69	0.17
Nigrospora sp.	0.11	0.04	0.08	0.07	0.30	0.08
Isolat M9	0.22	0.16	0.18	0.12	0.68	0.17
Isolat M10	0.16	0.17	0.14	0.16	0.62	0.16
Total	2.76	2.49	2.43	2.39		
Jumlah					10.07	0.25

**Lampiran 18.** Sidik Ragam Penghambatan Koloni Pengamatan 48 Jam dengan Single Dual Culture pada *L. theobromae* (M04 x *L. theobromae*)

**ANOVA**

ANOVA					
Ulangan	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.601	9	.067	43.604	.000
Within Groups	.046	30	.002		
Total	.647	39			

**Ulangan**

Perlakuan	N	Subset for alpha = 0.05		
		1	2	3
Tukey HSD <sup>a</sup>				
Nigrospora sp.	4	.0750		
Isolat M10	4	.1575	.1575	
Isolat M9	4		.1700	
Isolat M7	4		.1725	
Isolat M2	4		.1900	
Isolat M3	4		.2225	
Isolat M4	4		.2400	
Mortierella sp.	4			.4150
Isolat M5	4			.4200
Isolat M6	4			.4450
Sig.		.127	.127	.983

Means for groups in homogeneous subsets are displayed.  
a. Uses Harmonic Mean Sample Size = 4.000.

**Lampiran 19.** Uji Penghambatan Koloni Pengamatan 24 Jam dengan Single Dual Culture pada *L. pseudotheobromae* (M04 x *L. pseudotheobromae*)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
Mortierella sp	0.70	0.74	0.70	0.73	2.86	0.72
Isolat M2	0.66	0.78	0.58	0.73	2.74	0.69
Isolat M3	0.70	0.79	0.72	0.69	2.90	0.73
Isolat M4	0.43	0.54	0.45	0.44	1.86	0.46
Isolat M5	0.46	0.56	0.50	0.44	1.96	0.49
Isolat M6	0.39	0.50	0.48	0.45	1.83	0.46
Isolat M7	0.45	0.51	0.48	0.42	1.86	0.47
Nigrospora sp.	0.52	0.58	0.50	0.52	2.12	0.53
Isolat M9	0.43	0.53	0.56	0.50	2.02	0.50
Isolat M10	0.43	0.53	0.42	0.48	1.86	0.47
Total	5.16	6.06	5.41	5.39		
Jumlah					22.01	0.55

**Lampiran 20.** Sidik Ragam Penghambatan Koloni Pengamatan 24 Jam dengan Single Dual Culture pada *L. pseudotheobromae* (M04 x *L. pseudotheobromae*)

**ANOVA**

Ulangan	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.457	9	.051	19.503	.000
Within Groups	.078	30	.003		
Total	.535	39			

**Ulangan**

Perlakuan	N	Subset for alpha = 0.05	
		1	2
Tukey HSD <sup>a</sup> Isolat M6	4	.4550	
Isolat M4	4	.4650	
Isolat M7	4	.4650	
Isolat M10	4	.4650	
Isolat M5	4	.4900	
Isolat M9	4	.5050	
Nigrospora sp.	4	.5300	
Isolat M2	4		.6875
Mortierella sp.	4		.7175
Isolat M3	4		.7250
Sig.		.555	.987

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

**Lampiran 21.** Uji Penghambatan Koloni Pengamatan 48 Jam dengan Single Dual Culture pada *L. pseudotheobromae* (M04 x *L. pseudotheobromae*)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
Mortierella sp	0.48	0.50	0.49	0.47	1.93	0.48
Isolat M2	0.22	0.16	0.13	0.14	0.66	0.16
Isolat M3	0.11	0.06	0.02	0.11	0.30	0.08
Isolat M4	0.43	0.47	0.44	0.47	1.81	0.45
Isolat M5	0.47	0.48	0.47	0.47	1.88	0.47
Isolat M6	0.03	0.06	0.04	0.01	0.14	0.04
Isolat M7	0.04	0.03	0.06	0.03	0.17	0.04
Nigrospora sp.	0.01	0.03	0.14	0.12	0.31	0.08
Isolat M9	0.04	0.06	0.12	0.11	0.33	0.08
Isolat M10	0.16	0.13	0.12	0.13	0.54	0.14
Total	2.00	1.97	2.04	2.07		
Jumlah					8.08	0.20

**Lampiran 22.** Sidik Ragam Penghambatan Koloni Pengamatan 48 Jam dengan Single Dual Culture pada *L. pseudotheobromae* (M04 x *L. pseudotheobromae*)

