

DAFTAR PUSTAKA

- Achard, P., Gusti, A., Cheminant, S., Alioua, M., Dhondt, S., Coppens, F., Beemster, G.T. and Genschik, P., 2009. Gibberellin signaling controls cell proliferation rate in *Arabidopsis*. *Current biology*, 19(14), 1188-1193. <https://doi.org/10.1016/j.cub.2009.05.059>
- Alydarafa, H., Melati, C.A. and Semiarti, E., 2024. Morphology and molecular characterization of *Vanda tricolor* × *Vanda limbata* orchid hybrid based on VOH1 gene characters. *Indonesian Journal of Biotechnology*, 29(4), 231-238. <https://doi.org/10.22146/ijbiotech.91456>
- Amr, A. and Raie, W., 2022. Tomato components and quality parameters. A review. *Jordan Journal of Agricultural Sciences*, 18(3), 199-220. <https://doi.org/10.35516/jjas.v18i3.444>
- Andrew-Peter-Leon, M.T., Pillai, M.A., Kumar, K.K., Pushpam, R. and Kannan, R., 2020. Design of single guide RNA for CRISPR/Cas9 mediated genome engineering in rice—for semi-dwarfism and thermo-sensitive genic male sterility. *The Pharma Innovation Journal*, 9(2), 471-476. <https://doi.org/10.22271/tpi.2020.v9.i2i.4422>
- Annese, D., Romani, F., Grandellis, C., Ives, L., Frangedakis, E., Buson, F.X., Molloy, J.C. and Haseloff, J., 2025. Semi-automated workflow for high-throughput *Agrobacterium*-mediated plant transformation. *The Plant Journal*, 122(1), e70118. <https://doi.org/10.1111/tpj.70118>
- Ardiyanti, K.D. and Nuraini, L., 2024. Opportunities and challenges for orchid plant cultivation and development in Indonesia. *Open Science and Technology*, 4(1), 19-26.
- Arpita, A., Bhavya, G., Abida, P.S., Kiran, A.G., Preetha, R., CJ, M.M. and Krishna, G.K., 2024. CRISPR/Cas9 Construct Development for Knock-out of Root Architecture Associated 1 Gene in Rice (*Oryza sativa* L.). *Journal of Advances in Biology & Biotechnology*, 27(12). <https://doi.org/10.9734/jabb/2024/v27i121767>
- Arum, D.A.P. and Semiarti, E., 2022. In Vitro Culture of *Phalaenopsis amabilis* (L.) Blume Orchid for Seedling Production with Banana Extract Supplementation and Light Treatment for Ex Situ Conservation. *Journal of Tropical Biodiversity & Biotechnology*, 7(3). <https://doi.org/10.22146/jtbb.70868>
- Barrangou, R., Fremaux, C., Deveau, H., Richards, M., Boyaval, P., Moineau, S., Romero, D.A. and Horvath, P., 2007. CRISPR provides acquired resistance against viruses in prokaryotes. *Science*, 315(5819), 1709-1712. <https://doi.org/10.1126/science.1138140>

- Behura, N.A. and Kothakota, N.J., 2026. An optimized CTAB-based protocol for high-quality genomic DNA extraction suitable for chloroplast marker amplification in *Dendrobium* hybrids. *Conservation Genetics Resources*, 18(2), 19. <https://doi.org/10.1007/s12686-026-01428-7>
- Bilova, T.E., Ryabova, D.N. and Anisimova, I.N., 2016a. Molecular basis of the dwarfism character in cultivated plants. I. Growth distortions due to mutations of gibberellin metabolism and signaling. *Agricultural biology*, 51(1), 3-16. <https://doi.org/10.15389/agrobiology.2016.1.3eng>
- Bilova, T.E., Ryabova, D.N. and Anisimova, I.N., 2016b. Molecular basis of the dwarfism character in cultivated plants. II. DELLA-proteins: Structure and functions. *Agricultural Biology*, 51, 571-584. <https://doi.org/10.15389/agrobiology.2016.5.571eng>
- Boubakri, H., 2023. Recent progress in CRISPR/Cas9-based genome editing for enhancing plant disease resistance. *Gene*, 866, 147334. <https://doi.org/10.1016/j.gene.2023.147334>
- Brouns, S.J., Jore, M.M., Lundgren, M., Westra, E.R., Slijkhuys, R.J., Snijders, A.P., Dickman, M.J., Makarova, K.S., Koonin, E.V. and Van Der Oost, J., 2008. Small CRISPR RNAs guide antiviral defense in prokaryotes. *Science*, 321(5891), 960-964. <https://doi.org/10.1126/science.1159689>
- Busov, V., Meilan, R., Pearce, D.W., Rood, S.B., Ma, C., Tschaplinski, T.J. and Strauss, S.H., 2006. Transgenic modification of *gai* or *rgl1* causes dwarfing and alters gibberellins, root growth, and metabolite profiles in *Populus*. *Planta*, 224, 288-299. <https://doi.org/10.1007/s00425-005-0213-9>
- Chang, A.Y., Chau, V., Landas, J.A. and Pang, Y., 2017. Preparation of calcium competent *E. coli* and heat-shock transformation. *JEMI methods*, 1(22-25).
