



## DAFTAR PUSTAKA

- Abeysinghe, D. C., Mewan, K. M., Kumari, W. M. S. S., & Kumara, K. L. W. 2015. Morphological and Molecular Differences of *Exobasidium vexans* Massee Causing Blister Blight Disease of Tea. *Journal of Korean Tea Society, Special Issue*, 72-76.
- Aboul-Maaty, N.A.F., & Oraby, H.A.S. 2019. Extraction of high-quality genomic DNA from different plant orders applying a modified CTAB-based method. *Bulletin of the National Research Centre* 43. <https://doi.org/10.1186/s42269-019-0066-1>.
- Agnihothrudu, V., Moulli, B.C., 1991. Blister blight of tea, its control and future lines of research. *Proceedings of the International Symposium on Tea Science*. 26: 655–659.
- Ajay, D., Balamurugan, A., & Baby, U.I. 2009. Survival of *Exobasidium vexans*, the incitant of blister blight disease of tea, during offseason. *International Journal of Applied Agricultural Research* 4: 115-123.
- Allen, G.C. & Donnithorne, A.G. 1957. *Western Enterprise in Indonesia and Malaysia*. The Macmillan Co. New York.
- Anonim. 2021. *Statistik Teh Indonesia*. Sub Direktorat Statistik Tanaman Perkebunan. BPS RI. Indonesia.
- Balasuriya, A. 2008. Common diseases in tea and their management. In Zoysaeds, *Hand Book of Tea*. Tea Research Institute of Sri Lanka. Thalawakele.
- Barman, A., Nath, A., & Thakur, D. 2020. Identification and characterization of fungi associated with blister blight lesions of tea (*Camellia sinensis* L. Kuntze) isolated from Meghalaya, India. *Microbiological Research*, 240(November 2019), 126561. <https://doi.org/10.1016/j.micres.2020.126561>
- Basu, M.A., Bera, B., Rajan, A., 2010. Tea statistics: Global scenario. *International Jounral of Tea Science* 8: 121–124.
- Bellemain, E., Carlsen, T., Brochmann, C., Coissac, E., Taberlet, P., & Kauserud, H. 2015. ITS as an environmental DNA barcode for fungi: an in silico approach reveals potential PCR biases. *World Journal of Microbiology & Biotechnology*, 31(6), 189–999. <https://doi.org/10.1016/j.enzmictec.2010.03.010>
- Berg, H. 2012. Restriction Fragment Length Polymorphism Analysis of PCR-Amplified Fragments (PCR-RFLP) and Gel Electrophoresis - Valuable Tool for Genotyping and Genetic Fingerprinting. *Gel Electrophoresis - Principles and Basics*. <https://doi.org/10.5772/37724>
- Boehm, R., Cash, S.B., Anderson, B.T., Ahmed, S., Griffin, T.S., Robbat Jr., A., Stepp, J.R., Han, W., Hazel, M., & Orians, C.M. 2016. Association between empirically estimated monsoon dynamics and other weather factors and



