

## DAFTAR PUSTAKA

- Alexopoulos, C. J., Mims, C. W., & Blackwell, M. (1996). *Introductory Mycology*. USA: John Wiley and Sons Inc.
- Amalia, R., Herliyana, E. N., & Anggraeni, I. (2008). Potensi *Trichoderma* sp. dan *Gliocladium* sp. sebagai Jamur Antagonis terhadap *Cylindrocladium* sp. Penyebab Penyakit Lodoh pada Persemaian Secara In-Vitro. *Jurnal Penelitian Hutan Tanaman*, 5(1), 63–75.
- Andriani, S., Aini, F., & Ihsan, M. (2019). Isolasi dan Identifikasi Jamur Patogen pada Tanaman Nanas *Ananas comosus* (L). Merr. var. Tangkit. *Jurnal Bio-Site*, 4(1), 13–20. <https://doi.org/10.22437/bs.v5i01.6579>
- Bashri, A., Utami, B., & Primandiri, P. R. (2014). Pertumbuhan Bibit Trembesi (*Samanea saman*) dengan Inopulasi Cendawan Mikoriza Arbuskula pada Media Bekas Tempat Pembuangan Akhir (TPA) Klotok Kediri. *Seminar Nasional XI Pendidikan Biologi FKIP UNS*, 3(26), 165–169.
- Chander, J., Kaur, M., Singla, N., Punia, R. P. S., Singhal, S. K., Attri, A. K., Alastruey-Izquierdo, A., Stchigel, A. M., Cano-Lira, J. F., & Guarro, J. (2018). Mucormycosis: Battle with the Deadly Enemy Over a Five-Year Period in India. *Journal of Fungi*, 4(46), 1–9.
- Darmuh, S., Arif, A., & Taskirawati, I. (2018). Pembuatan Pupuk Insektisida Dan Pengendalian Hama Wereng Padidi Desa Kuta Baru Kecamatan Tebing Tinggi Kabupaten Serdang Bedagai. *Jurnal Perennial*, 14(1), 9–16.
- Dugan, F. M., Hellier, B. C., & Lupien, S. L. (2007). Pathogenic Fungi in Garlic Seed Cloves From the United States and China, and Efficacy of Fungicides Against Pathogens in Garlic Germplasm in Washington State. *Journal of Phytopathology*, 155, 437–445.
- Fitriani, & Basir. (2015). Perkecambahan Benih Trembesi (*Samanea saman*) dengan Kedalaman dan Posisi Tanam yang Berbeda. *Jurnal Hutan Tropis*, 3(3).
- Gandjar, I., & Sjamsuridzal, W. (2006). *Mikologi: Dasar dan Terapan*. Yayasan Obor Indonesia.
- Gassing, S. (2021). *Identifikasi dan Karakterisasi Mikroba Rhizosfer pada Tanaman Padi (*Oryza sativa* L.) di Kecamatan Kajang Kabupaten Bulukumba*. Fakultas Pertanian Universitas Hasanuddin Makassar.
- Herlina, L. (2013). Uji Potensi *Gliocladium* sp Terhadap Pertumbuhan dan Produksi Tanaman Tomat. *Journal of Biology & Biology Education*, 5(2), 88–93.
- Hibbet, D. (2007). *Sebuah Klasifikasi Filogenetik Tingkat yang Lebih Tinggi dari Fungi*. 111(5), 509–547.

