

## DAFTAR PUSTAKA

- Abbas, H.K., Cartwright, R.D., Shier, W.T., Abouzied, M.M., Bird, C.B., Rice, L.G., Ross, P.F., Sciumbato, G.L., & Meredith, F.I. 1998. Natural occurrence of fumonisins in rice with *Fusarium* sheath rot disease. *Plant Dis.* 82: 22–25.
- Abdelfattah, A., Malacrino, A., Wisniewski, M., Cacciola, S.O., & Schena, L. 2018. Metabarcoding: a powerful tool to investigate microbial communities and shape future plant rotection strategies. *Biol Control.* 120: 1–10.
- Afifah, K., Wiyono, S., Yuliani, T.S., & Wibowo, B.S. 2020. History of sheath rot disease in Indonesia and disease severity in two rice production centres of West Java. *Jurnal Perlindungan Tanaman Indonesia.* 24(2): 201-208.
- Agrios, G.N. 2005. *Plant Pathology*. 5th edition. Elsevier Academic Press. California. 922 p.
- Aime, S., Alabouvette, C., Steinberg, C., & Olivain, C. 2013. The endophytic strain *Fusarium oxysporum* Fo47: a good candidate for priming the defense responses in tomato roots. *Mol. Plant-Microbe Interact.* 26:918–26.
- Alberts, B., Johnson, A., Lewis, J., et al. 2002. *Molecular Biology of the Cell*. 4th edition. New York: Garland Science; 2002. The Plant Cell Wall. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK26928/>
- Alexopoulos, C.J., Mims, C.W., & Blackwell, M. 1996. *Introductory Mycology*. Fourth Edition. John Wiley & Sons Inc. New York.
- Amsalem, L., Freeman, S., Rav-David, D., Nitzani, Y., Szejnberg A., Pertot, I., & Elad, Y. 2006. Effect of climatic factors on powdery mildew caused by *Sphaerotheca macularis* f. sp. *Fragariae* on Strawberry. *Eur J Plant Pathol* **114**, 283–292
- An, S., Potnis, N., Dow, M., Vorhölter, F.J., He, Y.Q., Becker, A., Teper, D., Li, Y., Wang, N., Bleris, L., & Tang, J.L. 2020. Mechanistic insights into host adaptation, virulence and epidemiology of the phytopathogen *Xanthomonas*. *FEMS Microbiol Rev.* 44(1): 1–32.
- Audebert, A. & Fofana, M. 2009. Rice yield gap due to iron toxicity in West Africa. *J. Agron. Crop Sci.* 195: 66–76.
- Aung, K., Jiang, Y., & He, S.Y. 2018. The role of water in plant-microbe interactions. *Plant J.* 93(4): 771–780.
- Avis, T.J., Caron, S.J., Boekhout, T., Hamelin, R.C. & Bélanger, R.R. 2001. Molecular and physiological analysis of the powdery mildew antagonist *Pseudozyma flocculosa* and related fungi. *Phytopathol.* 91: 249–254.
- Aznar, A., Chen, N.W.G., Thomine, S., & Dellagi A. 2015. Immunity to plant pathogens and iron homeostasis. *Plant Sci.* 240:90–97.
- Ballaré, C.L, Mazza, C.A, Austin, A.T., & Pierik, R. 2012. Canopy light and plant health. *Plant Physiol.* 160: 145–155.
- Ballini E., Nguyen T.T., & Morel J.B. 2013. Diversity and genetics of nitrogen-induced susceptibility to the blast fungus in rice and wheat. *Rice.* 6: 32.
- Banakar, R., Fernández, Á., Abadía, J., Capell, T., & Christou, P. 2017. The expression of heterologous Fe (III) phytosiderophore transporter Hv YS 1 in rice increases Fe uptake, translocation and seed loading and excludes heavy metals by selective Fe transport. *Plant Biotechnol. J.* 15: 423–432.
- Bass, D., Stentiford, G.D., Wang, H.C., Koskella, B., & Tyler, C.R. 2019. The pathobiome in animal and plant diseases. *Trends Ecol. Evol.* 34(11): 996–1008.

- Berhan, M. & Yalew, D & Zeleke, T. 2020. Evaluation of fungicides efficacy against rice sheath rot disease (*Sarocladium oryzae*) in rain fed low land rice (*Oryza sativa* L.) in Fogera hub. Int. J. Agri Biosci. 9(5): 221–225
- Bigirimana, V de P., Hua, G.K.H., Nyamangyoku, O.I. & Höfte, M. 2015. Rice sheath rot: An emerging ubiquitous destructive disease complex. Front. Plant Sci. 6: 1066.
- Bills, G.F., Platas, G., & Gams, W. 2004. Conspecificity of the cerulenin and helvolic acid producing “*Cephalosporium caerulens*,” and the hypocreaean fungus *Sarocladium oryzae*. Mycol Res. 108: 1291–1300.
- Bolton M. D. & Thomma B. P. H. J. 2008. The complexity of nitrogen metabolism and nitrogen-regulated gene expression in plant pathogenic fungi. Physiol. Mol. Plant Pathol. 72: 104–110.
- Bowen, K.L. 2004. Plant disease epidemiology. In: R.N. Trigiano, M.T. Windham, A.S. Windham (Eds.). Plant Pathology: Concepts and Laboratory Exercises. CRC Press LLC, Florida. 476–499.
- Bower, J.H., Sonoda R.M., & Mitchell, D.J. 1990. Path coefficient analysis of the effect of rainfall variables on the epidemiology of *Phytophthora* blight of pepper caused by *Phytophthora capsici*. Phytopathol. 80:1439–1446.
- BPS Lampung. Padi, Luas Panen, Produksi, dan Produktivitas. 2022. Tersedia di: <https://lampung.bps.go.id/indicator/53/568/1/padi-luas-panen-produksi-dan-produktivitas-.html>. diakses tanggal 10 November 2023.
- Bradbury, J.F. 1970. Isolation and preliminary study of bacteria from plants. Rev. Pl. Path. 49(5): 213–218.
- Brader, G., Compant, S., Vescio, K., Mitter, B., Trognitz, Ma L., & Sessitch. 2017. Ecology and genomic insight into plant-nonpathogenic and plant-nonpathogenic endophytes. Annu. Rev. Phytopathol. 55: 61–83.
- Bradford, M., Keiser, A., Davies, C., Mersmann, C., & Strickland, M. 2013. Empirical evidence that soil carbon formation from plant inputs is positively related to microbial growth. Biogeochem. 113: 271–281.
- Breitwieser, F.P., Lu, J. & Salzberg, S.L. 2018. A review of methods and databases for metagenomic classification and assembly. Briefings in Bioinformatics. 20: 1125–1136.
- Bridge, P.D., Hawskworth, D.L., Kavishe, D. F., & Farnell, P. A. 1989. A revision of the species concept in *Sarocladium*, the causal agent of sheath-rot in rice and bamboo blight, based on biochemical and morphometric analyses. Plant Pathol. 38: 239–245.
- Bringel, F., & Couée, I. 2015. Pivotal roles of phyllosphere microorganisms at the interface between plant functioning and atmospheric trace gas dynamics. Front. Microbiol. 6:486.
- Brown, J. 1997. Survival and dispersal of plant parasites: General concepts. In: J.F. Brown, H.J. Ogle (Eds.). Plant Pathogens and Plant Diseases. Rockvale Publication. New South Wales. 195–206.
- Brumbarova, T., Bauer, P., & Ivanov, R. 2015. Molecular mechanisms governing *Arabidopsis* iron uptake. Trends Plant Sci. 20: 124–133.
- Bulgarelli, D., Schlaeppi, K., Spaepen, S., Van Themaat, E.V.L., & Schulze-Lefert, P., 2013. Structure and functions of the bacterial microbiota of plants. Ann. Rev. Plant Biol. 64: 807–838.
- Burdon, J.J. 1991. Fungal pathogens as selective forces in plant populations and communities. Aust J Ecol. 16:423–432.

