



DAFTAR PUSTAKA

- Abdel-Mawgood, A. 2012. **DNA Based Techniques for Studying Genetic Diversity**. Egypt: Faculty of Agriculture El-Minia University, pp. 95-122.
- Abreu, A. C., McBain, A. J., & Simões, M. 2012. Plants as Sources of New Antimicrobials and Resistance-Modifying Agents. *Natural Product Reports*, 29 (9): 1007.
- Aditama, T. Y. 2015. **Jamu & Kesehatan (2nd ed.)**. Jakarta: Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan (LPB), pp. 2-3.
- Aisah, N. 2010. Formulasi Salep Minyak Atsiri Rimpang Temu Glenyeh (*Curcuma soloensis* Val.) dengan Basis Larut Air dan Basis Lemak: Sifat Fisik dan Aktivitas Antijamur *Candida albicans* Secara in Vitro. *Skripsi*. Surakarta: Universitas Muhammadiyah Surakarta.
- Akmalia, H.A., 2017. Pengaruh Perbedaan Intensitas Cahaya dan Penyiraman Pada Pertumbuhan Jagung (*Zea mays* L.) ‘Sweet Boy-02’. *Jurnal Sains Dasar*, 6(1): 8–16.
- Alvarez, I., & Wendel, J. F. 2003. Ribosomal ITS Sequences and Plant Phylogenetic Inference. *Molecular Phylogenetics and Evolution*, 29: 417–434.
- Angel, G.R., Makeshkumar, T., Mohan, C., Vimala, B., Nambisan, B., 2008. Genetic Diversity Analysis of Starchy *Curcuma* Species Using RAPD Markers. *Journal of Plant Biochemistry and Biotechnology*, 17(2): 173–176.
- Anggarwulan, E., Etikawati, N., Setyawan, A.D., 1999. Karyotipe Kromosom pada Tanaman Bawang Budidaya (Genus Allium; Familia *Amaryllidaceae*). *BioSMART*. 1(2): 13-19.
- Anonim. 2016. *Sejarah Berdirinya Hortus Medicus atau B2P2TOOT Tawangmangu*. (<http://www.b2p2toot.litbang.kemkes.go.id>). Diakses tanggal 16 Desember 2019.
- Anonim. 2021. *Plastisitas Fenotipik*. (<https://mimirbook.com/id/a0c7f4ab389>). Diakses tanggal 30 Agustus 2021.
- Anuchapreeda, S., Khumpirapang, N., Rupitiwiriya, K., Tho-Iam, L., Saiai, A., Okonogi, S., & Usuki, T. 2018. Cytotoxicity and Inhibition of Leukemic Cell Proliferation by Sesquiterpenes from Rhizomes of Mah-Lueang (*Curcuma cf. viridiflora* Roxb.). *Bioorganic & Medicinal Chemistry Letters*, 28 (3): 410–414.
- Apavatjrut, P., Anuntalabhochai, S., Sirirugsa, P., & Alisi, C. 1999. Molecular Markers in the Identification of Some Early Flowering *Curcuma* L. (*Zingiberaceae*) Species. *Annals of Botany*, 84: 529–534.
- Ardiyani, M., 2003. Systematic Study of *Curcuma* L. Turmeric and its Allies (Ph.D.). *Disertasi*. Edinburg: University of Edinburgh.
- Ardiyani, M., Newman, M. F., & Cronk, Q. C. B. 2006. Phylogenetic Study of *Curcuma longa* L. (*Zingiberaceae*), Turmeric and ITS Allies Using Internal Transcribed Spacers (ITS) from nrDNA and trnl-F from cpDNA. (<https://www.ncbi.nlm.nih.gov/nuccore/DQ445149.1>) Diakses tanggal 26 November 2019.



- Aspollah Sukari, M., Wah, T. S., Saad, S. M., Rashid, N. Y., Rahmani, M., Lajis, N. H., & Hin, T.-Y. Y. 2010. Bioactive Sesquiterpenes from *Curcuma ochrorhiza* and *Curcuma heyneana*. *Natural Product Research*, 24 (9): 838–845.
- Backer, C.A., & Van Den Brink, B. 1968. **Flora of Java (Spermatophytes Only)**. Leyden: The Auspices of The Rukserbarium, pp. 69-72.
- Baker, J. G. 1890. *Scitamineae* (J. D. Hooker). Flora of British India, p. 6.
- Baldwin, B. G., Sanderson, M. J., Porter, J. M., Wojciechowski, M. F., Campbell, C. S., & Donoghue, M. J. 1995. The its Region of Nuclear Ribosomal DNA: A Valuable Source of Evidence on Angiosperm Phylogeny. *Annals of the Missouri Botanical Garden*, 82 (2): 247–277.
- Basak, S., Kesari, V., Ramesh, A.M., Rangan, L., Parida, A., Mitra, S., 2017. Assessment of Genetic Variation Among Nineteen Turmeric Cultivars of Northeast India: Nuclear DNA Content and Molecular Marker Approach. *Acta Physiologiae Plantarum*, 39(45): 1-12.
- Beckmann, J. S., & Soller, M. 1983. Restriction Fragment Length Polymorphisms in Genetic Improvement: Methodologies, Mapping, and Cos. *Theoretical and Applied Genetics*, 67: 35–43.
- Bennett, M., Leitch, I., 2005. Nuclear DNA Amounts in Angiosperms: Progress, Problems and Prospects. *Annals of botany*, 95(1): 45–90.
- Bennett, M.D., 1987. Variation in Genomic Form in Plants and Its Ecological Implications. *New Phytologist*. *New Phytologist*, 106: 177–200.
- Bhadra, S., Bandyopadhyay, M., 2015. Karyomorphological Investigations on Some Economically Important Members of *Zingiberaceae* from Eastern India. *Caryologia*, 68(3): 184–192.
- Bos, R., Windono, T., Woerdenbag, H. J., Boersma, Y. L., Koulman, A., & Kayser, O. 2007. HPLC-photodiode Array Detection Analysis of Curcuminoids in *Curcuma* Species Indigenous to Indonesia. *Phytochemical Analysis*, 18 (2): 118–122.
- Briggs, D., Walters, S., 1997. **Plant Variation and Evolution**, 3rd ed. Cambridge: Cambridge University Press. p. 246.
- Brinegar, C. 2009. Assessing Evolution and Biodiversity in Plants at the Molecular Level. *Kathmandu University Journal of Science, Engineering and Technology*, 5 (2): 149–159.
- Buitendijk, J., Boon, E., & Ramanna, M. 1997. Nuclear DNA Content in Twelve Species of Alstroemeria L. and Some of Their Hybrids. *Annals of Botany*, 79: 343–353.
- Burtt, B. L., & Smith, R. M. 1972. Key Species in The Taxonomic History of *Zingiberaceae*. *Notes from the Royal Botanic Gardens Edinburgh*, 31: 155–165.
- Cao, H., Sasaki, Y., Fushimi, H., & Komatsu, K. 2001. Molecular Analysis of Medicinally-Used Chinese and Japanese *Curcuma* based on 18S rRNA Gene and trnK Gene Sequences. *Biological & Pharmaceutical Bulletin*, 24 (12): 1389–1394.



