

## DAFTAR PUSTAKA

- Abd El-Rahim, W. M., Moawad, H., Abdel Azeiz, A. Z., & Sadowsky, M. J. 2017. Optimization of Conditions for Decolorization of Azo-Based Textile Dyes by Multiple Fungal Species. *Journal of Biotechnology*. 260: 11–17. <https://doi.org/10.1016/j.jbiotec.2017.08.022>.
- Abd El Monssef, R. A., Hassan, E. A., & Ramadan, E. M. 2016. Production of Laccase Enzyme for Their Potential Application to Decolorize Fungal Pigments on Aging Paper and Parchment. *Annals of Agricultural Sciences*. 61(1):145–154. <https://doi.org/10.1016/j.aosas.2015.11.007>.
- Adnan, L. A., Sathishkumar, P., Mohd Yusoff, A. R., & Hadibarata, T. 2015. Metabolites Characterisation of Laccase Mediated Reactive Black 5 Biodegradation by Fast Growing Ascomycete Fungus *Trichoderma atroviride* F03. *International Biodeterioration and Biodegradation*. 104: 274–282. <https://doi.org/10.1016/j.ibiod.2015.05.019>.
- Afiya, H., Ahmet, E. E., & Shah, M. M. 2019. Enzymatic Decolorization of Remazol Brilliant Blue Royal (RB 19) Textile Dye by White Rot Fungi. *Journal of Applied and Advanced Research*. 4(1), 11-15. <https://doi.org/10.21839/jaar.2019.v4i1.260>.
- Aksu, R., KILIC, N, K., Ertuğrul, S.,& Dönmez, G. 2007. Inhibitory Effects of Chromium (VI) and Remazol Black B on Chromium (VI) and Dyestuff Removals by *Termets versicolor*. *Enzyme and Microbial Technology*. 40 (5).

<https://doi.org/10.1016/j.enzmictec.2006.08.024>.

Alfarra H.Y., Hasali N.H.M., and Omar M.N., 2013. A lignolytic Fungi with Laccase Activity Isolated from Malaysian Local Environment for Phytochemical Transformation Purposes. *International Research Journal of Biological Sciences*. 2(2): 51-54.

Al-Samarrai, T. H., & Schmid, J. 2000. A simple Method for Extraction of Fungal Genomic DNA. *Letters in Applied Microbiology*. 30(1), 53–56.  
<https://doi.org/10.1046/j.1472-765x.2000.00664.x>.

Al-Tohamy, R., Sun, J., Fareed, M. F., Kenawy, E. R., & Ali, S. S. 2020. Ecofriendly Biodegradation of Reactive Black 5 by Newly Isolated *Sterigmatomyces Halophilus* SSA1575, Valued for Textile Azo Dye Wastewater Processing and Detoxification. *Scientific Reports*. 10(1), 1–16.  
<https://doi.org/10.1038/s41598-020-69304-4>.

Ara, N. J., Hasan, M. A., Rahman, M. A., Salam, M. A., Salam, A., & Alam, A. S. 2013. Removal of Remazol Red from Textile Waste Water Using Treated Sawdust - An Effective Way of Effluent Treatment. *Bangladesh Pharmaceutical Journal*. 16(1): 93–98.  
<https://doi.org/10.3329/bpj.v16i1.14501>.

Asgher, M., Yasmeen, Q., & Iqbal, H. M. N. 2013. Enhanced Decolorization of Solar Brilliant Red 80 Textile Dye by An Indigenous White Rot Fungus *Schizophyllum commune* IBL-06. *Saudi Journal of Biological Sciences*. 20(4):

347–352. <https://doi.org/10.1016/j.sjbs.2013.03.004>.

Badan Standardisasi Nasional. 2004. Air dan air limbah – Bagian 3: Cara Uji Total Padatan Tersuspensi (*Total Suspended Solid*, TSS) Secara Gravimetri. SNI 06-6989.3-2004: 1- 10.

Badan Standardisasi Nasional. 2005. Air dan air limbah – Bagian 27: Cara Uji Total Padatan Terlarut (*Total Dissolved Solids*, TDS) Secara Gravimetri. SNI.06-6989.27.2005: 1-10

Badan Standardisasi Nasional. 2009. Air dan air limbah – Bagian 2: Cara Uji Kebutuhan Oksigen Kimiawi (*Chemical Oxygen Demand*/COD) dengan Refluks Tertutup Secara Spektrofotometri. SNI 6989.2:2009: 1–15.

Badan Standardisasi Nasional. 2009. Air dan Air Limbah – Bagian 72 : Cara Uji Kebutuhan Oksigen Biokimia ( *Biochemical Oxygen Demand* /BOD). SNI 6989.2:2009: 1–28.

Bagewadi, Z. K., Mulla, S. I., & Ninnekar, H. Z. 2017. Purification and Immobilization of Laccase From *Trichoderma harzianum* Strain HZN10 and Its Application in Dye Decolorization. *Journal of Genetic Engineering and Biotechnology*. 15(1): 139–150. <https://doi.org/10.1016/j.jgeb.2017.01.007>.

