DAFTAR PUSTAKA

Ali, A., M. U. Rehman, S. M. Ahmad, T. Mehraj, I. Hussain, A. Nadeem, M. U. R. Mir, and S. A. Ganie. 2022. In Silico Tools for Analysis of Single-Nucleotide Polymorphisms in the Bovine Transferrin Gene. *Animals*. 12(6): 1-16. https://doi.org/10.3390/ani12060693.

Andrés, J., K. Maisey, J. M. Yáñez, H. Valenzuela, P. A. Cea, L. Tort, A. M. Sandino, and M. Imarai. 2020. Single-Nucleotide Polymorphisms (*SNPs*) Mining and Their Effect on the Tridimensional Protein Structure Prediction in a Set of Immunity-Related Expressed Sequence Tags (EST) in Atlantic Salmon (*Salmo salar*). *Frontiers in Genetics*. 10. https://doi.org/10.3389/fgene.2019.01406.

Aoyama, T., T. Kobayashi, M. Takahashi, S. Nagasaka, K. Usuda, Y. Kakei, Y. Ishimaru, H. Nakanishi, S. Mori, and N. K. Nishizawa. 2009. *OsYSL18* is a rice iron (III)–deoxymugineic acid transporter specifically expressed in reproductive organs and phloem of lamina joints. *Plant molecular biology.* 70 (6): 681–692. https://doi.org/10.1007/s11103-009-9500-3.

Azis, A., M. Izzati, S. Haryanti. 2015. Aktivitas Antioksidan dan Nilai Gizi dari Beberapa Jenis Beras dan Millet sebagai Bahan Pangan Fungsional Indonesia. *Jurnal Biologi*. 4(1): 45-61.

Balk, J., and T. A. Schaedler. 2014. Iron cofaktor assembly in plants. *Annual review of plant biology*. 65: 125–153. https://doi.org/10.1146/annurev-arplant-050213-035759.

Bashir, K., H. Inoue, S. Nagasaka, M. Takahashi, H. Nakanishi, S. Mori, and N. K. Nishizawa. 2006. Cloning and characterization of deoxymugineic acid synthase genes from graminaceous plants. *The Journal of biological chemistry*. 281(43):32395–32402. https://doi.org/10.1074/jbc.M604133200

Bashir, K., Y. Ishimaru, and N.K. Nishizawa. 2010. Iron Uptake and Loading into Rice Grains. *Rice*. 3: 122–130. https://doi-org.ezproxy.ugm.ac.id/10.1007/s12284-010-9042-y.

Budiman, H., F. S. H. Krismastuti, and Nuryatini. 2009. Estimation of Measurement Uncertainty in The Determination of Fe Content in Powdered Tonic Food Drink Using Graphite Furnace Atomic Absorption Spectrometry. *Indo. J. Chem.* 9 (2): 247–253.

Butler, J.M. 2012. *Advanced Topics in Forensic DNA Typing: Methodology*. Academic Press. Maryland. p. 347. https://doi.org/10.1016/B978-0-12-374513-2.00012-9.

Carrillo, J. T. and D. Borthakur. 2021. Methods for metal chelation in plant homeostasis: Review. *Plant Physiology and Biochemistry*. 163: 95–107. https://doi.org/10.1016/J.PLAPHY.2021.03.045.

Chen, G., J. Li, H. Han, R. Du, and X. Wang. 2022. Physiological and Molecular Mechanisms of Plant Responses to Copper Stress. *International Journal of Molecular Sciences.* 23(21):12950. https://doi.org/10.3390/ijms232112950.

Chu, H. H., J. Chiecko, T. Punshon, A. Lanzirotti, B. Lahner, D. E. Salt, and E. L. Walker. 2010. Successful reproduction requires the function of *Arabidopsis Yellow Stripe-Like1* and *Yellow Stripe-Like3* metal-nicotianamine

transporters in both vegetative and reproductive structures. *Plant physiology*. 154(1): 197–210. https://doi.org/10.1104/pp.110.159103.

Conte, S. S., H. H. Chu, D. C. Rodriguez, T. Punshon, , K. A. Vasques, D. E. Salt, and E. L. Walker. 2013. *Arabidopsis thaliana Yellow Stripe1-Like4* and *Yellow Stripe1-Like6* localize to internal cellular membranes and are involved in metal ion homeostasis. *Frontiers in plant science*. 4*(*283): 1-15. https://doi.org/10.3389/fpls.2013.00283.

