

DAFTAR PUSTAKA

- Ashkani, S., Rafii, M.Y., Shabanimofrad, M., Ghasemzadeh, A., Ravanfar, S.A., Latif, M.A. 2016. Molecular progress on the mapping and cloning of functional genes for blast disease in rice (*Oryza sativa* L.): Current status and future considerations. *Crit Rev Biotechnol*, 36: 353–367
- Bagnaresi, P, Biselli, C., Orru, L., Urso, S., Crispino, L., *et al.* 2012. Comparative Transcriptome Profiling of the Early Response to *Magnaporthe oryzae* in Durable Resistant vs Susceptible Rice (*Oryza sativa* L.) Genotypes. *PLoS ONE*, 7(12): e51609
- Baldrich, P., Campo, S., Wu, M.T., Liu, T.T., Hsing, Y.I., Segundo, B.S. 2015. MicroRNA-mediated regulation of gene expression in the response of rice plants to fungal elicitors. *RNA Biol*, 12:847–863
- Bastiaans L. 1993. Effects of leaf blast on photosynthesis of rice. 1. Leaf photosynthesis. *Neth J Plant Pathol*, 99: 197–203
- Brameld, K. A., and Goddard, W. A. 1998. The role of enzyme distortion in the single displacement mechanism of family 19 chitinases. *Proc. Natl. Acad. Sci. USA*, 95: 4276–4281
- Brevario, D and Genga, A. 2013. Stress Response in Rice. *Rice Research*. 2(1): 1-2
- Boller, T. 1988. Ethylene and the regulation fo antifungal hydrolases in plants. *Oxford Surveys of Plant Molecular and Cell Biology*, 5: 145-174
- Chang, T.T. 1988. The ethnobotany of rice in island Southeast Asia. *Asian Perspectives*, 26(1):69–7
- Chaturvedi, R., Krothapalli, K., Makandar, R., Nandi, A., Sparks, A., Roth, M., *et al.* 2008. Plastid omega3-fattyacid desaturase-dependent accumulation of a systemic acquired resistance inducing activity in petiole exudates of *Arabidopsis thaliana* is independent of jasmonic acid. *Plant J*, 54: 06–117
- Chen, X., and Ronald, P.C. 2011. Innate Immunity in Rice. *Trends in Plant Science*, 16(8): 451–459
- Cohen-Kupiec R, and Chet I. 1988. The molecular biology of chitin digestion. *Curr. Opinion Biotechnol*, 9: 270-277
- Coll, N.S, Epple, P., and Dangl, J.L. 2011. Programmed Cell Death in plant immune system. *Cell Death Differ*, 18: 1247-1256
- Dangl, J.L, Horvath, D.M, Staskawicz, B.J. 2013. Pivoting the plant immune system from dissection to deployment. *Science*, 341:746–751
- Delteil, A., Zhang, J., Lessard, P and Morel, J. B. 2010. Potential candidate genes for improving rice disease resistance. *Rice*, 3: 56–71.
- Dempsey, D. A and Klessig, D. F. 2012. SOS-too many signals for systemic acquired resistance?. *Trends Plant Sci*. 17: 538–545
- Deng, G.P., Xu, X.R., Zhang, Y., Li, D., Gan, R.Y., and Li, H.B. 2013. Phenolic Compounds and Bioactivities of Pigmented Rice. *Food Science and Nutrition*, 53: 296–306

- Dong, T.G., Ho, B.T., Yoder-Himes, D.R., Mekalanos, J.J. 2013. Identification of T6SS-dependent effector and immunity proteins by Tn-seq in *Vibrio cholera*. *Proc Natl Acad Sci, USA*, 110(7): 2623–2628
- Ebrahim, S., Usha, K and Singh, B. 2011. Pathogenesis Related (PR) Proteins in Plant Defense Mechanism. *Formatex*: 1043-1054
- Faivre-Rampant, O., Thomas, J., Allegre, M., Morel, J., et al. 2008. Characterization of the model system rice *Magnaporthe* for the study of nonhost resistance in cereals. *New Phytologist*, 180: 899-910.
