Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk
Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Almeida, J., Carpenter, R., Robbins, T. P., Martin, C., & Coen^, E. S. (1989). *Genetic interactions underlying flower color patterns in Antirrhinum mafus*.

Arobaya, A. Y. S. (2022). Variasi Morfologi Bunga Anggrek Bulan Hybrida *Phalaenopsis*amabilis: Analisa Karakter dengan Pendekatan Numerik. *Biota : Jurnal Ilmiah Ilmu-Ilmu Hayati*, 70–85. https://doi.org/10.24002/biota.v7i1.4207

Barsberg, S., Rasmussen, H. N., & Kodah, N. (2013). Composition of cypripedium calceolus (Orchidaceae) seeds analyzed by attenuated total reflectance ir spectroscopy: In search of understanding longevity in the ground. *American Journal of Botany*, *100*(10), 2066–2073. https://doi.org/10.3732/ajb.1200646

Beeber, D., & Chain, F. J. (2019). *CrispRdesignR: A Versatile Guide RNA Design Package in R for CRISPR/Cas9 Applications*. https://doi.org/10.1101/805630

Biosynthesis, F., & Winkel-Shirley, B. (2001). *Update on Flavonoid Biosynthesis A Colorful Model for Genetics, Biochemistry, Cell Biology, and Biotechnology 1*. www.plantphysiol.org

Brunello, L., Polverini, E., Lauria, G., Landi, M., Guidi, L., Loreti, E., & Perata, P. (2024). Root photosynthesis prevents hypoxia in the epiphytic orchid *Phalaenopsis*. *Functional Plant Biology*, *51*(3). https://doi.org/10.1071/FP23227

Budaya, M. S., Mursyanti, E., & Yuda, P. (2022). Transformasi Genetik pada Kalus Embriogenik Tanaman Suku Rubiaceae. *Biota : Jurnal Ilmiah Ilmu-Ilmu Hayati*, 94–107. https://doi.org/10.24002/biota.v7i2.5550

Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk
Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Chao, Y. T., Chen, W. C., Chen, C. Y., Ho, H. Y., Yeh, C. H., Kuo, Y. T., Su, C. L., Yen, S. H., Hsueh, H. Y., Yeh, J. H., Hsu, H. L., Tsai, Y. H., Kuo, T. Y., Chang, S. Bin, Chen, K. Y., & Shih, M. C. (2018). Chromosome-level assembly, genetic and physical mapping of *Phalaenopsis* aphrodite genome provides new insights into species adaptation and resources for orchid breeding. *Plant Biotechnology Journal*, *16*(12), 2027–2041. https://doi.org/10.1111/pbi.12936

Chaparro, J. X., Werner, D. J., Whetten, R. W., & O'malley, D. M. (1995). Characterization of an Unstable Anthocyanin Phenotype and Estimation of Somatic Mutation Rates in Peach. In *Journal of Heredity* (Vol. 86).

Chen, Q., Zhang, R., Li, D., & Wang, F. (2021). Transcriptomic and coexpression network analyses revealed pine chalcone synthase genes associated with pine wood nematode infection. *International Journal of Molecular Sciences*, *22*(20). https://doi.org/10.3390/ijms222011195

Chen, Y., Mao, Y., Liu, H., Yu, F., Li, S., & Yin, T. (2014a). Transcriptome analysis of differentially expressed genes relevant to variegation in peach flowers. *PLoS ONE*, *9*(3). https://doi.org/10.1371/journal.pone.0090842

Chen, Y., Mao, Y., Liu, H., Yu, F., Li, S., & Yin, T. (2014b). Transcriptome analysis of differentially expressed genes relevant to variegation in peach flowers. *PLoS ONE*, *9*(3). https://doi.org/10.1371/journal.pone.0090842

Chen, Y., Mao, Y., Liu, H., Yu, F., Li, S., & Yin, T. (2014c). Transcriptome analysis of differentially expressed genes relevant to variegation in peach flowers. *PLoS ONE*, *9*(3). https://doi.org/10.1371/journal.pone.0090842

UNIVERSITAS GADJAH MADA
Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Dao, T. T. H., Linthorst, H. J. M., & Verpoorte, R. (2011). Chalcone synthase and its functions in plant resistance. *Phytochemistry Reviews*, *10*(3), 397–412. https://doi.org/10.1007/s11101-011-9211-7

Doench, J. G., Fusi, N., Sullender, M., Hegde, M., Vaimberg, E. W., Donovan, K. F., Smith, I., Tothova, Z., Wilen, C., Orchard, R., Virgin, H. W., Listgarten, J., & Root, D. E. (2016). Optimized sgRNA design to maximize activity and minimize off-target effects of CRISPR-Cas9. *Nature Biotechnology*, *34*(2), 184–191. https://doi.org/10.1038/nbt.3437

Dressler, R. L. . (1993). *Phylogeny and classification of the orchid family*. Dioscorides Press.