- Cheng, W., Gao, J.S., Feng, X.X., Qun, S.H.A.O., Yang, S.X. and Feng, X.Z., 2016. Characterization of dwarf mutants and molecular mapping of a dwarf locus in soybean. *Journal of integrative agriculture*, 15(10), 2228-2236. [https://doi.org/10.1016/s2095-3119\(15\)61312-0](https://doi.org/10.1016/s2095-3119(15)61312-0)
- Chetty, V.J., Ceballos, N., Garcia, D., Narváez-Vásquez, J., Lopez, W. and Orozco-Cárdenas, M.L., 2013. Evaluation of four *Agrobacterium tumefaciens* strains for the genetic transformation of tomato (*Solanum lycopersicum* L.) cultivar Micro-Tom. *Plant cell reports*, 32(2), 239-247. <https://doi.org/10.1007/s00299-012-1358-1>
- da Silva, J.A.T., Winarto, B., Dobránszki, J., Cardoso, J.C. and Zeng, S., 2016. Tissue disinfection for preparation of *Dendrobium* in vitro culture. *Folia Horticulturae*, 28(1), 57-75. <https://doi.org/10.1515/fhort-2016-0008>

- Dewi, N.P.Y.A., Sele, Y. and Luruk, T.O., 2025. Viability of *Vanda limbata* Orchid Seeds with Different Storage Period in Organic Tomato Extract Media. *Jurnal Pembelajaran dan Biologi Nukleus*, 11(4), 1265-1274. <https://doi.org/10.36987/jpbn.v11i4.8199>
- Diantina, S., Kartikaningrum, S., McCormick, A.C., Millner, J., McGill, C., Pritchard, H.W. and Nadarajan, J., 2020. Comparative in vitro seed germination and seedling development in tropical and temperate epiphytic and temperate terrestrial orchids. *Plant Cell, Tissue and Organ Culture (PCTOC)*, 143(3), 619-633. <https://doi.org/10.1007/s11240-020-01947-7>
- Doyle JJ. 1990. *Isolation of plant DNA from fresh tissue*. *Focus (Madison)*. 12:13–15.