**ANOVA**

Ulangan	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.291	9	.143	133.635	.000
Within Groups	.032	30	.001		
Total	1.323	39			

**Ulangan**

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Tukey HSD <sup>a</sup> Isolat M6	4	.0350			
Isolat M7	4	.0400			
Isolat M3	4	.0750	.0750		
Nigrospora sp.	4	.0750	.0750		
Isolat M9	4	.0825	.0825		
Isolat M10	4		.1350	.1350	
Isolat M2	4			.1625	
Isolat M4	4				.4525
Isolat M5	4				.4725
Mortierella sp.	4				.4850
Sig.		.573	.265	.969	.917

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

**Lampiran 23.** Uji Penghambatan Koloni Pengamatan 24 Jam dengan Single Dual Culture pada *L. theobromae* (S1 x *L. theobromae*)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
Isolat S1	0.54	0.65	0.58	0.65	2.42	0.61
Papulaspora sp.	0.46	0.46	0.47	0.42	1.81	0.45
Isolat S2	0.50	0.54	0.46	0.53	2.03	0.51
Isolat S3	0.46	0.46	0.49	0.59	2.00	0.50
Fusarium sp.	0.69	0.50	0.45	0.62	2.25	0.56
Total	2.65	2.62	2.45	2.81		
Jumlah					10.53	0.53

**Lampiran 24.** Sidik Ragam Penghambatan Koloni Pengamatan 24 Jam dengan Single Dual Culture pada *L. theobromae* (S1 x *L. theobromae*)

**ANOVA**

Ulangan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.057	4	.014	3.445	.035
Within Groups	.062	15	.004		
Total	.118	19			

**Ulangan**

Perlakuan	N	Subset for alpha = 0.05	
		1	2
Tukey HSD <sup>a</sup> Papulaspora sp.	4	.4525	
Isolat S3	4	.5000	.5000
Isolat S2	4	.5075	.5075
Fusarium sp	4	.5650	.5650
Isolat S1	4		.6050
Sig.		.148	.194

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

**Lampiran 25.** Uji Penghambatan Koloni Pengamatan 48 Jam dengan Single Dual Culture pada *L. theobromae* (S1 x *L. theobromae*)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
Isolat S1	0.33	0.34	0.23	0.27	1.18	0.29
Papulaspora sp.	0.22	0.23	0.26	0.16	0.87	0.22
Isolat S2	0.11	0.14	0.13	0.22	0.61	0.15
Isolat S3	0.16	0.02	0.03	0.11	0.32	0.08
Fusarium sp.	0.17	0.11	0.22	0.22	0.72	0.18
Total	0.99	0.86	0.88	0.98		
Jumlah					3.70	0.19

**Lampiran 26.** Sidik Ragam Penghambatan Koloni Pengamatan 48 Jam dengan Single Dual Culture pada *L. theobromae* (S1 x *L. theobromae*)

SK	DB	JK	KT	F Hitung	Ket	F tabel	
						0.05	0.01
Perlakuan	6	0.30	0.049	0.297	tn	2.57	3.81
Galat	21	3.48	0.166				
Total	27	3.77					
KK	2.20						

**Lampiran 27.** Uji Penghambatan Koloni Pengamatan 24 Jam dengan Single Dual Culture pada *L. pseudotheobromae* (S1 x *L. pseudotheobromae*)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
Isolat S1	0.08	0.14	0.09	0.02	0.34	0.08
Papulaspora sp.	0.06	0.04	0.02	0.13	0.25	0.06
Isolat S2	0.10	0.10	0.07	0.02	0.29	0.07
Isolat S3	0.02	0.00	0.09	0.15	0.26	0.07
Fusarium sp.	0.40	0.29	0.16	0.39	1.24	0.31
Total	0.66	0.57	0.43	0.72		
Jumlah					2.38	0.12

**Lampiran 28.** Sidik Ragam Penghambatan Koloni Pengamatan 24 Jam dengan Single Dual Culture pada *L. pseudotheobromae* (M04 x *L. pseudotheobromae*)

**ANOVA**

Ulangan					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.184	4	.046	9.885	.000
Within Groups	.070	15	.005		
Total	.254	19			

**Ulangan**

Perlakuan	N	Subset for alpha = 0.05	
		1	2
Tukey HSD <sup>a</sup> Papulaspora sp.	4	.0625	
Isolat S3	4	.0650	
Isolat S2	4	.0725	
Isolat S1	4	.0825	
Fusarium sp	4		.3100
Sig.		.993	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