- Filippi, M. C., Silva, G. B., Silva-Lobo, V. L., Viana, H. F., Cortes, M. V. C. B and Prabhu, A. S. 2014. Induction of resistance to rice leaf blast by avirulent isolates of *Magnaporthe oryzae*. *Amazonian Journal*, 57(4): 388-395
- Fu, Z. Q and Dong, X. 2013. Systemic acquired resistance: turning local infection into global defense. *Annu. Rev.PlantBiol*, 64: 839–863.
- Gao, Q., Zhu, S., Kachroo, P and Kachroo, A. 2015. Signal regulators of systemic acquired resistance. *Frontiers in Plant Science*: 1-12
- Ginanjjar, E. F. 2015. Transcriptomics and Metabolomics Study of Pigmented Rice (*Oryza sativa* L.) Resistant to Blast Disease. Manuscript, Unpublished.
- Gururani, M.A., Venkatesh, J., Upadhyaya, C.P., Nookaraju, A., Pandey, S.K., Park, S.W. 2012. Plant disease resistance genes: Current status and future. *Physiol Mol Plant Pathol*, 78: 51-65
- Hayashi, N., Kobayashi, N., Cruz, C.M.V., and Fukuta, Y. 2009. Protocols for the Sampling of Diseased Specimens and Evaluation of Blast Disease in Rice, dalam *Development and Characterization of Blast Resistance Using Differential Varieties in Rice*, Diedit oleh Y. Fukuta, C.M.V. Cruz and N. Kobayashi, Japan: JIRCAS Working Report No.63, hal. 17-34.
- Hoffland, E., Pieterse, C. M. J., Bik, L and Pelt, J. A. V. 1995. Induced systemic resistance in radish is not associated with accumulation pathogenesis-related proteins. *Physiological and Molecular Plant Pathology*, 46: 309-320.
- Huang, Y. P and Lai, H. M. 2016. Bioactive compounds and antioxidative activity of colored rice bran. *J Food Drug Anal*, 24: 564-574
- Ishihara, T., Saito, Y., Oide, S., Ebana, K., et al. 2014. Quantitative trait locus analysis of resistance to panicle blast in the rice cultivar Miyazakimochi. *Rice*, 7(2): 1-11
- Jacob, F., Vernaldi, S., and Maekawa, T. 2013. Evolution and conservation of plant NLR functions. *Front Immunol*, 4:297
- Jain, P., Singh, P.K., Kapoor, R., Khanna, A., Solanke, A.U., Krishnan, S.G., Singh, A.K., Sharma, V., Sharma, T.R. 2017. Understanding host-pathogen interactions with expression profiling of NILs carrying rice-blast resistance Pi9 gene. *Front Plant Sci*, 8: 93
- Jalil, S. U., Mishra, M and Ansari, M. I. 2015. Current view on chitinase for plant defense. *Trends in Bioscience*, 8(24). 6733-6743
- Jones, J. D., and Dangl, J. L. 2006. The plant immune system. *Nature*, 444 (7117): 323-9

- Kankanala, P., Czymbek, K and Valent, B. 2007. Roles for rice membrane dynamics and plasmodesmata during biotrophic invasion by the blast fungus. *Plant Cell*. 19: 707–724.
- Kasprezewska, A. 2003. Plant Chitinases - Regulation and Function. *Cellular and Molecular Biology Letters*, 8: 809-824
- Kawano, Y., Kaneko-Kawano, T and Shimamoto, K. 2014. Rho family GTPase-dependent immunity in plants and animals. *Frontiers in Plant Science*, 5 (522): 1-12
- Khush, G.S and Jena, K. K. 2009. *Current status and future prospects for research on blast resistance in rice (Oryza sativa L.)*. In: *Advances in Genetics, Genomics and Control of Rice Blast Disease* (Wang GL, Valent B, eds), Dordrecht: Springer
- Kim, S., Ahn, I.P., and Lee, Y.H. 2001. Analysis of Genes Expressed during Rice– *Magnaporthe grisea* Interactions. *Molecular Plant-Microbe Interactions*, 14(11): 1340–1346
- Kim ST, Kang YH, Wang Y, Wu J, Park YZ, Rakwal R, Agrawal GK, Lee SY, Kang KY (2009) Secretome analysis of differentially induced proteins in rice suspension-cultured cells triggered by rice blast fungus and elicitor. *Proteomics* 9(5):1302-1313
- Koide, Y., Kobayashi, N., Xu, D and Fukuta, Y. 2009. Resistance Genes and Selection DNA Markers for Blast Disease in Rice (*Oryza sativa* L.). *JARQ*, 43(4): 255–280
- Kushwaha. 2016. *Black Rice*. Springer International Publishing, Switzerland.