- Dwiyani, R., Yuswanti, H., Darmawati, I.A.P., Suada, K. and Mayadewi, N.N.A., 2015. In vitro germination and its subsequent growth of an orchid of *Vanda tricolor* Lindl. var. *suavis* from Bali on complex additives enriched medium. *AGRIVITA Journal of Agricultural Science*, 37(2), pp.144-150. <https://doi.org/10.17503/agrivita-2015-37-2-p144-150>
- Dwiyani, R., Fitriani, Y. and Mercuriani, I.S., 2022. The alternative media supporting the Protokorm and plantlet growth of the Indonesian black orchid (*Coelogyne pandurata* Lindl.) grown in vitro. *Caraka Tani: Journal of Sustainable Agriculture*. 37(1), 152-160. <https://doi.org/10.20961/carakatani.v37i1.55956>
- Fendiyanto, M.H., Setiawan, E., Pratami, M.P., Kurniyanto, I.R. and Fastanti, F.S., 2025. Construction of a CRISPR/Cas9-mediated genome editing system in manipulating OsART1 from *Oryza sativa* cv. Inpago 5. *Biodiversitas Journal of Biological Diversity*, 26(2). <https://doi.org/10.13057/biodiv/d260241>
- Fu, X., Sudhakar, D., Peng, J., Richards, D.E., Christou, P. and Harberd, N.P., 2001. Expression of *Arabidopsis GAI* in transgenic rice represses multiple gibberellin responses. *The Plant Cell*, 13(8), 1791-1802. <https://doi.org/10.1105/tpc.010020>
- Gardiner, L., 2007. *Vanda tricolor* Lindl. conservation in Java, Indonesia: Genetic and geographic structure and history. *Lankesteriana: International Journal on Orchidology*. <https://doi.org/10.15517/lank.v7i1-2.19520>
- Garneau, J.E., Dupuis, M.È., Villion, M., Romero, D.A., Barrangou, R., Boyaval, P., Fremaux, C., Horvath, P., Magadán, A.H. and Moineau, S., 2010. The CRISPR/Cas bacterial immune system cleaves bacteriophage and plasmid DNA. *Nature*, 468(7320), 67-71. <https://doi.org/10.1038/nature09523>
- Gasiunas, G., Barrangou, R., Horvath, P. and Siksnys, V., 2012. Cas9–crRNA ribonucleoprotein complex mediates specific DNA cleavage for adaptive immunity in bacteria. *Proceedings of the National Academy of*

- Sciences*, 109(39), E2579-E2586.
<https://doi.org/10.1073/pnas.1208507109>
- GBIF. 2025. *Vanda tricolor* Lindl. diakses tanggal 12 April 2025, pukul 11.00 WIB, <https://www.gbif.org/species/2783198>
- Hajong, S., Kumaria, S. and Tandon, P., 2010. In vitro propagation of the medicinal orchid *Dendrobium chrysanthum*. *Proc Indian Natn Sci Acad.* 76(1), 1-6. <https://doi.org/10.20546/ijcmas.2019.810.152>
- Hanifa, Y. R. 2024. Penyuntingan gen *Chalcone Synthase* dengan CRISPR/Cas9 untuk pembuatan bunga varigata pada anggrek *Dendrobium* 'Cheddi Jagan'. Tesis. Yogyakarta: Program Studi Magister Bioteknologi, Sekolah Pascasarjana, Universitas Gadjah Mada.
- Hernandez-García, A., Baltazar-Bernal, O. and Spinoso-Castillo, J.L., 2025. Complementary and organic substances on orchid in vitro culture media: a review. *Plant Cell, Tissue and Organ Culture (PCTOC)*, 164(1), 1. <https://doi.org/10.1007/s11240-025-03318-6>
- Hooker, W.J., 2020. Orchid: *Vanda tricolor* subsp. *suavis*. American Orchid Society. Miami, Florida, US.
- Hsieh, K.T., Liu, S.H., Wang, I.W. and Chen, L.J., 2020. *Phalaenopsis* orchid miniaturization by overexpression of OsGA2ox6, a rice GA2-oxidase gene. *Botanical Studies*, 61, 1-11. <https://doi.org/10.1186/s40529-020-00288-0>
- Hsu, P.D., Lander, E.S. and Zhang, F., 2014. Development and applications of CRISPR-Cas9 for genome engineering. *Cell*, 157(6), 1262-1278. <https://doi.org/10.1016/j.cell.2014.05.010>
- Huh, Y.S., Lee, J.K., Nam, S.Y., Paek, K.Y. and Suh, G.U., 2016. Improvement of asymbiotic seed germination and seedling development of *Cypripedium macranthos* Sw. with organic additives. *Journal of Plant Biotechnology*, 43(1), 138-145. <https://doi.org/10.5010/jpb.2016.43.1.138>
- Hwang, H.H., Yu, M. and Lai, E.M., 2017. *Agrobacterium*-mediated plant transformation: biology and applications. *The arabidopsis book*, 15, e0186. <https://doi.org/10.1199/tab.0186>