- Irgyana. (2020). *Potensi Aspergillus sp. dan Trichoderma sp. Sebagai Pengendali Penyakit Antraknosa (Colletotrichum acutatum J. H. Simmonds) pada Tanaman Cabai Rawit (Capsicum frutescens L.)*. Fakultas Pertanian Universitas Hasanuddin Makassar.
- Julyanda, M. (2011). *Keragaman dan Kelimpahan Cendawan pada Rizosfer Kelapa Sawit Sehat dan Terserang Ganoderma boninense*. Fakultas Pertanian Institut Pertanian Bogor.
- Lubis, Y. A., Riniarti, M., & Bintoro, A. (2014). Pengaruh Lama Waktu Perendaman dengan Air Terhadap Daya Berkecambah Trembesi (Samanea Saman). *Jurnal Sylva Lestari*, 2(2), 25–32. <https://doi.org/10.23960/jsl2225-32>
- Malwani, F., Rosianty, Y., & Lensari, D. (2014). Pengaruh Dosis Urine Sapi Terhadap Pertumbuhan Bibit Trembesi (Samanea saman). *Jurnal Sylva*, 3(1), 12–17.
- Meyer, K. M., & Leveau, J. H. J. (2012). Microbiology of the phyllosphere : a playground for testing ecological concepts. *Oecologia*, 168, 621–629.
- Mujoko, T., Suryaminarsih, P., & Wiyatiningsih, S. (2021). *Mikologi pertanian*. Universitas Pembangunan Nasional “Veteran.”
- Musdalifah, N. (2021). *Identifikasi Keragaman Cendawan pada Jaringan Pohon Eboni (Diospyros celebica BAKH.) dan Tanah di Kampus Universitas Hasanuddin Tamalanrea, Makassar*. Fakultas Kehutanan Universitas Hasanuddin Makassar.
- Nasution, P., Periadnadi, & Nurmiati. (2017). Kecepatan Pertumbuhan Kapang (Trichoderma harzianum Rifai A1300-F006) Dan Aktivitas Selulase Dalam Penanganan Sampah Selulosa. *Jurnal Metamorfosa*, IV(1), 35–40.
- Nugroho, W. C. (2008). Persepsi Mengenai Tanaman Sehat. In *Institut Pertanian Bogor*.
- Payangan, R. Y. (2018). *Isolasi Bakteri Rhizosfer Penghasil IAA (Indole Acetic Acid) Dari Tegakan Hutan Rakyat Suren*. Fakultas Kehutanan Universitas Hasanuddin.
- Pertiwi, D., Safe'i, R., Kaskoyo, H., & Indriyanto. (2019). Identifikasi Kondisi Kerusakan Pohon Menggunakan Metode Forest Health Monitoring Di Tahura War Provinsi Lampung. *Jurnal Perennial*, 15(1), 1–7.
- Pintos, A., Planas, J., & Jarling, J. (2019). Enam Spesies Baru Arthirium dari Eropa dan Catatan Tentang A. caricicola dan Spesies Lain di Carex spp. *MycKeys*, 49, 15–48.
- Purwantisari, S., & Budihastuti, R. (2009). Isolasi dan Identifikasi Jamur Indigenous Rhizofe Tanaman Kentang dari Lahan Pertanian tentang Organik di Desa Pakis, Magelang. *Bioma*, 11(2), 45–53.