- Cavalli, S. 1997. Genes, Peoples and Languages. *Proceedings of the National Academy of Sciences*, 94(15): 7719–7724.
- Chakravorti, A., 1948. Multiplication of Chromosome Number in Relation to Speciation of Zingiberaceae. *Science and Culture*, 14: 137–140.
- Chaveerach, A., Sudmoon, R., Tanee, T., Mokkamul, P., & Sattayas, N. 2008. Two New Species of *Curcuma* (Zingiberaceae) Used as Cobra-Bite Antidotes. *Journal of Systematics and Evolution*, 46 (1): 80–88.
- Chaveerach, A., Sudmoon, R., Tanee, T., Sattayasai, N., & Sattayasai, J. 2007. A New Species of the Genus *Curcuma* L., Zingiberaceae. *Acta Phytotaxonomica et Geobotanica*, 58 (2/3): 78–82.
- Chen, J., Xia, N., Zhao, J., Chen, J., & Henny, R. J. 2013. Chromosome Numbers and Ploidy Levels of Chinese *Curcuma* Species. *Horticultural Science*, 48 (5): 525–530.
- Chen, J., Zhao, J., Erickson, D. L., Xia, N., & Kress, W. J. 2015. Testing DNA Barcodes in Closely Related Species of *Curcuma* (Zingiberaceae) from Myanmar and China. *Molecular Ecology Resources*, 15(2): 337–348.
- Cidade, F.W., Vigna, B.B., de Souza, F.H., Valls, J.F.M., Dall'Agnol, M., Zucchi, M.I., de Souza-Chies, T.T., Souza, A.P., 2013. Genetic Variation in Polyploid Forage Grass: Assessing the Molecular Genetic Variability in the Paspalum genus. *BMC Genetics*, 14(50): 1–18.
- Clark, M. S., & Wall, W. J. 1996. **Chromosomes (The Complex Code)** (1st ed.). London: Alden Press Oxford, p. 2.
- Crawford, D. J. 1990. **Plant Molecular Systematics: Macromolecular Approaches**. New York: John Wiley & Sons. p. 388.
- Damayanti, D., 2012. Analisis Keragaman Genetik Temulawak (*Curcuma zanthorrhiza* Roxb.) dengan Menggunakan Penanda Amplified Fragment Length Polymorphism (AFLP). *Jurnal Sains dan Teknologi Indonesia*, 14(3): 174–181.
- Daryono, B. S., Hastuti, H., & Rahmani, T. P. D. 2011. The Genetic Variation Analysis of Temulawak (*Curcuma xanthorrhiza* Roxb.) In Java Island Using Random Amplification of Polymorphic DNA (RAPD) Method. *The 2nd International Symposium on Temulawak the 40th Meeting of National Working Group on Indonesian Medicinal Plant*. Bogor: Institut Pertanian Bogor.
- Daryono, B.S., Rahma, S.N.A.F., Purnomo., & Sudarsono. 2012. Chromosome Characterization of Three Varieties of Ginger (*Zingiber officinale* Rosc.). *Indonesian Journal of Pharmacy*, 23 (1): 54-59.
- Das, A., Kesari, V., Satyanarayana, V. M., Parida, A., & Rangan, L. 2011. Genetic Relationship of *Curcuma* Species from Northeast India Using PCR-Based Markers. *Molecular Biotechnology*, 49 (1): 65–76.
- Das, A., Rai, S., Das, P., 1999. Karyotype Analysis and Cytophotometric Estimation of Nuclear DNA Content in Some Members of the Zingiberaceae. *Cytobios*, 97: 23–33.
- Davis, P. H., & Gilman A.J. 1985. Morphological Variation and Speciation. *Systematic Botany*, 10 (4): 417–425.
- Delin, W., & Larsen, K. 2000. *Zingiberaceae. Flora of China*, 24 (1): 322–377.



- Dharmayanti, I. 2011. Filogenetika Molekuler: Metode Taksonomi Organisme Berdasarkan Sejarah Evolusi. *Wartazoa*, 21 (1): 1-10.
- Diastuti, H., Asnani, A., & Chasani, M. 2019. Antifungal Activity of *Curcuma xanthorrhiza* and *Curcuma soloensis* extracts and fractions. *IOP Conference Series: Materials Science and Engineering*, 509: 012047.
- Doyle, J. J. 1993. DNA, Phylogeny, and The Flowering of Plant Systematic. *BioScience*, 43 (6): 380–389.
- Duan, Z., Song, W., & Ye M. (2016). *Authentication of Curcumae Longae Rhizoma (Jiang Huang) Based on DNA barcoding markers and HPLC Fingerprint* [Life Science Department Huizhou University]. (<https://www.ncbi.nlm.nih.gov/nuccore/KX832027.1>). Diakses tanggal 29 Juni 2021.
- Dwari, S., & Mondal, A. K. 2011. Systematic Studies (Morphology, Anatomy and Palynology) of Economically Viable Grass Brachiaria mutica (Forsskil) Stapf in Eastern India. *African Journal of Plant Science*, 5 (5): 296–304.
- Dwinugraheni, N. 2013. Kajian Ilmiah Makroskopi, Mikroskopi, dan Kimia Rimpang Temu Mangga (*Curcuma mangga* Val.). *Thesis*. Yogyakarta: Universitas Gadjah Mada.
- Elfahmi, Woerdenbag, H. J., & Kayser, O. 2014. Jamu: Indonesian Traditional Herbal Medicine towards Rational Phytopharmacological Use. *Journal of Herbal Medicine*, 4 (2): 51–73.
- Endress, P. K., Baas, P., & Gregory, M. 2000. Systematic Plant Morphology and Anatomy: 50 Years of Progress. *Taxon*, 49 (3): 401–434.
- Estabrook, G. 1984. Phylogenetic trees and Character-State Trees. In: Perspectives on the Reconstruction Evolutionary History Cladistics. Duncan, T. and T. Stuessy (Eds.). Columbia University Press, pp. 135-151.
- Etikawati, N., 2000. A Cytotaxonomic Study in the Genus Zingiber. *Biodiversitas*, 1(1): 8–13.
- Everitt, B. S., Landau, S., Leese, M., & Stahl, D. 2011. **Cluster Analysis (5th ed.)**. A John Wiley and Sons Ltd Publication, pp. 46-47.
- Faatih, M. 2009. Isolasi dan Digesti DNA Kromosom Isolation and Digestion Of Chromosomal DNA. *Jurnal Penelitian Sains dan Teknologi*, 10(1): 61-67.
- Fabbri, D. P., Hormaza, J. I., & Polito, V. S. 1995. Random Amplified Polymorphic DNA Analysis of Olive (*Olea europaea* L.) Cultivars. *Journal of the American Society for Horticultural Science*, 120 (3): 538–542.
- Friska, M., & Setiadi Daryono, B. 2017. Derajat Ploidji Jahe Merah (*Zingiber officinale* Roxb. Var. *Rubrum* Rosc.) Hasil Induksi Dengan Kolkisin. Biogenesis: *Jurnal Ilmiah Biologi*, 5 (1): 9–54.
- Garcia Jacas, N., Susanna, A., Ilarslan, R., 1996. Aneuploidy in the Centaureinae (Compositae): is n = 7 the end of the series?. *Taxon*, 45: 39–42.
- Ghorbani, A., Saeedi, Y., & de Boer, H. J. (2017). Unidentifiable by Morphology: DNA Barcoding of Plant Material in Local Markets in Iran. *Plos One*, 12(4), 1–15.
- Gottlieb, L. D. 1984. Genetic and Morphological Evolution in Plants. *The American Naturalist*, 123 (5): 681–700.



