

DAFTAR PUSTAKA

- Angraini, W. 2006. Fusi dan Kultur protoplas Kacang Hijau dengan Jenis Liarnya. *Jurnal Dinamika Pertanian*, XXI (2): 79–81.
- Assagaf, M. H. 2012. *1001 Spesies Anggrek yang Dapat Berbunga di Indonesia*. (T. M. Lestari, Ed.) (I). Jakarta: Kataelha : 224
- Aswini, L., Arunagirinathan, N., & Kavitha, M. 2014. Strain Improvement of *Pleurotus* Species by Protoplast Fusion. *International Journal of Advancements in Research & Technology*, 3(8): 32–38.
- Babaoúlu, M. 2000. Protoplast Isolation in Lupin (*Lupinus mutabilis* Sweet): Determination of Optimum Explant Sources and Isolation Conditions. *Turk J Bot*, 24: 177–185.
- Bayer, E. M., Mongrand, S., & Tilsner, J. 2014. Specialized membrane domains of plasmodesmata, plant intercellular nanopores. *Frontiers in Plant Science*, 5: 1–3.
- Beulah, D., Sunitha, E. M., & Srilakshmi, T. 2015. Production , Purification and Assay of Pectinase Enzyme From *Aspergillus niger*. *Helix*, 2: 673–677.
- BPS. 2014. Ekspor Impor tanaman hias tahun 2012. Perkembangan volume dan nilai ekspor impor tanaman anggrek. [internet] [Situs 18 November 2018]; Didapat Dari :<https://lokadata.beritagar.id/chart/preview/perkembangan-nilai-ekspor-dan-impor-anggrek-di-indonesia-1480502482>.
- Caffall, K. H., & Mohnen, D. 2009. The structure, function, and biosynthesis of plant cell wall pectic polysaccharides. *Carbohydrate Research*, 344(14): 1879–1900.
- Chakraborty, S. 2016. Protoplast Culture and Somatic Hybridization, a Promising Frontier of Plant Biotechnology. *JAST-a peer reviewed multidisciplinary research journal*, 02(01): 46–54.
- Chakraborty, U., & Sikdar, S. R. 2010. Intergeneric protoplast fusion between *Calocybe indica* (milky mushroom) and *Pleurotus florida* aids in the qualitative and quantitative improvement of sporophore of the milky mushroom. *World Journal of Microbiology and Biotechnology*, 26(2): 213–225.
- Chamani, e., & Tahami, s. K. 2014. How To Regenerate Plantlets From Protoplasts OF *Ritillaria imperialis*. *Scientific Papers. Series B, Horticulture.*, LVIII: 301–309.
- Chamani, E., Tahami, S. K., Zare, N., Zakaria, R. A., Mohebodini, M., & Joyce, D. 2012. Effect of different cellulase and pectinase enzyme treatments on protoplast isolation and viability in *Lilium ledebeourii* Bioss. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*, 40(2): 123–128.
- Charles, & Baker, M. 2014. Dendrobium Species Culture. [internet] [Situs 7 September 2018]; Didapat Dari: http://www.orchidculture.com/COD/FREE/Den_Art.html
- Christina E. N., Arunika L., Gunawardena, A. 2010. Isolation of Leaf Protoplasts from the Submerged Aquatic Monocot *Aponogeton madagascariensis*. *The Americas Journal of Plant Science and Biotechnology*, 4: 6–11.

- Clem, M.A. Jones, D.L. GBIF. (2013). *Dendrobium striaenopsis*. Free and open access to biodiversity data (GBIF), [internet] [Situs 14 Oktober 2013]; Didapat Dari: <http://www.gbif.org/species/5316438>
- Cove, D. J., Perroud, P. F., Charron, A. J., McDaniel, S. F., Khandelwal, A., & Quatrano, R. S. 2009. Somatic hybridization in the moss *Physcomitrella patens* using PEG-induced protoplast fusion. *Cold Spring Harbor Protocols*, 4(2): 6–9.
- Dana, M. N., & Lerner, B. R. 2002. A Guide to Flowering and Why Plants Fail to Bloom. *General Horticulture*, 173: 1–4.
- Djajanegara, I., & Masduki, A. 2010. Protoplast fusion between white and brown oyster mushrooms. *Indonesian Journal of Agricultural Science*, 11(1): 16–23.
- Dresselhaus, T., & Sprunck, S. 2012. Plant Fertilization: Maximizing Reproductive Success. *Current Biology*, 22 (12): 1–3.