- Ramadani, S. (2015). *Pengaruh Pemberian Pupuk Hijau Cair Kihujan (Samanea saman) dan Azolla (Azolla pinnata) terhadap Kandungan NDF Dan ADF pada Rumput Gajah (Pennisetum purpureum)*. Fakultas Peternakan Universitas Hasanuddin Makassa.
- Riskawati. (2010). *Isolasi Mikroba Penghasil Antibiotika Dari Air Kanal Al-Markaz Makassar*. Fakultas Ilmu Kesehatan UIN Alauddin Makassar.
- Rohmah, B., Hadisutrisno, B., Manohara, D., & Priyatmojo, A. (2018). Karakteristik Morfologi Dan Sebaran Tipe Kawin *Phytophthora Capsici* Asal Lada Di Pulau Jawa. *Jurnal Fitopatologi Indonesia*, 14(5), 166–174.
- Sari, D. E. (2017). Identifikasi Mikroba Asal Ekstrak Buah yang Diaplikasikan pada Pertanaman Jeruk Organik di Kabupaten Pangkep. *Jurnal Pertanian Berkelanjutan*, 5(1), 1–7.
- Sari, N. F. (2017). *Kemampuan Daya Hambat Trichoderma sp. dan Gliocladium sp. terhadap Pertumbuhan Colletotrichum sp. dan Phythophthora sp.* Fakultas Pertanian Universitas Hasanuddin Makassar.
- Shoba, K. (2015). *Keanekaragaman Cendawan pada Rizosfer Kelapa Sawit dan Palem Liar*. Fakultas Pertanian Institut Pertanian Bogor.
- Sopialena. (2017). *Segitiga Penyakit Tanaman* (Vol. 1999). Mulawarman University Press.
- Suanda, I. W. (2019). Karakterisasi Morfologis *Trichoderma sp.* Isolat JB dan Daya Hambatnya Terhadap Jamur *Fusarium sp.* Penyebab Penyakit Layu dan Jamur Akar Putih Pada Beberapa Tanaman. *Widya Biologi*, 10(2), 99–112.
- Subhan. (2012). Pengaruh Cendawan *Tricho derma sp.* Terhadap Tanaman Tomat Pada Tanah Andisol. *Berita Biologi*, 11(3).
- Subli, M., Peran, S. B., & Rudy, G. S. (2019). Daya Hidup dan Kualitas Pertumbuhan Trembesi (*Samanea saman*) dan Sengon (*Paraserianthes falcataria*) Pada Media Tanah Bekas Tambang Intan di Shade House. *Jurnal Sylva Scientiae*, 02(5), 922–929.
- Suciatmih. (2015). Diversitas Jamur Endofit pada Tumbuhan Mangrove di Pantai Sampiran dan Pulau Bunaken, Sulawesi Utara. *Pros Sem Nas Masy Biodiv Indon*, 1(2), 177–183.
- Sudirman, A., Sumardiyono, C., & Widyastuti, S. M. (2011). Pengendalian Hayati Penyakit Layu *Fusarium* Pisang (*Fusarium oxysporum f.sp. cubense*) Dengan *Trichoderma sp.* *Jurnal Perlindungan Tanaman Indonesia*, 17(1), 31–35.
- Suhardiman, P. (1983). *Jamur Kayu*. Penebar Swadaya.
- Sulistiyawati, P. (2014). *Deteksi keberadaan Phytophthora spp. di Air*. 8(3).
- Sunarya, S., Karmana, M. H., Rostini, N., & Sumadi, S. (2017). Variabilitas Genetik, Kemajuan Genetik, dan Pola Klaster Populasi Tegakan Benih

- Paraserianthes falcataria (L.) Nielsen Setelah Seleksi Massa Berdasarkan Marka Morfologi. *Kultivasi*, 16(1), 279–286.
- Supriyanto. (2009). Penapisan PGPF Untuk Pengendalian Penyakit Busuk Lunak Lidah Buaya (Aloe vera) Di Tanah Gambut. *Perlindungan Tanaman Indonesia*, 15(2), 71–82.
- Suryani, Y., Taupiqurrahman, O., & Kulsum, Y. (2020). *Mikologi*. PT. Freeline Cita Granesia.
- Suryanti, Hadisutrisno, B., Mulyadi, & Widada, J. (2015). Identifikasi Fusarium Dan Nematoda Parasitik Yang Berasosiasi Dengan Penyakit Kuning Lada Di Kalimantan Barat. *Perlindungan Tanaman Indonesia*, 19(1), 19–26.
- Tambingsila, M. (2016). Identifikasi dan Uji Efektivitas Cendawan Rhizosfer Tanaman Kakao Potensinya sebagai Antagonis Pengendali (Phytophthora palmivora B.) Penyebab Busuk Buah Kakao. *Jurnal Agropet*, 13(1), 12–23.
- Utami. (2011). *Uji Kemampuan Koagulan Alami dari Biji Trembesi (Samanea saman), Biji Kelor (Moringa oleifera), dan Kacang Merah (Phaseolus vulgaris) dalam Proses Penurunan Kadar Fosfat pada Limbah Cair Industri Pupuk*. Fakultas Teknik Sipil dan Perencanaan Institut Tek.
- Vinodhini. (2018). Review on Ethnomedical Uses, Pharmacological Activity and Phytochemical Constituents of Samanea saman (jacq.) Merr. Rain Tree. *Pharmacognosy Journal*, 10(2), 202–209.
- Watanabe, T. (2010). *Pictorial Atlas of Soil and Seed Fungi*. CRC Press, New York.
- Yuniarti, N., Suharti, T., & Bramasto, Y. (2013). Pengaruh Filtrat Cendawan Aspergillus sp. dan Fusarium sp. Terhadap Viabilitas Benih dan Pertumbuhan Bibit Sengon (Paraserianthes falcataria ). *Penelitian Kehutanan Wallacea*, 2(2), 93–103.
- Zhang, Z. Y., Han, Y. F., Chen, W. H., & Liang, Z. Q. (2019). Gongronella sichuanensis (Cunninghamellaceae, Mucorales), a New Species Isolated from Soil in China. *Phytotaxa*, 416(2), 167–174.