- Ishino, Y., Shinagawa, H., Makino, K., Amemura, M. and Nakata, A., 1987. Nucleotide sequence of the iap gene, responsible for alkaline phosphatase isozyme conversion in *E. coli*, and identification of the gene product. *Journal of bacteriology*, 169(12), 5429-5433. <https://doi.org/10.1128/jb.169.12.5429-5433.1987>
- Jansen, R., Embden, J.D.V., Gastra, W. and Schouls, L.M., 2002. Identification of genes that are associated with DNA repeats in prokaryotes. *Molecular microbiology*, 43(6), 1565-1575. <https://doi.org/10.1046/j.1365-2958.2002.02839.x>

- Jinek, M., Chylinski, K., Fonfara, I., Hauer, M., Doudna, J.A. and Charpentier, E., 2012. A programmable dual-RNA-guided DNA endonuclease in adaptive bacterial immunity. *science*, 337(6096), 816-821. <https://doi.org/10.1126/science.1225829>
- Jung, Y.J., Kim, J.H., Lee, H.J., Kim, D.H., Yu, J., Bae, S., Cho, Y.G. and Kang, K.K., 2020. Generation and transcriptome profiling of Slr1-d7 and Slr1-d8 mutant lines with a new semi-dominant dwarf allele of *SLR1* using the CRISPR/*Cas9* system in rice. *International journal of molecular sciences*, 21(15), 5492. <https://doi.org/10.3390/ijms21155492>
- Kamburova, V.S., Nikitina, E.V., Shermatov, S.E., Buriev, Z.T., Kumpatla, S.P., Emani, C. and Abdurakhmonov, I.Y., 2017. Genome editing in plants: an overview of tools and applications. *International Journal of Agronomy*, 2017(1), 7315351. <https://doi.org/10.1155/2017/7315351>
- Kui, L., Chen, H., Zhang, W., He, S., Xiong, Z., Zhang, Y., Yan, L., Zhong, C., He, F., Chen, J. and Zeng, P., 2017. Building a genetic manipulation tool box for orchid biology: identification of constitutive promoters and application of CRISPR/*Cas9* in the orchid, *Dendrobium officinale*. *Frontiers in plant science*, 7, 2036. <https://doi.org/10.3389/fpls.2016.02036>
- Kusumastianto, A.P., Wibowo, A.R.U., Anggriasari, A.M., Meylia, F.S., Susila, H., Atmaja, M.B. and Soesilohadi, R.H., 2015. Diversity of *Vanda tricolor* Lindl. (Orchidaceae) Flower-visiting Insects in the Turgo Hill of Mount Merapi National Park, Yogyakarta, Indonesia. *KnE Life Sciences*, 533-539. <https://doi.org/10.18502/kl.v2i1.211>
- Lawrie, M.D., Layina, Z., Ningtias, D.R., Alifianto, F.N., Indrianto, A., Purwantoro, A. and Semiarti, E., 2021. In vitro germination and flowering of *Dendrobium capra* JJ smith, an endemic orchid of java. *HAYATI Journal of Biosciences*, 28(2), 172-172. <https://doi.org/10.4308/hjb.28.2.172>
- Linggabuwana, A., Putri, S.U., Kurniawan, F.Y. and Semiarti, E., 2024. Isolation and Characterization of Chalcone Synthase (CHS) Gene in Variegated-Flower of *Dendrobium 'Enobi'* and *Phalaenopsis* Hybrid Orchids. *HAYATI Journal of Biosciences*, 31(2), 382-391. <https://doi.org/10.4308/hjb.31.2.382-391>
- Liu, D., Hu, R., Palla, K.J., Tuskan, G.A. and Yang, X., 2016. Advances and perspectives on the use of CRISPR/*Cas9* systems in plant genomics research. *Current Opinion in Plant Biology*, 30, 70-77. <https://doi.org/10.1016/j.pbi.2016.01.007>
- Liu, X., Wu, S., Xu, J., Sui, C. and Wei, J., 2017. Application of CRISPR/*Cas9* in plant biology. *Acta pharmaceutica sinica B*, 7(3), 292-302. <https://doi.org/10.1016/j.apsb.2017.01.002>

- Marraffini, L.A. and Sontheimer, E.J., 2008. CRISPR interference limits horizontal gene transfer in *Staphylococci* by targeting DNA. *science*, 322(5909), 1843-1845. <https://doi.org/10.1126/science.1165771>
- Menon, V. and Povirk, L.F., 2016. End-processing nucleases and phosphodiesterases: An elite supporting cast for the non-homologous end joining pathway of DNA double-strand break repair. *DNA repair*, 43, 57-68. <https://doi.org/10.1016/j.dnarep.2016.05.011>
- Mojica, F.J., Díez-Villaseñor, C.S., García-Martínez, J. and Soria, E., 2005. Intervening sequences of regularly spaced prokaryotic repeats derive from foreign genetic elements. *Journal of molecular evolution*, 60, 174-182. <https://doi.org/10.1007/s00239-004-0046-3>
- Motes, M.R., 1997. *Vandas: their botany, history, and culture*, 140.