Barnett, H.L. & B.B. Hunter. 1998. *Illustrated genera of imperfect fungi*. 4th ed. Prentice-Hall, Inc, USA.

Beeck, M., Lievens, B., Busschaert, P., Declerck, S., Vangronsveld, J., & Colpaert, J. V. 2014. Comparison and Validation of Some ITS Primer Pairs Useful for

Fungal Metabarcoding Studies. *PLOS ONE*. 9(6): 1-11.  
<https://doi.org/10.1371/journal.pone.0097629>.

Bellemain, E., Carlsen, T., Brochman, C., Coissac, E., Taberlet, P., and Kuserud, H. 2010. ITS As an Environmental DNA Barcode for Fungi: An in Silico Approach Reveals Potential PCR Biases. *BMC Microbiology*, 10: 189–999.  
<https://doi.org/10.1016/j.enzmictec.2010.03.010>.

Bergsten-Torralba, L.R., Nishikawa, M.M., Baptista, D.F., Magalhães, D.P., dan da Silva, M. 2009. Decolorization of Different Textile Dyes by *Penicillium simplicissimum* and Toxicity Evaluation After Fungal Treatment. *Brazilian Journal of Microbiology*. 40: 808–817.

Bhatnagar, A., Tamboli, E., & Mishra, A. 2021. Wastewater Treatment and Mycoremediation by *Pleurotus ostreatus* Mycelium. *IOP Conference Series: Earth and Environmental Science*. 775(1): 1–13.  
<https://doi.org/10.1088/1755-1315/775/1/012003>.

Brito-Vega, H. 2020. The Morphological and Molecular Characterization of *Trichoderma* spp. in Cocoa Agroforestry Systems. *Open Science Journal*. 5(4): 1–14. <https://doi.org/10.23954/osj.v5i4.2407>.

Chen, S. H., Cheow, Y. L., Ng, S. L., & Ting, A. S. Y. 2019. Biodegradation of Triphenylmethane Dyes by Non-White Rot Fungus *Penicillium simplicissimum*: Enzymatic and Toxicity Studies. *International Journal of Environmental Research*. 13(2): 273–282. <https://doi.org/10.1007/s41742-019-00171-2>.

- Cristóvão, R., Botelho, C., Martins, R., & Boaventura, R. 201). Pollution Prevention and Wastewater Treatment in Fish Canning Industries of Northern Portugal. *International Proceedings of Chemical, Biological and Environmental Engineering*. 32(1): 12–16. <https://doi.org/10.7763/IPCBE>.
- Das, S. K. Ghosh, S., Guha, A. K., & Sanyal, A. K. 2006. Adsorption Behavior Of Lindane On *Rhizopus oryzae* Biomass: Physico-Chemical Studies. *Journal of Hazardous Materials*. 172(1): 485–490. <https://doi.org/10.1016/j.jhazmat.2009.06.156>.
- Dewa, R. P. 2016. Penanganan Baku Mutu Kualitas Air Limbah Produksi Atc dari Rumput Laut *Eucheuma cottonii*. *Ejournal Keminperin*. 12(02): 34–40. <http://ejournal.kememperin.go.id/bpbiam/article/view/1963>.
- Dewi, R. S. 2019. "Fungi Limbah Industri Batik Sebagai Agensia Biodegradasi Limbah Cair Pewarna Batik Indigosol Blue O4b. Disertasi. Yogyakarta. Universitas Gadjah Mada.
- Dewi, R. S., Kasiamdari, R. S., Martani, E., & Purwestri, Y. A. 2019. Efficiency of *Aspergillus* Sp. 3 to Reduce Chromium, Sulfide, Ammonia, Phenol, and Fat from Batik Wastewater. *IOP Conference Series: Earth and Environmental Science*. 308(1): 1-8. <https://doi.org/10.1088/1755-1315/308/1/012003>.
- Dewi, R. S., Kasiamdari, R. S., Martani, E., & Purwestri, Y. A. 2018. Decolorization and Detoxification of Batik Dye Effluent Containing Indigosol Blue-04B Using Fungi Isolated from Contaminated Dye Effluent. *Indonesian Journal of Biotechnology*. 23(2): 54–60.

<https://doi.org/10.22146/ijbiotech.32332>.

Dewi, R. S., Ulfimaturahmah, F. A., & Khotimah, K. 2019. The Decolorization Effect by *Aspergillus* Sp. 3 on Goldfish Opercular Beats. *Journal of Microbial Systematics and Biotechnology*. 1(2): 18–26.

<https://doi.org/10.37604/jmsb.v1i2.29>.

Firmansyah, A. 2020. The Study of Soga Brown Colour Visual Digitization from Classical Batik of Yogyakarta. *IOP Conference Series: Materials Science and Engineering*. 924(1): 1-6 <https://doi.org/10.1088/1757-899X/924/1/012004>.