# LAMPIRAN

**Lampiran 1.** Dokumentasi pengambilan sampel di lapangan



Pengambilan Sampel Daun Pohon Trembesi

Pengambilan Sampel Kulit dan Batang Pohon Trembesi

Pengambilan Sampel Akar Pohon Trembesi

**Lampiran 2.** Data Tinggi, Diameter, Volume dan Lokasi Pohon

Pohon	Diameter (m)	Tinggi (m)	Volume	Lokasi
Pohon 1	0.48	7.46	1.35	Di Depan Fakultas Ekonomi Bisnis
Pohon 2	0.94	11.93	8.27	Di Depan Fakultas Kehutanan
Pohon 3	0.89	12.21	7.59	Di Depan Fakultas Kehutanan
Pohon 4	0.67	16.25	5.73	Di Lapangan Fakultas Keperawatan
Pohon 5	0.37	12.53	1.35	Di Lapangan Tembak
Pohon 6	0.36	16.66	1.69	Di Lapangan

**Lampiran 3. Dokumentasi Penelitian di Laboratorium Bioteknologi dan Pemuliaan Pohon, Fakultas Kehutanan, Universitas Hasanuddin**



Pembuatan Media PDA



Penuangan Media PDA pada Cawan



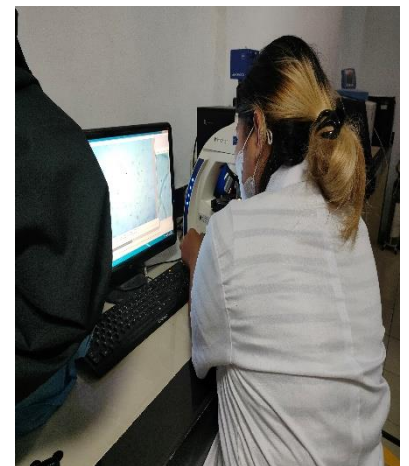
Melakukan Pengerusan Terhadap Sampel Jaringan Pohon Trembesi



Penanaman Sampel Jaringan Pohon Trembesi pada media PDA





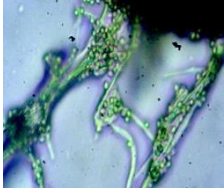
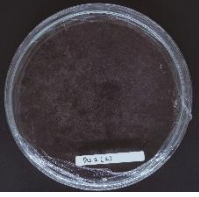
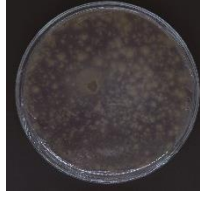



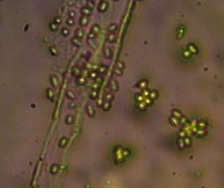


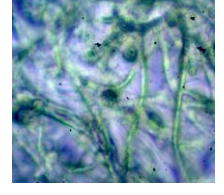





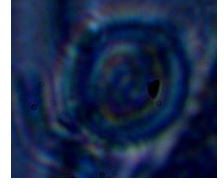
Melakukan Tahap Pemurnian Terhadap Isolat

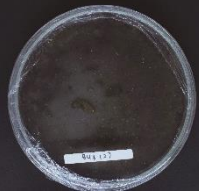

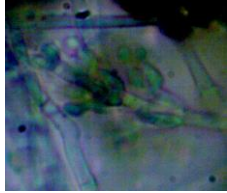



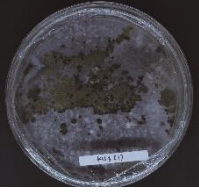
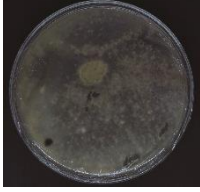
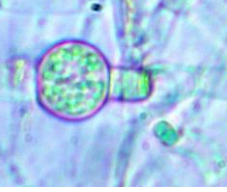