- Murray, M.G. and Thompson, W., 1980. Rapid isolation of high molecular weight plant DNA. *Nucleic acids research*, 8(19), 4321-4326.
- Nakano, Y., 2017. Effect of asetosiringon on *Agrobacterium*-mediated transformation of *Eustoma grandiflorum* leaf disks. *Japan Agricultural Research Quarterly: JARQ*, 51(4), 351-355. <https://doi.org/10.6090/jarq.51.351>
- Niazian, M., Noori, S.S., Galuszka, P. and Mortazavian, S.M.M., 2017. Tissue culture-based *Agrobacterium*-mediated and in Planta transformation methods. *Czech J. Genet. Plant Breed*, 53 (4), 133-143. <https://doi.org/10.17221/177/2016-cjgpb>
- Niu, Y., Chen, T., Zhao, C. and Zhou, M., 2021. Improving crop lodging resistance by adjusting plant height and stem strength. *Agronomy*, 11(12), 2421. <https://doi.org/10.3390/agronomy11122421>
- Nopitasari, S. Rekayasa Genetik Anggrek Bulan (*Phalaenopsis amabilis* (L.) Blume) dengan CRISPR/Cas9 Genome Editing System. Tesis. 2019. Universitas Gadjah Mada. ETD Repository UGM.
- Nopitasari, S., Setiawati, Y., Lawrie, M.D., Purwantoro, A., Widada, J., Sasongko, A.B., Yoshioka, Y., Matsumoto, S., Ninomiya, K., Asano, Y. and Semiarti, E., 2020, September. Development of an *Agrobacterium*-delivered CRISPR/Cas9 for *Phalaenopsis amabilis* (L.) Blume genome editing system. In *AIP Conference Proceedings*, 2260(1). AIP Publishing. <https://doi.org/10.1063/5.0015868>
- Oung, H.M., Lin, K.C., Wu, T.M., Chandrika, N.N.P. and Hong, C.Y., 2015. Hygromycin B-induced cell death is partly mediated by reactive oxygen species in rice (*Oryza sativa* L.). *Plant molecular biology*, 89(6), 577-588. <https://doi.org/10.1007/s11103-015-0380-4>
- Peng, J., Carol, P., Richards, D.E., King, K.E., Cowling, R.J., Murphy, G.P. and Harberd, N.P., 1997. The *Arabidopsis* GAI gene defines a signaling

- pathway that negatively regulates gibberellin responses. *Genes & development*, 11(23), 3194-3205. <https://doi.org/10.1101/gad.11.23.3194>
- Petty, L.M., Harberd, N.P., Carré, I.A., Thomas, B. and Jackson, S.D., 2003. Expression of the *Arabidopsis gai* gene under its own promoter causes a reduction in plant height in chrysanthemum by attenuation of the gibberellin response. *Plant Science*, 164(2), 175-182. [https://doi.org/10.1016/s0168-9452\(02\)00380-1](https://doi.org/10.1016/s0168-9452(02)00380-1)
- Pourcel, C., Salvignol, G. and Vergnaud, G., 2005. CRISPR elements in *Yersinia pestis* acquire new repeats by preferential uptake of bacteriophage DNA, and provide additional tools for evolutionary studies. *Microbiology*, 151(3), 653-663. <https://doi.org/10.1099/mic.0.27437-0>
- Pridgeon, A.M., P.J. Cribb, M.C. Chase and F.N. Rasmussen. 2014. *Genera Orchidacearum*, Vol. 6. Oxford University Press, New York, Oxford.