- Li, J and Liu, J.Y. 2003. A novel cotton gene encoding a new class of chitinase. *Acta Botanica Sinica*, 45(12): 1489-1496
- Li, Y., Zhao, S.L., Li, J.L., Hu, X.H., Wang, H., Cao, X.L., Xu, Y.J., Zhao, Z.X., Xiao, Z.Y., Yang, N., Fan, J., Huang, F., Wang, W.M. 2017. Osa-miR169 negatively regulates rice immunity against the blast fungus *Magnaporthe oryzae*. *Front Plant Sci*, 8: 2
- Liu, J., Wang, X., Mitchell, T., Hu, Y., Liu, X., Dai, L. and Wang, G. L. 2010. Recent progress and understanding of the molecular mechanisms of the rice *Magnaporthe oryzae* interaction. *Mol. Plant Pathol*. 11:419-427
- Livak, K. J and Schmittgen, T. D. 2001. Analysis of Relative Gene Expression Data Using Real Time Quantitative PCR and the $2^{-\Delta\Delta CT}$ Method. *Methods*, 25: 402-408
- Mau, Y.S., Markus, J. E. R., Ndiwa A. S. S., Oematan, S. S., Handoko, D. D., Nasution, A and Makbul, K. 2017. Genetic diversity of red and black upland rice accessions from East Nusa Tenggara, Indonesia as revealed by agro-morphological characters. *Biodiversitas*, 18(1): 197-211
- McDonald, B. A., and C. Linde. 2002. Pathogen population genetics, evolutionary potential, and durable resistance. *Annu Rev Phytopathol*, 40: 349-79
- Meng, X., and Zhang, S. 2013. MAPK cascades in plant disease resistance signaling. *Annu Rev Phytopathol*, 51: 245-266
- Mentlak, T. A., Kombrink, A., Shinya, T., Ryder, L. S., Otomo, I., Saitoh, H., Terauchi, R., Nishizawa, Y., Shibuya, N., Thomma, B. P. H. J and Talbot,

- N. J. 2012. Effector-Mediated Suppression of Chitin-Triggered Immunity by *Magnaporthe oryzae* Is Necessary for Rice Blast Disease. *The Plant Cell*, 24: 322-335
- Miah, G., Rafii, M. Y., Ismail, M. R., Puteh, A. B., et al. 2013. A Review of Microsatellite Markers and Their Applications in Rice Breeding Programs to Improve Blast Disease Resistance. *International Journal of Molecular Sciences*, 14: 22499-22528
- Miller, G. I. 1959. Use of dinitrosalicylic acid reagent for determination of reducing sugar. *Analytical Chem*, 31: 426-428
- Mogi. S., Sugandi, B., Edwina, Cahyadi, R. 1991. Establishment of the Differential Variety Series for Pathogenic Race Identification of Rice Blast Fungus the Distribution of Race Based on the New Differential in Indonesia. Race Disease Study Group. *Balai Peramalan Hama dan Penyakit Tanaman Pangan dan Hortikultura Jatisari Karawang*, 30
- Nakazaki. T., Tsukiyama, T., Okumoto, Y., Kageyama, D., Naito, K., Inouye, K., Tanisaka, T. 2006. Distribution, structure, organ-specific expression, and phylogenetic analysis of the pathogenesis-related protein-3 chitinase gene family in rice (*Oryza sativa* L.). *Genome*, 49(6): 619-30
- Nasution, A dan Usyati, N. 2015. Observasi ketahanan varietas padi lokal terhadap penyakit blas (*Pyricularia grisea*) di rumah kaca. *Pros Sem Nas Masy Biodiv Indon*, 1(1): 19-22
- Nishizawa, Y., Kishimoto, N., Saito, A., Hibi, T. 1993. Sequence variation, differential expression and chromosome location of rice chitinase genes. *Mol. Gen. Genet*, 241: 1–10
- Nishizawa, Y., Nishio, Z., Nakazono, K., Soma, M., Nakajima, E. et al. 1999. Enhanced resistance to blast (*Magnaporthe grisea*) in transgenic japonica rice by constitutive expression of rice chitinase. *Theor Appl Genet*, 99: 383-390