- Easterbrook, S., Singer, J., Storey, M. A., & Damian, D. 2008. Selecting Empirical Methods for Software Engineering Research. In *Guide to Advanced Empirical Software Engineering*, 212: 285–311.
- Ecckhaut, T., Shankar, P., Deryckere, D., & Bockstaele, E. Van. 2013 Progress in plant protoplast research. *Planta*, 238 (6): 991–1003.
- Fenster, C. B., Armbruster, W. S., Wilson, P., Dudash, M. R., & Thomson, J. D. 2004. Pollination Syndromes and Floral Specialization. *Annual Review of Ecology, Evolution, and Systematics*, 35: 375–403.
- Fernandez Da Silva, R., & Menéndez Yuffá, A. 2006. Viability in protoplasts and cell suspensions of *Coffea arabica* cv. Catimor. *Electronic Journal of Biotechnology*, 9 (5): 593–597.
- Gajdová, J., Navrátilová, B., Smolná, J., Lebeda, A. 2007. Factors affecting protoplast isolation and cultivation of *Cucumis* spp. *Journal of Applied Botany and Food Quality*, 81: 1–6.
- Grzebelus, E., Szklarczyk, M., & Baranski, R. 2011. An improved protocol for plant regeneration from leaf- and hypocotyl-derived protoplasts of carrot. *Plant Cell Tiss Organ Cult* : 1- 9.
- Guo, J., Morrell-Falvey, J. L., Labbé, J. L., Muchero, W., Kalluri, U. C., Tuskan, G. A., & Chen, J. G. 2012. Highly Efficient Isolation of *Populus* Mesophyll Protoplasts and Its Application in Transient Expression Assays. *Plos One*, 7(9): 1–8.
- Guy, M., & Reinhold, L. 1978. Membrane transport of sugars and amino acids in isolated protoplasts. *Plant Physiology*, 61(4): 1–4.
- Harijati, N., & Chairiyah, N. 2009. Morfologi kristal kalsium oksalat pada *Amorphophallus campanulatus*. *Nasional, Seminar XX, Biologi Pbi, Kongres Uin, XIV Malang, Maliki*: 517–523.
- Hayat, S., & Christias, C. 2010. Isolation and fusion of protoplasts from the phytopathogenic fungus *Sclerotium rolfsii* (Sacc.). *Brazilian Journal of Microbiology*, 41(1): 253–263.
- Henuhili, V. 2009. Potensi Anggrek Spesies *Dendrobium* Asal Indonesia Sebagai Tanaman Induk Bunga Potong, Seminar Nasional Penelitian, Pendidikan, dan Penerapan MIPA UNY: 267–272.

- Heslop Harrison, J. S. 1992. The Angiosperm Stigma. Sexual Plant Reproduction *Departement of Cell Biology*: 41–48.
- Hotrawaisaya, C. 2014. The Logistics Collaboration in Supply Chain of Orchid Industry In Thailand, 3: 147–156.
- Huddy, S. M., Meyers, A. E., & Coyne, V. E. 2013. Protoplast isolation optimization and regeneration of cell wall in *Gracilaria gracilis* (Gracilariales, Rhodophyta). *Journal of Applied Phycology*, 25(2): 433–443.
- Humana, A. M., Cisternas, M. A., & Valdivia, C. E. 2008. Breeding system and pollination of selected orchids of the genus *Chloraea* (Orchidaceae) from central Chile. *Departamento de Ciencias Ecológicas, Facultad de Ciencias, Universidad de Chile*: 1–5.
- Huo, A., Chen, Z., Wang, P., Yang, L., Wang, G., Wang, D., Shi, J. 2017. Establishment of transient gene expression systems in protoplasts from *Liriodendron* hybrid mesophyll cells. *Plos One*, 12: 1–14.
- Jabnoune, M., Secco, D., Lecampion, C., Robaglia, C., Shu, Q., & Poirier, Y. 2015. An Efficient Procedure for Protoplast Isolation from Mesophyll Cells and Nuclear Fractionation in Rice, 5(5): 1–8
- Jersakova, J., Johnson, S. D., & Kindlmann, P. 2006. Mechanisms and evolution of deceptive pollination in orchids. *Biol. Rev. Cambridge Philosophical society, Printed in the United Kingdom*: 219–235.
- Jezek, Z. 2003. *The Complate Encyclopedia of Orchid* (first edit). Netherlands: Rebo International: 201. ISBN: 90 366 1589 5
- Johansen, B. O. 1990. Incompatibility in *Dendrobium* (Orchidaceae). *Botanical Journal of the Linnean Soczey*, 103: 165–196.