- Puspasari, R.R., Rosyidi, I.N., Ningrum, E.F.C. and Semiarti, E., 2018. Pengaruh pepton terhadap pertumbuhan embrio anggrek *Vanda tricolor* Lindley var. *suavis* asal merapi secara *in vitro*. *Scripta Biologica*. <https://doi.org/10.20884/1.sb.2018.5.1.762>
- Putri, S.U., Linggabuwana, A., Kurniawan, F.Y., Lawrie, M.D. and Semiarti, E., 2023, May. Morphological and Molecular Characterization of Variegated-Leaf Pattern in *Dendrobium* 'Burana Green' Based on the Structure of VAR2 Gene. In *3rd International Conference on Smart and Innovative Agriculture (ICoSIA 2022)*. 524-539. Atlantis Press. https://doi.org/10.2991/978-94-6463-122-7_50
- Rajagopal, M., Reddy, C.N., Prasuna, V.S., Lakshmi, P.C. and Srinivas, B., 2025. Optimization of *Agrobacterium tumefaciens*-mediated Transformation in *Oxalis corniculata* (L.). *Agricultural Science Digest*, 45(4), 620-625. <https://doi.org/10.18805/ag.d-5557>
- Reddy, B.R., Ekambaram, B., Laxmi, P.J., Harikrishna, C.H., Bhattacharya, T.K. and Sushma, G., 2024. CRISPR/Cas genome editing single guide RNA (sgRNA) design using three different web tool platforms. *Indian Journal of Animal Research*, 58(1), 13-20. <https://doi.org/10.18805/ijar.b-5200>
- Royal Botanic Garden Edinburgh: *Living Collection - Accession 19281015*. 2018. diakses tanggal 12 April 2025, pukul 10.45 WIB. https://data.rbge.org.uk/search/livingcollection/?cfg=allacc.cfg&acc_num=19281015
- Ruzin, S.E., 1999. Plant microtechnique and microscopy (Vol. 198, p. 322). New York: Oxford University Press. <https://doi.org/10.1006/anbo.2000.1231>

- Samanta, M.K., Dey, A. and Gayen, S., 2016. CRISPR/*Cas9*: an advanced tool for editing plant genomes. *Transgenic research*, 25, 561-573. <https://doi.org/10.1007/s11248-016-9953-5>
- Sambrook J., and D. W. Russel. 2001. *Molecular Cloning A Laboratory Manual*. 3rd ed., New York, United State of America: Cold Spring Harbor Laboratory Pr. <https://doi.org/10.1002/abio.370050118>
- Sapranaukas, R., Gasiunas, G., Fremaux, C., Barrangou, R., Horvath, P. and Siksnys, V., 2011. The *Streptococcus thermophilus* CRISPR/Cas system provides immunity in *E. coli*. *Nucleic acids research*, 39(21), 9275-9282. <https://doi.org/10.1093/nar/gkr606>
- Schimpl, S., Fauser, F. and Puchta, H., 2014. The CRISPR/C as system can be used as nuclease for in planta gene targeting and as paired nickases for directed mutagenesis in *Arabidopsis* resulting in heritable progeny. *The Plant Journal*, 80(6), 1139-1150. <https://doi.org/10.1111/tpj.12704>
- Semiarti, E., Purwantoro, A., Dwiyani, R., Lestari, E.S. and Swandari, T., 2009, July. Perbandingan karakter morfologi dan molekuler *Vanda tricolor* Lindl. var *suavis* forma Merapi dan *Vanda tricolor* Lindl. var *suavis* forma Bali. In *Proceeding of Seminar Nasional Biologi XX dan Kongres PBI XIV UIN Maliki Malang*, 277-281.
- Semiarti, E., 2014. Metode peningkatan efisiensi transformasi genetik ke tanaman anggrek *Phalaenopsis amabilis* dengan prekultur biji pada media dengan suplemen ekstrak tomat dan air kelapa. Paten Indonesia No. IDP000036164. Direktorat Jenderal Hak Kekayaan Intelektual, Kementerian Hukum dan Hak Asasi Manusia Republik Indonesia.
- Semiarti, E., Indrianto, A., Purwantoro, A., Machida, Y. and Machida, C., 2011. *Agrobacterium*-mediated transformation of Indonesian orchids for micropropagation. *Genetic Transformation*, 215-240.