**Lampiran 29.** Uji Penghambatan Koloni Pengamatan 48 Jam dengan Single Dual Culture pada *L. pseudotheobromae* (S1 x *L. pseudotheobromae*)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
Isolat S1	0.11	0.13	0.03	0.04	0.32	0.08
Papulaspora sp.	0.11	0.04	0.06	0.02	0.23	0.06
Isolat S2	0.00	0.01	0.03	0.11	0.16	0.04
Isolat S3	0.03	0.03	0.01	0.02	0.10	0.03
Fusarium sp.	0.11	0.03	0.01	0.04	0.20	0.05
Total	1.01	1.66	1.65	1.51		
Jumlah					1.01	0.05

**Lampiran 30.** Sidik Ragam Penghambatan Koloni Pengamatan 48 Jam dengan Single Dual Culture pada *L. pseudotheobromae* (S1 x *L. pseudotheobromae*)

SK	DB	JK	KT	F Hitung	Ket	F tabel	
						0.05	0.01
Perlakuan	4	0.01	0.002	1.051	tn	3.06	4.89
Galat	15	0.02	0.002				
Total	19	0.03					
KK	0.81						

**Lampiran 31.** Uji Penghambatan Koloni Pengamatan 24 Jam dengan Multiple Culture pada *L. theobromae*

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1.00	2.00	3.00	4.00		
LtcM01	0.50	0.65	0.56	0.51	2.22	0.56
LtcM02	0.57	0.56	0.59	0.59	2.30	0.58
LtcM03	0.52	0.49	0.55	0.55	2.11	0.53
Total	1.85	1.88	1.91	1.52	7.16	0.60

**Lampiran 32.** Sidik Ragam Penghambatan Koloni Pengamatan 24 Jam Multiple Culture pada *L. theobromae*

SK	DB	JK	KT	F Hitung	Ket	F tabel	
						0.05	0.01
Perlakuan	2.00	0.05	0.027	1.951	tn	4.26	8.02
Galat	9.00	0.12	0.014				
Total	11.00	0.18					
KK	0.20						

**Lampiran 33.** Uji Penghambatan Koloni Pengamatan 48 Jam dengan Multiple Culture pada *L. theobromae*

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LtcM01	0.73	0.82	0.77	0.72	3.04	0.76
LtcM02	0.39	0.27	0.31	0.26	1.22	0.31
LtcM03	0.40	0.28	0.37	0.24	1.29	0.32
Total	1.52	1.37	1.44	1.22	5.56	0.46

**Lampiran 34.** Sidik Ragam Penghambatan Koloni Pengamatan 48 Jam Multiple Culture pada *L. theobromae*

**ANOVA**

Ulangan	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.529	2	.264	70.889	.000
Within Groups	.034	9	.004		
Total	.562	11			

**Ulangan**

Perlakuan	N	Subset for alpha = 0.05	
		1	2
Tukey HSD <sup>a</sup>			
LtcM02	4	.3075	
LtcM03	4	.3225	
LtcM01	4		.7600
Sig.		.936	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

**Lampiran 35.** Uji Penghambatan Koloni Pengamatan 24 Jam dengan Multiple Culture pada *L. pseudotheobromae*

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LpcM01	0.13	0.50	0.20	0.50	1.33	0.33
LpcM02	0.53	0.48	0.48	0.50	2.00	0.50
LpcM03	0.47	0.48	0.48	0.48	1.92	0.48
Total	1.13	1.47	1.17	1.48	5.25	0.44

**Lampiran 36.** Sidik Ragam Penghambatan Koloni Pengamatan 24 Jam Multiple Culture pada *L. pseudotheobromae*

SK	DB	JK	KT	F Hitung	Ket	F tabel	
						0.05	0.01
Perlakuan	2	0.065972	0.033	2.577	tn	4.26	8.02
Galat	9	0.12	0.013				
Total	11	0.18					
KK	0.26						

**Lampiran 37.** Uji Penghambatan Koloni Pengamatan 48 Jam dengan Multiple Culture pada *L. pseudotheobromae*

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LpcM01	0.38	0.50	0.40	0.50	1.78	0.44
LpcM02	0.51	0.38	0.39	0.37	1.64	0.41
LpcM03	0.44	0.33	0.26	0.24	1.28	0.32
Total	2.33	2.21	2.04	2.11	8.70	0.54