Dayanti, F. Ghina, A. Djuminar, A. Dermawan, dan A. Tantan. 2019. Perbandingan Nilai Pengukuran Kuantitatif Hasil Ekstraksi DNA *Salmonella typhi* Menggunakan Metode Boiling, NaOH, Kit Komersial. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung.* 11(1). 350–357.

Dewanata, P. A., dan M. Mushlih. 2021. Differences in DNA Purity Test Using UV-Vis Spectrophotometer and Nanodrop Spectrophotometer in Type 2 Diabetes Mellitus Patients. *Indonesian Journal of Innovation Studies*. 15:1-10. https://doi.org/10.21070/ijins.v15i.553.

Dey, S., P. Regon, S. Kar, and S. K. Panda. 2020. Chelators of iron and their role in plant's iron management. *Physiology and Molecular Biology of Plants*. 26(8): 1541–1549. https://doi.org/10.1007/s12298-020-00841-y.

DiDonato, R. J., Jr, L. A. Roberts, T. Sanderson, R. B. Eisley, & E. L. Walker. 2004. *Arabidopsis Yellow Stripe-Like2* (*YSL2*): a metal-regulated gene encoding a plasma membrane transporter of nicotianamine-metal complexes. *The Plant journal: for cell and molecular biology*. 39(3): 403–414. https://doi.org/10.1111/j.1365-313X.2004.02128.x

Fahma, R. 2022. Deteksi *Single Nucleotide Polymorphisms* (*SNPs*) Gen *OsFER2* Pada Lima Kultivar Padi Putih Dan Berpigmen (*Oryza sativa* L.). Skripsi. Universitas Gadjah Mada, Yogyakarta.

Gomes, A. and B. Korf. 2018. Genetic Testing Techniques. *Pediatric Cancer Genetics*. 47–64. https://doi.org/10.1016/B978-0-323-48555-5.00005-3.

Grimm, B., Y. A. Purwestri, T. R. Nuringtyas, F. A. Susanto, T. Fan, and L. Roling, 2019. Basic Methods in Plant Molecular Biology and Plant Physiology. Universitas Gadjah Mada Yogyakarta-Humboldt University Berlin.

Handiwirawan, E., R. R. Noor, C. Sumantri, Subandriyo, dan I. Inounu. 2012. Identifikasi *Single Nucleotide Polymorphism* (*SNP*) pada Gen *Mono Amine Oxidase A* (*MAO-A*) sebagai Penanda Genetik untuk Sifat Agresif pada Domba. *JITV*. 17 (4): 258-275.

Herman, Y. P. Ardila, F. Nugraha, dan D. I. Roslim. 2014. Analisis Sekuen Intron 1 sampai Sebagian Ekson 4 dari Gen *Feritin2* pada Tiga Genotipe Padi (*Oryza sativa* L.) Lokal Indragiri Hilir, Riau. *XXIX*: 21–26. https://journal.uir.ac.id/index.php/dinamikapertanian/article/view/856.

Hernawan, E. dan V. Meylani. 2016. Analisis Karakteristik Fisikokimia Beras Putih, Beras Merah, Dan Beras Hitam (*Oryza sativa* L., *Oryza nivara* dan *Oryza sativa* L. *indica*). *Jurnal Kesehatan Bakti Tunas Husada*. 15(1): 79-91.

Horiike, T. 2016. An Introduction to Molecular Phylogenetic Analysis. *Reviews in Agricultural Science.* 4: 36-45. Doi: 10.7831/ras.4.36

Inoue, H., T. Kobayashi, T. Nozoye, M. Takahashi, Y. Kakei, K. Suzuki, M. Nakazono, H. Nakanishi, S. Mori, and N. K. Nishizawa. 2009. Rice *OsYSL15* is an iron-regulated iron (III)-deoxymugineic acid transporter expressed in the roots and is essential for iron uptake in early growth of the seedlings. *The*

Journal of biological chemistry. 284(6): 3470–3479. https://doi.org/10.1074/jbc.M806042200.