Gajera, H. P., Bambharolia, R. P., Hirpara, D. G., Patel, S. V., & Golakiya, B. A. 2015. Molecular Identification and Characterization of Novel *Hypocrea koningii* Associated with Azo Dyes Decolorization and Biodegradation of Textile Dye Effluents. *Process Safety and Environmental Protection*. 98: 406–416. <https://doi.org/10.1016/j.psep.2015.10.005>.

Gao, T., Qin, D., Zuo, S., Peng, Y., Xu, J., Yu, B., Song, H., & Dong, J. 2020. Decolorization and Detoxification of Triphenylmethane Dyes by Isolated Endophytic Fungus, *Bjerkandera adusta* SWUSI4 Under Non-Nutritive Conditions. *Bioresources and Bioprocessing*. 7(1): 1-12 <https://doi.org/10.1186/s40643-020-00340-8>.

Ghosh, S., Das, S. K., Guha, A. K., & Sanyal, A. K. 2009. Adsorption Behavior of Lindane on *Rhizopus oryzae* Biomass: Physico-Chemical Studies. *Journal of Hazardous Materials*. 172(1): 485–490.

<https://doi.org/10.1016/j.jhazmat.2009.06.156>.

Gokulan, R., Avinash, A., Prabhu, G. G., & Jegan, J. 2019. Remediation of Remazol Dyes by Biochar Derived from *Caulerpa scalpelliformis* - An Eco-Friendly Approach. *Journal of Environmental Chemical Engineering*. 7(5): 1-9 103297. <https://doi.org/10.1016/j.jece.2019.103297>.

Hadibarata, T., Syafiuddin, A., Al-Dhabaan, F. A., Elshikh, M. S., & Rubiyatno. 2018. Biodegradation of Mordant Orange-1 Using Newly Isolated Strain *Trichoderma harzianum* RY44 and Its Metabolite Appraisal. *Bioprocess and Biosystems Engineering*. 41(5): 621–632. <https://doi.org/10.1007/s00449-018-1897-0>.

Handayani, Astuti, Prima and Maulana, I. 2014. Pewarna Alami Batik Dari Kulit Soga Tingi (*Cerriops tagal*) dengan Metode Ekstraksi. *Jurnal Bahan Alam Terbarukan*. 2(2): 1–6. <https://doi.org/10.15294/jbat.v2i2.2793>.

Handayani, W., Kristijanto, A. I., & Hunga, A. I. R. 2018. Are Natural Dyes Eco-Friendly? A Case Study on Water Usage and Wastewater Characteristics of Batik Production by Natural Dyes Application. *Sustainable Water Resources Management*. 4(4): 1011–1021. <https://doi.org/10.1007/s40899-018-0217-9>.

Hassana, A., Vincent, B. T., Nasiru, I. M., & Yakubu, N. 2019. Molecular Identification of Azo Dye Degrading Fungi Isolated From Azo Dye Contaminated Soil of Local Dyeing Facility in Bida, Niger State. *IJPAB*. 7(4): 1–7.

- Heitefuss, R. 2011. Pictorial Atlas of Soil and Seed Fungi, Morphologies of Cultured Fungi and Key to Species. *Journal of Phytopathology*. 159(4): 328-328. <https://doi.org/10.1111/j.1439-0434.2010.01775.x>.
- Hossain, L., Sarker, S. K., & Khan, M. S. 2018. Evaluation of Present and Future Wastewater Impacts of Textile Dyeing Industries in Bangladesh. *Environmental Development*. 26: 23–33. <https://doi.org/10.1016/j.envdev.2018.03.005>.
- Huerga, G. C., Prieto, S. M., González, Á. R., Gutiérrez, S., and Casquero, P. A. The Influence of Temperature on The Growth, Sporulation, Colonization, and Survival of *Trichoderma* spp. in Grapevine Pruning Wounds. *Agronomy*. 11(1771):1-18. <https://doi.org/10.3390/agronomy11091771>.
- Illuri, R., Kumar, M., Eyini, M., Veeramanikandan, V., Almaary, K. S., Elbadawi, Y. B., Biraqdar, M. A., & Balaji, P. 2021. Production, Partial Purification and Characterization of Ligninolytic Enzymes from Selected Basidiomycetes Mushroom Fungi. *Saudi Journal of Biological Sciences*. 28(12): 7207–7218. <https://doi.org/10.1016/j.sjbs.2021.08.026>.
- Imran, M., Crowley, D. E., Khalid, A., Hussain, S., Mumtaz, M. W., & Arshad, M. 2014. Microbial Biotechnology for Decolorization of Textile Wastewaters. *Reviews in Environmental Science and Biotechnology*. 14(1): 73–92. <https://doi.org/10.1007/s11157-014-9344-4>.
- Ingle, M. R., & Mishra, R. L. 2016. Production of Laccase Enzyme by *Trichoderma erinaceum*. *Indian Journal of Applied Research*. 6(10): 228-226.