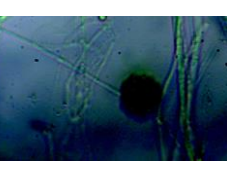


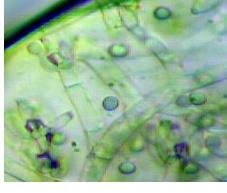
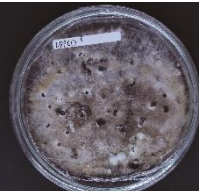
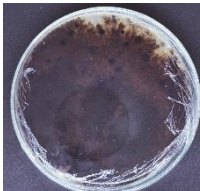
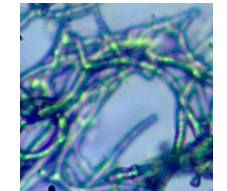


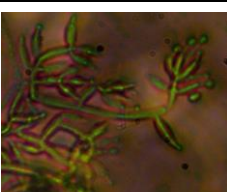






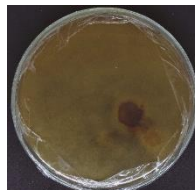
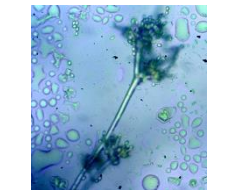
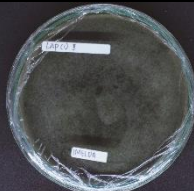



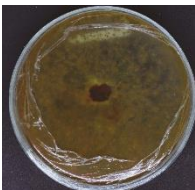
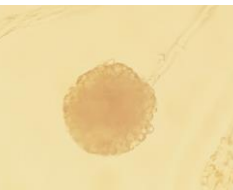


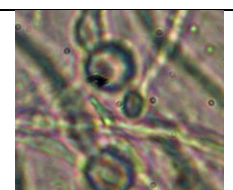





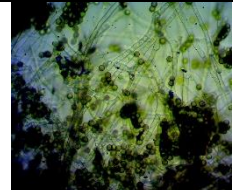
Identifikasi Genus Cendawan

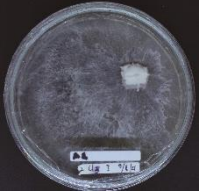
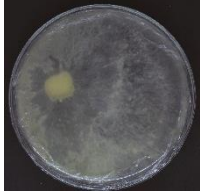
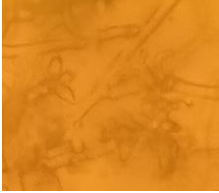
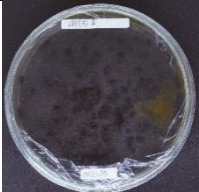




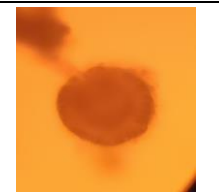
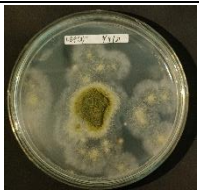



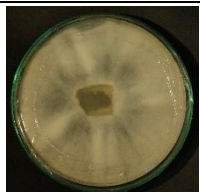
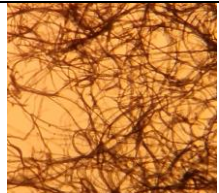


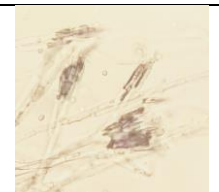






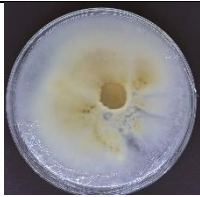
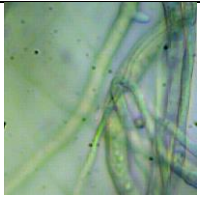

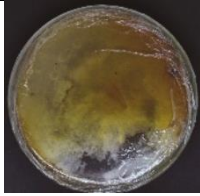


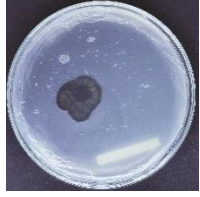


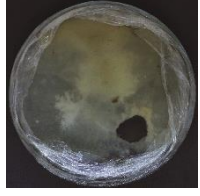
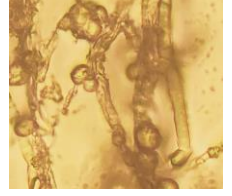
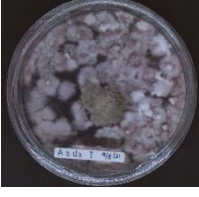