- Bush, J. & Bradley, K. 2019. Genetics of Plant Diseases. ED-Tech Press, United Kingdom.
- Café-Filho, A.C., Lopes, C.A., & Rossato, M. 2019. Management of plant disease epidemics with irrigation practices. *In*: Ondrašek G (Eds.) Irrigation in Agroecosystems. IntechOpen
- Cappuccino, J.G. & Sherman, N. 2008. Microbiology: A Laboratory Manual, 8th ed. Pearson Benjamin Cummings, San Francisco, CA, USA.
- Case, R.J., Boucher, Y., Dahllöf, I., Holmström, C., Doolittle, W.F., & Kjelleberg, S. 2007. Use of 16S rRNA and *rpoB* genes as molecular markers for microbial ecology studies. *Appl Environ Microbiol.* 73(1):278–88.
- Chaibub, A.A., de Sousa, T.P., de Oliveira, M.I.S., Arriel-Elias, M.T., de Araujo, L.G., & de Filippi, C.C. 2020. Efficacy of *Cladosporium cladosporioides* C24G as a Multifunctional agent in upland rice in agroecological systems. *Int. J. Plant Prod.* 14: 463–474.
- Champoiseau, P., Rott, P., & Daugrois, J.H. 2009. Epiphytic populations of *Xanthomonas albilineans* and subsequent sugarcane stalk infection are linked to rainfall in Guadeloupe. *Plant Dis.* 93(4): 339–346.
- Chao, A. 1984. Nonparametric estimation of the number of classes in a population. *Scand J Statist.* 11: 265–270.
- Chao, A., Chazdon, R.L., Colwell, R.K., & Shen, T.J. 2006. Abundance-based similarity indices and their estimation when there are unseen species in samples. *Biometrics* 62: 361–37.
- Chapelle, E., Alunni, B., Malfatti, P., Solier, L., Pédrón, J., Kraepiel, Y., & Van Gijsegem, F. 2015. A straightforward and reliable method for bacterial in planta transcriptomics: application to the *Dickeya dadantii*/ *Arabidopsis thaliana* pathosystem. *Plant J.* 82: 352–362.
- Chen Y., Zhang F., Tang L., Zheng Y., Li Y., Christie P., & Li L. 2007. Wheat powdery mildew and foliar N concentrations as influenced by N fertilization and belowground interactions with intercropped faba bean. *Plant Soil.* 291: 1–13.
- Chen, H., Singh, H., Bhardwaj, N., Bhardwaj, S.K., Khatri, M., Kim, K.H., & Peng, W. 2020. An exploration on the toxicity mechanisms of phytotoxins and their potential utilities. *Cret Rev Environ Sci Technol.* 52(3): 395–435.
- Cheng, C., Gao, X., Feng, B., Sheen, J., Shan, L., & He, P. 2013. Plant immune response to pathogens differs with changing temperatures. *Nat Commun.* 4:2530.
- Cimanowski, J., Novacki, J. & Millikan, D.F. 1975. Effect of light on the development of powdery mildew on and some physiological and morphological changes in apple leaf tissue. *Phytoprotection* 56: 96–103.
- Cother, E.J., Stodart, B., Noble, D.H., Reinke, R., & van de Ven, R.J. 2009. Polyphasic identification of *Pseudomonas fuscovaginae* causing sheath and glume nekrosiss on rice in Australia. *Australas Plant Pathol.* 38:247–261.
- Crous PW, Wingfield MJ, Richardson DM, Le Roux JJ, Strasberg D, Edwards J, Roets F, Hubka V, Taylor PWJ, Heykoop M, *et al.* 2016. Fungal planet description sheets: 400–468. *Persoonia.* 36:316–458.
- Crous, P.W., Shivas, R.G., Quaedvlieg, W., van der Bank, M., Zhang, Y., Summerell, B.A., Guarro, J., Wingfield, M.J., Wood, A.R., Alfenas AC, *et al.* 2014. Fungal planet description sheets: 214–280. *Persoonia.* 32:184–306.
- Curie, C. & Briat, J.F. 2003. Iron transport and signaling in plants. *Annu. Rev. Plant Biol.* 54: 183–206.



- Datnoff, L.E., Elmer W. H., & Huber D. M. 2007. *Mineral Nutrition and Plant Disease*. St. Paul Davis: APS Press.
- Da Cunha, K.C., Sutton, D.A., Fothergill, A.W., Gené, J., Cano, J., Madrid, H., Hoog Sd., Crous, P.W., & Guarro, J. 2013. In vitro antifungal susceptibility and molecular identity of 99 clinical isolates of the opportunistic fungal genus *Curvularia*. *Diagn Microbiol Infect Dis*. 76(2): 168–174.
- Das, K., Lee, S.Y. & Jung H.Y. 2020. Molecular and morphological characterization of two novel species collected from soil in Korea. *Mycobiology* 48: 9–19.
- de Coster, W., D'Hert, S., Schultz, D.T., Cruts, M., & van Broeckhoven, C. 2018. NanoPack: visualizing and processing long-read sequencing data. *Bioinformatics*. 34: 2666–2669.
- de Gruyter, J., Woudenberg, J.H.C., Aveskamp, M.M., Verkley, G.J.M., Groenewald, J.Z., & Crous, P.W. 2010. Systematic reappraisal of species in *Phoma* section *Paraphoma*, *Pyrenochaeta* and *Pleurophoma*. *Mycologia*. 102(5):1066–1081.
- De Smet, B., Mayo, M., Peeters, C., Zlosnik, J.E.A., Spilker, T., Hird, T.J., LiPuma, J.J., Kidd, T.J., Kaestli, M., Ginther, J.L., Wagner, D.M., Keim, P., Bell, S.C., Jacobs, J.A., Currie, B.J., & Vandamme, P. 2015. *Burkholderia stagnalis* sp. nov. and *Burkholderia territorii* sp. nov., two novel *Burkholderia cepacia* complex species from environmental and human sources. *Int J Syst Evol Microbiol*. 65(7):2265–2271.
- Deka, A.K. & Phookan, A.K. 1992. Some common weed hosts of *Sarocladium oryzae* in Assam, India. *Int. Rice Res. Newsl*. 17(6): 25.
- Desjardins, A.E., Manandhar, K.H., Plattner, R.D., Manandhar, G.G., Poling, S.M. , & Maragos, C.M. 2000. *Fusarium* species from Nepalese rice and production of mycotoxins and gibberellic acid by selected species. *Appl. Environ. Microbiol*. 66:1020–1025.
- Devadas R., Simpfendorfer S., Backhouse D., & Lamb D.W. 2014. Effect of stripe rust on the yield response of wheat to nitrogen. *Crop J*. 2: 201–206.
- Ditjen Pangan (Direktorat Jenderal Tanaman Pangan). 1992. Laporan Akhir Penyakit Padi. Direktorat Jenderal Tanaman Pangan, Jakarta (ID). 5 p.
- Dong, X., M. Wang, N. Ling, Q. Shen, & S. Guo. 2016. Effects of iron and boron combinations on the suppression of *Fusarium* wilt in banana. *Sci. Rep*. 6: 38944.
- Dordas C. 2008. Role of nutrients in controlling plant diseases in sustainable agriculture. A review. *Agron. Sustain. Dev*. 28: 33–46.
- Du, S., Trivedi P., Wei, Z., Feng, J. , Hu, H., Bi, L., Huang, Q., & Liu, Y.R. 2022. the proportion of soil-borne fungal pathogens increases with elevated organic carbon in agricultural soils. *mSystems*. 7. e0133721.
- Dudenhöffer, J.H., Scheu, S., & Jousset, A. 2016. Systemic enrichment of antifungal traits in the rhizosphere microbiome after pathogen attack. *J. Ecol*. 104: 1566–1575.
- Duveiller, E., Miyajima, K., Snacken, F., Autrique, A., & Maraite, H. 1988. Characterization of *Pseudomonas fuscovaginae* and differentiation from other fluorescent *Pseudomonads* occurring on rice in Burundi. *J. Phytopathol*. 122: 97–107.
- Economic impact*. 2022. Global Food Security Index. Tersedia di: <https://impact.economist.com/sustainability/project/food-security-index>. diakses tanggal 10 November 2023.

- Elmer, W.H. 1997. Influence of chloride and nitrogen form on *Rhizoctonia* root and crown rot of table beets. *Plant Dis.* 81: 635–640.
- Fageria, N.K., Baligar, V.C., & Allan, A. 2011. *Growth and Mineral Nutrition of Field Crops*. 3 rd ed. CRC Press. Boca Raton 640 p.
- Fang, Y., Lin, H., Wu, L., Ren, D., Ye, W., Dong, G., Zhu, L., & Guo, L. 2015. Genome sequence of *Xanthomonas sacchari* R1, a biocontrol bacterium isolated from the rice seed. *J Biotechnol* 206: 77–78.
- Fernández, F. G., & Hoefft, R. G. 2009. Managing soil pH and crop nutrients. *Illinois agronomy handbook*, 8: 91-112.
- Fernandes, T.R., Segorbe, D., Prusky, D., & Di Pietro, A. 2017. How alkalinization drives fungal pathogenicity. *PLoS Pathog.* 13(11): e1006621.
- Fones, H.N., Bebbler, D.P., Chaloner, T.M., Kay, W.T., Steinberg, G., & Gurr, S.J. 2020. Threats to global food security from emerging fungal and oomycete crop pathogens. *Nat Food.* 1: 332–342.
- Fotso, J., Leslie, J.F., & Smith, J.S. 2002. Production of beauvericin, moniliformin, fusaproliferin, and fumonisin B1, B2, and B3 by fifteen ex-type strains of *Fusarium* species. *Appl Environ Microbiol.* 68(10): 5195–5197.
- Gams, W., & Hawksworth, D. L. 1975. Identity of *Acrocyndrium oryzae* Sawada and a similar fungus causing sheath-rot of rice. *Kavaka.* 3: 57–61.
- Gechev, T.S., Breusegem, F.V., Stone, J.M., Denev, I., & Lolo, C. 2006. Reactive oxygen species as signals that modulate plant stress responses and programmed cell death. *Bioessays.* 28: 1091–1101
- Genoud, T., Buchala, A.J., Chua, N.H., & Métraux, J.P. 2002. Phytochrome signalling modulates the SA-perceptive pathway in Arabidopsis. *Plant J.* 31: 87–95.
- Ghosh, M.K., Amudha, R., Jayachandran, S., & Sakthivel, N. 2002. Detection and quantification of phytotoxic metabolites of *Sarocladium oryzae* in sheath rot-infected grains of rice. *Lett Appl Microbiol.* 34(6):398–401.
- Gilbert, G.S. & Parker, I.M. 2023. *The Evolutionary Ecology of Plant Disease*. Oxford University Press. <https://doi.org/10.1093/oso/9780198797876.003.0010>. Diakses tanggal 29 November 2023.
- Giraldo, A., Gené, J., Sutton, D. A., Madrid, H., De Hoog, G. S., Cano, J., Decock, C., Crous, P.W., & Guarro, J. 2015. Phylogeny of *Sarocladium* (Hypocreales). *Persoonia.* 34: 10–24.
- Glazebrook, J. 2005. Contrasting mechanisms of defence against biotrophic and necrotrophic pathogens. *Annu Rev Phytopathol.* 43: 205–227.
- Gnanamanickam, S.S. & Mew, T.W. 1991. Interactions between *Sarocladium oryzae* and stem attacking fungal pathogens of rice. *Plant Soil.* 138: 213–219.
- Gopal, M., Gupta, A., & Thomas, G.V., 2013. Bespoke microbiome therapy to manage plant diseases. *Front. Microbiol.* 4: 1–5.
- Gopalakrishnan, C., Kamalakannan, A., & Valluvaparidasan, V. 2010. Effect of seed-borne *Sarocladium oryzae*, the incitant of rice sheath rot on rice seed quality. *J. Plant Prot. Res.* 50: 98–102.
- Graham, D.R. & M.J. Webb. 1991. Micronutrients and disease resistance and tolerance in plants. *In*: Mortvedt J.J., F.R. Cox, L.M. Shuman & R.M. Welch (Eds.). *Micronutrients in Agriculture*, 2nd ed. Soil Science Society of America, Inc. Wisconsin. 329-370.
- Greenshields, D.L., G. Liu & Y. Wei. 2007. Roles of iron in plant defence and fungal virulence. *Plant Signal Behav.* 2: 300-302.