Ishimaru, Y., M. Suzuki, T. Tsukamoto, K. Suzuki, M. Nakazono, T. Kobayashi, Y. Wada, S. Watanabe, S. Matsuhashi, M. Takahashi, H. Nakanishi, S. Mori, and N. K. Nishizawa. 2006. Rice plants take up iron as an Fe3+-phytosiderophore and as Fe^{2+}. *The Plant journal: for cell and molecular biology*. 45(3). 335–346. https://doi.org/10.1111/j.1365-313X.2005.02624.x.

Ishimaru Y, Masuda H, Bashir K, Inoue H, Tsukamoto T, Takahashi M, Nakanishi H, Aoki N, Hirose T, Ohsugi R, Nishizawa, N.K. 2010. Rice metal-nicotianamine transporter, *OsYSL2*, is required for the long-distance transport of iron and manganese. *Plant J*. 62:379–390.

Jin, Y., S. Liu, Z. Yuan, Y. Yang, S. Tan, and Z. Liu. 2016. *Genomics in Aquaculture.* Academic Press. Alabama. p.73. https://doi.org/10.1016/B978-0-12-801418-9.00004-4.

Juliano, B.O. and A.P.P. Tuano. 2019. *Rice: Gross structure and composition of the rice grain.* Elsevier. Los Baños. p:31. DOI: 10.1016/B978-0-12-811508-4.00002-2.

Kobayashi, T. and N. K.Nishizawa. 2012. Iron uptake, translocation, and regulation in higher plants. *Annual review of plant biology*. 63: 131–152. https://doi.org/10.1146/annurev-arplant-042811-105522.

Koike, S., Inoue, H., Mizuno, D., Takahashi, M., Nakanishi, H., Mori, S., and Nishizawa, N.K. 2004. *OsYSL2* is a rice metal-nicotianamine transporter that is regulated by iron and expressed in the phloem. *Plant J*. 39:415-424.

Kumari, P., P. Kumar, and VK. Sharma. 2018. Candidate gene markers based preliminary genetic analysis in relation to grain zinc and iron accumulation in rice varieties. *Journal of Pharmacognosy and Phytochemistry*. 7(4): 1300-1305. 10.13140/RG.2.2.15829.32484.

Kurnianingsih, N. R., R. Susandarini, F. A. Susanto, T. R. Nuringtyas, G. Jenkins, and Y. A. Purwestri. 2019. Characterization of Indonesian pigmented rice (*Oryza sativa*) based on morphology and single nucleotide polymorphism. *Biodiversitas*. 20(4):1208-1214.

Kristamtini, Taryono, P. Basunanda, dan R. H. Murti. 2016. Keragaman Genetik Kultivar Padi Beras Hitam Lokal Berdasarkan Penanda Mikrosatelit. *Jurnal AgroBiogen.* 10(2):69-76.

Liu, P.P. 2022. Talking Glossary of Genomic and Genetic Terms. https://www.genome.gov/genetics-glossary. Diakses tanggal 04 Januari 2023.

Liu, T., J. Zeng, K. Xia, T. Fan, Y. Li, Y. Wang, X. Xu, and M. Zhang. 2012. Evolutionary expansion and functional diversification of oligopeptide transporter gene family in rice. *Rice*. 5(12):1–14. https://doi.org/10.1186/1939-8433-5-12.

Lorenz T. C. 2012. Polymerase chain reaction: basic protocol plus troubleshooting and optimization strategies. *Journal of visualized experiments : JoVE*. 63: e3998. https://doi.org/10.3791/3998.

Mahendrakar, M. D., M. Parveda, P. B. K. Kishor, and R. K. Srivastava. 2020. Discovery and validation of candidate genes for grain iron and zinc metabolism in pearl millet [*Pennisetum glaucum* (L.) R. Br.]. *Scientific reports*. 10(1). 1-16. https://doi.org/10.1038/s41598-020-73241-7.

Meng, F., Y. Wei, and X. Yang. 2005**.** Iron content and bioavailability in rice**.** *Journal of Trace Elements in Medicine and Biology*. 18: 333–338.

Mouza, Z. 2020. Deteksi Gen *Ferritin OsFER1* dan *OsFER2* Pada Padi Hitam (*Oryza sativa* L. 'Cempo Ireng'). Skripsi. Universitas Gadjah Mada, Yogyakarta.