- Harlan, J. R. 1992. Crops and Man (2nd ed.). Wisconsin USA: ASA, and CSSA American Society of Agronomy.
- Hastuti, D., Suranto, & Setyono, P. 2009. Variasi Morfologi, Kariotipe dan Pola Pita Protein Pada Berbagai Varietas Kamboja Jepang (*Adenium obesum*). *Biotehnologi*, 6 (2): 89–95.
- Hayakawa, H., Kobayashi, T., Minamiya, Y., Ito, K., Miyazaki, A., Fukuda, T., & Yamamoto, Y. 2010. Molecular Identification of Turmeric (*Curcuma longa*, Zingiberaceae) with High Curcumin Content. *Journal of Japanese Botany*, 85: 263–269.
- Hershkovitz, M. A., & Leipe, D. D. 2006. Phylogenetic Analysis. (<https://doi.org/>). Diakses tanggal 15 Oktober 2019.
- Heyne, K. 1987. **Tumbuhan Berguna Indonesia**. Jakarta: Yayasan Sarana Wana Jaya, pp. 594-603.
- Heyne, K., 1988. **Tanaman Berguna Indonesia I**. Jakarta: Badan Penelitian dan Pengembangan Kehutanan Departemen Kehutanan, p. 601.
- Hidayat, S., 2006. Tumbuhan **obat Langka di Pulau Jawa**: Populasi dan Sebaran. Bogor: Pusat Konservasi Tumbuhan Kebun Raya Bogor LIPI, p. 9.
- Hidayat, T & Pancoro, A. 2008. Kajian Filogenetika Molekuler dan Perannya dalam Menyediakan Informasi Dasar untuk Meningkatkan Kualitas Sumber Daya Genetik Anggrek. *Jurnal AgroBiogen*, 4(1): 35-40.
- Hidayat, T., Sutarno, N., & Awaliyah, R. N. 2012. Pengaruh Penugasan Fenetik Terhadap Penguasaan Konsep Keanekaragaman Tumbuhan Biji. *Jurnal Pengajaran MIPA*, 17 (2): 209–218.
- Hussain, Z., Tyagi, R. K., Sharma, R., & Agrawal, A. 2008. Genetic Diversity in in Vitro-Conserved Germplasm of *Curcuma* L. as Revealed by Rapd Markers. *Biologia Plantarum*, 52 (4): 627–633.
- Islam, M. A., Meister, A., Schubert, V., Kloppstech, K., & Esch, E. 2007. Genetic Diversity and Cytogenetic Analyses in *Curcuma zedoaria* (Christm.) Roscoe from Bangladesh. *Genetic Resources and Crop Evolution*, 54 (1): 149–156.
- Islam, M.A., Kloppstech, K., Esch, E., 2006. Population Genetic Diversity of *Curcuma zedoaria* (Christm.) Roscoe—a Conservation Prioritised Medicinal Plant in Bangladesh. *Conservation Genetics*, 6: 1027–1033.
- Ismail, N. A., Rafii, M. Y., Mahmud, T. M. M., Hanafi, M. M., & Miah, G. 2016. Molecular Markers: A Potential Resource for Ginger Genetic Diversity Studies. *Molecular Biology Reports*, 43 (12): 1347–1358.
- Isshiki, S., Iwata, N., & Khan, Md. M. R. 2008. ISSR Variations in Eggplant (*Solanum melongena* L.) and Related *Solanum* Species. *Scientia Horticulturae*, 117 (3), 186–190.
- Jalil, M., Purwantoro, A., Daryono, B. S., & Purnomo. 2021. Genetic Variability and Relationship of Temu Glenyeh (*Curcuma soloensis* Val.) from Java, Indonesia. *SABRAO Journal of Breeding and Genetics*, 53(2), 187–200.
- Jalil, M., Purwantoro, A., Daryono, B. S., & Purnomo, P. 2020. Distribution, Variation, and Relationship of *Curcuma soloensis* Valeton in Java, Indonesia Based on Morphological Characters. *Biodiversitas*, 21(8): 3867-3877.