- Kanchanapoom, K., Jantaro, S., & Rakchad, D. 2001. Isolation and Fusion of Protoplasts from Mesophyll Cells of *Dendrobium Pompadour*. *Science Asia*, 27: 29–34.
- Kandemir, N., Celik, A., & Ermis, A. 2016. Comparative leaf and scape anatomy of some *Scilla* taxa in Turkey. *International Journal of Agriculture and Biology*, 18(5): 957–964.
- Kashyap, D. R., Vohra, P. K., Chopra, S., & Tewari, R. 2001. Applications of pectinases in the commercial sector: A review. *Bioresource Technology*, 77(3): 215–227.
- Khentry, Y., Paradornuvat, A., Tantiwiwat, S., Phansiri, S., & Niphone Thaveechai. 2006. Protoplast Isolation and Culture of *Dendrobium* Sonia “Bom 17.” *Kasetsart J.!(Nat. Sci.)*, 40: 361–369.
- Kim, J. B., Bergervoet, J. E. M., Raemakers, C. J. J. M., Jacobsen, E., & Visser, R. G. F. 2005. Isolation of protoplasts, and culture and regeneration into plants in Alstroemeria. *In Vitro Cellular & Developmental Biology - Plant*, 41(4): 505–510.
- Kumar, N. S., & Gurusubramanian, G. 2011. Random amplified polymorphic DNA (RAPD) markers and its applications. *Sci Vis*, 11(3): 116–124.

- Laimbeer, F. P. E., Holt, S. H., Makris, M., Hardigan, M. A., Robin Buell, C., & Veilleux, R. E. 2017. Protoplast isolation prior to flow cytometry reveals clear patterns of endoreduplication in potato tubers, related species, and some starchy root crops. *Plant Methods*, 13(1): 27.
- Lakhani, H. N., Vakharia, D. N., Hassan, M. M., & Eissa, R. A. 2016. Fingerprinting and molecular comparison among two parental strains of *Trichoderma* spp. and their corresponding fusants produced by protoplast fusion. *Biotechnology and Biotechnological Equipment*, 30(6): 1065–1074.
- Ling, A. P. K., Ong, C. P. L., Tee, C. S., & Hussein, S. 2009. Establishment of protoplast isolation protocols of *Orthosiphon Staminus*. *American-Eurasian Journal of Sustainable Agriculture*, 3(3): 587–596.
- Linton, S. M. 2004. Presence and properties of cellulase and hemicellulase enzymes of the gecarcinid land crabs *Gecarcoidea natalis* and *Discoplax hirtipes*. *Journal of Experimental Biology*, 207(23): 4095–4104.
- Liqing, Z., Bochu, W., Jing, Z., Lingxi, C., Chuanyun, D., & Chuanren, D. 2005. Protoplast isolation of callus in *Echinacea angustifolia*. *Colloids and Surfaces B: Biointerfaces*, 44: 1–5.
- Liu, J., Xu, X., & Deng, X. 2005. Intergeneric somatic hybridization and its application to crop genetic improvement. *Plant Cell, Tissue and Organ Culture*, 82(1): 19–44.
- Liu, Z. J., Chen, L. J., Liu, K. W., Li, L. Q., Rao, W. H., Zhang, Y. T., Huang, L. Q. 2013. Adding perches for cross-pollination ensures the reproduction of a self-incompatible orchid. *Plos One*, 8(1): 1–8.
- Moshelion, M., Moran, N., & Chaumont, F. 2004. Dynamic changes in the osmotic water permeability of protoplast plasma membrane. *Plant Physiology*, 135: 2301–2317.
- Mukhtar, I., Bajwa, R., & Nasim, G. 2012. Isolation of Mesophyll Protoplasts from Leaves of *Dalbergia sissoo* Roxb. *J. Appl. Sci. Environ. Manage. March*, 16(1): 11–15.
- Nagasato, C., Inoue, A., Mizuno, M., Kanazawa, K., Ojima, T., Okuda, K., & Motomura, T. 2010. Membrane fusion process and assembly of cell wall during cytokinesis in the brown alga, *Silvetia babingtonii* (Fucales, Phaeophyceae). *Planta*, 232(2): 287–298.