- historical tea yields in China: results from a yield response model. Climate 4: <https://doi.org/10.3390/cli4020020>.
- Booth, C., 1983. *Exobasidium vexans*. CMI Descriptions of Pathogenic Fungi and Bacteria, No. 779. CAB International, Wallingford, UK.
- Bousset, L.. & de Vallavieille-Pope, C. 2003. Effect of sexual recombination on pathotype frequencies in barley powdery mildew populations of artificially inoculated field plots. Eur. J. Plant Pathol. 109: 13–24
- Burt, E.A. 1915. Thelophoraceae of North America IV. Exobasidium. Annals of the Missouri Botanical Garden 2: 627–658.
- Çelik Oğuz, A. & Karakaya, A. 2016. Genetic Diversity of Barley Foliar Fungal Pathogens. Agronomy 11: 434. <https://doi.org/10.3390/agronomy11030434>
- Callan, B.E., & Carris, L.M. 2004. Fungi on Living Plant Substrata, Including Fruits, In: Biodiversity of Fungi. Academic Press. USA.
- Chaliha, C., Kaladhar, V. C., Doley, R., Verma, P. K., Kumar, A., & Kalita, E. 2021. Bipartite molecular approach for species delimitation and resolving cryptic speciation of *Exobasidium vexans* within the *Exobasidium* genus. *Computational Biology and Chemistry*, 92(April), 107496. <https://doi.org/10.1016/j.compbiochem.2021.107496>
- Chaliha, C., Kalita, E., & Verma, P. K. 2020. Optimizing In vitro Culture Conditions for the Biotrophic Fungi *Exobasidium vexans* Through Response Surface Methodology. *Indian Journal of Microbiology*, 60(2), 167–174. <https://doi.org/10.1007/s12088-019-00846-6>
- Chaudhary, R., Atomic, B., & Maurya, G. 2020. Encyclopedia of Animal Cognition and Behavior. *Encyclopedia of Animal Cognition and Behavior*, April. <https://doi.org/10.1007/978-3-319-47829-6>.
- Chen, L.H., Wang, S.Z., & Nelson, M. 2005. Genetik diversities within *Camellia* species confirmed by random amplified polymorphic DNA (RAPD) markers. Journal of the American Society for Horticultural Science. 40: 993–1147.
- Chesnokov, Y. V., & Artemyeva, A. M. 2015. Evaluation of the measure of polymorphism information of genetic diversity. *Agricultural Biology*, 50(5), 571–578. <https://doi.org/10.15389/agrobiology.2015.5.571rus>
- Collard, B. C. Y., Jahufer, M. Z. Z., Brouwer, J. B., & Pang, E. C. K. 2005. An introduction to markers, quantitative trait loci (QTL) mapping and marker-assisted selection for crop improvement: The basic concepts. *Euphytica*, 142(1–2), 169–196. <https://doi.org/10.1007/s10681-005-1681-5>
- de Silva, R. L., Murugiah, S., & Saravapavan, T. V. 1977. Losses of tea crops caused by *Exobasidium vexans*. Tea Quarterly 43: 140-146.
- Doyle, J.J. & Doyle, J.L 1990. Isolation of plant DNA from fresh tissue. Focus 12: 13-15.



- Effendi, D.S., Syakir, M., Yusron, M., & Wiratno. 2010. Budidaya Teh dan Pasca Panen. Pusat Penelitian dan Pengembangan Perkebunan. Badan Penelitian dan Pengembangan Pertanian. Kementerian Pertanian Indonesia.
- Etherington, D.M. 1974. The Indonesian tea industry. Bulletin of Indonesian Economic Studies 10: 83-113.
- Endrawati, D. & Kusumaningtyas, E. 2020. Molecular profile *Trichophyton mentagrophytes* and *Microsporum canis* based on PCR-RFLP of Internal Transcribed Spacer. JITV 26(1): 10-21. <http://dx.doi.org/10.14334/jitv.v26i1.2546>.
- Fauziah, F., Setiawati, M.R., Susilowati, D.N., Pranoto, E., dan Rachmawati, Y. 2016. Potensi mikroba indigen tanaman teh terhadap pertumbuhan dan ketahanan terhadap penyakit cacar daun (*Exobasidium vexans* Massee). Jurnal Penelitian Teh dan Kina 19: 115-123. DOI: 10.22302/pptk.jur.jptk.v19i1.77
- Gadd, C. H., & Loos, C. A. 1948. The basidiospores of *Exobasidium vexans*. Transactions of the British Mycological Society, 31(3–4), 229–233. [https://doi.org/10.1016/s0007-1536\(48\)80004-5](https://doi.org/10.1016/s0007-1536(48)80004-5)
- Gardes, M., & Bruns, T.D. 1993. ITS primers with enhanced specificity for basidiomycetes – application to the identification of mycorrhizae and rusts. Molecular Ecology 2: 113–118. <https://doi.org/10.1111/j.1365-294x.1993.tb00005.x>
- Gao, J.Y., Parka, C.R., & Du, Y.Q. 2005. Collected species of the genus *Camellia* — an illustrated outline. Zhejiang Science and Technology Press. China.
- Gulati, A., Gulati, A., Ravindranath, S.D., & Gupta, A.K. 1999. Variation in chemical composition and quality of tea (*Camellia sinensis*) with increasing blister blight (*Exobasidium vexans*) severity. Mycological Research 103: 1380-1384.
- Hammer, Ø., Harper, D.A.T. & Ryan, P.D. 2001. PAST: Paleontological Statistics Software Package for Education and Data Analysis. Palaeontol, Palaeontologia Electronica 4, 1-9.
- Huang, S. Meteorology of the tea plant in China: A review. Agricultural and Forest Meteorology 47: 19-30.
- Idrees, M. & Irshad, M. 2014. Molecular markers in plants for analysis of genetik diversity: a review. European Academic Research 2: 1513-1540.
- Jayaswall, K., Mahajan, P., Singh, G., Parmar, R., Seth, R., & Raina, A. 2016. Transcriptome analysis reveals candidate genes involved in blister blight defense in tea (*Camellia sinensis* (L) Kuntze). Scientific Reports. 6:1-14.
- Joshi, S.D., Balamurgan, A., Rahul, P.R., Mandal, A.K.A., Raj kumar, R., Baby, U.I., Premkumar, R., & Muraleedharan, N. 2009. Genetik and morphological variation of tea (*Camellia sinensis*) blister blight pathogen (*Exobasidium vexans*) in Southern India revealed by RAPD markers and spore morphology. Sri Lanka Journal of Tea Science 74: 52-61.