Dwiyani, R., Yuswanti, H., Sartika Mercuriani, I., & Semiarti, D. E. (2016). Transformasi Gen Pembungaan melalui Agrobacterium tumefaciens Secara In-Vitro pada Tanaman Anggrek Vanda tricolor. In *AGROTROP* (Vol. 6, Issue 1).

Fauziah, mah, Arifin Aziz, S., & Sukma, D. (2014a). Karakterisasi Morfologi Anggrek *Phalaenopsis* spp. Spesies Asli Indonesia Morphology Characterization of Indonesia *Phalaenopsis* spp. Species. In *Bul. Agrohorti* (Vol. 2, Issue 1).

Fauziah, mah, Arifin Aziz, S., & Sukma, D. (2014b). Karakterisasi Morfologi Anggrek *Phalaenopsis* spp. Spesies Asli Indonesia Morphology Characterization of Indonesia *Phalaenopsis* spp. Species. In *Bul. Agrohorti* (Vol. 2, Issue 1).

Feng, Y., Kou, X., Yuan, S., Wu, C., Zhao, X., Xue, Z., Li, Q., Huang, Z., & Sun, Y. (2023). CRISPR/Cas9-mediated SNAC9 mutants reveal the positive regulation of tomato ripening by SNAC9 and the mechanism of carotenoid metabolism regulation. *Horticulture Research*, *10*(4). https://doi.org/10.1093/hr/uhad019

UNIVERSITAS GADJAH MADA
Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Furqi Sholekhatun Sityardi, & Sufi Desrini. (2021). Potential of orchid as antifungal agent resources: a scoping review. *Indonesian Journal of Pharmacology and Therapy*, *2*(3). https://doi.org/10.22146/ijpther.2325

Ghasemzadeh, A., Jaafar, H. Z. E., & Karimi, E. (2012). Involvement of salicylic acid on antioxidant and anticancer properties, anthocyanin production and chalcone synthase activity in ginger (zingiber officinale roscoe) varieties. *International Journal of Molecular Sciences*, *13*(11), 14828–14844. https://doi.org/10.3390/ijms131114828

Green, M. R., & Sambrook, J. (2019). Analysis of DNA by agarose gel electrophoresis. *Cold Spring Harbor Protocols*, *2019*(1), 6–15. https://doi.org/10.1101/pdb.top100388

Guo, J., Zeng, L., Chen, H., Ma, C., Tu, J., Shen, J., Wen, J., Fu, T., & Yi, B. (2022). CRISPR/Cas9-Mediated Targeted Mutagenesis of BnaCOL9 Advances the Flowering Time of Brassica napus L. *International Journal of Molecular Sciences*, *23*(23). https://doi.org/10.3390/ijms232314944

Handayani, T. T., & Pramono, E. (2022). Quantitative and Descriptive Paradermal Anatomy of Dendrobium discolour and *Phalaenopsis* amabilis Orchid Leaves. *Jurnal Ilmiah Biologi Eksperimen Dan Keanekaragaman Hayati (J-BEKH)*, *9*(2), 84–90. https://doi.org/10.23960/jbekh.v9i2.216

Hsiao, Y. Y., Tsai, W. C., Kuoh, C. S., Huang, T. H., Wang, H. C., Wu, T. S., Leu, Y. L., Chen, W. H., & Chen, H. H. (2006). Comparison of transcripts in *Phalaenopsis* bellina and *Phalaenopsis* equestris (Orchidaceae) flowers to deduce monoterpene biosynthesis pathway. *BMC Plant Biology*, *6*. https://doi.org/10.1186/1471-2229-6-14