- Jalil, M., Purwantoro, A., Daryono, B. S., Kurniawan, F.Y., & Purnomo, P. 2021. The Commodity of *Curcuma* spp. Sold in the Traditional Markets of Yogyakarta. *IOP Conference Series: Earth and Environmental Science*, 762: 1-9.
- Jambak, M.K.F.A., Baskoro, D.P.T., Wahjunie, E.D., 2017. Characteristics of Soil Physic on Soil Conservation Tillage System (Case Study Of Cikabayan Research Farm, Bogor). *Buletin Tanah dan Lahan*, 1: 44–50.
- Jane Beers, S. 2001. **Jamu (The Ancient Indonesian Art of Herbal Healing)** (1st ed.). Singapore: Tuttle Publishing, pp. 33-36.
- Jatoi, S. A., Kikuchi, A., & Watanabe, K. N. 2007. Genetic Diversity, Cytology, and Systematic and Phylogenetic Studies in *Zingiberaceae*. *Global Science Books*, 1 (1): 56–62.
- Jones, S. B. J., & Luchsinger, A. 1986. **Plant Systematics**. Newyork: Mc Graw-Hill Book Company, p. 512.
- Joseph, R., Joseph, T., Joseph, J., 1999. Karyomorphological Studies in The Genus *Curcuma* Linn. *Cytologia*, 64: 313–317.
- Joseph, R., Joseph, T., Joseph, J., 1999. Karyomorphological Studies in The Genus *Curcuma* Linn. *Cytologia*, 64: 313–317.
- Kanlayanapaphon, C., & Newman, M. 2003. The phylogeny of tribe Zingibereae (*Zingiberaceae*) based on ITS (nrDNA) and trnL-F (cpDNA) sequences. *Edinburgh Journal of Botany*, 60(3): 483–507.
- Kaplan, D. R. 2001. The Science of Plant Morphology: Definition, History, and Role in Modern Biology. *American Journal of Botany*, 88(10): 1711–1741.
- Karp, A., Kresovich, S., Bhat, K. V., Ayad, W. G., & Hodgkin, T. 1997. Molecular Tools In Plant Genetic Resources Conservation: A Guide to the Technologies. *Rome: International Plant Genetic Resources Institute Technichal Bulletin*, 2: 1-47.
- Kasiamdari, R.S., Smith, S.E., Scott, E.S., & Smith, F.A. 2002. Identification of Binucleate Rhizoctonia as a Contaminant in Pot Cultures of Arbuscular Mycorrhizal Fungi and Development of a PCR-based Method of Detection. *Mycological Research*, 106(12): 1417–1426.
- Katada, Y., Ohkura, K., Ueda, K., 2004. The Nei's Standard Genetic Distance in Artificial Evolution. *IEEE*, Portland, OR, USA, pp. 1233–1239.
- Khumkratok, S., Boontiang, K., Chutichudet, P., Pramual, P., 2015. Cryptic Biodiversity in Two Closely Related *Curcuma* (*Zingiberaceae*) Species in Thailand Revealed by Molecular and Morphometric Analyses. *The Kasetsart Journal (Natural Science)* 49: 335–349.
- Kitamura, C., Nagoe, T., Prana, M. S., Agusta, A., Ohashi, K., & Shibuya, H. 2007. Comparison of *Curcuma* sp. In Yakushima with *C. aeruginosa* and *C. zedoaria* in Java by trnK gene sequence, RAPD Pattern and Essential oil Component. *Journal of Natural Medicines*, 61 (3): 239–243.
- Kresovich, S., Lamboy, W., Li, R., Ren, J., Szewc-McFadden, A., & Bliek, S. 1994. Applications of Molecular Methods and Statistical Analyses for Discrimination of Accessions and Clones of Vetiver Grass. *Crop Science*, 34: 805–809.



- Kress, W. J., Prince, L. M., & Williams, K. J. 2002. The Phylogeny and a New Classification of the Gingers (*Zingiberaceae*): Evidence from Molecular Data. *American Journal of Botany*, 89 (10): 1682–1696.
- Kuntorini, E.M., Astuti, M.D., Milina, N., 2011. Struktur Anatomi dan Kerapatan Sel Sekresi serta Aktivitas Antioksidan Ekstrak Etanol dari Rimpang Temulawak (*Curcuma xanthorrhiza* Roxb) Asal Kecamatan Pengaron Kabupaten Banjar Kalimantan Selatan. *Bioscientiae*, 8(1): 28-37.
- Kuras, A., Korbin, M., & urawicz, E. 2004. Comparison of Suitability of RAPD and ISSR Techniques for Determination of Strawberry (*Fragaria xananassa* Duch.) Relationship. *Plant Cell, Tissue and Organ Culture*, 79 (2): 189–193.
- Kuwi, S., Kyallo, M., Mutai, C., Mwilawa, A., Hanson, J., Djikeng, A., Ghimire, S., 2018. Genetic Diversity and Population Structure of Urochloa Grass Accessions From Tanzania Using Simple Sequence Repeat (SSR) Markers. *Brazilian Journal of Botany*, 41(3): 1-12.
- Lal, S., Mistry, K., Thaker, R., Shah, S., & B Vaidya, P. 2012. Genetic Diversity Assessment in Six Medicinally Important Species of Ocimum from Central Gujarat (India) utilizing RAPD, ISSR and SSR Markers. *International Journal of Advanced Biological Research*, 2 (2): 279–288.
- Lamo, J. M., & Rao, S. R. 2017. Meiotic Behaviour and ITS Implication on Species Inter-relationship in the Genus *Curcuma* (Linnaeus, 1753) (*Zingiberaceae*). *Comparative Cytogenetics*, 11 (4): 691–702.
- Laplante, J. 2016. **Becoming-Plant: Jamu in Java, Indonesia.** In E. A. Olson & J. R. Stepp (Eds.). Plants and Health, pp. 17–65.
- Larsen, K., Lock, J.M., Maas, H., Maas, P.J.M., 1998. *Zingiberaceae* (Flowering Plants Monocotyledons). Springer-Verlag Berlin Heidelberg, IV: 474-495.
- Lawrence, G. H. M. 1951. **Taxonomy of Vascular Plants.** New York: The Macmillan Company, p. 823.
- Leong-Skornickova, J., Sida, O., Jarolimova, V., Sabu, M., Fer, T., Travnicek, P., Suda, J., & Skornickova. 2007. Chromosome Numbers and Genome Size Variation in Indian Species of *Curcuma* (*Zingiberaceae*). *Annals of Botany*, 100(3): 505–526.
- Leong-Škorníková, J., Šídá, O., Sabu, M., & Marhold, K. 2008. Taxonomic and Nomenclatural Puzzles in Indian *Curcuma*: The Identity and Nomenclatural History of *C. zedoaria* (Christm.) Roscoe and *C. zerumbet* Roxb. (*Zingiberaceae*). *Taxon*, 57 (3): 949–962.
- Leong-Škorníková, J., Šídá, O., Záveská, E., Marhold, K., 2015. History of infrageneric classification, typification of supraspecific names and outstanding transfers in *Curcuma* (*Zingiberaceae*). *Taxon*, 64: 362–373.
- Leskinen, E., Alström-Rapaport, C., 1999. Molecular phylogeny of *Salicaceae* and closely related *Flacourtiaceae*: Evidence from 5.8 S, ITS-1 and ITS-2 of the rDNA. *Plant Systematics and Evolution*, 215: 209–227.
- Levan, A., Fredga, K., & Sandberg, A. A. 1964. Nomenclature for Centromeric Position on Chromosomes. *Hereditas*, 52: 197–201.
- Levitsky, G., 1931. The karyotype in systematics. *Bulletin of Applied Botany, of Genetics and Plant-Breeding*, 27: 220–240.