Jansen, C. H., & Borus, D. J. 2006. Dyes and Tannins of Tropical Africa [Internet].

2006 [cited 2022 January 10]. <https://edepot.wur.nl/417226>.

Kaur, B., Kumar, B., Garg, N., & Kaur, N. 2015. Statistical Optimization of

Conditions for Decolorization of Synthetic Dyes by *Cordyceps militaris*

MTCC 3936 Using RSM. *BioMed Research International*.

<https://doi.org/10.1155/2015/536745>.

Kaushik, P., & Malik, A. 2009. Fungal Dye Decolourization: Recent Advances and

Future Potential. *Environment International*. 35(1): 127–141.

<https://doi.org/10.1016/j.envint.2008.05.010>.

Khan, A. M., & Bhadauria, S. 2019. Molecular Characterization of Keratin

Degrading Fungi Isolated from Semi-Arid Soil by PCR Using ITS4 and ITS5

Primers. *Journal of King Saud University - Science*. 31(4): 1418–1423.

<https://doi.org/10.1016/j.jksus.2018.04.014>.

Kim, J. Y., Kwon, H. W., Yun, Y. H., & Kim, S. H. 2016. Identification and

Characterization of *Trichoderma* Species Damaging Shiitake Mushroom Bed-

Logs Infested by *Camptomyia* Pest. *Journal of Microbiology and*

*Biotechnology*. 26(5): 909–917. <https://doi.org/10.4014/jmb.1602.02012>.

Kumar, R., Jitender, S., & Suresh, K. 2012. Isolation and Evaluation of Fungal

Strains from Textile Effluent Disposal Sites for Decolorization of Various

Azo Dyes. *Terrestrial and Aquatic Environmental Toxicology*. 6(2): 96–99.

Kurtzman, C.P., Boekhout, T., Robert, V., Fell, J.W., & Deak, T. 2003. *Methods to*

*Identify Yeasts. In: Boekhout T, Robert V (Ed), Yeasts in Food: Beneficial and Detrimental Aspects.* Hamburg: B. Berhr's Verlag GmbH and Co. KG.

Lalnunhlimi, S., & Veenagayathri, K. 2016. Decolorization of Azo Dyes (Direct Blue 151 and Direct Red 31) by Moderately Alkaliphilic Bacterial Consortium. *Brazilian Journal of Microbiology.* 47(1): 39–46. <https://doi.org/10.1016/j.bjm.2015.11.013>.

Lee, Y. S. (2000). Qualitative Evolution of Ligninolytic Enzyme in Xylariaceous Fungi. *JMicrobiolBiotechnol.* 10(4): 462-469.

Lellis, B., Fávaro-Polonio, C. Z., Pamphile, J. A., & Polonio, J. C. 2019. Effects of Textile Dyes on Health and The Environment and Bioremediation Potential of Living Organisms. *Biotechnology Research and Innovation.* 3(2): 275–290. <https://doi.org/10.1016/j.biori.2019.09.001>.

Lestari, D. W., Atika, V., Satria, Y., Fitriani, A., & Susanto, T. 2020. Aplikasi Mordan Tanin pada Pewarnaan Kain Batik Katun Menggunakan Warna Alam Tingi (*Ceriops tagal*). *Jurnal Rekayasa Proses.* 14(2): 128. <https://doi.org/10.22146/jrekpros.57891>.

Lieckfeldt, E., Samuels, G. J., Nirenberg, H. I., & Petrini, O. 1999. A Morphological and Molecular Perspective of *Trichoderma viride*: Is It One or Two Species?. *Applied and Environmental Microbiology.* 65(6): 2418–2428. <https://doi.org/10.1128/aem.65.6.2418-2428.1999>.