UNIVERSITAS GADJAH MADA
Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Hsu, C. C., Chen, Y. Y., Tsai, W. C., Chen, W. H., & Chen, H. H. (2015). Three R2R3-MYB transcription factors regulate distinct floral pigmentation patterning in *Phalaenopsis* spp. *Plant Physiology*, *168*(1), 175–191. https://doi.org/10.1104/pp.114.254599

Huang, J. Z., Lin, C. P., Cheng, T. C., Huang, Y. W., Tsai, Y. J., Cheng, S. Y., Chen, Y. W., Lee, C. P., Chung, W. C., Chang, B. C. H., Chin, S. W., Lee, C. Y., & Chen, F. C. (2016). The genome and transcriptome of *Phalaenopsis* yield insights into floral organ development and flowering regulation. *PeerJ*, *2016*(5). https://doi.org/10.7717/peerj.2017

Hwang, S. J., & Jeong, B. R. (2007). Growth of *Phalaenopsis* Plants in Five Different Potting Media. In *J. Japan. Soc. Hort. Sci* (Vol. 76, Issue 4). www.jstage.jst.go.jp/browse/jjshsJSHS©2007

Jaakola, L. (2013). New insights into the regulation of anthocyanin biosynthesis in fruits. *Trends in Plant Science*, *18*(9), 477–483. https://doi.org/10.1016/j.tplants.2013.06.003

Jez, J. M., & Noel, J. P. (2000). Mechanism of chalcone synthase: pK a of the catalytic cysteine and the role of the conserved histidine in a plant polyketide synthase. *Journal of Biological Chemistry*, *275*(50), 39640–39646. https://doi.org/10.1074/jbc.M008569200

Kaur, M., Manchanda, P., Kalia, A., Ahmed, F. K., Nepovimova, E., Kuca, K., & Abd-Elsalam, K. A. (2021). Agroinfiltration mediated scalable transient gene expression in genome edited crop plants. In *International Journal of Molecular Sciences* (Vol. 22, Issue 19). MDPI. https://doi.org/10.3390/ijms221910882

Ko, Y. Z., Shih, H. C., Tsai, C. C., Ho, H. H., Liao, P. C., & Chiang, Y. C. (2017). Screening transferable microsatellite markers across genus *Phalaenopsis* (Orchidaceae). *Botanical Studies*, *58*(1). https://doi.org/10.1186/s40529-017-0200-z

UNIVERSITAS GADJAH MADA
Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Koes, R. E., Van Blokland, R., Quattrocchio, F., Van Tunen, A. J., & Moi, J. N. M. (1990). Chalcone Synthase Promoters in Petunia Are Active in Pigmented and Unpigmented Cell Types. In *The Plant Cell* (Vol. 2). American Society of Plant Physiologists.

Koseki, M., Goto, K., Masuta, C., & Kanazawa, A. (2005). The star-type color pattern in Petunia hybrida “Red Star” flowers is induced by sequence-specific degradation of chalcone synthase RNA. *Plant and Cell Physiology*, *46*(11), 1879–1883. https://doi.org/10.1093/pcp/pci192

Kuckuck, H. (1936). Über vier neue Serien multipler Allele beiAntirrhinum majus. *Zeitschrift Für Induktive Abstammungs- Und Vererbungslehre*, *71*(1), 429–440. https://doi.org/10.1007/BF01848877

Labun, K., Krause, M., Torres Cleuren, Y., & Valen, E. (2021). CRISPR Genome Editing Made Easy Through the CHOPCHOP Website. *Current Protocols*, *1*(4). https://doi.org/10.1002/cpz1.46

Labun, K., Montague, T. G., Gagnon, J. A., Thyme, S. B., & Valen, E. (2016). CHOPCHOP v2: a web tool for the next generation of CRISPR genome engineering. *Nucleic Acids Research*, *44*(W1), W272–W276. https://doi.org/10.1093/NAR/GKW398

Lin, C. S., Hsu, C. T., Liao, D. C., Chang, W. J., Chou, M. L., Huang, Y. T., Chen, J. J. W., Ko, S. S., Chan, M. T., & Shih, M. C. (2016). Transcriptome-wide analysis of the MADS-box gene family in the orchid Erycina pusilla. *Plant Biotechnology Journal*, *14*(1), 284–298. https://doi.org/10.1111/pbi.12383

Linggabuwana, A., Usni Putri, S., Yuda Kurniawan, F., & Semiarti, E. (2024). *Isolation and Characterization of Chalcone Synthase (CHS) Gene in Variegated-Flower of Dendrobium “Enobi” and Phalaenopsis Hybrid Orchids*.