- Li, S., Pearl, D. K., & Doss, H. 1999. Phylogenetic Tree Construction using Markov Chain Monte Carlo. (<https://pdfs.semanticscholar.org>). Diakses tanggal 27 September 2019.
- Li, Shiyu. 2011. Chemical Composition and Product Quality Control of Turmeric (*Curcuma longa* L.). *Pharmaceutical Crops*, 5 (1): 28–54.
- Liang, H., Zhang, Y., Deng, J., Gao, G., Ding, C., Zhang, L., Yang, R., 2020. The Complete Chloroplast Genome Sequences of 14 *Curcuma* Species: Insights Into Genome Evolution and Phylogenetic Relationships within *Zingiberales*. *Front. Genet.* 11(802): 1-18.
- Lim, T. K. 2016. Edible Medicinal and Non-Medicinal Plants. New York: Springer.
- Limananti, A. I., & Triratnawati, A. 2003. Ramuan Jamu Cekok Sebagai Penyembuhan Kurang Nafsu Makan pada Anak: Suatu Kajian Etnomedisin. *Makara Seri Kesehatan*, 7 (1): 11–20.
- Link, W., Dixkens, C., Singh, M., Schwall, M., & Melchinger, A. E. 1995. Genetic diversity in European and Mediterranean Faba bean Germplasm Revealed by RAPD Markers. *Theoretical and Applied Genetics*, 90: 27–32.
- Lipscomb, D. 1998. Basics of Cladistic Analysis. Student Guide Paper George Washington University. (<http://www.gwu.edu>). Diakses tanggal 19 Desember 2019.
- Mahanty, H.K., 1970. A Cytological Study of the *Zingiberales* with Special Reference to Their Taxonomy. *Cytologia*, 35: 13–49.
- Mao, L., Zou, Q., Liu, J., Ding, H., Danqing, T., 2020. Genetic diversity and genetic relationships among *Curcuma* Accessions Based on SRAP and ISSR Analysis. *Ecological Genetics and Genomics*, 15: 1-5.
- Marhold, K. 1996. Multivariate Morphometric Study of the Cardamine Pratensis Group (*Cruciferae*) in the Carpathian and Pannonian Area. *Plant Systematics and Evolution*, 200: 141–159.
- Marliyana, S. D., Wartono, M. W., Wibowo, F. R., & Munasah, G. 2018. Isolasi dan Identifikasi Senyawa Seskuiterpen dari Temu Glenyeh (*C. soloensis* Val.). *Jurnal Kimia Valensi*, 4 (2): 137–142.
- Mastur, M. 2018. Strategi Konservasi Plasma Nutfah. 26. *Workshop Pengelolaan Bank Genetik*. Yogyakarta: Balai Besar Penelitian dan Pengembangan Bioteknologi dan Sumber Daya Genetik Pertanian.
- Mathai, C. K. 1976. Variability in Turmeric (*Curcuma* species) Germplasm for Essential Oil and Curcumin. *Qualitas Plantarum Plant Foods for Human Nutrition*, 25 (3–4): 227–230.
- Mishra, J., Bhardwaj, A., & Misra, K. 2018. *Curcuma* sp.: The Nature's Souvenir for High-Altitude Illness. In *Management of High Altitude Pathophysiology*. Amsterdam: Elsevier, pp. 153-169.
- Mohanty, S., Panda, M. K., Acharya, L., & Nayak, S. 2014. Genetic Diversity and Gene Differentiation Among Ten Species of *Zingiberaceae* from Eastern India. *3 Biotech*, 4: 383–390.
- Mondini, L., Noorani, A., & Pagnotta, M. A. 2009. Assessing Plant Genetic Diversity by Molecular Tools. *Diversity*, 1: 19–35.



- Muhlisah, F., 1999. Temu-Temu dan Empon-emponan Budidaya dan Manfaatnya. Yogyakarta: Penerbit Kanisius, pp. 58-59.
- Munasah, G. 2017. Isolasi dan Identifikasi Senyawa Ar-Turmeron dari Ekstrak Rimpang *Curcuma Soloensis* Val. (Temu Glenyeh) Serta Kajian Aktivitas Antibakterinya (Other, Universitas Sebelas Maret). (<https://eprints.uns.ac.id/37549/>). Diakses pada tanggal 18 Desember 2019.
- Narita, V., Arum, A.L., Isnaeni M, S., Fawzya, N.Y., 2014. Analisis Bioinformatika Berbasis WEB untuk Eksplorasi Enzim Kitosanase Berdasarkan Kemiripan Sekuens. *Jurnal Al-Azhar Indonesia Seri Sains dan Teknologi*, 1(4): 197–203.
- Nasser, G. A. 2020. Kunyit sebagai agen anti inflamasi. *Wellness And Healthy Magazine*, 2(1): 147–158.
- Nayak, S., Naik, P.K., Acharya, L.K., Pattnaik, A.K., 2006. Detection and Evaluation of Genetic Variation in 17 Promising Cultivars of Turmeric (*Curcuma longa* L.) Using 4C Nuclear DNA Content and RAPD Markers. *Cytologia*, 71(1): 49–55.
- Nei, M., 1972. Genetic Distance Between Populations. *The American Naturalist*, 106: 283–292.
- Ng, W. L., & Tan, S. 2015. Inter-Simple Sequence Repeat (ISSR) Markers: Are We Doing It Right?. *ASM Science Journal*, 9(1): 30–39.
- Nofriarno, N., Daryono, B.S., Saputri, A.P., Indraningsih, E., 2018. Analisis Fenotipe dan Ploidi Tanaman Melon (*Cucumis melo* L.) Hasil Perlakuan Ekstrak Etanolik Daun Tapak Dara (*Catharanthus roseus* [L.] G. Don.). *Jurnal Biota*, 4(2): 62–67.
- Nurcholis, W., Khumaida, N., Syukur, M., & Bintang, M. 2016. Analisis Kemiripan 20 Aksesori Temu Ireng (*Curcuma aeruginosa* Roxb.) Berdasarkan Warna Rimpang, Hasil Ekstrak, dan Kandungan Fitokimia. *Indonesian Journal of Agronomy*, 44 (3): 315–321.
- Paisooksantivatana, Y., Thepsen, O., 2001. Phenetic Relationships of Some Thai *Curcuma* species (Zingiberaceae) based on morphological, palynological and cytological evidence. *Thai Journal of Agricultural Science (Thailand)*, 34(1-2): 47-57.
- Pangestika, Y., Budiharjo, A., & Kusumaningrum, H. P. 2015. Analisis Filogenetik *Curcuma zedoaria* (temu Putih) Berdasarkan Gen Internal Transcribed Spacer (ITS). *Jurnal Biologi*, 4(4): 8–13.
- Park, G., Eun, S., & Shim, S. H. (2012). Chemical Constituents from *Curcuma zedoaria*. *Biochemical Systematics and Ecology*, 40(1): 65–68.
- Perwati, L.K., 2012. Analisis Derajat Ploidi dan Pengaruhnya Terhadap Variasi Ukuran Stomata dan Spora pada *Adiantum raddianum*. *Bioma*, 11(2): 39-44.
- Pitono, J., Wahyuno, D., Balfas, R., Willis, M., Lukman, W., Hasapto, P., Bakti, R., 2011. *Deskripsi Kunyit Varietas Curdonia 1*. Jakarta: Lampiran Surat Keputusan Menteri Pertanian Republik Indonesia.
- Poczai, P., Hyvönen, J., 2010. Nuclear ribosomal spacer regions in plant phylogenetics: problems and prospects. *Molecular Biology Reports*, 37: 1897–1912.