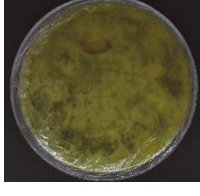
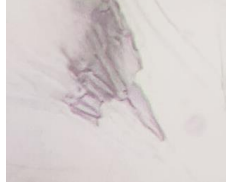
**Lampiran 4.** Identifikasi Mikroskopis Cendawan pada Jaringan Pohon Trembesi  
(*Samanea saman*)

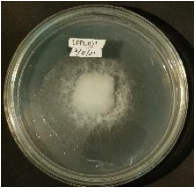

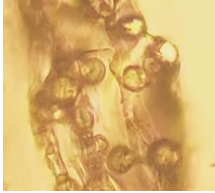
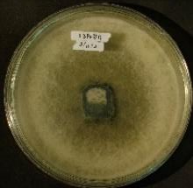
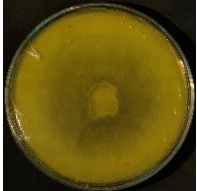
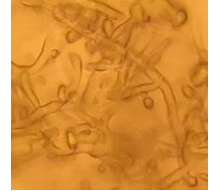




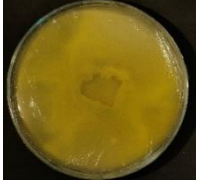





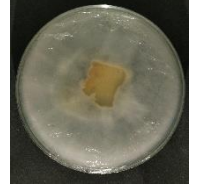


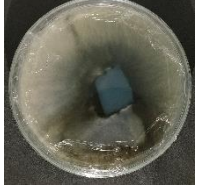
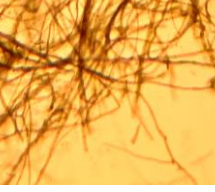
No	Kode Isolat	Pengamatan Makro		Pengamatan Mikro	Genus
		Depan	Belakang		
1.	TSSS(1)1.2 <sup>I</sup>				<i>Penicillium</i>
2.	TSSS(1)1.2 <sup>II</sup>				<i>Rhizopus</i>
3.	TSSS(1)1.3 <sup>I</sup>				<i>Fusarium</i>
4.	TSSS(1)1.3 <sup>II</sup>				<i>Mucor</i>
5.	TSSS(1)2.2 <sup>I</sup>				<i>Phytophthora</i>
6.	TSSS(1)2.3 <sup>I</sup>				<i>Phytophthora</i>


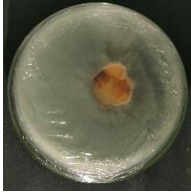
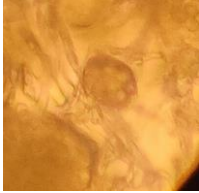





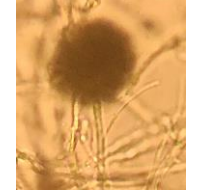

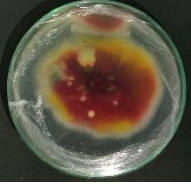


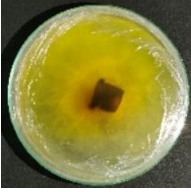







7.	TSSS(1)2.3 <sup>II</sup>				<i>Penicillium</i>
8.	TSSS(1)3.2 <sup>I</sup>				<i>Penicillium</i>
9.	TSSS(1)3.3 <sup>I</sup>				<i>Gongronella</i>
10.	TSSS(1)3.3 <sup>II</sup>				<i>Aspergillus</i>
11.	TSSS(1)1 <sup>I</sup>				<i>Gliocladium</i>
12.	TSSS(1)1 <sup>II</sup>				<i>Mycellia</i>
13.	TSSS(1)2 <sup>I</sup>				<i>Tricoderma</i>



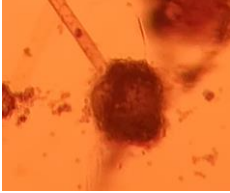



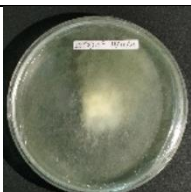
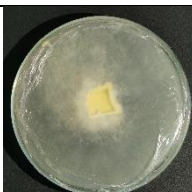
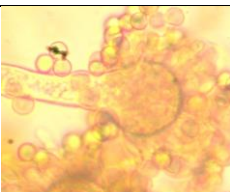