- Kafkas, S., Ercișli, S., Doğan, Y., Ertürk, Y., Haznedar, A., & Sekban, R. 2009. Polymorphism and genetic relationships among tea genotypes from turkey revealed by amplified fragment length polymorphism markers. *Journal of the American Society for Horticultural Science*, 134(4), 428–434. <https://doi.org/10.21273/jashs.134.4.428>
- Karunaratna, K.H.T., Senathilake, N.H.K.S., Mewan, K.M., Weerasena, O.V.D.S.J., & Perera, S.A.C.N. 2020. In silico structural homology modelling of EST073 motif coding protein of tea *Camellia sinensis* (L). *Journal of Genetik Engineering and Biotechnology* 18: 1-10.
- Keith, L., Ko, W-H., Sato, D.M. 2006. Identification guide for diseases of tea (*Camellia sinensis*). Honolulu (HI): University of Hawaii. (Plant Disease; PD-33).
- Kulatunga, C., Sinniah, G.D., Balasuriya, A., Karunaratna, K.H.T. & Mewan, K.M. 2013. Use of ITS region for molecular differentiations of *Exobasidium vexans* causing blister blight in tea. International Symposium on Agriculture and Environment. University of Ruhuna Sri Lanka. Sri Lanka.
- Laurentin, H. & Karlovsky, P. 2007. AFLP fingerprinting of sesame (*Sesamum indicum* L.) cultivars: identification, genetic relationship and comparison of AFLP informativeness parameters, *Genetic Resources and Crop Evolution* 54, 1437–1446.
- Li, X., & Zhu, X. 2016. Tea: Type, Production and Trade. In: *Encyclopedia of Food and Health*. Elsevier. <http://dx.doi.org/10.1016/B978-0-12-384947-2.00684-X>
- Li, X., & Zhu, X. 2016. Tea: Types, Production, and Trade. *Encyclopedia of Food and Health*. Academic Press. USA.
- Lizawati, Nusifera, S., Neliyati, Alia, Y., & Antony. 2019. RAPD-PCR primer selection to analyze genetic diversity of Cinnamon plan. *IOP Conference Series: Earth and Environmental Science*, 391(1). <https://doi.org/10.1088/1755-1315/391/1/012002>
- Lu, H., Jiang, W., Ghiassi, M., Lee, S., & Nitin, M. 2012. Classification of *Camellia* (Theaceae) Species using leaf architecture variations and pattern recognition techniques. *PLoS One* 7: e29704.
- Mahmood, T., Akhtar, N., Khan, B.A. 2010. The morphology, characteristics, and medicinal properties of *Camellia sinensis* tea. *Journal of Medicinal Plants Research* 4: 2028-2033. <https://doi.org/10.5897/JMPR10.010>.
- Marsjan, P. A., & Oldenbroek, J. K. 2006. Molecular markers, a tool for exploring genetic diversity (Section C in part 4). *State of the Art in the Management of Animal Genetic Resources*, 359–379.
- Martono, B., & Udarno, L. 2015. Kandungan kafein dan karakteristik morfologi pucuk enam genotipe teh. *J. TIDP* 2(2): 69–76.
- Massee, G. 1898. Tea blights. In *Kew Bulletin*. pp 109-111.