- Pradeep Reddy, M., Sarla, N., & Siddiq, E. A. 2002. Inter Simple Sequence Repeat (ISSR) Polymorphism and ITS Application in Plant Breeding. *Euphytica*, 128 (1): 9–17.
- Prana, M., Sastrapradja, S., Hawkes, J., & Lubis I. 1978. A Cytological Study of Some Indonesian *Curcuma* Species. *Journal of Root Crops*, 4: 31–35.
- Price, TD., Qvarnström A., & Irwin D.E. 2003. The role of phenotypic plasticity in driving genetic evolution. *Proceedings Biological Sciences*. 270(1523): 1433–1440.
- Trevor D Price, Anna, and Darren E Irwin
- Prihatmoko, S., Hendratno, A., Harijoko, A., 2005. Mineralization and Alteration Systems in Pegunungan Seribu, Gunung Kidul and Wonogiri: Its Implication in Developing Exploration Models. The 30th Hagi, The 34th Iagi, and The 14th Perhapi Annual Conference And Exhibition. Surabaya: Proceedings Joint Convention Surabaya.
- Puangpaireote, T., Maknoi, C., Jenjittikul, T., Anamthawat-Jónsson, K., & Soontornchainaksaeng, P. 2016. Natural Triploidy in Phyto-oestrogen producing *Curcuma* Species and Cultivars from Thailand. *Euphytica*, 208 (1): 47–61.
- Purnomo, Daryono, B. S., Rugayah, & Sumardi, I. 2012. Phenetic Analysis and Intra-spesific Classification of Indonesian Water Yam Germplasm (*Dioscorea alata* L.) Based on Morphological Characters. *SABRAO Journal of Breeding and Genetics*, 44(2): 277–291.
- Purnomo, P., Daryono, B. S., Rugayah, Sumardi, I., & Shiwachi, H. 2016. Genetic Variability and Classification of Indonesian Yams (*Dioscorea* Spp.) Based on RAPD Analysis. *SABRAO Journal of Breeding and Genetics*, 48(4): 377–390.
- Purnomo, P., Daryono, B. S., & Shiwachi, H. 2017. Phylogenetic Relationship of Indonesian Water Yam (*Dioscorea alata* L.) Cultivars Based on DNA Marker Using ITS-rDNA Analysis. *Journal of Agricultural Science*, 9: 154–161.
- Purnomo, Malikah, & Maryani. 2018. Diversity and phenetic analysis of tomboreso (*Dioscorea pentaphylla* L.) in Yogyakarta based on morphological and leaf anatomical characters. *AIP Conference Proceedings*, 2002(1): 1-10.
- Purwadi, Kriswiyanti, E., Aliffiati, Wahyuni, I. gusti A. S., & Ningsih, D. P. 2015. Riset Khusus Eksplorasi Pengetahuan Lokal Etnomedisin dan Tumbuhan Obat Berbasis Komunitas di Indonesia (Etnis Osing Provinsi Jawa Timur). Karanganyar: Kementerian Kesehatan RI B2P2TOOT.
- Purwaningsih, E. H. 2013. Jamu, Obat Tradisional Asli Indonesia Pasang Surut Pemanfaatannya di Indonesia. *eJournal Kedokteran Indonesia*: 1 (2), 85–89.
- Raghavan, S.R., Arora C.M., 1958. Chromosome Numbers in Indian Medicinal Plants-II. *Proceedings of the Indian Academy of Sciences-Section B*, 47: 352-358.
- Raghavan, T., Venkatsubban, K., 1943. Cytological Studies in the Family Zingiberaceae with Special Reference to Chromosome Number and Cyto-



- taxonom. *Proceedings of the Indian National Science Academy*, B: 118–132.
- Rahardi, B., Arumningtyas, E. L., & Mahmudi, W. F. 2012. Constructing Phenetic and Phylogenetic Relationship Using Clad'97. *Journal of Tropical Life Science*, 2(1): 15–20.
- Rahardjo, M. 2010. Penerapan SOP Budidaya untuk Mendukung Temulawak Sebagai Bahan Baku Obat Potensial. *Perspektif*, 9(2): 78–93.
- Rahayu, D. A., & Nugroho, E. D. 2015. **Biologi Molekuler dalam Perspektif Konservasi (1st ed.)**. Yogyakarta: Plantaxia, pp. 13-15.
- Rahayu, D. A., & Jannah M. 2018. **Handout Bioinformatika DNA Barcode Flora dan Fauna Indonesia**. Jakarta: Indonesian Genetic and Biodiversity Community. p. 16.
- Rahman, M.A., Yusuf, M., 2012. Three New Species of *Curcuma* L. (Zingiberaceae) from Bangladesh. *Bangladesh Journal of Plant Taxonomy* 19(1): 79–84.
- Ramachandran, K. 1969. Chromosome Numbers in Zingiberaceae. *Cytologia*, 34: 213–221.
- Ravindran, P. N., Babu, N., & Sivaraman, K. 2007. **Turmeric-The Genus Curcuma**. USA: CRC Press, pp. 5-7.
- Reddy, J., 2009. A Comprehensive Method to Isolate High Quality DNA from the Cultivars of Hibiscus. *International Journal of Biotechnology Applications*, 1(2): 1–9.
- Reflinur, R., & Lestari, P. 2015. Penentuan Lokus Gen dalam Kromosom Tanaman dengan Bantuan Marka DNA. *Jurnal Penelitian dan Pengembangan Pertanian*, 34(4): 177-186.
- Roemantyo, R. 2000. Analisis Distribusi Spasial Marga *Curcuma* di Jawa (Spatial Distribution Analyses of *Curcuma* in Java). *Jurnal Berita Biologi*, 5 (2): 203–215.
- Sabran, M., Lestari, E.G., Utami, D.W.U., Purnamaningsih, R., Suryadi, Y., Tasma, I.M., Mastur, Sustriprijatno, Wibisono, R.A.S., 2018. *Bunga Rampai: Pemanfaatan SDG dan Bioteknologi untuk Mendukung Pertanian Bekalanjutan*. Bogor: IAARD Press, pp. 107-108.
- Sadava, Hillis, Heller, Berenbaum, 2009. **Life, The Science Of Biology (9th Ed.)**. New York: W. H. Freeman and Company, pp. 10-15.
- Sahoo, N., Manchikanti, P., & Dey, S. 2010. Herbal Drugs: Standards and regulation. *Fitoterapia*, 81 (6): 462–471.
- Salim, Z., Munadi, E., Nugroho, R.A., Ningsih, E.A., Paryadi, D., Utama, R., Saputri, A.S., Andrian, N., Faradila, F. 2017. **Info Komoditi Tanaman Obat (1st ed.)**. Jakarta: Badan Pengkajian dan Pengembangan Perdagangan Kementerian Perdagangan Republik Indonesia, pp. 3-4.
- Sari, H. M. 2013. Kajian Ilmiah Makroskopi, Mikroskopi dan Kimia Rimpang Temu Putih (*Curcuma zedoaria* (Berg.) Roscoe). *Skripsi*. Yogyakarta: Universitas Gadjah Mada.
- Sari, S. G., & Badruzsaufari, B. 2013. Hubungan Kekerabatan Fenetik Beberapa Varietas Pisang Lokal Kalimantan Selatan. *Jurnal Penelitian Sains*, 16 (1): 33-36.