- Griebel, T & Zeier, J. 2008. Light regulation and daytime dependency of inducible plant defenses in *Arabidopsis*: Phytochrome signaling controls systemic acquired resistance rather than local defense. *Plant Physiol.* 147(2): 790–801.
- Groenewald, S., van den Berg, N., Marasas, W.F.O., & Viljoen, A. 2006. Biological, physiological and pathogenic variation in a genetically homogenous population of *Fusarium oxysporum* f.sp. *cubense*. *Austral. Plant Pathol.* 35: 401–409.
- Gupta, V.K., Misra, A.K., & Gaur, R.K. 2010. Growth characteristics of *Fusarium* spp. causing wilt disease in *Psidium guajava* L. in India. *Journal of Plant Protection Research.* 50(4): 452–462.
- Gyula, N., Schäfer, E., & Nagy, F. 2003. Light perception and signalling in higher plants. *Curr Opin Plant Biol.* 6: 446–452.
- Habibi, S., Djedidi, S., Ohkama-Ohtsu, N., Sarhadi, W.A., Kojima, K., Rallos, R.V., Ramirez, M.D.A., Yamaya, H., Sekimoto, H., & Yokoyama, T. 2019. Isolation and screening of indigenous plant growth-promoting rhizobacteria from different rice cultivars in Afghanistan soils. *Microb Environ* 34 (4): 347–355.
- Ham, J.H., Melanson, R.A., & Rush, M.C. 2011. *Burkholderia glumae*: next major pathogen of rice? *Mol. Plant Pathol.* 12: 329–339.
- Hamayun, M., Khan, S.A, Khan, A.L., Rehman, G., Kim, Y.H., Iqbal, I., Hussain, J., Sohn, E.Y., & Lee, I.J. 2010. Gibberellin production and plant growth promotion from pure cultures of *Cladosporium* sp. MH-6 isolated from cucumber (*Cucumis sativus* L.). *Mycologia.* 102: 989–995.
- Harrison, J.G., Lowe, R., & Williams, N.A. Humidity and fungal diseases of plants – problems. *In: JP Blakeman, B Williamson (eds.) Ecology of Plant Pathogens.* Wallingford: CAB International; 1994. pp. 79–97.
- Hauben, L., Vauterin, L., Swings, J., & Moore, E.R.B. 1997. Comparison of 16S Ribosomal DNA sequences of all *Xanthomonas* Species. *Intl J Syst Bacteriol* 47 (2): 328–335.
- He, L., Cheng, H., Zhao, L., Htun, A.A., Yu, Z.H., Deng, J.X., & Li. Q.L. 2021. Morphological and molecular identification of two new *Alternaria* species (Ascomycota, Pleosporaceae) in section *Radicina* from China. *MycoKeys.* 78:187–198.
- Heath, M.C. 2000. Hypersensitive response-related death. *Plant Mol Biol.* 44: 321–334.
- Hell, R. & Stephan, U.W. 2003. Iron uptake, trafficking and homeostasis in plants. *Planta.* 216: 541–551.
- Hillis, D.M. & Dixon, M.T. 1991. Ribosomal DNA: molecular evolution and phylogenetic inference. *Quarterly Review of Biology* 66: 411–53.
- Hittalmani, S., Mahesh, H.B., Mahadevaiah, C., & Prasannakumar, M.K. 2016. De novo genome assembly and annotation of rice sheath rot fungus *Sarocladium oryzae* reveals genes involved in helvolic acid and cerulenin biosynthesis pathways. *BMC Genomics.* 17: 271.
- Hosokawa, M., Tanaka, C. & Tsuda, M. 2003. Conidium morphology of *Curvularia geniculata* and allied species. *Mycoscience.* 44: 227–237.
- Huang H., Nguyen Thi Thu T., He X., Gravot A., Bernillon S., Ballini E., & Morel J.B. 2017. Increase of fungal pathogenicity and role of plant glutamine in nitrogen-induced susceptibility (NIS) to rice blast. *Front. Plant Sci.* 8: 265.
- Huber, L. & Gillespie, T.J. 1993. Modeling leaf wetness in relation to plant disease epidemiology. *Ann Rev Phytopath.* 30: 553–577.



- Hugh, R. & Leifson, E. 1953. The taxonomic significance of fermentative versus oxidative metabolism of carbohydrates by various gram negative bacteria. *J Bacteriol.* 66: 24–26.
- Ilyas, M.B. & Iftikhar, K. 1997. Screening of rice germplasm and fungitoxicants against bakanae disease of rice. *Pakistan Journal of Phytopathology* 9(1): 67–73.
- Imran, M., Khanal, S., Zhou, X.S., Antony-Babu, S., & Atiq, M. 2022. First report of brown leaf spot of rice caused by *Curvularia hawaiiensis* in the United States. *Plant Dis.* 106: 9, 2527.
- Imran, M., Khanal, S., Zhou, X.S., Antony-Babu, S., & Atiq, M. 2022. First report of fusarium sheath rot of rice caused by *Fusarium incarnatum-equiseti* species complex in the United States. *Plant Dis.* 106: 12, 3206.
- Inceoglu, O., Al-Soud, W.A., Salles, J.F., Semenov, A.V., & van Elsas, J.D., 2011. Comparative analysis of bacterial communities in a potato field as determined by pyrosequencing. *PLoS One.* 6(8): e23321.
- IRRI. 2022. Fact sheet: Sheath Rot. <http://www.knowledgebank.irri.org/training/fact-sheets/pest-management/diseases/item/sheath-rot?tmpl=component&print=1>
- Isaac, R. A., & Kerber, J. D. 1971. Atomic Absorption and Flame Photometry: Techniques and Uses in Soil, Plant and Water Analysis. In *Instrumental Methods for Analysis of Soil and Plant Tissues* (pp. 17-37). Madison
- Ivayani, Widiastuti, A., Suryanti, Suharjo, R., & Priyatmojo, A. 2022. Fungi associated with rice sheath rot in Lampung, Indonesia. *Arch Phytopathol Plant Prot* 55 (17): 1–23.
- Janda, J.M. & Abbott, S.L. 2007. 16S rRNA gene sequencing for bacterial identification in the diagnostic laboratory: pluses, perils, and pitfalls. *J Clin Microbiol.* 45(9):2761–2764.
- Jiang, S., Qiang, S., Zhu, Y., & Dong Y. 2008. Isolation and phytotoxicity of  $\alpha$ ,  $\beta$ -dehydrocurvularin, a metabolite from *Curvularia eragrostidis* and characterization of its modes of action. *Ann Appl Biol.* 152(1):103–111.
- Jiao, Z., Kawamura, Y., Mishima, N., Yang, R., Li, N., Liu, X., & Ezaki T. 2003. Need to differentiate lethal toxin-producing strains of *Burkholderia gladioli*, which cause severe food poisoning: description of *B. gladioli* pathovar *cocovenenans* and an emended description of *B. gladioli*. *Microbiol Immunol.* 47(12):915–25.
- Kay, S. & Bonas, U. 2009. How *Xanthomonas* type III effectors manipulate the host plant. *Curr Opin Microbiol* 12 (1): 37–43.
- Keith, L.M., Sewake, K.T., & Francis, T.Z. 2005. Isolation and characterization of *Burkholderia gladioli* from orchids in Hawaii. *Plant Dis.* 89:1273–1278.
- Kementerian Pertanian. 2019. <https://www.pertanian.go.id/home/?show=page&act=view&id=61>. Diakses tanggal 13 oktober 2020.
- Kieu, N.P., Aznar, A., Segond D., Rigault, M., Simond-Cote, E., Kunz, C., Soulie, M.C., Expert D., & Dellagi, A.. 2012. Iron deficiency affects plant defence responses and confers resistance to *Dickeya dadantii* and *Botrytis cinerea*. *Mol Plant Pathol* 13: 816–827.
- Kim, J., Choi, O., & Kim, W.I. 2015. First report of sheath brown rot of rice caused by *Pseudomonas fuscovaginae* in Korea. *Plant Dis.* 99: 1033.
- King, E.O., Ward, M.K., & Raney, D.E. 1954. Two simple media for the demonstration of pyocyanin and fluorescin. *J Lab Clin Med.* 44: 301–307.
- Kobayashi, T., Nakanishi I.R., & Nishizawa, N.K. 2014. Iron deficiency responses in rice roots. *Rice.* 7: 27.