Lolo, E. U., & Pambudi, Y. S. 2020. Penurunan Parameter Pencemar Limbah Cair

- Industri Tekstil Secara Koagulasi Flokulasi (Studi Kasus: IPAL Kampoeng Batik Laweyan, Surakarta, Jawa Tengah, Indonesia). *Jurnal Serambi Engineering*. 5(3): 1090–1098. <https://doi.org/10.32672/jse.v5i3.2072>.
- Mahapatra, N, N. 2016. *Textile Dye*. Woodhead Publishing India. <http://library1.nida.ac.th/termpaper6/sd/2554/19755.pdf>.
- Mahboubi, A., Ferreira, J. A., Taherzadeh, M. J., & Lennartsson, P. R. 2017. Production of Fungal Biomass for Feed, Fatty Acids, and Glycerol by *Aspergillus oryzae* from Fat-Rich Dairy Substrates. *Fermentation*. 3(4): 1-10. <https://doi.org/10.3390/fermentation3040048>.
- Martuti, N. K. T., Hidayah, I., Margunani, M., & Alafima, R. B. 2020. Organic Material for Clean Production in The Batik Industry: A Case Study of Natural Batik Semarang. Indonesia. *Recycling*, 5(4): 1–13. <https://doi.org/10.3390/recycling5040028>.
- Mester, T., & Tien, M. 2000. Oxidation Mechanism of Ligninolytic Enzymes Involved in The Degradation of Environmental Pollutants. *International Biodeterioration and Biodegradation*. 46(1): 51–59. [https://doi.org/10.1016/S0964-8305\(00\)00071-8](https://doi.org/10.1016/S0964-8305(00)00071-8).
- Mohamed, A. M., Abduo, D. A. M., Karam Al- Dien, A. A., Ramadan, E. M., & . Abd Elrazek, T. M. 2019. Decolorization of Remazol Blue and Remazol Red Using *Aspergillus niger* Isolated from Textile Wastewater. *Journal of Environmental Science*. 45(1): 1–18. <https://doi.org/10.21608/jes.2019.36936>.

- More, S. S., Renuka, P. S., Pruthvi, K., Swetha, M., Malini, S., & Veena, S. M. 2011. Isolation, Purification, and Characterization of Fungal Laccase from *Pleurotus* sp. *Enzyme Research*. 2011(1): 1–7. <https://doi.org/10.4061/2011/248735>.
- Moreno-ruiz, D., Fuchs, A., Missbach, K., Schuhmacher, R., & Zeilinger, S. 2020. Influence of Different Light Regimes on The Mycoparasitic Activity and 6-Pentyl-A-Pyrone Biosynthesis in Two Strains of *Trichoderma atroviride*. *Pathogens*. 9(10): 1–18. <https://doi.org/10.3390/pathogens9100860>.
- Morsy, S. A. G. Z., Ahmad Tajudin, A., Ali, M. S. M., & Shariff, F. M. 2020. Current Development in Decolorization of Synthetic Dyes by Immobilized Laccases. *Frontiers in Microbiology*. 11: 1–8. <https://doi.org/10.3389/fmicb.2020.572309>.
- Moslem, M. A., Bahkali, A. H., Abd-Elsalam, K. A., & Wit, P. J. 2010. An Efficient Method for DNA Extraction from *Cladosporioid* Fungi. *Genetics and Molecular Research : GMR*. 9(4): 2283–2291. <https://doi.org/10.4238/vol9-4gmr936>.
- Mořková, P., & Vytřasová, J. 2018. Comparison of Methods for Isolating Fungal DNA. *Czech Journal of Food Sciences*. 29: 76–85. <https://doi.org/10.17221/266/2011-cjfs>.
- Munir, E., Rahayu, V., Priyani, N., & Yurnaliza. 2018. Decolorization of Batik Naphthol Dye by Local Ligninolytic Fungal Isolates. *Journal of Physics*:

*Conference Series.* 1116(5): 1-7. <https://doi.org/10.1088/1742-6596/1116/5/052043>.

Nilsson RH, Ryberg M, Abarenkov K, Sjakvist E, Kristiansson E. 2009. The ITS Region As a Target for Characterization of Fungal Communities Using Emerging Sequencing Technologies. *FEMS Microbiol Lett.* 296(1):101-97.

Ning, C., Qingyun, L., Aixing, T., Wei, S., & Youyan, L. 2018. Decolorization of A Variety of Dyes by *Aspergillus flavus* A5p1. *Bioprocess and Biosystems Engineering.* 41(4): 511–518. <https://doi.org/10.1007/s00449-017-1885-9>.

Pandya, B., Albert, S., Pandya, B., & Albert, S. 2014. Evaluation of *Trichoderma reesei* As A Compatible Partner with Some White Rot Fungi for Potential Bio-Bleaching in Paper Industry. *Annal Of Biological Research.* 5(4): 43–51.

Park, M. S., Seo, G. S., Lee, K. H., Bae, K. S., & Yu, S. H. 2005. Morphological and Cultural Characteristics of *Trichoderma* Spp. Associated With Green Mold of Oyster Mushroom In Korea. *Plant Pathology Journal.* 12(3): 221-228. <https://doi.org/10.5423/PPJ.2005.21.3.221>.

Parmar, P. R. 2014. Decolorization of Acridine Red Dye by The Fungi *Aspergillus* species. *Journal of Scientific and Innovative Research.* 3(4): 454–459.

Patel, R. J., & Bhaskaran, L. 2016. Screening of Novel *Ascomycetes* for The Production of Laccase Enzyme Using Different Lignin Model Compounds. *International Journal of Pharma and Bio Sciences.* 7(4): 452–458. <https://doi.org/10.22376/ijpbs.2016.7.4.b452-458>.