- Odjakova, M and Hadjiivanova, C. 2001. The Complexity of Pathogen Defense in Plants. *Bulg. J. Plant Physiol*, 27 (1-2): 101-109
- Oliva, R., Win, J., Raffaele, S., Boutemy, L., Bozkurt, T.O., Chaparro-Garcia, A., Segretin, M.E, Stam, R., Schornack, S., Cano, L.M, van Damme, M., Huitema, E., Thines, M., Banfield, M.J., Kamoun, S. 2010. Recent developments in effector biology of filamentous plant pathogens. *Cell Microb*, 12(6): 705–715
- Pan, S. Q., Ye, X. S., and Kuc, J. 1991. Association of a β -1,3-glucanase activity and isoform pattern with systemic resistance to blue mold in tobacco induced by stem injection with *Peronospora tabacina* or leaf inoculation with tobacco mosaic virus, *Physiology Molecular Plant Pathology*, 39(1): 25-39
- Park, S.W., Kaiyomo, E., Kumar, D., Mosher, S. L and Klessig, D. F. 2007. Methyl Salicylate is a critical mobile signal for plant systemic acquired resistance. *Science*, 318: 113–116
- Prabhu, A.S., Filippi, M.C., Silva, G.B., Lobo, V.L.S and Moraes, O.P. 2009. *An unprecedented outbreak of rice blast on a newly released cultivar BRS*

- Colloso in Brazil*. Advances in Genetics, Genomics and Control of Rice Blast Disease. Springer. New York
- Rejeb, I.B., Pastor, V and Mauch-Mani, B. 2014. Plant Responses to Simultaneous Biotic and Abiotic Stress: Molecular Mechanisms. *Plants*, 3: 458-475
- Sambrook, J., and Russel, D.W., 2001, Molecular Cloning a Laboratory Manual, Third Edition. Volume 2, New York : Cold Spring Harbor Laboratory Press.
- Selin, C., de Kievit, T.R., Belmonte, M.F., Fernando, E.G.D. 2016. Elucidating the role of effectors in plant-fungal interactions: Progress and challenges. *Front Microbiol*, 7: 967
- Sena, A.P.A, Chaibub, A.A., Cortes, M.V.C.B., Silva, G.B., Silva-Lobo, V.L. 2013. Increased enzymatic activity in rice blast suppression by crude extract of *Epicoccum sp*. *Tropical Plant Pathology*. 38(5): 387-397
- Sharma, T.R., Rai, A.K., Gupta, S. K., Vijayan, J., Devanna, B.N., Ray, S. 2012. Rice blast management through host-plant resistance: Retrospect and prospects. *Agric Res*, 1(1): 37–52
- Singh, A. K., Singh, P. K., Arya, M., Singh, N. K., Singh, U. S. 2015. Molecular Screening of Blast Resistance Genes in Rice using SSR Markers. *The Plant Pathology Journal*, 31(1): 12-24
- Singh, R., Tiwari, J. K., Sharma, V and Rawat, S. 2014. Role of Pathogen related protein families in defence mechanism with potential role in applied biotechnology. *International Journal of Advanced Research*, 2(8): 210-226
- Skamnioti, P., and Gurr, S.J. 2009. Against the grain, safeguarding rice from rice blast disease. *Trends Biotechnol*, 27(3): 141–150
- Song, F and Goodman R. M. 2001. Molecular biology of disease resistant in rice. *Physiological and Molecular Plant Pathology*, 59: 1-11
- Spoel, S.H., and Dong, X. 2012. How do plants achieve immunity? Defense without specialized immune cells. *Nat Rev Immunol*, 12: 89-100
- Srivastava, J and Raghav, P. K. 2014. Rice chitinase gene as a tool to develop fungal resistant plants-A review. *International of Advances Research*, 2(2): 459-467
- Strange, R. N and Scott PR. 2005. Plant disease: a threat to global food security. *Phytopathology*. 2005, 43: 83–116.