- Köhl, J., Scheer, C., Holb, I. J., Masny, S., & Molhock, W. 2015. Toward an integrated use of biological control by *Cladosporium cladosporioides* H39 in apple scab (*Venturia inaequalis*) management. *Plant Dis.* 99: 535–543.
- Kristensen, R., Torp, M., Kosiak, B., & Holst-Jensen, A. 2005. Phylogeny and toxigenic potential is correlated in *Fusarium* species as revealed by partial translation elongation factor 1 alpha gene sequences. *Mycol Res.* 09(Pt 2):173–86.
- Kusai, N.A., Azmi, M.M.Z., Zulkifly, S., Yusof, M.T., & Zainudin, N.A.I.M. 2016. Morphological and molecular characterization of *Curvularia* and related species associated with leaf spot disease of rice in Peninsular Malaysia. *Rend. Fis. Acc. Lincei.* 27:205–214.
- Kushiro, M., Saitoh, H., Sugiura, Y., Aoki, T., Kawamoto, S., & Sato, T. 2012. Experimental infection of *Fusarium proliferatum* in *Oryza sativa* plants; fumonisin B1 production and survival rate in grains. *Int. J. Food Microbiol.* 156(3): 204–208.
- Kvas, M., Marasas, W.F.O., Wingfield, B.D., Wingfield, M.J., & Steenkamp, E.T. 2009. Diversity and evolution of *Fusarium* species in the *Gibberella fujikuroi* complex. *Fungal Divers.* 34:1-21.
- Lamb, C. & Dixon, R.A. 1997. The oxidative burst in plant disease resistance. *Annu Rev Plant Physiol Plant Mol Biol.* 48: 251–275.
- Lanoiselet, V., You, M.P., Li, Y.P., Wang, C.P., Shivas, R.G., & Barbetti, M.J. 2012. First report of *Sarocladium oryzae* causing sheath rot on rice (*Oryza sativa*) in Western Australia. *Plant Dis.* 96: 1382.
- Lee, C.J., Lee, J.T., Kwor, J.H., Kim, B.C., & Park, W. 2005. Occurrence of bacterial soft rot of onion plants caused by *Burkholderia gladioli* pv. *alliiicola* in Korea. *Australas Plant Path.* 34:287–292.
- Lee, Y.A., Chao, C.S., & Jung, C.H. 2013. Combination of a simple differential medium and toxA-specific PCR for isolation and identification of phytopathogenic *Burkholderia gladioli*. *Eur J Plant Pathol.* 136:523–533.
- Lelliot, R.A., Billing, E., & Hayward, A.C. 1966. A determinative scheme for the fluorescent plant pathogenic pseudomonads. *J Appl Bacteriol* 29: 470-489.
- Lemos, L.N., Fulthorpe, R.R., Triplett, E.W., & Roesch, L.F. 2011. Rethinking microbial diversity analysis in the high throughput sequencing era. *J. Microbiol. Methods* 86: 42–51.
- Leslie, J.F., Anderson, L.L., Bowden, R.L., & Lee, Y.W. 2007. Inter- and intraspecific genetic variation in *Fusarium*. *Int. J. Food Microbiol.* 119: 25–32.
- Li, B.Q., Wang, W.H., Zong, Y.Y., Qin, G.Z., & Tian, S.P. 2012. Exploring pathogenic mechanisms of *Botrytis cinerea* secretome under different ambient pH based on comparative proteomic analysis. *J. Proteome Res.* 11: 4249–4260.
- Li, X., Li, Y., Wang, R., Wang, Q., & Lu, L. 2019. Toxoflavin produced by *Burkholderia gladioli* from *Lycoris aurea* is a new broad-spectrum fungicide. *Appl Environ Microbiol.* 85(9): e00106-19.
- Li, Y.M., Shivas, R.G., Li, B.J., & Cai, L. 2019. Diversity of *Moesziomyces* (Ustilaginales, Ustilaginomycotina) on *Echinochloa* and *Leersia* (Poaceae). *MycologyKeys.* 52: 1–16.
- Limtong, S., Into, P., & Attarat, P. 2020. Biocontrol of rice seedling rot disease caused by *Curvularia lunata* and *Helminthosporium oryzae* by epiphytic yeasts from plant leaves. *Microorganisms.* 8: 647.



- Liu, F., Wang, J., Li, H., Wang, W., & Cai, L. 2019. *Setophoma* spp. on *Camellia sinensis*. *Fungal Syst Evol.* 4:43–57.
- Liu, L., Gueguen-Chaignon, V., Gonçalves, I.R., *et al.* 2019. A secreted metal-binding protein protects necrotrophic phytopathogens from reactive oxygen species. *Nature Communications.* 10: 4853.
- Liu, W., Li, L., Khan, M.A., & Zhu, F. 2012. Popular molecular markers in bacteria. *Mol Gen Mikrobiol Virusol.* 3:14–7. PMID: 22984767.
- Lu, M., Zhang, Y., Li, Q., Huang, S., Tang, L., Chen, X., Guo, T., Mo, J., & Ma, L. 2022. First report of leaf blight caused by *Fusarium pemambucanum* and *Fusarium sulawesiense* on plum in Sichuanpra, China. *Plant Dis.* 106,10.
- Ma, L.J., van der Does, H.C., Borkovich, K.A., Coleman, J.J., Daboussi, M.J., *et al.* 2010. Comparative genomics reveals mobile pathogenicity chromosomes in *Fusarium*. *Nature* 464:367–73
- Macur, R.E., Mathre, D.E., & Olsen, R.A. 1991. Interactions between iron nutrition and *Verticillium* wilt resistance in tomato. *Plant Soil.* 134:281-286
- Mahender, A., Swamy, B.P.M., Anandan, A., & Ali, J. 2019. Tolerance of iron-deficient and -toxic soil conditions in rice. *Plants.* 8(2): 31.
- Manamgoda, D.S., Cai, L., Bahkali, A.H., Chukeatirote, E., & Hyde, K.D. 2011. *Cochliobolus*: an overview and current status of species. *Fungal Divers.* 51(1):3–42.
- Manamgoda, D.S., Cai, L., McKenzie, E.H.C., Chukeatirote, E., & Hyde, K.D. 2012a. Two new *Curvularia* species from northern Thailand. *Sydowia.* 64(2): 255–266.
- Manamgoda, D.S., Cai, L., McKenzie, E.H.C., Crous, P.W., Madrid, H., Chukeatirote, E., Shivas, R.G., Tan, Y.P., & Hyde, K.D. 2012b. A phylogenetic and taxonomic re-evaluation of the *Bipolaris*- *Cochliobolus*- *Curvularia* Complex. *Fungal Diversity.* 56(1): 131–144.
- Manamgoda, D.S., Rossman, A.Y., Castlebury, L.A., Chukeatirote, E., & Hyde, K. 2015. A taxonomic and phylogenetic re-appraisal of the genus *Curvularia* (Pleosporaceae): human and plant pathogens. *Phytotaxa.* 212(3): 175.
- Manamgoda, D.S., Rossman, A.Y., Castlebury, L.A., Crous, P.W., Madrid, H., Chukeatirote, E., & Hyde, K.D. 2014. The genus *Bipolaris*. *Stud Mycol.* 79: 221–288.
- Marin, S., Sanchis, V., & Magan, N. 1995. Water activity, temperature, and pH effects on growth of *Fusarium moniliforme* and *Fusarium proliferatum* isolates from maize. *Can J Microbiol.* 41(12): 1063–1070.
- Martins, G., Lauga, B., Miot-Sertier, C., Mercier, A., Lonvaud, A., Soulas, M.L., Soulas, G., & Masneuf-Pomarède, I., 2013. Characterization of epiphytic bacterial communities from grapes, leaves, bark and soil of grapevine plants grown, and their relations. *PLoS One* 8: e73013.
- Maryani, N., Sandoval-Denis, M., Lombard, L., Crous, P.W., & Kema, G.H.J. 2019. New endemic *Fusarium* species hitch-hiking with pathogenic *Fusarium* strains causing Panama disease in small-holder banana plots in Indonesia. *Persoonia.* 43: 48–69.
- Matic S., Tabone, G., Guarnaccia V., Gullino, M.L., & Garibaldi A. 2020. Emerging leafy vegetable crop diseases caused by the *Fusarium incarnatum-equiseti* species complex. *Phytopathol Mediterr.* 59: 303–317.
- Md-Zali, A.Z., Ja'far, Y., Paramisparan, K., Ismail, S.I., Naad, S., Hata, E.M., Zulperi, D., Ismail, M.R., Md Hatta, M.A., & Yusof, M.T. 2023. First report of *Burkholderia gladioli* causing bacterial blight of rice in Malaysia. *Plant Dis.* 107: 2, 551.