- Pisacha, I. M., Perkasa, T. A. B., Amnelia, T., Miranti, M., Puspita, F., Nurulita, Y., & Nugroho, T. T. 2020. Screening for Potential Laccase Producers from *Trichoderma* Strains Isolated from Riau Citrus Rhizosphere and Palm Tree Plant Parts. *Journal of Physics: Conference Series*. 1655(1): 1-7. <https://doi.org/10.1088/1742-6596/1655/1/012039>.
- Pit, J. I. & Hocking, 2013. *Fungi and Food Spoilage Third Edition*. New York: Springer.
- Prasad, R. 2017. *Mycoremediation and Environmental Sustainability Volume 1*. New York: Springer International Publishing. [https://doi.org/10.1007/978-3-319-68957-9\\_2](https://doi.org/10.1007/978-3-319-68957-9_2).
- Przystas, W., Zablocka-Godlewska, E., & Grabinska-Sota, E. 2015. Efficacy of Fungal Decolorization of A Mixture of Dyes Belonging to Different Classes. *Brazilian Journal of Microbiology*. 46(2): 415–424. <https://doi.org/10.1590/S1517-838246246220140167>.
- Pujilestari, T. 2017. Optimasi Pencelupan Kain Batik Katun dengan Pewarna Alam Tingi (*Ceriops Tagal*) dan *Indigofera* Sp. *Dinamika Kerajinan dan Batik: Majalah Ilmiah*. 34(1): 53-62. <https://doi.org/10.22322/dkb.v34i1.2606>.
- Purwanto, P. 2019. Exploration Of Natural Dyes As Alternative Substitutes of Synthetic Dyes on Batik Making Fabrics. *Journal of Physics: Conference Series*. 1375(1): 1-7. <https://doi.org/10.1088/1742-6596/1375/1/012023>.
- Raja, H. A., Miller, A. N., Pearce, C. J., & Oberlies, N. H. 2017. Fungal Identification Using Molecular Tools: A Primer for the Natural Products

Research Community. *Journal of Natural Products*. 80(3): 756–770.

<https://doi.org/10.1021/acs.jnatprod.6b01085>.

Raju, N. S., Venkataramana, G. V., Girish, S. T., Raghavendra, V. B., & Shivashankar, P. 2007. Isolation and Evaluation of Indegenus Soil Fungi for Decolorization of Textile Dye. *Journal of Applied Sciences*. 7(2): 297–301. <http://www.scialert.net/abstract/?doi=jas.2007.298.301>.

Ramírez, M. G. L., Ruiz, H. G. O., Arzate, F. N., Gallegos, M. A. C., & Enriquez, S. G. 2012. Evaluation of Fungi Toxic Activity of Tannins and A Tannin-Copper Complex from The Mesocarp of *Cocos Nucifera* Linn. *Wood and Fiber Science*. 44(4): 357–364.

Rani, B., Kumar, V., Singh, J., Bisht, S., Teotia, P., Sharma, S., & Kela, R. 2014. Bioremediation of Dyes by Fungi Isolated from Contaminated Dye Effluent Sites for Bio-Usability. *Brazilian Journal of Microbiology*. 45(3): 1055–1063. <https://doi.org/10.1590/S1517-83822014000300039>.

Ranjusha, V. R., Pundir, R., Kumar, K., Dastidar, M. G., & Sreekrishnan, T. R. 2010. Biosorption of Remazol Black B Dye (Azo Dye) by The Growing *Aspergillus flavus*. *Journal Of Environmental Science And Health*. 45(10): 1256–1263. <https://doi.org/10.1080/10934529.2010.493812>.

Rápó, E., Posta, K., Suciú, M., Szép, R., & Tonk, S. 2019. Adsorptive Removal of Remazol Brilliant Violet-5R Dye from Aqueous Solutions Using Calcined Eggshell As Biosorbent. *Acta Chimica Slovenica*. 66(3): 648–658.

<https://doi.org/10.17344/acsi.2019.5079>

Rezagama, A., Sutrisno, E., & Handayani, D. S. 2020. Pollution Model of Batik and Domestic Wastewater on River Water Quality. *IOP Conference Series: Earth and Environmental Science*. 448(1): 1-9. <https://doi.org/10.1088/1755-1315/448/1/012074>.

Rodríguez, E., Pickard, M. A., & Vazquez-Duhalt, R. 1999. Industrial Dye Decolorization by Laccases from Lignolytic Fungi. *Current Microbiology*. 38(1): 27–32. <https://doi.org/10.1007/PL00006767>.

Romero-Arenas, O., Huerta, L. M., Huato, D. A. M., Hernández, F. D., & Victoria, A. D. A. 2009. The Characteristics of *Trichoderma harzianum* As A Limiting Agent in Edible Mushrooms. *Revista Colombiana de Biotecnología*, 11(2): 143–151.

Rosmawati. 2013. BOD dan COD Sebagai Parameter Pencemaran Air dan Baku Mutu Air Limbah. *Jurnal Biology Science & Education*. 2(2): 159–169.