Meegakhumbara, M.K., Wambulwa, M.C., Li, M-M., Thapa, K.K., Sun, Y-S. Moller, M., Xu, J-C., Yang, J-B., Liu, J., Liu, B-Y., Li, D-Z., & Gao, L-M. 2018. Domestication origin and breeding history of the tea plant (*Camellia sinensis*) in China and India based on nuclear microsatellites and cpDNA sequence data. *Frontiers in Plant Science*: 8: 2270.

Microsoft Corporation. 2018. Microsoft Excel. Retrieved from <https://office.microsoft.com/excel>

Ming, T.L. 2000. Monograph of the Genus *Camellia*. Yunnan Science and Technology Press, Kunming.

Mokhtar, N., & Nagao, H. 2019. Histological description of *Exobasidium vexans* infection on tea leaves (*Camellia sinensis*). *Songkla Nakarin Journal of Science and Technology* 41: 1021-1028.

Mukhopadhyay, T., & Bhattacharjee, S. 2016. Genetic Diversity: Its Importance and Measurements in Conserving Biological Diversity: A Multiscaled Approach. Research India Publications. New Delhi. India.

Muraleedharan, N., Chen, Z.M., 1997. Pests and diseases of tea and their managements. *Journal of Plantation Crops* 25: 15–43.

Nagao, H. 2012. Effect of aqueous vitamin B on the growth of blister blight pathogen, *Exobasidium vexans*. *Songkla Nakarin Journal of Science and Technology* 34: 601-606.

Nagao, H., Kakishima, M., Ogawa, S. & Sato, T. 2003. *Exobasidium symploci-japonicae* var. *carpogenum* var. nov. causing Exobasidium fruit deformation on *Symplocos lucida* in Japan. *Mycoscience* 44: 369-375.

Nathans, D., & Smith, H.O. 1975. Restriction endonucleases in the analysis and restructuring of DNA molecules. *Annu. Rev. Biochem.* 44:273–293.

Nei, M. 1978. Estimation of average heterozygosity and genetic distance from a small number of individuals. *Genetics* 89: 583–590.

Peal, S.E. 1868. Blister Blight. *Journal of Agri Horticultural Society of India* 1: 126.

Powell, W., Morgante, M., Andre, C., Hanafey, M., Vogel, J., Tingey, S., & Rafalski, A. 1996. Jojoba(Issr-Rapd-1996).Pdf. *Molecular Breeding*, 2, 225–238.

Poerba, Y.S., & Martanti, D. 2008. Keragaman genetik berdasarkan marka random amplified polymorphic DNA pada *Amorphophallus muelleri* Blume di Jawa. *Biodiversitas* 9: 245-249.

Punyasiri, P.A., Abeysinghe, S.B., & Kumar, V. 2005. Preformed and induced chemical resistance of tea leaf against *Exobasidium vexans* infection. *Journal of Chemical Ecology* 31, 1315–24.

Probojati, R. T., Wahyudi, D., & Hapsari, L. 2019. Clustering Analysis and Genome Inference of Pisang Raja Local Cultivars (*Musa* spp.) from Java Island by Random Amplified Polymorphic DNA (RAPD) Marker. *Journal of Tropical*



*Biodiversity and Biotechnology*, 4(2), 42. <https://doi.org/10.22146/jtbb.44047>

Rayati, D.J. 2011. Efektivitas berbagai agensi pengendali hayati terhadap penyakit cacar (*Exobasidium vexans* Massee) pada tanaman teh. *Jurnal Penelitian Teh dan Kina* 14: 8-15.

Regoes, R.R., Nowak, M.A., Bonhoeffer, S. 2000. Evolution of virulence in a heterogeneous host population. *Evolution*. 54:64–71.

Rohlf, F.J. 2000. NTSYS, Numerical Taxonomy and Multivariate Analysis System, Version 2.0.2. Applied Biostatistics Inc. New York.

Semangun, H. 1991. Penyakit-Penyakit Tanaman Perkebunan di Indonesia. Gadjah Mada University Press.

Sen, S., Rai, M., Das, D., Chandra, S., & Acharya, K. 2020. Blister blight a threatened problem in tea industry: A review. *Journal of King Saund University – Science*. <https://doi.org/10.1016/j.jksus.2020.09.008>.