- Meena, M., Gupta, S.K., Swapnil, P., Zehra, A., Dubey, M.K., Upadhyay, R.S. 2017. *Alternaria* toxins: potential virulence factors and genes related to pathogenesis. *Front Microbiol.* 8:1451.
- Meepagala, K., Johnson, R., & Duke, S. 2016. Curvularin and dehydrocurvularin as phytotoxic constituents from *Curvularia intermedia* infecting *Pandanus amaryllifolius*. *JACEN.* 05(01):12–22.
- Mehrotra, R.S. 1980. *Plant Pathology*. Tata McGraw-Hill Publishing Company. New Delhi.
- Mehta, A., Singh, S.K., Wani, O.A., Ahanger, S.A., Basu, U., Vaid, A., Sharma, S., & Basandrai, A.K. 2023. Effect of abiotic factors on progress and severity of sheath rot (*Sarocladium oryzae*) in rice. *J Phytopathol.* 171 (7–8) :300–319.
- Mengel K. 2001. *Principles of Plant Nutrition*, 5th Edn. Dordrecht: Kluwer Academic Publishers, 481–509.
- Mew, T. W. & Gonzales, P. 2002. *A Handbook of Rice Seedborne Fungi*. Enfield, Science Publishers. NH.
- Mirghasempour, S.A., Huang, S., Studholme, D.J., & Brady, C.L. 2020. A grain rot of rice in Iran caused by a *Xanthomonas* Strain closely related to *X. sacchari*. *Plant Dis* 104 (6): 1581-1583.
- Miyajima, K., Tanii, A., & Akita, T. 1983. *Pseudomonas fuscovaginae* sp. nov., nom. rev. *Int. J. Syst. Bacteriol.* 33: 656–657
- Monier, J.M. & Lindow, S.E. 2004. Frequency, size, and localization of bacterial aggregates on bean leaf surfaces. *Appl Environ Microbiol.* 70: 346–55.
- Moore, E.R., Krüger, A.S., Hauben, L., Seal, S.E., Daniels, M.J., De Baere, R., De Wachter, R., Timmis, K.N., & Swings J. 1997. 16S rRNA gene sequence analyses and inter- and intrageneric relationships of *Xanthomonas* species and *Stenotrophomonas maltophilia*. *FEMS Microbiol Lett.* 151 (2): 145–153.
- Mori, A.S., Nishizawa, N., Hayashi, H., Chino, M., & Yoshimura, E. 2016. Why are young rice plants highly susceptible to iron deficiency?. *Plant Soil.* 130: 143–156.
- Mur L. A., Simpson C., Kumari A., Gupta A. K., & Gupta K. J. 2017. Moving nitrogen to the centre of plant defence against pathogens. *Ann. Bot.* 119: 703–709.
- Musonerimana, S., Bez, C., Licastro, D., Habarugira, G., Bigirimana, J. & Venturi, V. 2020. Pathobiomes revealed that *Pseudomonas fuscovaginae* and *Sarocladium oryzae* are independently associated with rice sheath rot. *Microbial Ecology.* 80: 627–642.
- Nabhan, S., De Boer, S.H., Maiss, E., & Wydra K. 2012. Taxonomic relatedness between *Pectobacterium carotovorum* subsp. *carotovorum*, *Pectobacterium carotovorum* subsp. *odoriferum* and *Pectobacterium carotovorum* subsp. *brasiliense* subsp. nov. *J Appl Microbiol.* 113 (4): 904–913.
- Naeimi, S., Okhovvat, S.M., Hedjaroude, G.A., & Khosravi V. 2003. Sheath rot of rice in Iran. *Commun Agric Appl Biol Sci.* 68(4b):681–684.
- Nandakumar, R., Shahjahan, A.K.M., Yuan, X.L., Dickstein, E.R., Groth, D.E., Clark, C.A., Cartwright, R.D., & Rush, M.C. 2009. *Burkholderia glumae* and *B. gladioli* cause bacterial panicle blight in rice in the Southern United States. *Plant Dis.* 93(9):896–905.
- Nasini, G., Amone, A., Assante, G., Bava, A., Moricca, S., & Ragazzi, A. 2004. Secondary mould metabolites of *Cladosporium tenuissimum*, a hyperparasite of rust fungi. *Phytochemistry.* 65: 2107-2111.

- Nilsson, R.H, Anslan, S., Bahram, M., Wurzbacher, C., Baldrian, P., & Tedersoo, L. 2019. Mycobiome diversity: highthroughput sequencing and identification of fungi. *Nature Rev Microbiol.* 17: 95–109.
- Neumann S., Paveley N.D., Beed F.D., Sylvester-Bradley, R. 2004. Nitrogen per unit leaf area affects the upper asymptote of *Puccinia striiformis* f. sp. *tritici* epidemics in winter wheat. *Plant Pathol.* 53: 725–732.
- Nygaard, A.B., Tunsjø, H.S., Meisal, R., & Charnock, C. 2020. A preliminary study on the potential of Nanopore MinION and Illumina MiSeq 16S rRNA gene sequencing to characterize building-dust microbiomes. *Sci Rep.* 10: 1–10.
- O'Donnell, K., Sutton, D.A., Rinaldi, M.G., Gueidan, C., Crous, P.W., & Geiser, D.M. 2009. Novel multilocus sequence typing scheme reveals high genetic diversity of human pathogenic members of the *Fusarium incarnatum*-*F. equiseti* and *F. chlamydosporum* species complexes within the United States. *J Clin Microbiol.* 47(12): 3851–3861.
- Obase, K., Douhan, G.W., Matsuda, Y., & Smith, M.E. 2016. *Cladophialophora floridana* and *Cladophialophora tortuosa*, new species isolated from sclerotia of *Cenococcum geophilum* in forest soils of Florida, USA. *Mycoscience.* 57: 26–34.
- Odile, Odile, C., Mathieu, D., Tremblay, Tristan, Jobin, Anne-Sophie, W., & Walker. 2010. Disease decision support systems: Their impact on disease management and durability of fungicide effectiveness. 10.5772/13335.
- Ohta, A., Nishi, K., Hirota, K., & Matsuo, Y. 2023. Using nanopore sequencing to identify fungi from clinical samples with high phylogenetic resolution. *Sci Rep.* 13: 9785..
- Oka, I.D. 1993. Pengantar Epidemiologi Penyakit Tumbuhan. Gadjah Mada University Press. Yogyakarta
- Olivain, C., Humbert, C., Nahalkova, J., Fatehi, J., L'Haridon, F., & Alabouvette, C. 2006. Colonization of tomato root by pathogenic and nonpathogenic *Fusarium oxysporum* strains inoculated together and separately into the soil. *Appl. Environ. Microbiol.* 72:1523–1531.
- Onaga, G., Dramé, K.N., & Ismail, A.M. 2016. Understanding the regulation of iron nutrition: can it contribute to improving iron toxicity tolerance in rice? *Funct. Plant Biol.* 43: 709–726.
- Ondov, B.D., Bergman, N.H., & Phillippy, A.M. 2011. Interactive metagenomic visualization in a Web browser. *BMC Bioinformatics.* 12: 385.
- Ortega, L. & Rojas, C.M. 2021. Bacterial panicle blight and *Burkholderia glumae*: from pathogen biology to disease control. *Phytopathol.* 111(5): 772–778.
- Otani, H., Kohmoto, K., & Kodama M. 1995. *Alternaria* toxins and their effects on host plant. *Can J Bot.* 73(S1):453–458.
- Ou, J.H., Lin, G.C., & Chen, C.Y. 2020. *Sarocladium* species associated with rice in Taiwan. *Mycol Progress.* 19: 67–80.
- Pakshir, K., Farazmand, F., Ghasemi, F., Mirhendi, H., Zomorodian, K., Kharazi, M., Alborzi P.R., Golestani, H., & Motamedi, M. 2020. Translation elongation factor 1-alpha gene as a marker for diagnosing of *Candidal onychomycosis*. *Curr Med Mycol.* 6(1):15–21.
- Palacios, S. A., Susca, A., Haidukowski, M., Stea, G., Cendoya, E., Ramirez, M. L., Chulze, S.N., Farnochi, M.C., Moretti, A., & Torres, A.M. 2015. Genetic



- variability and fumonisin production by *Fusarium proliferatum* isolated from durum wheat grains in Argentina. *Int. J. Food Microbiol.* 201: 35–41.
- Panda, K.K. & Mishra, M.K. 2019. Studies on physiological characteristics of *Sarocladium oryzae* causing sheath rot of rice. *Int.J.Curr.Microbiol.App.Sci.* 8(8): 1767–1774.
- Pandey, S.S., Patnana, P.K., Padhi, Y., & Chatterjee, S. 2018. Low-iron conditions induces the hypersensitive reaction and pathogenicity hrp genes expression in *Xanthomonas* and is involved in modulation of hypersensitive response and virulence. *Environ Microbiol Rep.* 10: 522–531.
- Park, J.W., Choi, S.Y., Hwang, H.J., & Kim, Y.B. 2005. Fungal mycoflora and mycotoxins in Korean polished rice destined for humans. *Int.J.Food Microbiol.* 103: 305–314.
- Park, M.J. & Shin, H.D. 2011. *Cladophialophora pucciniophila*, a new hyphomycete parasitizing a rust fungus. *Mycotaxon.* 116: 449–456.
- Patel, H., Matiuzzo M., Bertani, I., Bigirimana, V., Höfte, G.J. Ash, M., & Venturi, V. 2014. Identification of virulence associated loci in the emerging broad host range plant pathogen *Pseudomonas fuscovaginae*. *BMC Microbiol.* 14:274.
- Patel, J.B. 2001. 16S rRNA gene sequencing for bacterial pathogen identification in the clinical laboratory. *Mol. Diagn.* 6:313–321.
- Paul, D. & Park, K.S. 2013. Identification of volatiles produced by *Cladosporium cladosporioides* CL-1, a fungal biocontrol agent that promotes plant growth. *Sensors (Basel).* 13:13969–13977.
- Pearce, D.A., Bridge, P.D., & Hawksworth, D.L. 2001. Species concept in *Sarocladium*, the causal agent in sheath rot in rice and bamboo blight. *In: S. Sreenivasaprasad & R. Johnson (Eds.). Major Fungal Diseases of Rice: Recent Advances.* Dordrecht: Springer. 285–292.
- Peeters, K.J., Haeck, A., Harinck, L., Afolabi, O.O., Demeestere, K., Audenaert, K., & Höfte, M. 2020. Morphological, pathogenic and toxigenic variability in the rice sheath rot pathogen *Sarocladium oryzae*. *Toxins (Basel).* 12(2): 109.
- Peeters, K.J., Audenaert, K., & Höfte, M. 2021. Survival of the fittest: how the rice microbial community forces *Sarocladium oryzae* into pathogenicity. *FEMS Microbiol Ecol.* 97: fiae253.
- Penalva, M.A., Tilburu, B., Bignelli, E., & Arst, H.N. 2008. Ambient pH gene regulation in fungi: making connections. *Trends Microbiol.* 16: 291–300.
- Pereira, E.G., Oliva, M.A., Rosado-Souza, L., Mendes, G.C., Colares, D.S., Stopato, C.H., & Almeida, A.M. 2013. Iron excess affects rice photosynthesis through stomatal and non-stomatal limitations. *Plant Sci.* 201: 81–92.
- Pettigrew W. T. 2008. Potassium influences on yield and quality production for maize, wheat, soybean and cotton. *Physiol. Plantarum.* 133: 670–681.
- Phookamsak, R., Liu, J.K., Manamgoda, D.S., Chukeatirote, E., Mortimer, P.E., McKenzie, E.H.C., & Hyde, K.D. 2014. The sexual state of *Setophoma*. *Phytotaxa.* 176(1):260–269.
- Pontes, J.G.M., Fernandes, L.S., Dos Santos, R.V., Tasic, L., & Fill, T.P. 2020. Virulence factors in the phytopathogen-host interactions: an overview. *J Agric Food Chem.* 68(29): 7555–7570.
- Poudel, M. Mendes, R, Costa, L.A.S., Bueno, C.G., Meng, Y., Folimonova S.Y., Garreett, K.A., & Martins, S.J. 2021. The role of plant-associated bacteria, fungi, and viruses in drought stress mitigation. *Front Microbiol.* 25(12): 743512.