Sadhasivam, S., Savitha, S., Swaminathan, K., & Lin, F. H. 2008. Production, Purification and Characterization of Mid-Redox Potential Laccase from A Newly Isolated *Trichoderma harzianum* WL1. *Process Biochemistry*. 43(7): 736–742. <https://doi.org/10.1016/j.procbio.2008.02.017>.

Safitri, A., Dwi Febrianti, W., & Rahmaniah, G. 2020. Effectiveness of Using *Trichoderma viride* as Biosorbent for Remazol Brilliant Purple in Batik Wastewater Treatment. *JSMARTech*. 1(2): 41–45.

<https://doi.org/10.21776/ub.jsmartech.2020.001.02.4>.

- Saini, R. D. 2017. Textile Organic Dyes: Polluting Effects and Elimination Methods from Textile Waste Water. *International Journal of Chemical Engineering Research*, 9(1): 975–6442. <http://www.ripublication.com>.
- Salem, S. S., Mohamed, A. A., El-Gamal, M. S., Talat, M., & Fouda, A. 2019. Biological Decolorization and Degradation of Azo Dyes from Textile Wastewater Effluent by *Aspergillus niger*. *Egyptian Journal of Chemistry*. 62(10): 1799–1813. <https://doi.org/10.21608/EJCHEM.2019.11720.1747>.
- Samchetshabam, G., Hussan, A., & Choudhury, T. G. 2017. Impact of Textile Dyes Waste on Aquatic Environments and Its Treatment Impact of Textile Dyes Waste on Aquatic Environments and Its Treatment. *Environment & Ecology*. 35(22): 2349-2353.
- Samuels, G. J., Lieckfeldt, E., & Nirenberg, H. I. 1999. *Trichoderma asperellum*, A New Species with Waited Conidia, and Redescription of *T. viride*. *Sydowia*. 51(1): 71–88.
- Sanmuga Priya, E., Senthamil Selvan, P., & Umayal, A. N. 2015. Biodegradation Studies on Dye Effluent and Selective Remazol Dyes by Indigenous Bacterial Species Through Spectral Characterisation. *Desalination and Water Treatment*. 55(1): 241–251. <https://doi.org/10.1080/19443994.2014.913999>.
- Santos, G. C., & Corso, C. R. 2014. Comparative Analysis of Azo Dye Biodegradation by *Aspergillus oryzae* and *Phanerochaete chrysosporium*.

*Water, Air, and Soil Pollution*. 225(7): 1-11 <https://doi.org/10.1007/s11270-014-2026-6>.

Saxena, S & Raja, A, S, M. (2014). *Roadmap to Sustainable Textiles and Clothing*. <https://doi.org/10.1007/978-981-287-065-0>.

Schneider, W. D. H., Fontana, R. C., Mendonça, S., de Siqueira, F. G., Dillon, A. J. P., & Camassola, M. 2018. High Level Production Of Laccases And Peroxidases from The Newly Isolated White-Rot Basidiomycete *Marasmiellus palmivorus* VE111 In A Stirred-Tank Bioreactor in Response to Different Carbon and Nitrogen Sources. *Process Biochemistry*. 69: 1–11. <https://doi.org/10.1016/j.procbio.2018.03.005>.

Schoch, C. L., Seifert, K. A., Huhndorf, S., Robert, V., Spouge, J. L., Levesque, C. A., Chen, W., Bolchacova, E., Voigt, K., Crous, P. W., Miller, A. N., Wingfield, M. J., Aime, M. C., An, K. D., Bai, F. Y., Barreto, R. W., Begerow, D., Bergeron, M. J., Blackwell, M., Schindel, D. 2012. Nuclear Ribosomal Internal Transcribed Spacer (ITS) Region as A Universal DNA Barcode Marker for Fungi. *Proceedings of the National Academy of Sciences of the United States of America*. 109(16): 6241–6246. <https://doi.org/10.1073/pnas.1117018109>.

Sen, S. K., Das, J. K., Rajhans, G., Barik, A., & Raut, S. 2021. Immobilized Fungal Consortium-GR: A Novel Textile Effluent Treatment Alternative for Removal of Azo Dyes and Other Pollutants. *Journal of Chemical Technology and Biotechnology*. 96(7): 1991–2005. <https://doi.org/10.1002/jctb.6727>.

Senthivelan, T., Kanagaraj, J., Panda, R. C., & Narayani, T. 2019. Screening and Production of A Potential Extracellular Fungal Laccase from *Penicillium Chrysogenum*: Media Optimization by Response Surface Methodology (RSM) and Central Composite Rotatable Design (CCRD). *Biotechnology Reports*. 23: 1-15. <https://doi.org/10.1016/j.btre.2019.e00344>.

Shanmugam, S., Hari, A., Ulaganathan, P., Yang, F., Krishnaswamy, S., & Wu, Y. R. 2018. Potential of Biohydrogen Generation Using The Delignified Lignocellulosic Biomass by A Newly Identified Thermostable Laccase from *Trichoderma asperellum* Strain BPLMBT1. *International Journal of Hydrogen Energy*. 43(7): 3618–3628. <https://doi.org/10.1016/j.ijhydene.2018.01.016>.