UNIVERSITAS GADJAH MADA
Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Liou, G., Chiang, Y. C., Wang, Y., & Weng, J. K. (2018). Mechanistic basis for the evolution of chalcone synthase catalytic cysteine reactivity in land plants. *Journal of Biological Chemistry*, *293*(48), 18601–18612. https://doi.org/10.1074/jbc.RA118.005695

Liu, H., Wei, Z., Dominguez, A., Li, Y., Wang, X., & Qi, L. S. (2015). CRISPR-ERA: A comprehensive design tool for CRISPR-mediated gene editing, repression and activation. *Bioinformatics*, *31*(22), 3676–3678. https://doi.org/10.1093/bioinformatics/btv423

Liu, Q., Yang, F., Zhang, J., Liu, H., Rahman, S., Islam, S., Ma, W., & She, M. (2021). Application of crispr/cas9 in crop quality improvement. In *International Journal of Molecular Sciences* (Vol. 22, Issue 8). MDPI. https://doi.org/10.3390/ijms22084206

Ma, X., Zhu, Q., Chen, Y., & Liu, Y. G. (2016). CRISPR/Cas9 Platforms for Genome Editing in Plants: Developments and Applications. In *Molecular Plant* (Vol. 9, Issue 7, pp. 961–974). Cell Press. https://doi.org/10.1016/j.molp.2016.04.009

Matsuo, K., Fukuzawa, N., & Matsumura, T. (2016). A simple agroinfiltration method for transient gene expression in plant leaf discs. *Journal of Bioscience and Bioengineering*, *122*(3), 351–356. https://doi.org/10.1016/j.jbiosc.2016.02.001

Minh, T. N., Khang, D. T., Tuyen, P. T., Minh, L. T., Anh, L. H., Van Quan, N., Ha, P. T. T., Quan, N. T., Toan, N. P., Elzaawely, A. A., & Xuan, T. D. (2016). Phenolic compounds and antioxidant activity of *Phalaenopsis* orchid hybrids. *Antioxidants*, *5*(3). https://doi.org/10.3390/antiox5030031

Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk
Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Moreno-Mateos, M. A., Vejnar, C. E., Beaudoin, J. D., Fernandez, J. P., Mis, E. K., Khokha, M. K., & Giraldez, A. J. (2015). CRISPRscan: Designing highly efficient sgRNAs for CRISPR-Cas9 targeting in vivo. *Nature Methods*, *12*(10), 982–988. https://doi.org/10.1038/nmeth.3543

Murray, M. G., & Thompson, W. F. (1980). Rapid isolation of high molecular weight plant DNA. *Nucleic Acids Research*, *8*(19), 4321–4326. https://doi.org/10.1093/nar/8.19.4321

Nishihara, M., Higuchi, A., Watanabe, A., & Tasaki, K. (2018). Application of the CRISPR/Cas9 system for modification of flower color in Torenia fournieri. *BMC Plant Biology*, *18*(1). https://doi.org/10.1186/s12870-018-1539-3

Nonaka, S., Someya, T., Kadota, Y., Nakamura, K., & Ezura, H. (2019). Super-Agrobacterium ver. 4: Improving the Transformation Frequencies and Genetic Engineering Possibilities for Crop Plants. *Frontiers in Plant Science*, *10*. https://doi.org/10.3389/fpls.2019.01204

Nopitasari, S., Setiawati, Y., Lawrie, M. D., Purwantoro, A., Widada, J., Sasongko, A. B., Yoshioka, Y., Matsumoto, S., Ninomiya, K., Asano, Y., & Semiarti, E. (2020). Development of an agrobacterium-delivered crispr/cas9 for *Phalaenopsis* amabilis (L.) blume genome editing system. *AIP Conference Proceedings*, *2260*. https://doi.org/10.1063/5.0015868

Norkunas, K., Harding, R., Dale, J., & Dugdale, B. (2018). Improving agroinfiltration-based transient gene expression in Nicotiana benthamiana. *Plant Methods*, *14*(1). https://doi.org/10.1186/s13007-018-0343-2

Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk
Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