- Poudel, R., Jumpponen, A., Schlatter, D.C., Paulitz, T.C., Gardener, B.B.M., Kinkel, L.L., & Garret, K.A. 2016. Microbiome networks: a systems framework for identifying candidate microbial assemblages for disease management. *Phytopathol.* 106(10): 1083–1096.
- Prabhukarthikeyan, S.R., Keerthana, U., Krishnan, N., Yadav, M.K., Parameswaran, C., Panneerselvam, P., & Rath, P.C. 2020. First report of *Fusarium proliferatum* causing sheath rot disease of rice in Eastern India. *Plant Dis.* PMID: 33021923.
- Pramunadipta, S., Widiastuti, A., & Priyatmojo, A. 2017. Environmental factors affecting the severity of sheath rot disease (*Sarocladium oryzae* and *Fusarium* spp.) on paddy. Abstract. 2nd International Conference of Tropical Agriculture. Sustainable Tropical Agriculture Symposium. Yogyakarta, Indonesia, 26- 27 October 2017.
- Pramunadipta, S., Widiastuti, A., Wibowo, A., Suga, H., & Priyatmojo A. 2020. Short communication: *Sarocladium oryzae* associated with sheath rot disease of rice in Indonesia. *Biodiversitas.* 21: 1243–1249.
- Pramunadipta, S., Widiastuti, A., Wibowo, A., Suga, H., & Priyatmojo A. 2022a. Identification and pathogenicity of *Fusarium* spp. associated with the sheath rot disease of rice (*Oryza sativa*) in Indonesia. *J Plant Pathol.* 104(1):251–267
- Pramunadipta, S., Widiastuti, A., Wibowo, A., Suga, H., & Priyatmojo A. 2022b. Development of PCR-RFLP technique for identify several members of *Fusarium incarnatum-equiseti* species complex and *Fusarium fujikuroi* species complex. *Plant Pathol J.* 38: 254–260.
- Prior, B.M. & Michailides, T.J. 2002. Morphological, pathogenic, and molecular characterization of *Alternaria* isolates associated with alternaria late blight of pistachio. *Phytopathol.* 92(4): 406–416.
- Prusky, D., McEvoy, J.L., Leverentz, B., & Conway, W.S. 2001. Local modulation of host pH by *Colletotrichum* species as a mechanism to increase virulence. *Mol Plant Microbe Interact.* 14(9):1105–1103.
- Quaedvlieg, W., Verkley, G.J.M., Shin, H.W., Barreto, R.W., Alfenas, A.C., Swart, W.J., Groenewald, J.Z., & Crous, P.W. 2013. Sizing up Septoria. *Stud Mycol.* 75(1): 307–390.
- Quintana, L., Gutierrez, S., Maidana, M., Arriola, M., & Ortiz, A. 2017. Morphological characterization of *Alternaria padwickii* in rice leaves (*Oryza sativa* L.) and its prevalence in the departments of itapúa, misiones and caazapa. *Int. J. Adv. Res.* 5(5): 1109–1112.
- R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>. (2021).
- Ramos, A.E.R., Kutcher, H.R., & Dallagnol, L.J. 2023. *Pyrenophora tritici-repentis*: a worldwide threat to wheat. IntechOpen.
- Rana, S., Baghela, A., & Singh, S.K. 2017. Morphology and phylogeny of *Microdochium fisheri*, a new record from India. *Plant Pathology & Quarantine.* 7: 191–200.
- Rastogi, G., Sbodio, A., Tech, J.J., Suslow, T.V., Coaker, G.L., & Leveau, J.H., 2012. Leaf microbiota in an agroecosystem: spatiotemporal variation in bacterial community composition on field-grown lettuce. *ISME J.* 6: 1812–1822.

- Reis, E.R., & Wunschr, W.A. 1984. Sporulation of *Cochliobolus sativus* on residues of winter crops and its relationship to increase inoculum density in soil. *Plant Dis.* 68(1):411–412.
- Riera-Ruiz, C., Vargas, J., Cevallos-Cevallos, J.M., Ratti, M., & Peralta, E.L. 2014. First report of bacterial panicle blight of rice caused by *Burkholderia gladioli* in Ecuador. *Plant Dis.* 98(11):1577.
- Rivero-González, D., Corzo, M., Plasencia, O., Cruz, A., Martínez, B., & Martínez, Y. 2017. Characterization and diagnosis of *Pseudomonas fuscovaginae* Miyajima, Tanii and Akita, causal agent of the brown sheath rot in rice. *Biotechnología Aplicada* 34: 2101–2108.
- Roberts, M.R. & Paul, N.D. 2006. Seduced by the dark side: integrating molecular and ecological perspectives on the influence of light on plant defence against pests and pathogens. *New Phytol.* 170: 677–699.
- Rolli, E., Marasco, R., Vigani, G., Ettoumi, B., Mapelli, F., Deangelis, M.L., Gandolfi, C., Casati, E., Previtali, F., Gerbino, R., Pierotti, Cei F., Borin, S., Sorlini, C., Zocchi, G., & Daffonchio, D. 2015. Improved plant resistance to drought is promoted by the root-associated microbiome as a water stress-dependent trait. *Environ. Microbiol.* 17:316–331.
- Rott, P. 1989. Identification and characterization of *Pseudomonas fuscovaginae*, the causal agent of bacterial sheath brown rot of rice, from Madagascar and other countries. *Plant Dis.* 73:133–137.
- Rout, G.R. & Sahoo, S. 2015. Role of iron in plant growth and metabolism. *Rev. Agric. Sci.* 3: 1–24.
- Russell, G.E. 1978. Some effects of applied sodium and potassium chlorides on yellow rust in winter wheat. *Ann. Appl. Biol.* 90: 163–168.
- Ryu E. 1940. A simple method of differentiation between gram-positive and gram-negative organism without staining. *Kitasato Arch Exp Med* 17: 58–63.
- Sakthivel, N. 2001. Sheath rot disease of rice: current status and control strategies. In: S. Sreenivasaprasad & R. Johnson (Eds.). *Major Fungal Diseases of Rice: Recent Advances*. Dordrecht:Springer. 271–283.
- Saravanakumar, D., N. Lavanya, K. Muthumeena, T. Raguchander, & R. Samiyappan. 2009. *Fluorescent pseudomonad* mixtures mediate disease resistance in rice plants against sheath rot (*Sarocladium oryzae*) disease. *BioControl* 54(2): 273–286.
- Schaad, N.W., Jones, J.B., & Chun, W. 2001: *Laboratory Guide for Identification of Plant Pathogenic Bacteria*. APS Press. Minnesota,
- Schlaeppli, K. & Bulgarelli, D. 2015. The plant microbiome at work. *Mol Plant-Microbe Interact* 28: 212–217.
- Schloss, P.D. & Handelsman, J. 2006. Introducing SONS, a tool for operational taxonomic unit-based comparisons of microbial community memberships and structures. *Appl. Environ. Microbiol.* 72: 6773–6779.
- Schloss, P.D., Westcott, S.L., Ryabin, T., Hall, J.R., Hartmann, M., Hollister, E.B., Lesniewski, R.A., Oakley, B.B., Parks, D.H., Robonson, C.J., Sahl, J.W., Stres, B., Thailinger, G.G., Horn, D.J.V. & Weber, C.F. 2009. Introducing mothur: open-source, platform-independent, community-supported software for describing and comparing microbial communities. *Appl. Environ. Microbiol.* 75: 7537–7541.