- Narbona, E., Ortiz, P. L., & Arista, M. 2011. Linking self-incompatibility, dichogamy, and flowering synchrony in two euphorbia species: Alternative mechanisms for avoiding self-fertilization. *Plos One*, 6(6): 1-9
- Neekhra, B., Aa, M., Verma, S., & Rk, K. (2014). RAPD-PCR Based Biomarker Study in Fish Species (Family: Cyprinidae) of Madhya Pradesh, India. *Austin Journal of Molecular and Cellular Biology*, 1(1), 1–6.

- Nurmalinda., S. Kartikaningrum, N.Q. Hayati, dan D. Widiastoety. 2011. Preferensi konsumen terhadap anggrek Phalaenopsis, Vanda, dan Dendrobium. *J. Hort.* 21(4): 372-384.
- Oumer, O. J., & Abate, D. (2017). Characterization of Pectinase from *Bacillus subtilis* Strain Btk 27 and Its Potential Application in Removal of Mucilage from Coffee Beans. *Enzyme Research*: 1-7.
- Panda, S., Sahoo, K., Das, R., & Dhal, K N. 2012. Pectinolytic and Cellulolytic Activity of Soil Fungal Isolates From Similipal Bioreserve Forest. *World Environment*, 2(2): 1–3.
- Pannuzzo, M., De Jong, D. H., Raudino, A., & Marrink, S. J. 2014. Simulation of polyethylene glycol and calcium-mediated membrane fusion. *The Journal of Chemical Physics*, 140(12): 1–6.
- Papadakis, A. K., & Roubelakis-Angelakis, K. A. 2002. Oxidative stress could be responsible for the recalcitrance of plant protoplasts. *Plant Physiology and Biochemistry*, 40(6–8): 549–559.
- Pindel, A. 2007. Optimization of isolation conditions of *Cymbidium* protoplasts. *Folia Horticulturae*, 19(2): 79–88.
- Plantamor. 2014. Anggrek Bulan Ambon *Phalaenopsis amboinensis*. [internet] [Situsi 28 April 2018]; Didapat Dari: <http://www.plantamor.com/index.php?plant=973>
- Pongchawee, K., Na-Nakorn, U., Lamseejan, S., Supawadee, P., & Phansiri, S. 2006. Factors Affecting the Protoplas Isolation and Culture *Anubas nana* Engler. *International Journal of Botany*, 2(2): 193–200.
- Prasetya, R. 2007. *Ragam Spesies Dendribium Unggul*. Persatuan Anggrek Indonesia PAI, 4: 22-23.
- Purwantoro, aziz, Ambarwati, E., & Setyaningsih, F. 2005. Phylogenetic of orchids based on morphological characters. *Ilmu Peranian*, 12(1): 1–11.
- Purwito, A. 1999. Fusi protoplas intra dan interspesies pada tanaman kentang. [internet] [Situsi 23 Pebruari 2013]; <http://repository.ipb.ac.id/handle/123456789/323>
- Puspitaningtyas, D. M., Mursidawati, S., & Wijayanti, S. 2006. Studi Fertilitas Anggrek *Paraphalaenopsis serpentina* (J.J.Sm.) A.D. Hawkes. *Biodiversitas*, 7(3): 237– 241.
- Ramahaleo, T., Lassalles, J., & Rouen, D. 1999. Osmotic water permeability of isolated protoplasts. *Plant Physiology*, 119: 885–896.
- Randriani, E., & Tresniawati, C. (2012). Pemanfaatan Teknik Random Amplified Polymorphic Dna (RAPD) Untuk Pengelompokan Secara Genetik Plasma Nutfah Jambu Mete (*Anacardium Occidentale* L). *Buletin RISTRI*, 3(1): 1–6.

- Rao, K. S., & Prakash, A. H. 1995. A simple method for the isolation of plant protoplasts. *Journal of Biosciences*, 20(5): 645–655.
- Ratanasanobon, K., & Seaton, K. A. 2013. Protoplast isolation for species in the Chamaelauicum group and the effect of antioxidant enzymes (superoxide dismutase and catalase) on protoplast viability. In *Vitro Cellular and Developmental Biology - Plant*, 49(5): 593–598.
- Rego, V., & Faria, R. T. De. 2001. Tissue culture in ornamental plant breeding&A review. *Crop Breeding and Applied Biotechnology*, 1(3): 283–299.
- Rosdiana. 2010. Growth of Moon Orchid (*Phalaenopsis amboinensis*) Endemic Sulawesi, On Some Type and Concentration of Plant Growth Regulator Substances by In Vitro. *Agrisistem*, 6(2): 88–96.