- Semiarti, E., Indrianto, A., Purwantoro, Y.H., Martiwi, I.N.A., Feroniasanti, Y.M.L., Nadifah, F., Mercuriana, I.S., Dwiyani, R., Iwakawa, H., Yoshioka, Y. and Machida, Y., 2010. High-frequency genetic transformation of *Phalaenopsis amabilis* orchid using tomato extract-enriched medium for the pre-culture of Protokorms. *The Journal of Horticultural Science and Biotechnology*, 85(3), 205-210. <https://doi.org/10.5772/24997>
- Semiarti, E., Nopitasari, S., Setiawati, Y., Lawrie, M.D., Purwantoro, A., Widada, J., Yoshioka, Y., Matsumoto, S., Ninomiya, K. and Asano, Y., 2020. Application of CRISPR/*Cas9* genome editing system for molecular breeding of orchids. *Indonesian Journal of Biotechnology*, 25(1), 61-68. <https://doi.org/10.22146/ijbiotech.39485>
- Semiarti, E., Perdana, N.G.A., Rozikin, R. and Kurniawan, F.Y., 2020. In vitro culture and characterization of the *HSP70* gene on *Vanda tricolor* Lindley

- var. *Suavis* 'Queen Maxima'. In *BIO web of conferences*, 28, 03004. EDP Sciences. <https://doi.org/10.1051/bioconf/20202803004>
- Setiawati, Y., Nopitasari, S., Lawrie, M.D., Purwantoro, A., Widada, J., Sasongko, A.B., Ninomiya, K., Asano, Y., Matsumoto, S., Yoshioka, Y. and Semiarti, E., 2020, September. *Agrobacterium*-mediated transformation facilitates the CRISPR/Cas9 genome editing system in *Dendrobium macrophyllum* A. Rich orchid. In *AIP Conference Proceedings*, 2260 (1). AIP Publishing. <https://doi.org/10.1063/5.0016200>
- Setyawati, A., Samanhudi, Hartati, S., Gusniar, N., Fathin, T. and Prihanto, J.K., 2024. In vitro application of kinetin and tomato extract on orchid growth of *Dendrobium stratiotes*. *Annals of Biology*, 40(2), 211-218. <https://doi.org/10.1088/1755-1315/1165/1/012019>
- Shrestha, B.R., Chin, D.P., Tokuhara, K. and Mii, M., 2007. Efficient production of transgenic plants of *Vanda* through sonication-assisted *Agrobacterium*-mediated transformation of Protokorm-like bodies. *Plant Biotechnology*, 24(4), 429-434. <https://doi.org/10.5511/plantbiotechnology.24.429>
- Soares, J.S., Rosa, Y.B., Suzuki, R.M., Scalón, S.P. and Rosa Junior, E.J., 2013. Cultivo in vitro de *Dendrobium nobile* com uso de água de coco no meio de cultura. *Horticultura Brasileira*, 31(1), 63-67. <https://doi.org/10.1590/s0102-05362013000100010>
- Sprink, M. J., Menz, J., Modrzejewski, D. and Sprink, T., 2019. DNA-free genome editing: past, present and future. *Frontiers in plant science*, 9, 1957. <https://doi.org/10.3389/fpls.2018.01957>
- Subchan AN, Nopitasari S, Setiawati Y, Zubaidah L, Nikmah N, Lawrie MD, Sasongko AB, Matsumoto S, Yoshioka Y, Semiarti E (2022) *Agrobacterium*-mediated transformation by using immerse and agroinfiltration method for genome editing of orchids with CRISPR/Cas9. *Acta Horti* 1:263–272. <https://doi.org/10.17660/actahortic.2022.1334.32>
- Sun, T.P., 2011. The molecular mechanism and evolution of the GA–GID1–DELLA signaling module in plants. *Current Biology*, 21(9), R338-R345. <https://doi.org/10.1016/j.cub.2011.02.036>
- Tomlinson, L., Yang, Y., Emenecker, R., Smoker, M., Taylor, J., Perkins, S., Smith, J., MacLean, D., Olszewski, N.E. and Jones, J.D., 2019. Using CRISPR/Cas9 genome editing in tomato to create a gibberellin-responsive dominant dwarf DELLA allele. *Plant biotechnology journal*, 17(1), 132-140. <https://doi.org/10.1111/pbi.12952>
- Utami, E.S.W. and Hariyanto, S., 2019. In vitro seed germination and seedling development of a rare Indonesian native orchid *Phalaenopsis amboinensis* JJ Sm. *Scientifica*, 2019(1), 8105138.