**Lampiran 38.** Sidik Ragam Penghambatan Koloni Pengamatan 48 Jam Multiple Culture pada *L. pseudotheobromae*

**ANOVA**

Ulangan	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.035	2	.018	3.183	.090
Within Groups	.050	9	.006		
Total	.085	11			

**Lampiran 39.** Luas Lesi oleh *L. theobromae* Pengamatan 3 Hari Setelah Inokulasi (HSI) dengan *L. theobromae*

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LtcM01	<b>0.55</b>	<b>0.31</b>	<b>0.55</b>	<b>2.90</b>	4.32	1.08
LtcM02	<b>1.81</b>	<b>1.57</b>	<b>3.30</b>	<b>7.07</b>	13.74	3.43
LtcM03	<b>4.55</b>	<b>4.87</b>	<b>4.24</b>	<b>3.14</b>	16.80	4.20
Kontrol <i>L. theobromae</i>	<b>0.94</b>	<b>0.55</b>	<b>0.79</b>	<b>0.31</b>	2.59	0.65
K. Positif	0	0	0	0	0.00	0.00
Total	7.85	7.30	8.87	13.42	37.44	2.34

**Lampiran 40.** Luas Lesi oleh *L. theobromae* Pengamatan 5 Hari Setelah Inokulasi

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LtcM01	<b>0.55</b>	<b>0.31</b>	<b>0.94</b>	<b>9.81</b>	11.62	2.90
LtcM02	<b>4.79</b>	<b>1.18</b>	<b>10.99</b>	<b>26.69</b>	43.65	10.91
LtcM03	<b>21.98</b>	<b>16.88</b>	<b>28.65</b>	<b>9.58</b>	77.09	19.27
Kontrol <i>L. theobromae</i>	<b>0.94</b>	<b>1.73</b>	<b>0.94</b>	<b>0.31</b>	3.93	0.98
K. positif	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00	0.00
Total	28.26	20.10	41.53	46.39	136.28	8.52

**Lampiran 41.** Luas Lesi oleh *L. theobromae* Pengamatan 7 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LtcM01	<b>0.55</b>	<b>0.31</b>	<b>0.94</b>	<b>17.58</b>	19.39	4.85
LtcM02	<b>29.44</b>	<b>29.83</b>	<b>32.19</b>	<b>26.69</b>	118.14	29.54
LtcM03	<b>27.87</b>	<b>28.65</b>	<b>28.65</b>	<b>27.87</b>	113.04	28.26
Kontrol <i>L. theobromae</i>	<b>0.94</b>	<b>3.53</b>	<b>1.33</b>	<b>1.02</b>	6.83	1.71
K. positif	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00	0.00
Total	58.80	62.33	63.11	73.16	257.40	16.09

**Lampiran 42.** Luas Lesi oleh *L. pseudotheobromae* Pengamatan 3 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LpcM01	<b>6.28</b>	<b>7.14</b>	<b>8.71</b>	<b>7.85</b>	29.99	7.50
LpcM02	<b>6.52</b>	<b>7.93</b>	<b>9.89</b>	<b>7.85</b>	32.19	8.05
LpcM03	<b>12.56</b>	<b>7.61</b>	<b>8.16</b>	<b>5.18</b>	33.52	8.38
Kontrol <i>L. pseudotheobromae</i>	<b>0.31</b>	<b>5.57</b>	<b>0.79</b>	<b>10.99</b>	17.66	4.42
K. Positif	0	0	0	0	0	0
Total	25.67	28.26	27.55	31.87	113.35	7.08

**Lampiran 43.** Luas Lesi oleh *L. pseudotheobromae* Pengamatan 5 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LpcM01	<b>18.84</b>	<b>14.92</b>	<b>19.23</b>	<b>18.84</b>	71.83	17.96
LpcM02	<b>19.63</b>	<b>22.37</b>	<b>31.79</b>	<b>20.02</b>	93.81	23.45
LpcM03	<b>27.08</b>	<b>24.34</b>	<b>28.06</b>	<b>19.63</b>	99.11	24.78
Kontrol <i>L. pseudotheobromae</i>	<b>5.34</b>	<b>18.29</b>	<b>7.30</b>	<b>23.94</b>	54.87	13.72
K. Positif	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00	0.00
Total	70.89	79.91	86.39	82.43	319.61	19.98