NUGROHO, K., TERRYANA, R. T., & LESTARI, P. (2015). OPTIMASI METODE ISOLASI DNA PADA Jatropha spp. *JURNAL AGROTEKNOLOGI*, *5*(2), 15. https://doi.org/10.24014/ja.v5i2.1350

Ondzighi-Assoume, C. A., Willis, J. D., Ouma, W. K., Allen, S. M., King, Z., Parrott, W. A., Liu, W., Burris, J. N., Lenaghan, S. C., & Stewart, C. N. (2019). Embryogenic cell suspensions for high-capacity genetic transformation and regeneration of switchgrass (Panicum virgatum L.). *Biotechnology for Biofuels*, *12*(1). https://doi.org/10.1186/s13068-019-1632-3

Orchid Roots. (2008). *Phalaenopsis OX Queen, OX Orch. 2008 (RHS) Phalaenopsis Brother Success × Phalaenopsis Plum Rose*. https://orchidroots.com/display/summary/orchidaceae/100900103/?family=Orchidaceae&role=pub

Pangestu, F., Arifin Aziz, S., & Sukma, D. (2015). Karakterisasi Morfologi Anggrek *Phalaenopsis* Hibrida. *Jurnal Hortikultura Indonesia*, *5*(1), 29. https://doi.org/10.29244/jhi.5.1.29-35

Petrussa, E., Braidot, E., Zancani, M., Peresson, C., Bertolini, A., Patui, S., & Vianello, A. (2013). Plant flavonoids-biosynthesis, transport and involvement in stress responses. In *International Journal of Molecular Sciences* (Vol. 14, Issue 7, pp. 14950–14973). https://doi.org/10.3390/ijms140714950

Pinthong, R., Sujipuli, K., & Ratanasut, K. (2014). Agroinfiltration for transient gene expression in floral tissues of Dendrobium Sonia'Earsakul. In *Journal of Agricultural Technology* (Vol. 10, Issue 2). http://www.ijat-aatsea.com

Pramanik, D., Vaskimo, L., Batenburg, K. J., Kostenko, A., Droppert, K., Smets, E., & Gravendeel, B. (2024). Orchid fruit and root movement analyzed using 2D photographs and a bioinformatics pipeline for

Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk
Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

processing sequential 3D scans. *Applications in Plant Sciences*, *12*(1). https://doi.org/10.1002/aps3.11567

Puspitaningtyas, D. M., & Handini, E. (2021). Seed germination evaluation of *Phalaenopsis* amabilis in various media for long-term conservation. *Biodiversitas*, *22*(11), 5231–5238. https://doi.org/10.13057/biodiv/d221162

Rahman, R. N. Z. R. A., Zakaria, I. I., Salleh, A. B., & Basri, M. (2012). Enzymatic properties and mutational studies of chalcone synthase from physcomitrella patens. *International Journal of Molecular Sciences*, *13*(8), 9673–9691. https://doi.org/10.3390/ijms13089673

Rizko, N., Pancasakti Kusumaningrum, H., Siti Ferniah, R., Pujiyanto, S., Erfianti, T., Nurunnisa Mawarni, S., Tri Rahayu, H., & Khairunnisa, D. (2020). 6 Isolasi DNA Daun Jeruk Bali Merah (Citrus maxima Merr.) dengan Modifikasi Metode Doyle and Doyle. In *Berkala Bioteknologi* (Vol. 3, Issue 2).

Semiarti, E., Indrianto, A., Purwantoro, A., Martiwi, I. N. A., Feroniasanti, Y. M. L., Nadifah, F., Mercuriana, I. S., Dwiyani, R., Iwakawa, H., Yoshioka, Y., Machida, Y., & Machida, C. (2010). High-frequency genetic transformation of *Phalaenopsis* amabilis orchid using tomato extract-enriched medium for the pre-culture of protocorms. In *Journal of Horticultural Science & Biotechnology* (Issue 3).

Semiarti, E., Nopitasari, S., Setiawati, Y., Lawrie, M. D., Purwantoro, A., Widada, J., Ninomiya, K., Asano, Y., Matsumoto, S., & Yoshioka, 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

Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk
Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Semiarti, E., Purwantoro, A., & Purnomo. (2024). *Produk Planlet Tanaman Anggrek Dendrobium macrophylum dengan Metode Agroinfiltrasi* (Patent IDP000095582).