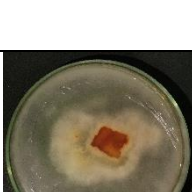
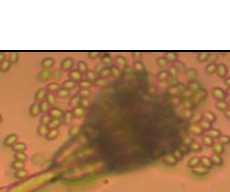




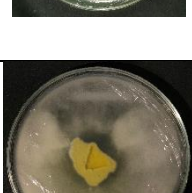
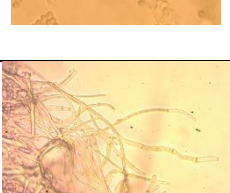
14.	TSSS(1)3 <sup>I</sup>				<i>Rhizopus</i>
15.	TSSS(1)4 <sup>I</sup>				<i>Penicillium</i>
16.	TSSS(1)4 <sup>II</sup>				<i>Penicillium</i>
17.	TSSS(1)4 <sup>III</sup>				<i>Aspergillus</i>
18.	TSSS(2)1.3 <sup>I</sup>				<i>Phytophthora</i>
19.	TSSS(2)3.2 <sup>I</sup>				<i>Aspergillus</i>
20.	TSSS(2)3.3 <sup>I</sup>				<i>Penicillium</i>

21.	TSSS(2)4.3 <sup>I</sup>				<i>Tricoderma</i>
22.	TSSS(2)1 <sup>I</sup>				<i>Rhizopus</i>
23.	TSSS(2)2 <sup>I</sup>				<i>Aspergillus</i>
24.	TSSS(2)2 <sup>II</sup>				<i>Penicillium</i>
25.	TSSS(2)3 <sup>I</sup>				<i>Mycellia</i>
26.	TSSS(2)4 <sup>I</sup>				<i>Penicillium</i>
27.	TSSS(2)4.2 <sup>I</sup>				<i>Mycellia</i>

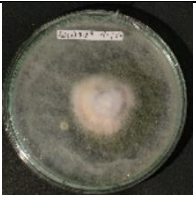
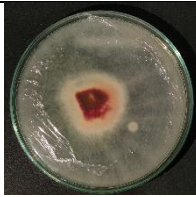





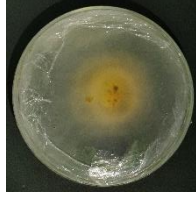






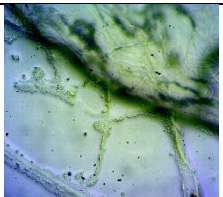






28.	TSSS(2)1.2 <sup>I</sup>				<i>Mycellia</i>
29.	TSSS(3)2.3 <sup>I</sup>				<i>Tricoderma</i>
30.	TSSS(3)2.2 <sup>I</sup>				<i>Tricoderma</i>
31.	TSSS(3)3.2 <sup>I</sup>				<i>Atrinium</i>
32.	TSSS(3)4.3 <sup>I</sup>				<i>Penicillium</i>
33.	TSSS(3)4.2 <sup>I</sup>				<i>Aspergillus</i>
34.	TSSS(3)4.2 <sup>II</sup>				<i>Penicillium</i>

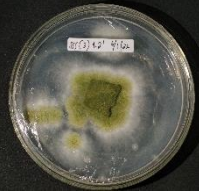













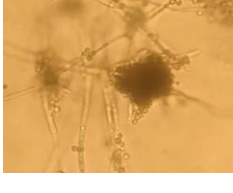


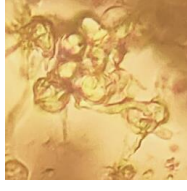



35.	TSSS(3)1 <sup>1</sup>				<i>Atrinium</i>
36.	TSSS(3)2 <sup>1</sup>				<i>Tricoderma</i>
37.	TSSS(3)3 <sup>1</sup>				<i>Atrinium</i>
38.	TSSS(3)4 <sup>1</sup>				<i>Mycellia</i>
39.	SSS(1)1 <sup>1</sup>				<i>Aspergillus</i>
40.	SSS(1)2 <sup>1</sup>				<i>Mycellia</i>
41.	SSS(1)3 <sup>1</sup>				<i>Mycellia</i>