- Utami, E.S.W., Hariyanto, S. and Manuhara, Y.S.W., 2017. In vitro propagation of the endangered medicinal orchid, *Dendrobium lasianthera* JJ Sm through mature seed culture. *Asian Pacific Journal of Tropical Biomedicine*, 7(5), 406-410. <https://doi.org/10.1155/2019/8105138>
- Wang, H., Guo, J., Chen, X. and He, H., 2023. The metabolomics changes in Luria–Bertani broth medium under different sterilization methods and their effects on *Bacillus* growth. *Metabolites*, 13(8), 958. <https://doi.org/10.3390/metabo13080958>
- Wang, H., Li, J., Liu, Z. and Wang, D., 2022. Dwarf phenotype induced by overexpression of a GAI1-like gene from *Rhus chinensis*. *Plant Cell, Tissue and Organ Culture (PCTOC)*, 151(3), 617-629. <https://doi.org/10.1007/s11240-022-02376-4>
- Woodman, M.E., Savage, C.R., Arnold, W.K. and Stevenson, B., 2016. Direct PCR of intact bacteria (colony PCR). *Current protocols in microbiology*, 42(1), A-3D. <https://doi.org/10.1002/cpmc.14>
- Xie, K., Minkenberg, B., & Yang, Y. 2015. Boosting CRISPR/Cas9 multiplex editing capability with the endogenous tRNA-processing system. *Proceedings of the National Academy of Sciences of the United States of America*, 112(11), 3570–3575. <https://doi.org/10.1073/pnas.1420294112>
- Xue, H., Gao, X., He, P. and Xiao, G., 2022. Origin, evolution, and molecular function of DELLA proteins in plants. *The Crop Journal*, 10(2), 287-299. <https://doi.org/10.1016/j.cj.2021.06.005>
- Yao, S., Peng, J., Hu, M., Zhou, Q. and Zhao, X., 2024. Genome-Wide Profiling of the *ACTIN* Gene Family and Its Implications for Agronomic Traits in *Brassica napus*: A Bioinformatics Study. *International Journal of Molecular Sciences*, 25(19), 10752. <https://doi.org/10.3390/ijms251910752>
- Yeung, E.C., 2017. A perspective on orchid seed and Protocorm development. *Botanical studies*, 58(1), 33. <https://doi.org/10.1186/s40529-017-0188-4>
- Yeung, E.C., 2022. The orchid embryo - “An embryonic Protocorm”. *Botany*, 100(9), 691-706. <https://doi.org/10.1139/cjb-2022-0017>
- Yong, J.W., Ge, L., Ng, Y.F. and Tan, S.N., 2009. The chemical composition and biological properties of coconut (*Cocos nucifera* L.) water. *Molecules*, 14(12), 5144-5164. <https://doi.org/10.3390/molecules14125144>
- Youssef, M., Valdez-Ojeda, R., Ku-Cauich, J.R. and Escobedo-Gracia Medrano, R.M., 2015. Enhanced protocol for isolation of plant genomic DNA. *Journal of Agriculture and Environmental Sciences*, 4(2), 172-180. <https://doi.org/10.15640/jaes.v4n2a20>

- Zhu, L.H., Li, X.Y. and Welander, M., 2008. Overexpression of the *Arabidopsis gai* gene in apple significantly reduces plant size. *Plant cell reports*, 27, 289-296. <https://doi.org/10.1007/s00299-007-0462-0>
- Zubaidah, L., Setiawati, Y., Nopitasari, S., Lawrie, M.D., Sasongko, A.B., Purwanto, A., Widada, J., Ninomiya, K., Asano, Y., Matsumoto, S. and Yoshioka, Y., 2021, July. Establishment of CRISPR/*Cas9* genome editing system in Indonesian orchid *Dendrobium lineale* Rolfe. In *II International Symposium on Tropical and Subtropical Ornamentals 1334*, 205-214. <https://doi.org/10.17660/actahortic.2022.1334.25>