Sianipar, G. W. S., Sartini, S., & Riyanto, R. (2020). Isolasi dan Karakteristik Bakteri Endofit pada Akar Pepaya (Carica papaya L). *Jurnal Ilmiah Biologi UMA (JIBIOMA)*, *2*(2), 83–92. https://doi.org/10.31289/jibioma.v2i2.312

Silva-Campos, M., Nadiminti, P., & Cahill, D. (2022). Rapid and Accurate Detection of Gnomoniopsis smithogilvyi the Causal Agent of Chestnut Rot, through an Internally Controlled Multiplex PCR Assay. *Pathogens*, *11*(8). https://doi.org/10.3390/pathogens11080907

South, K. A., Thomas, P. A., van Iersel, M. W., Young, C., & Jones, M. L. (2017). Ice cube irrigation of potted *Phalaenopsis* orchids in bark media does not decrease display life. *HortScience*, *52*(9), 1271–1277. https://doi.org/10.21273/HORTSCI12212-17

Subchan, A. N., Nopitasari, S., Setiawati, Y., Zubaidah, L., Nikmah, N., Lawrie, M. D., Sasongko, A. B., 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 Horticulturae*, *1334*, 263–271. https://doi.org/10.17660/ActaHortic.2022.1334.32

Sukma, D., Handini, A. S., & Sudarsono. (2020). Isolation and characterization of chalcone synthase (Chs) gene from *Phalaenopsis* and doritaenopsis orchids. *Biodiversitas*, *21*(11), 5054–5064. https://doi.org/10.13057/biodiv/d211109

UNIVERSITAS GADJAH MADA
Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Sun, W., Meng, X., Liang, L., Jiang, W., Huang, Y., He, J., Hu, H., Almqvist, J., Gao, X., & Wang, L. (2015). Molecular and biochemical analysis of chalcone Synthase from freesia hybrid in flavonoid biosynthetic pathway. *PLoS ONE*, *10*(3). https://doi.org/10.1371/journal.pone.0119054

Suputri, N. P. A. E. O., Prasojo, I. S., Prabowo, L. A. T., Purwestri, Y. A., Purnomo, & Semiarti, E. (2024). Identification of early flowering mutant gene in *Phalaenopsis* amabilis (L.) Blume for sgRNA construction in CRISPR/Cas9 genome editing system. *Brazilian Journal of Biology*, *84*. https://doi.org/10.1590/1519-6984.268133

Suryani, R., & Sari, M. N. (2019). PENGGUNAAN BERBAGAI MACAM MEDIA TANAM DAN PEMBERIAN PUPUK ORGANIK CAIR PADA TAHAP AKLIMATISASI TERHADAP PERTUMBUHAN PLANLET ANGGREK BULAN (*Phalaenopsis* amabilisi) HASIL KULTUR JARINGAN. *Journal of Applied Agricultural Science and Technology*, *3*(1), 105–114. https://doi.org/10.32530/jaast.v3i1.63

Tasaki, K., Higuchi, A., Watanabe, A., Sasaki, N., & Nishihara, M. (2019). Effects of knocking out three anthocyanin modification genes on the blue pigmentation of gentian flowers. *Scientific Reports*, *9*(1). https://doi.org/10.1038/s41598-019-51808-3

Tong, C. G., Wu, F. H., Yuan, Y. H., Chen, Y. R., & Lin, C. S. (2020). High-efficiency CRISPR/Cas-based editing of *Phalaenopsis* orchid MADS genes. *Plant Biotechnology Journal*, *18*(4), 889–891. https://doi.org/10.1111/pbi.13264

UNIVERSITAS GADJAH MADA
Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Tsai, C. C., Chou, C. H., Wang, H. V., Ko, Y. Z., Chiang, T. Y., & Chiang, Y. C. (2015). Biogeography of the *Phalaenopsis* amabilis species complex inferred from nuclear and plastid DNAs. *BMC Plant Biology*, *15*(1). https://doi.org/10.1186/s12870-015-0560-z

Tsai, C. C., Huang, S. C., Huang, P. L., & Chou, C. H. (2003). Phylogeny of the genus *Phalaenopsis* (Orchidaceae) with emphasis on the subgenus *Phalaenopsis* based on the sequences of the internal transcribed spacers 1 and 2 of rDNA. *Journal of Horticultural Science and Biotechnology*, *78*(6), 879–887. https://doi.org/10.1080/14620316.2003.11511713