Sharma, A., Aggarwal, N. K., & Yadav, A. 2017. Isolation and Screening of Lignolytic Fungi from Various Ecological Niches. *Universal Journal of Microbiology Research*. 5(2): 25–34. <https://doi.org/10.13189/ujmr.2017.050202>.

Shenoy, B. D., Jeewon, R., & Hyde, K. D. 2007. Impact of DNA Sequence-Data on The Taxonomy of Anamorphic Fungi. *Fungal Diversity*. 26: 1–54.

Singh, H. 2006. *Mycoremediation: Fungal Bioremediation*. United States of America: A John Wiley & Sons, Inc., Publication. <https://doi.org/10.1002/0470050594>.

Singh, L., & Singh, V. P. 2012. Microbial Decolourization of Textile Dyes by The

Fungus *Trichoderma harzianum*. *Journal of Pure and Applied Microbiology*.  
66(4): 1829–1833.

Singh, R., Singh, P., & Singh, R. 2014. Bacterial Decolorization of Textile Azo Dye Acid Orange by *Staphylococcus hominis* RMLRT03. *Toxicology International*. 21(2): 160–166. <https://doi.org/10.4103/0971-6580.139797>.

Sinha, A., & Osborne, W. J. 2016. Biodegradation of Reactive Green Dye (RGD) by Indigenous Fungal Strain VITAF-1. *International Biodeterioration and Biodegradation*. 114: 176–183. <https://doi.org/10.1016/j.ibiod.2016.06.016>.

Sulistia, S., & Septisya, A. C. 2020. Analisis Kualitas Air Limbah Domestik Perkantoran. *Jurnal Rekayasa Lingkungan*. 12(1): 41–57. <https://doi.org/10.29122/jr1.v12i1.3658>.

Sun, S., Zhang, Y., Que, Y., Liu, B., Hu, K., & Xu, L. 2013. Purification and Characterization of Fungal Laccase from *Mycena purpureofusca*. *Chiang Mai Journal of Science*. 40(2): 151–160.

Syafiuddin, A., & Fulazzaky, M. A. 2021. Decolorization Kinetics and Mass Transfer Mechanisms of Remazol Brilliant Blue R Dye Mediated by Different Fungi. *Biotechnology Reports*. 29: 1-14. <https://doi.org/10.1016/j.btre.2020.e00573>.

Tavares, A. P. M., Coelho, M. A. Z., Coutinho, J. A. P., & Xavier, A. M. R. B. 2005. Laccase improvement in submerged cultivation: Induced Production and Kinetic Modelling. *Journal of Chemical Technology and Biotechnology*.

80(6): 669–676. <https://doi.org/10.1002/jctb.1246>.

Taylor JW, Geiser DM, Burt A, Koufopanou V. 1999. The evolutionary biology and population genetics underlying fungal strain typing. *Clin Microbiol Rev.* 12(1):146–126.

Thangadurai, D., Sangeetha, J., & David, M. 2016. *Fundamentals Of MolecularMycology*. Canada: Apple Academic Press, Inc.

Umar, A. 2021. Screening and Evaluation of Laccase Produced by Different *Trichoderma* species Along with Their Relationship. *Archives of Microbiology.* 203(7): 4319–4327. <https://doi.org/10.1007/s00203-021-02420-5>.

Vikineswary, S., Kuthubutheen, A. J., & Ravoof, A. A. 1997. Growth of *Trichoderma harzianum* and *Myceliophthora thermophila* in Palm Oil Sludge. *World Journal of Microbiology and Biotechnology.* 13(2): 189–194. <https://doi.org/10.1023/A:1018541831195>.

Watanabe, T. 2002. *Pictorial atlas of soil and seed fungi: Morphologies of cultured fungi and key to species, second edition*. In *Pictorial Atlas of Soil and Seed Fungi: Morphologies of Cultured Fungi and Key to Species, Second Edition*. United States of America: CRC Press. <https://doi.org/10.1201/9781420040821>.

Waluyo, L. 2005. *Mikrobiologi Umum*. Malang: Universitas Muhammadiyah Malang.

Yaseen, D. A., & Scholz, M. 2019. Textile Dye Wastewater Characteristics and Constituents of Synthetic Effluents: a critical review. In *International Journal of Environmental Science and Technology*. 16(2): 1193-1226 . Springer Berlin Heidelberg. <https://doi.org/10.1007/s13762-018-2130-z>.

Zainip, V. J., Adnan, L. A., & Elshikh, M. S. 2021. Decolorization of Remazol Brilliant Violet 5R and Procion Red MX-5B by *Trichoderma* Species. *Tropical Aquatic and Soil Pollution*. 1(2): 108–117. <https://doi.org/10.53623/tasp.v1i2.25>.