- Sudir, Nasution, A., Santoso, dan Nuryanto, B. 2014. Penyakit Blas *Pyricularia grisea* pada Tanaman Padi dan Strategi Pengendaliannya. *Iptek Tanaman Pangan*, 9(2): 85-96
- Talbot, N. J. 2003. On the trail of a cereal killer: Exploring the biology of *Magnaporthe grisea*. *Annual review of microbiology*, 57: 177–202
- Thomasset, S., Teller, N., Cai, H *et al*. 2009. Do anthocyanins and anthocyanidins, cancer chemopreventive pigments in the diet, merit development as potential drugs?. *Cancer Chemother Pharmacol*, 64(1):201–211
- Trisnaningsih dan Nasution , A. 2015. Ketahanan galur harapan padi fungsional terhadap hama wereng coklat dan penyakit blas. *Pros Sem Nas Masy Biodiv Indon*, 1(1): 162-166

- Truong, N. H., Park, S.M., Nishizawa, Y., Watanabe, T., Sasaki, T., Itoh, Y. 2003. Structure, heterologous expression, and properties of rice (*Oryza sativa* L.) family 19 chitinases. *Biosci Biotechnol Biochem*, 67(5): 1063-70
- Utami, D.W., Ambarwati, A.D., Apriana, A., Sisharmini, A., Hanarida, I., Tharreau, D., dan Santosa. 2007. Spektrum Ketahanan Galur Haploid Ganda Turunan IR64 dan *Oryza rufipogon* yang Mengandung QTL Ketahanan terhadap Penyakit Blas (Pir). *Jurnal Agro Biogen*, 3(1):1-8
- Utami D.W., Aswidinnoor, H., Moeljopawiro, S., Hanarida, I., dan Raflinur. 2006. Pewarisan Ketahanan Penyakit Blas (*Pyricularia grisea* Sacc.) pada Persilangan Padi IR64 dengan *Oryza rufipogon* Griff. *Inheritance of Blast Resistance (Pyricularia grisea Sacc.) on Interspecific Crossing between IR64 and Oryza rufipogon Griff*, *Hayati Journal of Biosciences*, 13(3):107-112
- Utami D.W., Moeljopawiro, S., Aswidinnoor, H., Setiawan, A dan Guhardja, E .2005. Analisis Lokus Kuantitatif Sifat Ketahanan Penyakit Blas pada Populasi antar Spesies IR64 dan *Oryza rufipogon*. *Jurnal Bioteknologi Pertanian*, 10(1):7-14
- Van Aalten, D.M.F., Komander, D., Synstad, B., Gåseidnes, S., Peter, M.G., Eijsink, V.G.H. 2001. Structural insights into the catalytic mechanism of a family 18 exo-chitinase. *Proc Natl Acad Sci, USA*, 98(16): 8979-8984
- Van Loon, L. C and Van Kammen, A. 1970. Polyacrylamide disc electrophoresis of the soluble leaf proteins from *Nicotiana tabacum* var ‘Samsun’ and Samsun NN. II. Changes in protein constitution after infection with tobacco mosaic virus. *Virology*, 40: 199-211
- Van Loon, L. C and Van Strien, E. A. 1999. The families of pathogenesis-related proteins, their activities, and comparative analysis of PR-1 type proteins. *Physiological and Molecular Plant Pathology*, 55: 85-97
- Vasudevan, K., Cruz, C. M. V., Gruissem and Bhullar. N. K. 2014. Large scale germplasm screening for identification of novel rice blast resistance sources. *Frontiers in Plant Science*, 5: 1-9
- Venu, R. C., Sreerekha, M., Sheshu, M. M., Nobuta, K., Madhan, M. K *et al.* 2013. Deep transcriptome sequencing reveals the expression of key functional and regulatory genes involved in the abiotic stress signaling pathways in rice. *J Plant Biol*, 56: 216-231
- Wang, Y., Kwon, S. J., Wu, J. et al. 2014. Transcriptome Analysis of Early Responsive Genes in Rice during *Magnaporthe oryzae* Infection. *Plant Pathol. J.* 304: 343-354
- Xu, F., Fan, C and He, Y. 2007. Chitinase in *Oryza sativa* ssp. *japonica* and *Arabidopsis thaliana*. *Journal of Genetics and Genomics*, 34(2): 138-150
- Yang, S., Li, J., Zhang, X., Zhang, Q., Huang, J., Chen, J. Q., et al. 2013. Rapidly evolving R genes in diverse grass species confer resistance to rice blast disease. *Proc. Natl. Acad. Sci*, 110, 18572–18577