Uematsu, C., Katayama, H., Makino, I., Inagaki, A., Arakawa, O., & Martin, C. (2014). Peace, a MYB-like transcription factor, regulates petal pigmentation in flowering peach “Genpei” bearing variegated and fully pigmented flowers. *Journal of Experimental Botany*, *65*(4), 1081–1094. https://doi.org/10.1093/jxb/ert456

van Tongerlo, E., van Ieperen, W., Dieleman, J. A., & Marcelis, L. F. M. (2021). Vegetative traits can predict flowering quality in *Phalaenopsis* orchids despite large genotypic variation in response to light and temperature. *PLoS ONE*, *16*(5 May). https://doi.org/10.1371/journal.pone.0251405

Wang, D., & Fu, A. (2016). The Plastid Terminal Oxidase is a Key Factor Balancing the Redox State of Thylakoid Membrane. In *Enzymes* (Vol. 40, pp. 143–171). Academic Press. https://doi.org/10.1016/bs.enz.2016.09.002

Watanabe, K., Kobayashi, A., Endo, M., Sage-Ono, K., Toki, S., & Ono, M. (2017). CRISPR/Cas9-mediated mutagenesis of the dihydroflavonol-4-reductase-B (DFR-B) locus in the Japanese morning glory Ipomoea (Pharbitis) nil. *Scientific Reports*, *7*(1). https://doi.org/10.1038/s41598-017-10715-1

UNIVERSITAS GADJAH MADA
Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk Pembuatan Bunga Berpola Varigata
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Winkel-Shirley, B. (2002). Biosynthesis of flavonoids and effects of stress. *Current Opinion in Plant Biology*, *5*(3), 218–223. https://doi.org/10.1016/s1369-5266(02)00256-x

Wukir Tini, E., Sulistyanto, P., & Sumartono, G. H. (2019). Acclimatization of Orchid (Phalaepnopsis amabilis) with Different Plant Substrate and Giving of Leaf Fertilizer. *Jurnal Hortikultura Indonesia*, *10*(2), 119–127. https://doi.org/10.29244/jhi.10.2.119-127

Yan, R., Wang, Z., Ren, Y., Li, H., Liu, N., & Sun, H. (2019). Establishment of efficient genetic transformation systems and application of crispr/cas9 genome editing technology in lilium pumilum dc. Fisch. and lilium longiflorum white heaven. *International Journal of Molecular Sciences*, *20*(12). https://doi.org/10.3390/ijms20122920

Yang, Y., Wang, J., Ma, Z., Sun, G., & Zhang, C. (2014). De novo sequencing and comparative transcriptome analysis of white petals and red labella in *Phalaenopsis* for discovery of genes related to flower color and floral differentation. *Acta Societatis Botanicorum Poloniae*, *83*(3), 191–199. https://doi.org/10.5586/asbp.2014.023

Zhou, Z., Ying, Z., Wu, Z., Yang, Y., Fu, S., Xu, W., Yao, L., Zeng, A., Huang, J., Lan, S., Wang, X., & Liu, Z. (2021). Anthocyanin Genes Involved in the Flower Coloration Mechanisms of Cymbidium kanran. *Frontiers in Plant Science*, *12*. https://doi.org/10.3389/fpls.2021.737815

UNIVERSITAS
GADJAH MADA
**Penyuntingan Genom Tanaman Anggrek Phalaenopsis â€˜OX Queenâ€™ pada Gen CHS dengan CRISPR/Cas9 untuk
Pembuatan Bunga Berpola Varigata**
Elke Gildantia, Prof. Dr. Endang Semiarti, M.S., M.Sc. ;Prof. Dr. Ir. Aziz Purwantoro, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Zubaidah, L., Setiawati, Y., Nopitasari, S., Lawrie, M. D., Sasongko, A. B., Purwantoro, A., Widada, J., Ninomiya, K., Asano, Y., Matsumoto, S., Yoshioka, Y., & Semiarti, E. (2022). Establishment of CRISPR/Cas9 genome editing system in Indonesian orchid Dendrobium lineale Rolfe. *Acta Horticulturae*, *1334*, 205–213. https://doi.org/10.17660/ActaHortic.2022.1334.25