- Seker, S. S., Akbulut, M. K., & Senel, G. 2016. Calcium oxalate crystal (CaOx) composition at different growth stages of petiole in *Vitis vinifera* (Vitaceae). *Advanced Studies in Biology*, 8: 1–8.
- Shrestha, B. R., Tokuhara, K., & Mii, M. 2007. Plant regeneration from cell suspension-derived protoplasts of Phalaenopsis. *Plant Cell Reports*, 14(6): 341–344.
- Siddiqui, M. R. 2014. Somatic hybridization via protoplasts fusion in *Lactuca sativa* (lettuce) and its fused product. *J. Agric. Res*, 52(1): 1–9.
- Singer, Rodrigo B.; Gravendeel, Barbara; Cross, Hugh; Ramírez, S. R. . 2008. The Use of orchid pollinia or pollinaria for taxonomic identification. *Selbyana*, 29(1): 6–19.
- Singh, A. K., Mishra, N. K., Kumar, S., & Pandey, S. 2015. Applications of somatic hybridization for the improvement of horticultural crops. *Horticultural Biotechnology Research*, 1: 39–45.
- Sukmadjaja, D., Sunarlim, N., Lestari, E. G., Roostika, I., & Suhartini, T. 2007. Teknik Isolasi dan Kultur Protoplas Tanaman Padi. *Jurnal AgroBiogen*, 3(2): 60–65.
- Tavares, E. Q. P., De Souza, A. P., & Buckeridge, M. S. 2015. How endogenous plant cell-wall degradation mechanisms can help achieve higher efficiency in saccharification of biomass. *Journal of Experimental Botany*, 66(14): 4133–4143.
- Tee, C. S., Lee, P. S., Kiong, A. L. P., & Mahmood, M. 2010. Optimisation of protoplast isolation protocols using in vitro leaves of *Dendrobium crumenatum* (pigeon orchid). African Journal of Agricultural Research, 5(19): 2685–2693.
- Tudses, N., Premjet, S., & Premjet, D. 2015. Establishment of Method for Protoplast Fusion with PEG-mediated between *Jatropha curcas* L. and *Ricinus communis* L . *International Journal of Life Sciences Biotechnology and Pharma Research*, 4(1): 50–56.

- Vatanparast, M., Hosseininaveh, V., Ghadamyari, M., & Minoo Sajadian, S. 2014. Plant cell wall degrading enzymes, pectinase and cellulase, in the digestive system of the red palm weevil, *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae). *Plant Protection Science*, 50(4): 190–198.
- Verma, N., Bansal, M. C., & Kumar, V. 2008. Protoplast Fusion Technology and Its Biotechnological Applications. 1st, International conference on industrial biotechnology; IBIC; Naples, Italy . *Chemical Engineering Transactions*, 14: 113-120.
- Wallace, A. R. 2014. Wallace line. In *wikipedia*. [internet] [Situsi 23 Juni 2014]; Didapat Dari: http://id.wikipedia.org/wiki/Garis_Wallace
- Wida Utami, E. S., & Hariyanto, S. 2015. Optimasi Isolasi Protoplas Mesofil Daun Anggrek *Paraphalaenopsis laycockii* . *Agrotop*, 5(1): 21–29.
- Wilcock, C., & Neiland, R. 2002. Pollination failure in plants: Why it happens and when it matters. *Trends in Plant Science*, 7(6): 270–277.
- Wubie, A. J., Hu, Y., Li, W., Huang, J., Guo, Z., Xu, S., & Zhou, T. 2014. Factors Analysis in Protoplast Isolation and Regeneration from a Chalkbrood Fungus, *Ascospshaera apis*. *International Journal of Agriculture & Biology*, 16: 89–96.
- Xiao, W., Huang, X., Gong, Q., & Huang, J. Z. 2009. Somatic hybrids obtained by asymmetric protoplast fusion between *Musa* Silk cv . Guoshanxiang (AAB) and *Musa acuminata* cv . Mas (AA). *Plant Cell Tiss Organ Cult*, 97: 313–321.
- Zhang, X. X., Jia, H. Y., Wu, B., Zhao, D. Y., Li, W. X., & Cheng, S. P. 2009. Genetic analysis of protoplast fusant Xhhh constructed for pharmaceutical wastewater treatment. *Bioresource Technology*, 100(6): 1910–1914.
- Zhang, Y.-H. P., Himmel, M. E., & Mielenz, J. R. 2006. Outlook for cellulase improvement: Screening and selection strategies. *Biotechnology Advances*, 24(5): 452–481.