**Lampiran 44.** Luas Lesi oleh *L. pseudotheobromae* Pengamatan 7 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LpcM01	<b>32.97</b>	<b>27.08</b>	<b>32.19</b>	<b>33.76</b>	125.99	31.50
LpcM02	<b>34.15</b>	<b>29.44</b>	<b>31.79</b>	<b>30.03</b>	125.40	31.35
LpcM03	<b>27.08</b>	<b>28.26</b>	<b>28.06</b>	<b>27.48</b>	110.88	27.72
Kontrol <i>L. pseudotheobromae</i>	<b>16.49</b>	<b>29.05</b>	<b>19.23</b>	<b>34.15</b>	98.91	24.73
K. Positif	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00	0.00
Total	110.69	113.83	111.27	125.40	461.19	28.82

**Lampiran 45.** Persentase Lesi oleh *L. theobromae* Pengamatan 3 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LtcM01	0.01	0.01	0.01	0.07	0.10	3%
LtcM02	0.05	0.04	0.08	0.10	0.27	7%
LtcM03	0.13	0.13	0.12	0.09	0.47	12%
Kontrol <i>L. theobromae</i>	0.02	0.01	0.02	0.01	0.06	2%
Kontrol Positif	0	0	0	0	0.00	0%
Total	0.21	0.20	0.23	0.26	0.90	0.04



**Lampiran 46.** Persentase Lesi oleh *L. theobromae* Pengamatan 5 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1.00	2.00	3.00	4.00		
LtcM01	0.01	0.01	0.02	0.22	0.27	7%
LtcM02	0.13	0.03	0.27	0.79	1.21	30%
LtcM03	0.62	0.46	0.78	0.27	2.14	53%
Kontrol <i>L. theobromae</i>	0.02	0.04	0.02	0.01	0.09	2%
Kontrol Positif	0.00	0.00	0.00	0.00	0.00	0%
Total	0.78	0.54	1.10	1.28	3.71	0.19

**Lampiran 49.** Persentase Lesi oleh *L. pseudotheobromae* Pengamatan 5 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LpcM01	0.45	0.35	0.47	0.44	1.70	43%
LpcM02	0.45	0.60	0.78	0.52	2.36	59%
LpcM03	0.78	0.68	0.80	0.56	2.82	71%
Kontrol <i>L. pseudotheobromae</i>	0.12	0.44	0.17	0.54	1.27	32%
Kontrol Positif	0.00	0.00	0.00	0.00	0.00	0%
Total	1.81	2.06	2.23	2.06	8.16	41%

**Lampiran 47.** Persentase Lesi oleh *L. theobromae* Pengamatan 7 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1.00	2.00	3.00	4.00		
LtcM01	0.01	0.01	0.02	0.40	0.44	11%
LtcM02	0.79	0.79	0.79	0.79	3.14	79%
LtcM03	0.79	0.78	0.78	0.79	3.14	79%
Kontrol <i>L. theobromae</i>	0.02	0.08	0.03	0.02	0.16	4%
Kontrol Positif	0.00	0.00	0.00	0.00	0.00	0%
Total	1.61	1.66	1.63	1.99	6.88	34%

**Lampiran 50.** Persentase Lesi oleh *L. pseudotheobromae* Pengamatan 7 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LpcM01	0.79	0.63	0.79	0.79	2.99	75%
LpcM02	0.79	0.79	0.78	0.78	3.14	78%
LpcM03	0.78	0.79	0.80	0.79	3.16	79%
Kontrol <i>L. pseudotheobromae</i>	0.38	0.69	0.46	0.79	2.32	58%
Kontrol Positif	0.00	0.00	0.00	0.00	0.00	0%
Total	2.74	2.89	2.83	3.14	11.60	58%

**Lampiran 48.** Persentase Lesi oleh *L. pseudotheobromae* Pengamatan 3 Hari Setelah Inokulasi (HSI)

Kombinasi Perlakuan	Ulangan				Total	Rerata
	1	2	3	4		
LpcM01	0.15	0.17	0.21	0.18	0.71	18%
LpcM02	0.20	0.21	0.24	0.20	0.86	21%
LpcM03	0.36	0.21	0.23	0.15	0.96	24%
Kontrol <i>L. pseudotheobromae</i>	0.01	0.13	0.02	0.25	0.41	10%
Kontrol Positif	0.00	0.00	0.00	0.00	0.00	0%
Total	0.72	0.72	0.71	0.79	2.93	15%

**Inayah Magfirah Ramadhani** Efektivitas Cendawan yang Berasosiasi dengan Klon Kakao M04 dan S1 Terhadap Cendawan *Lasiodiplodia*  
G011 19 1366 *theobromae* dan *L. pseudotheobromae* Asal Kakao

**2023**