- Schoch, C.L., Seifert, K.A., Huhndorf, S., Robert, V., Spouge, J.L., Levesque, C.A., & Chen, W. 2012. Fungal barcoding consortium; fungal barcoding consortium author list. nuclear ribosomal internal transcribed spacer (ITS) region as a universal dna barcode marker for fungi. *Proc Natl Acad Sci U S A*. 109(16):6241–6246.
- Schoch, C.L., Seifert, K.A., Huhndorf, S., Robert, V., Spouge, J.L., Levesque, C.A., & Chen, W. 2012. Nuclear ribosomal internal transcribed spacer (ITS) region as universal DNA barcode marker for Fungi. *PNAS*. 109: 6241–6246.
- Schönherr, J. 2006. Characterization of aqueous pores in plant cuticles and permeation of ionic solutes. *J Exp Bot*. 57: 2471–2491.
- Shannon, C.E.A. 1948. Mathematical theory of communication. *Bell Syst. Tech. J*. 27: 379–423.
- Sheibani-Tezerji, R., Naveed, M., Jehl, M.A., Sessitsch, A., Rattei, T., & Mitter, B. 2015. The genomes of closely related *Pantoea ananatis* maize seed endophytes having different effects on the host plant differ in secretion system genes and mobile genetic elements. *Front. Microbiol*. 6: 440.
- Simpson, E. H. 1949. Measurement of diversity. *Nature*. 163: 688.
- Singh, R., Sunder, S., Dodan, D.S., & Ram L. 2005. Etiology, inoculation methods and evaluation of botanicals against sheath rot complex of rice. *Haryana agric. Univ. J. Res*. 35: 93–97.
- Sinha, B.B.P. & Sinha, R.K.P. 1996. Effect of environment on incidence of sheath-rot caused by *Sarocladium oryzae* in rice. *J Appl Biol*. 6(1/2): 97–99.
- Smith, B.A., Gupta, N., Denny, K., & Culver, G.M. 2018. Characterization of 16S rRNA processing with pre-30S subunit assembly intermediates from *E. coli*. *J. Mol. Biol*. 430(12): 1745–1759.
- Society of American Bacteriologists. 1957. *Manual of Microbiological Methods*. In: Conn HJ (eds.). McGraw-Hill Book Co, New York.
- Studholme, D.J., Wasukira, A., Paszkiewicz, K., Aritua, V., Thwaites, R., Smith, J., & Grant, M. 2011. Draft genome sequences of *Xanthomonas sacchari* and two banana associated *Xanthomonads* reveal insights into the *Xanthomonas* Group 1 Clade. *Genes (Basel)* 2 (4): 1050–1065.
- Suharjo, R., Sawada, H., & Takikawa, Y. 2014. Phylogenetic study of Japanese *Dickeya* spp. and development of new rapid identification methods using PCR-RFLP. *J Gen Plant Pathol* 80: 230–254.
- Sun, H.J., Wei, J.J., Li, Y.S., Bao, Y.X., Cui, Y.P., Huang, Y.Z., Zhou, .H, Yang, R.Z., & Zhang, M.Q. 2017. First report of sugarcane leaf chlorotic streak disease caused by *Xanthomonas sacchari* in Guangxi, China. *Plant Dis* 101 (6): 1029.
- Sun, S., Lui, Q., Han, L., Ma, Q., He, S., Li, X., Zhang, H., Zhang, J., Liu, X., & Wang, L. 2018. Identification and characterization of *Fusarium proliferatum*, a new species of fungi that cause fungal keratitis. *Sci. Rep*. 8(1): 4859.
- Sunani, S.K., Bashyal, B.M., Kharayat, B.S., Prakash, G., Krishnan, S.G., & Aggarwal R. 2020. Identification of rice seed infection routes of *Fusarium fujikuroi* inciting *bakanae* disease of rice *J. Plant Pathol*. 102: 113–121.
- Sunder, S., & Satyavir. 1998. Survival of *Fusarium moniliforme* in soil, grains and stubbles of paddy. *Indian Phytopathol*. 51: 47–50.
- Suzuki, A., Suriyagoda, L., Shigeyama, *et al*. 2011. *Lotus japonicus* nodulation is photomorphogenetically controlled by sensing the red/far red (R/FR) ratio through jasmonic acid (JA) signaling. *Proc Natl Acad Sci USA*. 108: 16837–16842.

- Swibawa, I.G., Fitriana, Y., Solikhin, Suharjo, R., Susilo, F.X., Rani, E., Haryani, M.S., & Wardana, R.A. 2020. Morpho-molecular identification and pathogenicity test on fungal parasites of guava root-knot nematode eggs in Lampung, Indonesia. *Biodiversitas*. 21(3). 1108–1115.
- Swings, J., Van Den Mooter, M., Vauterin, L., Hoste, B., Gillis, M., Mew, T.W., & Kersters K. 1990. Reclassification of the causal agents of bacterial blight (*Xanthomonas campestris* pv. *oryzae*) and bacterial leaf streak (*Xanthomonas campestris* pv. *oryzicola*) of rice as pathovars of *Xanthomonas oryzae* (ex Ishiyama 1922) sp. nov., nom. rev. *Intl J Syst Bacteriol* 40 (3): 309–311
- Tamura, K., Stecher, G., & Kumar, S. 2021. MEGA11: Molecular evolutionary genetics analysis version 11. *Mol Biol Evol* 38: 3022–3027.
- Tan, Y.P., Madrid, H., Crous, P.W., & Shivas RG. 2014. *Johnalcornia* gen. et. comb. nov., and nine new combinations in *Curvularia* based on molecular phylogenetic analysis. *Australasian Plant Pathol.* 43(6): 589–603.
- Tanii, A., Miyajima, K., & Akita, T. 1976. The sheath brown rot disease of rice plant and its causal bacterium, *Pseudomonas fuscovaginae* A. Tanii, K. Miyajima et T. Akita sp. nov. *Japanese J Phytopathol.* 42: 540–548.
- Taylor, R.G., Jackson, T.L., Powelson, R.L., & Christensen, N.W. 1981. Chloride, nitrogen form, lime and planting date effects on take-all root rot of winter wheat. *Plant Dis.* 67: 1116–1120.
- Thambugala, K.M., Wanasinghe, D.N., Phillips, A.J.L., Comporesi, E., Bulgakov, T.S., Phukhamsakda, C., Ariyawansa, H.A., Goonasekara, I.D., Phookamsak, R., Dissanayake, A., Tennakoon, D.S., Tibpromma, S., Chen, Y.Y., Liu, Z.Y., & Hyde, K.D. 2017. Mycosphere notes 1–50: Grass (Poaceae) inhabiting Dothideomycetes. *Mycosphere*. 8(4): 697–796.
- Torres, D.E., Rojas-Martinez, R.I., Zavaleta-Mejia, E., Guevara-Fefer, P., Marquez-Guzman, G.J., & Perez-Martinez, C. 2017. *Cladosporium cladosporioides* and *Cladosporium pseudocladosporioides* as potential new fungal antagonists of *Puccinia horiana* Henn., the causal agent of chrysanthemum white rust. *PLoS One*. 12: e0170782.
- Tripathi, A., Anand, K., Das, M, et al. 2022. *Mycobacterium tuberculosis* requires SuFT for Fe-S cluster maturation, metabolism, and survival *in vivo*. *PLoS Pathog* 18(4): e1010475.
- Tripathi, R., Tewari, R., Singh, K.P., Keswani, C., Minkina, T., Srivastava, A.K., De Corato, U., & Sansinenea, E. 2022. Plant mineral nutrition and disease resistance: A significant linkage for sustainable crop protection. *Front Plant Sci.* 13:883970. PMID: 36340341; PMCID: PMC9631425.
- Tschen, J., Chen, L., Hsieh, S., & Wu T. 1997. Isolation and phytotoxic effects of helvolic acid from plant pathogenic fungus *Sarocladium oryzae*. *Bot. Bull. Acad. Sin.* 38: 251–256.
- Turner, T.R., James E.K. & Poole, P.S. 2013. The plant microbiome. *Genome Biol.* 14: 209 (2013).
- Van der Plank, J. E. 1963. Plant diseases: Epidemic and control. Academic Press. New York.
- Vandamme, P., Henry, D., Coenye, T., Nzula, S., Vancanneyt, M., LiPuma, J.J., Speert, D.P., Govan, J.R., & Mahenthiralingam, E. 2002. *Burkholderia anthina* sp. nov. and *Burkholderia pyrrocinia*, two additional *Burkholderia cepacia* complex bacteria, may confound results of new molecular diagnostic tools. *FEMS Immunol Med Microbiol.* 33(2):143–149.

- Vannier, N., Agler, M., & Hacquard, S. 2019. Microbiota-mediated disease resistance in plants. *PLoS Pathog* 15(6): e1007740.
- Vayssier-Taussat, M., Albina, E., Citti, C., Cosson, J.F., Jacques, M.A., Lebrun, M.H., Le Loir, Y., Ogliastro, M., Petit, M.A., Roumagnac, P., & Candresse, T. 2014. Shifting the paradigm from pathogens to pathobiome new concepts in the light of meta-omics. *Front. Cell. Infect. Microbiol.* 4: 29.
- Velásquez, A.C., Castroverde C., & He, S.Y. 2018. Plant-pathogen warfare under changing climate conditions. *Current biology.* 28(10): R619–R634.
- Venier, L.A., Hopkin, A.A., McKenney, D.W., & Wang, Y. 1998. A spatial, climate-determined risk rating for Scleroderris disease of pines of Ontario. *Can J For Res.* 28:1398–1404.
- Verbon, E.H., P.L. Trapet, I.A. Stringlis, S. Kruijs, P.A.H.M. Bakker, & C.M.J. Pieterse. 2017. Iron and Immunity. *Annu. Rev. Phytopathol.* 55: 355–375.
- Verslyppe, B., De Smet, W., De Baets, B., De Vos, P., & Dawyndt, P. 2014. Strain info introduces electronic passports for microorganisms. *Syst Appl Microbiol* 37: 42–50.
- Viallard, V., Poirier, I., Cournoyer, B., Haurat, J., Wiebkin, S., Ophel-Keller, K., & Balandreau, J. 1998. *Burkholderia graminis* sp. nov., a rhizospheric *Burkholderia* species, and reassessment of [*Pseudomonas*] *phenazinum*, [*Pseudomonas*] *pyrocinia* and [*Pseudomonas*] *glathei* as *Burkholderia*. *Int J Syst Bacteriol.* 2: 549–63.
- Vivekananthan, R., Sudhagar, R., Ravi, M., Ganapathy, T., Thiyagarajan, K., & Rabindran R. 2005. Evaluation of relative resistance of rice against sheath rot through combined screening techniques. *ActaPhytopathol. Entomol. Hung.* 40(3–4): 279–287.
- Wei, Y.H. , Lee, F.L., Hsu, W.H., *et al.* 2005. *Pseudozymaantarctica* in Taiwan: a description based on morphological, physiological and molecular characteristics. *Bot Bull Acad Sinica.* 46: 223–229.
- Weisberg, W.G., Barns, S.M., Pelletier, D.A., & Lane, D.J. 1991. 16S ribosomal DNA amplification for phylogenetic study. *J Bacteriol* 173 (2): 679–703.
- White T.J., Bruns T., Lee S., & Taylor J. 1990. Amplification and direct sequencing of fungal ribosomal RNA genes for phylogenetics. In: *PCR Protocols: A Guide to Methods and Applications.* Academic Press, Inc., United State.
- Whitelaw-Weckert, M.A., Curtin, S. J., Huang, R., Steel, C.C., Blanchard, C.L., & Roffey, P.E. 2007. Phylogenetic relationships and pathogenicity of *Colletotrichum acutatum* isolates from grape in subtropical Australia. *Plant Pathol.* 56: 448–463.
- Whittaker R.H. 1972. Evolution and measurement of species diversity. *Taxon* 21 213–251.
- Wick, R.R., Judd, L.M. & Holt, K.E. 2019. Performance of neural network basecalling tools for Oxford Nanopore sequencing. *Genome Biol.* 20: 129.
- Woudenberg, J.H., Groenewald, J.Z., Binder, M., & Crous, P.W. 2013. *Alternaria* redefined. *Stud Mycol.* 75(1):171–212.
- Woudenberg, J.H., Seidl, M.F., Groenewald, J.Z., de Vries, M., Stielow, J.B., Thomma, B.P., & Crous, P.W. 2015. *Alternaria* section *Alternaria*: Species, formae speciales or pathotypes?. *Stud Mycol.* 82: 1–21.
- Wulff, E.G., Sørensen, J.L., Lübeck, M., Nielsen, K.F., Thrane, U., & Torp, J. 2010. *Fusarium* spp. associated with rice Bakanae: Ecology, genetic diversity, pathogenicity and toxigenicity. *Environ Microbiol.* 12(3): 649–657.