Serrote, C. M. L., Reiniger, L. R. S., Silva, K. B., Rabaiolli, S. M. dos S., & Stefanel, C. M. 2020. Determining the Polymorphism Information Content of a molecular marker. *Gene*, 726, 144175. <https://doi.org/10.1016/j.gene.2019.144175>.

Sharma, V., Joshi, R., & Gulati, A. 2011. Seasonal clonal variations and effects of stresses on quality chemicals and prephenate dehydratase enzyme activity in tea (*Camellia sinensis*). *European Food Research and Technology* 232:307-317.

Sriyadi, B., Suprihatini R., Khomaeni, H.S. 2012. The Development of High Yielding Tea Clones to Increase Indonesian Tea Production. In: Global Tea Breeding. Advanced Topics in Science and Technology in China. Springer, Berlin, Heidelberg. [https://doi.org/10.1007/978-3-642-31878-8\\_10](https://doi.org/10.1007/978-3-642-31878-8_10)

Stewart, J.E., Brooks, K., Brannen, P.M., Cline, W.O., & Brewer, M.T. 2015. Elevated genetic diversity in the emerging blueberry pathogen *Exobasidium maculosum*. *PLoS One* 10: e0132545.

Sundström K.R. 1964. Studies of the physiology, morphology and serology of *Exobasidium*. *Symb Bot Ups*. 18: 3, 89.

Tamura K., Stecher G., and Kumar S. (2021). MEGA 11: Molecular Evolutionary Genetics Analysis Version 11. *Molecular Biology and Evolution* <https://doi.org/10.1093/molbev/msab120>.

Tongco, M. D. C. 2007. Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, 5, 147–158. <https://doi.org/10.17348/era.5.0.147-158>

Varshney, R.K., Chabane, K., Hendre, P.S., Aggarwal, R.K. & Graner A. 2007. Comparative assessment of EST-SSR, EST-SNP and AFLP markers for evaluation of genetic diversity and conservation of genetic resources using wild, cultivated and elite barleys, *Plant Science* 173, 638–649.



- Venkata Ram, C.S. 1974. Integrated spray schedules with systemic fungicides against blister blight of tea-a new concept. *The Planter's Chronicle* 69: 407-409.
- Venkata Ram, C.S., & Chandramouli, B., 1976. Systemic fungicides for integrated blister blight control. *UPASI Tea Scientific Department Bullet.* 33: 70–87.
- Vijayan, K., Zhang, W.J., & Tsou, C.H. 2009. Molecular taxonomy of *Camellia* (Theaceae) inferred from nrITS sequences. *American Journal of Botany.* 96: 1348–1360.
- Wachira, F.N., Kamunya, S., Karori, S., Chalo, R., & Maritim, T. 2013. *The Tea Plants: Botanical Aspects. Tea in Health and Disease Prevention.* Academic Press.
- Wahyuni, F. D., Saraswati, H., & Dewi, K. S. 2020. In-Silico Analysis for cryl Gene Amplification from *Bacillus thuringiensis*. *Bioedukasi*, 1, 8. <https://doi.org/10.19184/bioedu.v18i1.16430>
- Wambulwa, M. C., Meegahakumbura, M. K., Chalo, R., Kamunya, S., Muchugi, A., & Xu, J. C. 2016. Nuclear microsatellites reveal the genetik architecture and breeding history of tea germplasm of East Africa. *Tree Genet. Genomes* 12:11.
- Wei, H., Therrien, C., Blanchard, A., Guan, S., & Zhu, Z. 2008. The Fidelity Index provides a systematic quantitation of star activity of DNA restriction endonucleases. *Nucleic Acids Research*, 36(9), 1–10. <https://doi.org/10.1093/nar/gkn182>
- Xingyao, Z. 1998. A study on the taxonomy of *Exobasidium* spp. according to the fuzzy analysis of cultural properties and the analysis of 28S rDNA-PCR-RFLP. *Scientia Silvae Sinicae* 34: 59-71.
- Zhan, J. 2016. Population Genetics of Plant Pathogens. *ELS, March 2016*, 1–7. <https://doi.org/10.1002/9780470015902.a0021269.pub2>