- Sarifuddin, & Daryono, B. S. 2008. Hubungan Kekerabatan Mentimun Lokal (*Cucumis sativus* L.) di Indonesia Berdasarkan Karakter Morfologi dan Karyotype. *Thesis*, Yogyakarta: Universitas Gadjah Mada.
- Sasikumar, B. 2005. Genetic resources of *Curcuma*: Diversity, Characterization and Utilization. *Plant Genetic Resources*, 3 (2): 230–251.
- Satô, D., 1960. The karyotype analysis in Zingiberales with special reference to the protokaryotype and stable karyotype. *Scientific Papers, College of General Education, University of Tokyo (Biology Part)*, 10: 225–43.
- Sattler, R., & Rutishauser, R. 1997. The Fundamental Relevance of Morphology and Morphogenesis to Plant Research. *Annals of Botany*, 80: 571–582.
- Saupe, S. G. 2005. Phenetic Classification Systems. Collegeville: Plant Taxonomy, College of St.Benedict/ St. John's University, p. 308.
- Schmidt, H. A. 2007. Phylogenetic Trees from Large Datasets. (<https://docserv.uni-duesseldorf.de>) . Diakses tanggal 27 September 2019.
- Schumann, K. 1904. *Zingiberaceae*. In: *Engler, Das Pflanzenreich*, 4(46): 1-458.
- Setiadi, A., Khumaida, N., Ardie, W., & Sintho, D. 2017. Keragaman Beberapa Akses Temu Hitam (*Curcuma aeruginosa* Roxb.) Berdasarkan Karakter Morfologi. *Indonesian Journal of Agronomy*, 45 (1): 71–78.
- Setyowati, M., Sulistyaningsih, E., & Purwantoro, A. 2013. Induksi Poliploidi Dengan Kolkisina Pada Kultur Meristem Batang Bawang Wakegi (*Allium X Wakegi Araki*). *Ilmu Pertanian*, 16(1): 58–76.
- Setiawan, A., Teo, C.H., Kikuchi, S., Sassa, H., Koba, T., 2018. An Improved Method for Inducing Prometaphase Chromosomes in Plants. *Molecular Cytogenetics*, 11(32): 1-8.
- Sharma, A., 1959. Cytology of Several Members of *Zingiberaceae*. *Cellule*, 59: 297–346.
- Sikdar, B., Bhattacharya, M., Mukherjee, A., Banerjee, A., Ghosh, E., Ghosh, B., & Roy, S. C. 2010. Genetic Diversity in Important Members of Cucurbitaceae Using Isozyme, RAPD and ISSR Markers. *Biologia Plantarum*, 54 (1): 135–140.
- Silva, A. B. W. R., Herath, H., Senanayake, S. P., & Swarnathilaka, D. B. R. 2018. Phenetic and Genetic Characterization of Selected Economically Important Species in the Family *Zingiberaceae*. *Sri Lankan Journal of Biology*, 3 (1): 34–43.
- Simpson, M. G. 2006. **Plant Systematics**. London: Elsevier Academic Press, pp. 347-408.
- Singh, G. 2010. **Plant Systematics (3rd ed.)**. USA: Science Publishers, p. 14.
- Singh, R. J. 2003. **Plant Cytogenetics (2nd ed.)**. London: CRC Press. p. 9.
- Singh, S., Panda, M.K., Nayak, S., 2012. Evaluation of Genetic Diversity in Turmeric (*Curcuma longa* L.) using RAPD and ISSR Markers. *Industrial Crops and Products*, 37: 284–291.
- Singh, B.N. 2012. Concepts of Species and Modes of Speciation. *Current Science*, 103(7): 784-790.
- Sirat, H., Jamil, S., & A. Rahman, A. 2012. Rhizome Oil of *Curcuma ochrorhiza* Val. *Journal of Essential Oil Research*, 9: 351–353.



- Sirirugsa, P., 1998. Thai *Zingiberaceae*: Species Diversity and Their Uses. *Pure Appl. Chem.*, 70(11): 1–8.
- Sirirugsa, P., Larsen, K., & Maknoi, C. 2007. The Genus *Curcuma* L. (*Zingiberaceae*): Distribution and Classification with Reference to Species Diversity in Thailand. *Distribution and Species Diversity of Gardens' Bulletin Singapore*, 59 (1/2): 203–220.
- Sivarajan, V. V. 1991. *Introduction to the Principles of Plant Taxonomy* (2nd ed.). Cambridge: Cambridge University Press.
- Skornickova, J., Sabu, M., 2005. Article: The identity and distribution of *Curcuma zanthorrhiza* Roxb. (*Zingiberaceae*). *Garden Bulletin Singapore*, 57: 199–210.
- Sneath, P. H. A., & Sokal, R. R. 1973. **Numerical Taxonomy**. United States of America: W. H. Freeman and Company, p. 5. Sokal, R. R., & Sneath, P. H. A. 1963. **Principles of Numerical Taxonomy**. San Francisco: W. H. Freeman and Company, p. 163.
- Soontornchainaksaeng, P., & Jenjittikul, T. 2010. Chromosome Number Variation of Phytoestrogen-Producing *Curcuma* (*Zingiberaceae*) from Thailand. *Journal of Natural Medicines*, 64 (3): 370–377.
- Souframanien, J., & Gopalakrishna, T. 2004. A Comparative Analysis of Genetic Diversity in Blackgram Genotypes Using RAPD and ISSR Markers. TAG. Theoretical and Applied Genetics. *Theoretische Und Angewandte Genetik*, 109 (8): 1687–1693.
- Stace, C. A. 1989. **Plant Taxonomy and Biosystematics** (2nd ed.). New York: Routledge, Chapman and Hall Inc, pp. 43–52.
- Stebbins, G.L., 1971. **Chromosomal Evolution in Higher Plants**. Boston: Adison Wesley Publishing Company, p. 216.
- Stevens, R.D., Tello, J.S., 2014. On the Measurement of Dimensionality of Biodiversity. *Global Ecology and Biogeography*, 23: 1115–1125.
- Stuessy, T. F. 1994. **Case Studies in Plant Taxonomy: Exercise in Applied Pattern Recognition**. New York: Columbia University Press, pp. 63–75.
- Subositi, D., & Wahyono, S. 2019. Study of the genus *Curcuma* in Indonesia Used as Traditional Herbal Medicines. *Biodiversitas*, 20 (5): 1356–1361.
- Sudomo, A., Handayani, W., 2013. Karakteristik Tanah Pada Empat Jenis Tegakan Penyusun Agroforestry Berbasis Kapulaga (*Amomum compactum* Soland Ex Maton). *Jurnal Penelitian Agroforestry*, 1(1): 1–11.
- Sugiura, T., 1936. Studies on the Chromosome Numbers in Higher Plants, with Special Reference to Cytokinesis, I. *Cytologia*, 7: 544–595.
- Sulistyawati, P., Widyatmoko, A., & Nurtjahjaningsih, I. 2014. Genetic Diversity of *Shorea leprosula* Offspring Based on Microsatellite Markers. *Jurnal Pemuliaan Tanaman Hutan*, 8(3): 171–183.
- Sungkawati, M., Hidayati, L., Daryono, B. S., & Purnomo, P. 2019. Phenetic Analysis of *Curcuma* spp. In Yogyakarta, Indonesia Based on Morphological and Anatomical Characters. *Biodiversitas*, 20 (8): 2340–2347.