Mowidu, I., H.S. Bambang, H.P. Benito, dan N.H.U. Sri. 2015. Kadar Fe Total Pada Tanah Sawah Rawa Lebak di Kabupaten Poso. *Jurnal AgroPet*. 12(1):7-11.

Nozoye, T., H. Inoue, M. Takahashi, Y. Ishimaru, H. Nakanishi, S. Mori, and N. K. Nishizawa. 2007. The expression of iron homeostasis-related genes during rice germination. *Plant molecular biology*. 64(1-2): 35–47. https://doi.org/10.1007/s11103-007-9132-4.

Palmgren, M. G., S. Clemens, L. E. Williams, U. Krämer, S. Borg, J. K. Schjørring, and D. Sanders. 2008. Zinc biofortification of cereals: problems and solutions. *Trends in Plant Science*. 13(9): 464–473. https://doi.org/10.1016/j.tplants.2008.06.005.

Panda, B., S. Sharma, P. Mohapatra, A. and Das. 2014. Iron Nutrition *vis-à-vis* Aconitase Activity and Ferritin Accumulation in Tropical *Indica* Rice Cultivars Differing in Grain Iron Concentration. *American Journal of Plant Sciences*. 5: 2829-2841. doi: 10.4236/ajps.2014.518299.

Pratiwi, A. 2022. Deteksi *Single Nucleotide Polymorphisms* (*SNPs*) Gen *OsFER1* Pada Lima Kultivar Padi Putih Dan Berpigmen (*Oryza sativa* L.). Skripsi. Universitas Gadjah Mada, Yogyakarta.

Pratiwi, R. and Y. A. Purwestri. 2017. Black Rice as a Functional Food in Indonesia. *Functional Foods in Health and Disease*. 7(3): 182-194. DOI: 10.31989/ffhd.v7i3.310.

Putri, A. dan S. Wathon. 2018. Aplikasi *Single Nucleotide Polymorphism* (SNP) dalam Studi Farmakogenomik untuk Pengembangan Obat. *BioTrends*. 9(2): 69-74.

Puig, S., L.R. Alonso, A.M. Romero, and M.T. Martínez-Pastor. 2017. The elemental role of iron in DNA synthesis and repair. *Metallomics*. 9(11):1483–1500. https://doi.org/10.1039/c7mt00116a

Rajalakshmi, S. 2017. International Journal of Pharmaceutical, Chemical and Biological Sciences Different Types of PCR Techniques and Its Applications. *IJPCBS*. 7(3): 285–292. www.ijpcbs.com.

Reuter, M., Y. Küpper, A. Schmitz, J. P. Breuer, U. Wend, and J. Hennig. 2005. Detection of new single nucleotide polymorphisms by means of real time PCR. *Journal of Genetics*. 84 (3): 341-345.

Robert, F. and J. Pelletier. 2018. Exploring the Impact of Single-Nucleotide Polymorphisms on Translation. *Front. Genet.* 9:1-11. doi:10.3389/fgene.2018.00507.

Rout, G. R., and S. Sahoo. 2015. Role of iron in plant growth and metabolism. *Rev. Agric. Sci*. 3: 1–24. doi: 10.7831/ras.3.1.

Sahu, P. K., S. Mondal, D. Sharma, G. Vishwakarma, V. Kumar, and B. K. Das. 2017. InDel marker based genetic differentiation and genetic diversity in traditional rice (*Oryza sativa* L.) landraces of Chhattisgarh, India. *PLoS ONE*. 12(11). https://doi.org/10.1371/journal.pone.0188864.

Sotomayor-Vivas, C., E. Hernández-Lemus, and R. Dorantes-Gilardi. 2022. Linking protein structural and functional change to mutation using amino acid networks. *PloS one*. 17(1):1-23. doi.org/10.1371/journal.pone.0261829.

Sudiarta, W., O. Ratnayani, dan A.K. Veliyana. 2019. Analisis Kadar Logam Besi dalam Susu Bubuk Formula Kehamilan secara Spektrofotometri Serapan Atom. *J. Media Sains.* 3 (1): 1-6.

Suliartini, N.W.S., G.R. Sadimantara, T. Wijayanto, dan Muhidin. 2011. Pengujian kadar antosianin padi gogo beras merah hasil koleksi plasma nutfah sulawesi tenggara. *J Crop Agro.* 4(2): 43-48.