- Xia, J.W., Sandoval-Denis, M., Crous, P.W., Zhang, X.G., & Lombard, L. 2019. Numbers to names-restyling the *Fusarium incarnatum-equiseti* species complex. *Persoonia*. 43: 186–221.
- Xie, G.L. 2003. First report of sheath brown rot of rice in China and characterization of the causal organism by phenotypic tests and Biology. *Int Rice Res Notes*. 28(1): 50–52.
- Xu, B., Liu, L., & Song, G. 2022. Functions and regulation of translation elongation factors. *Front. Mol. Biosci*. 8:816398.
- Xu, G., Magen, H., Tarchitzky, J., & Kafka, U. 1999. Advances in chlorid enutrition. *Advances in Agronomy* 68: 96–150.
- Xu, X. 2006. Modeling and interpreting disease progress in time. In: B.M. Cooke, D.G. Jones & B. Kaye (Eds.). *The Epidemiology of plant diseases*. 2nd ed. Springer Verlag. 215-238.
- Yamagishi, D., Akamatsu, H., Otani, H., & Kodama, M. 2006. Pathological evaluation of host-specific AAL-toxins and fumonisin mycotoxins produced by *Alternaria* and *Fusarium* species. *J Gen Plant Pathol*. 72(5): 323–327
- Yang, L., Xue, H., Liu, Z., Liu, Q., Zhang, Q., & Nan, M. 2022. The effects of different ambient pH on the pathogenicity of *Fusarium sulphureum* and reactive oxygen species metabolism in *F. sulphureum* inoculation muskmelon fruits. *Physiol. Mol. Plant Pathol*. 122: 101893.
- Ye, F., E. Albarouki, B. Lingamb, H.B. Deisinga & N. von Wiren. 2014. An adequate Fe nutritional status of maize suppresses infection and biotrophic growth of *Colletotrichum graminicola*. *Physiologia Plantarum*. 151: 280–292.
- Younts, S.E. & Musgrave, R.B. 1958. Growth, maturity and yield of corn as affected by chloride in potassium fertilizer. *Agron. J*. 50: 423–462.
- Zarrin, M., Ganj, F., & Faramarzi, S. 2016. Development of a polymerase chain reaction-restriction fragment length polymorphism method for identification of the *Fusarium* genus using the transcription elongation factor-1 $\alpha$  gene. *Biomed Rep*. 5(6):705–708.
- Zeier, J., Pink, B., Mueller, M.J., & Berger, S. 2004. Light conditions influence specific defence responses in incompatible plant-pathogen interactions: uncoupling systemic resistance from salicylic acid and PR-1 accumulation. *Planta*. 219: 673–683.
- Zeigler, R.S. & Alvarez, E. 1987. Bacterial sheath brown rot of rice caused by *Pseudomonas fuscovaginae* in Latin America. *Plant Dis*. 71:592– 597.
- Zenghai, B.A.O., Guizhen, M.A., Wenlan, Y., & Guozhong, L.V. 2002. Primary source of infection of *Curvularia lunata* and toxicity of some fungicide to the fungi. *Journal of Jilin Agricultural University*. 4:53–57.
- Zhang, Z., Sun, D., Cheng, K.W., & Chen F. 2021. Investigation of carbon and energy metabolic mechanism of mixotrophy in *Chromochloris zofingiensis*. *Biotechnol Biofuels*. 14(1): 36.
- Zhan, G., Tian, Y., Wang, F., Chen, X., Guo, J., Jiao, M., Huang, L., & Kang, Z. 2014. A novel fungal hyperparasite of *Puccinia striiformis* f. sp. tritici, the causal agent of wheat stripe rust. *PLoS One*. 9: e111484.
- Zhang, D., Yuan, M.Y., Li, G.F., Liu, K.X., Xiao, S.Q., & Xue, C.S. 2019. First report of leaf spot of maize (*Zea mays*) caused by *Curvularia geniculata* in China. *Plant Dis*. 103(1): 152–152.



- Zhang, L., Chen, F., Zeng, Z., Xu, M., Sun, F., Yang, L., Bi, X., Lin, Y., Gao, Y., Hao, H., Yi, W., Li, M., & Xie, Y. 2021. Advances in metagenomics and its application in environmental microorganisms. *Front Microbiol.* 12: 766364.
- Zhang, X.P., Xia, J.W., Liu, J.K., Zhao, D., Kong, L.G., & Zhu, X.P. 2022. First report of *Fusarium perambucanum* causing fruit rot of muskmelon in China. *Plant Dis.* 106: 7.
- Zlosnik, J.E., Zhou, G., Brant, R., Henry, D.A., Hird, T.J., Mahenthiralingam, E., Chilvers, M.A., Wilcox, P., & Speert, D.P. 2015. *Burkholderia* species infections in patients with cystic fibrosis in British Columbia, Canada. 30 years' experience. *Ann Am Thorac Soc.* 12(1): 70–78.

## LAMPIRAN

Lampiran 1. Isolat yang digunakan dalam studi ini dan no akses

Species	Strain	Inang	Asal	No akses	Referensi
<i>Sarocladium oryzae</i>	CBS 180.74 <sup>T</sup>	<i>Oryza sativa</i>	India	HG965026	Giraldo et al., 2015
	CBS 414.81	<i>Oryza sativa</i>	Nigeria	HG965028	Giraldo et al., 2015
	PSW 3*	<i>Oryza sativa</i>	Indonesia	OL519131	Studi ini
	TGM 3*	<i>Oryza sativa</i>	Indonesia	OL519132	Studi ini
	LSE 1*	<i>Oryza sativa</i>	Indonesia	OL519133	Studi ini
	LTE 1*	<i>Oryza sativa</i>	Indonesia	OL519135	Studi ini
<i>S. sparsum</i>	BCRC FU31121 <sup>H</sup>	<i>Oryza sativa</i>	China	LC461524	Ou et al., 2020
	LTM 1*	<i>Oryza sativa</i>	Indonesia	OL519134	Studi ini
<i>S. pseudostriatum</i>	UTHSC 02-1892 <sup>T</sup>	Sputum	USA	HG965029	Giraldo et al., 2015
<i>S. bactrocephalum</i>	CBS 749.69 <sup>T</sup>	<i>Ustilago</i> sp.	Canada	HG965006	Giraldo et al., 2015
<i>S. strictum</i>	CBS 346.70 <sup>T</sup>	<i>Triticum aestivum</i>	Germany	FN691453	Giraldo et al., 2015
<i>S. hominis</i>	UTHSC04-1034 <sup>T</sup>	Right calf tissue	USA	HG965012	Giraldo et al., 2015
<i>S. kiliense</i>	CBS 122.29 <sup>T</sup>	Skin	Germany	FN691446	Giraldo et al., 2015
<i>S. bifurcatum</i>	UTHSC 05-3311 <sup>T</sup>	Bronchoalveolar lavage fluid	USA	HG965009	Giraldo et al., 2015
<i>S. zeae</i>	CBS 800.69 <sup>T</sup>	<i>Zea mays</i> stalk	USA	FN691451	Giraldo et al., 2015
<i>S. summerbellii</i>	CBS 430.70 <sup>T</sup>	Soil from greenhouse,	The Netherlands	HG965034	Giraldo et al., 2015
<i>S. dejongiae</i>	CBS 144929 <sup>T</sup>				
<i>S. gamsii</i>	CBS 707.73 <sup>T</sup>	Dead stem of <i>Pandanus</i> <i>lurum</i>	Sri Langka	HG965015	Giraldo et al., 2015
<i>S. subulatum</i>	MUCL 9939 <sup>T</sup>	Soil	Egypt	HG965031	Giraldo et al., 2015
<i>S. glaucum</i>	CBS 796.69 <sup>T</sup>	Woolen overcoat	Solomon Islands	FN691454	Giraldo et al., 2015
<i>S. ochraceum</i>	CBS 428.67 <sup>T</sup>	<i>Zea mays</i>	Kenya	HG965025	Giraldo et al., 2015
	UTHSC 07-1181	Sputum	USA	FN691445	Giraldo et al., 2015
<i>Acremonium curvulum</i>	CBS 430.66 <sup>T</sup>	Wheatfield soil	Germany	HE608638	Giraldo et al., 2012