42.	SSS(1)4 <sup>I</sup>				<i>Atrinium</i>
43.	SSS(1)2.2 <sup>I</sup>				<i>Penicillium</i>
44.	SSS(1)3.3 <sup>I</sup>				<i>Aspergillus</i>
45.	SSS(1)4.2 <sup>I</sup>				<i>Fusarium</i>
46.	SSS(2)1 <sup>I</sup>				<i>Mycellia</i>
47.	SSS(2)2 <sup>I</sup>				<i>Zoopagales</i>
48.	SSS(2)2 <sup>II</sup>				<i>Aspergillus</i>

49.	SSS(2)3 <sup>I</sup>				<i>Aspergillus</i>
50.	SSS(2)3 <sup>II</sup>				<i>Aspergillus</i>
51.	SSS(2)4 <sup>I</sup>				<i>Aspergillus</i>
52.	SSS(2)1.2 <sup>I</sup>				<i>Aspergillus</i>
53.	SSS(2)2.2 <sup>I</sup>				<i>Penicillium</i>
54.	SSS(2)2.3 <sup>I</sup>				<i>Gliocladium</i>
55.	SSS(2)3.2 <sup>I</sup>				<i>Mycellia</i>



56.	SSS(2)3.2 <sup>II</sup>				<i>Penicillium</i>
57.	SSS(2)3.3 <sup>I</sup>				<i>Aspergillus</i>
58.	SSS(2)4.2 <sup>I</sup>				<i>Penicillium</i>
59.	SSS(3)1 <sup>I</sup>				<i>Mycellia</i>
60.	SSS(3)2 <sup>I</sup>				<i>Fusarium</i>
61.	SSS(3)3 <sup>I</sup>				<i>Aspergillus</i>
62.	SSS(3)4 <sup>I</sup>				X

63.	SSS(3)1.2 <sup>1</sup>				<i>Aspergillus</i>
64.	SSS(3)1.3 <sup>1</sup>				<i>Penicillium</i>
65.	SSS(3)2.2 <sup>1</sup>				<i>Penicillium</i>
66.	SSS(3)2.3 <sup>1</sup>				<i>Mycellia</i>
67.	SSS(3)3.2 <sup>1</sup>				<i>Penicillium</i>
68.	SSS(3)4.2 <sup>1</sup>				<i>Atrinium</i>
69.	SSS(3)4.3 <sup>1</sup>				<i>Penicillium</i>

**Lampiran 5.** Standar error dan tabel anova

Kelompok	Perlakuan			
	Daun	Batang	Kulit	Akar
1	6	4	4	3
2	3	2	3	3
3	1	3	2	4
4	1	2	2	2
5	2	4	5	2
6	3	3	2	3

	Daun	Batang	Kulit	Akar
Mean	2.666667	Mean 3	Mean 3	Mean 2.833333
Standard Error	0.760117	Standard Error 0.365148	Standard Error 0.516398	Standard Error 0.307318
Median	2.5	Median 3	Median 2.5	Median 3
Mode	3	Mode 4	Mode 2	Mode 3
Standard Deviation	1.861899	Standard Deviation 0.894427	Standard Deviation 1.264911	Standard Deviation 0.752773
Sample Variance	3.466667	Sample Variance 0.8	Sample Variance 1.6	Sample Variance 0.566667
Kurtosis	1.852811	Kurtosis -1.875	Kurtosis -0.78125	Kurtosis -0.10381
Skewness	1.280744	Skewness 0	Skewness 0.889391	Skewness 0.31257
Range	5	Range 2	Range 3	Range 2
Minimum	1	Minimum 2	Minimum 2	Minimum 2
Maximum	6	Maximum 4	Maximum 5	Maximum 4
Sum	16	Sum 18	Sum 18	Sum 17
Count	6	Count 6	Count 6	Count 6

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Daun	6	16	2.666667	3.466667
Batang	6	18	3	0.8
Akar	6	18	3	1.6
Kulit	6	17	2.833333	0.566667

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.458333	3	0.152778	0.094991	0.96	3.098391
Within Groups	32.16667	20	1.608333			
Total	32.625	23				