Tasma, I. M. 2015. Pemanfaatan Teknologi Sekuensing Genom untuk Mempercepat Program Pemuliaan Tanaman. *J. Litbang Pert*. 32(2). 159–168.

Takahashi, M., Y. Terada, I. Nakai, H. Nakanishi, E. Yoshimura, S. Mori, and N. K. Nishizawa. 2003. Role of nicotianamine in the intracellular delivery of metals and plant reproductive development. *The Plant cell*. 15(6): 1263–1280. https://doi.org/10.1105/tpc.010256.

Thomson, M.J., E.M. Septingsih, F. Suwardjo, T.I. Santoso, T.S. Sintenga, and S.R. McCouch. 2007. Genetic Diversity Analysis of Traditional and Improved Indonesian Rice (*Oryza sativa* L.) Germplasm Using Microsatellite Markers. Theor Appl Genet. 114(3): 559-568.

Tripathi, K. K., O. P. Govila., R. Warrier and V. Ahuja. 2011. *Biology of Oryza sativa* L. *(rice)*. Department of Biotechnology, Ministry of Sciences & Technology, Goverment of India. New Delhi.

Utama, Z.H. 2015. *Budidaya Padi pada Lahan Marjinal: Kiat Meningkatkan Produksi Padi*. Penerbit ANDI. Yogyakarta. pp.10-12.

Wang, M., W. Gruissem, and N. K. Bhullar. 2013. Nicotianamine synthase overexpression positively modulates iron homeostasis-related genes in high iron rice. *Front. Plant Sci*. 4(1):1-15. https://doi.org/10.3389/fpls.2013.00156.

Wang, Q., M. Chen, Q. Hao, H. Zeng, He. 2021. Research and Progress on the Mechanism of Iron Transfer and Accumulation in Rice Grains. *Plants*. 10:1-18. https://doi.org/10.3390/plants 10122610.

Wen-yue, C., C. Hai-rui, B. Jin-song , Z. Xiang-sheng, and S. Qing-yao. 2006. A Simplified Rice DNA Extraction Protocol for PCR Analysis. *Rice Science*. 13(1): 67-70. http://www.ricescience.org.

Wu, D., G. He, W. Tian, M. Saleem, D. Li, Y. Huang, L. Meng, Y. He, Y. Liu, and T. He. 2021. OPT gene family analysis of potato (*Solanum tuberosum*) responding to heavy metal stress: Comparative omics and co-expression networks revealed the underlying core templates and specific response patterns. *International Journal of Biological Macromolecules*. 188. 892–903. https://doi.org/10.1016/j.ijbiomac.2021.07.183.

Yen, M. R., Y. H. Tseng, and M. H. Saier Jr. 2001. *Maize Yellow Stripe1*, an iron-phytosiderophore uptake transporter, is a member of the *oligopeptide transporter* (*OPT*) family. *Microbiology (Reading, England)*. 147(11): 2881–2883. https://doi.org/10.1099/00221287-147-11-2881.

Yusuf, Z.K. 2010. Polymerase Chain Reaction (PCR). *Saintek*. 5 (6): 1-6.

Zhang, X., D. Zhang, W. Sun, and T. Wang. 2019. The adaptive mechanism of plants to iron deficiency via iron uptake, transport, and homeostasis.

International Journal of Molecular Sciences. 20(10): 1–14. https://doi.org/10.3390/ijms20102424.

Zhang C, K.I. Shinwari, L. Luo, and L. Zheng. 2018a. *OsYSL13* Is Involved in Iron Distribution in Rice. *International Journal of Molecular Sciences*. 19(11):3537. https://doi.org/10.3390/ijms19113537.

Zhang, C., W. Lu, Y. Yang, Z. Shen, J.F. Ma, and L. Zheng. 2018b. Os*YSL*16 is Required for Preferential Cu Distribution to Floral Organs in Rice. *Plant and Cell Physiology*. 59 (10):2039–2051. https://doi.org/10.1093/pcp/pcy124.

Zheng, L., M. Fujii, N. Yamaji, A. Sasaki, M. Yamane, I. Sakurai, K. Sato, and J.F. Ma. 2011. Isolation and Characterization of a Barley Yellow Stripe-Like Gene, Hv*YSL*5. *Plant and Cell Physiology*. 52(5): 765–774. https://doi.org/10.1093/pcp/pcr009.