- Susandarini, R. 2014. *Biosistematika Pamelo (Citrus maxima (burm.) Merr.) di Indonesia Berdasarkan Kajian Morfologis, Fitokimia, dan Molekular. Disertasi.* Yogyakarta: Universitas Gadjah Mada.
- Syahid, S. F., Syukur, C., Kristina, N. N., & Pitono, J. 2012. Adaptasi Delapan Nomor Harapan Kunyit (*Curcuma domestica* Vahl.) Toleran Naungan. *Buletin Litro*, 23(2): 115–124.
- Syahid, S., & Heryanto, R. 2017. Short Communication: Morpho-agronomic Characteristics of Twelve Accessions of White Turmeric (*Curcuma zedoaria*) Germplasm. *Biodiversitas*, 18(1), 269–274.
- Syamkumar, S., & Sasikumar, B. 2007. Molecular Marker Based Genetic Diversity Analysis of *Curcuma* Species from India. *Scientia Horticulturae*, 112 (2): 235–241.
- Syukur, C., Udamo, L., Supriadi, Rostiana, O., Martono, B., Syahid, S.F. 2007. *Deskripsi Kunyit Varietas Turina-1*. Jakarta: Lampiran Keputusan Menteri Pertanian, p. 1.
- Taheri, S., Abdullah, T., Abdullah, N.A., Ahmad, Z., 2012. Genetic Relationships Among Five Varieties of *Curcuma alismatifolia* (Zingiberaceae) Based on ISSR markers. *Genetics and Molecular Research*, 11(3): 3069–76.
- Tamura, K., Peterson, D., Peterson, N., Stecher, G., Nei, M., & Kumar, S. 2011. MEGA5: Molecular Evolutionary Genetics Analysis using Maximum Likelihood, Evolutionary Distance and Maximum Parsimony Methods. *Molecular Biology and Evolution*, 28 (10): 2731–2739.
- Tanksley, S.D., Ganal, M.W., Martin, G.B., 1995. Chromosome Landing: a Paradigm for Map-Based Gene Cloning in Plants with Large Genomes. *Trends in Genetics*, 11(2): 63–68.
- Taufiq, A., Sundari, T., 2012. Respons Tanaman Kedelai Terhadap Lingkungan Tumbuh. *Buletin Palawija*, 23: 13-16
- Terry, T. M. 2000. Microbial Taxonomy and Evolution. (www.biologie.uni-hamburg.de/bonline/library/micro229/terry//229sp00). Diakses tanggal 30 Desember 2018.
- Tirta, I.G., 2012. Pengaruh Suhu dan Kelembaban Terhadap Laju Pertumbuhan *Paphiopedilum javanicum* (Reinw. Ex Lindl.) Pfitzer. *Widyatech Jurnal Sains dan Teknologi* 11(3): 52-58.
- Tjitosoepomo, G. 1993. *Taksonomi Tumbuhan (Dasar-Dasar Taksonomi Tumbuhan)* (1st ed.). Yogyakarta: Gadjah Mada University Press, p. 10.
- Tjitosoepomo, G., 2016. *Taksonomi Tumbuhan Obat-Obatan*. Yogyakarta: Universitas Gadjah Mada.
- Uma, E., Muthukumar, T., 2014. Comparative Root Morphological Anatomy of Zingiberaceae. *Systematics and Biodiversity*, 12(2): 195–209.
- van der Steen, W. J., & Boontje, W. 1973. Phylogenetic Versus Phenetic Taxonomy: A Reappraisal. *Systematic Biology*, 22(1): 55–63.
- Van de Peer, Y. 2009. **Phylogenetic Inference Based on Distance Methods: Theory.** In P. Lemey, M. Salemi, & A.M. Vandamme (Eds.), **The phylogenetic handbook : a Practical Approach to Phylogenetic Analysis and Hypothesis Testing.** Cambridge UK: Cambridge University Press, pp. 158-159.



- Valeton, T. 1918. New Notes on the *Zingiberaceae* of Java and Malaya. *Bulletin Du Jardin Botanique Buitenzorg Ser*, 2(27): 1–166.
- Vinitha, M.R., Kumar, U.S., Aishwarya, K., Sabu, M., Thomas, G., 2014. Prospects for Discriminating *Zingiberaceae* Species in India Using DNA Barcodes: DNA barcoding of Indian *Zingiberaceae*. *Journal of Integrative Plant Biology*, 56(8): 760-773.
- Vitasari, R. A., Wibowo, F. R., Marliyana, S. D., & Wartono, M. W. 2016. Isolation and Identification of Curcumin and Bisacurone from Rhizome Extract of Temu Glenyeh (*Curcuma soloensis* Val.). *IOP Conference Series: Materials Science and Engineering*, 107: 1-5.
- Warmadewi, D.A. 2017. *Bahan Ajar Mutasi Genetik*. Denpasar: Fakultas Peternakan Universitas Udayana.
- Wang, Y., Chen, X., Xiang, C.-B., 2007. Stomatal Density and Bio-water Saving. *Journal of Integrative Plant Biology*, 49(10): 1435–1444.
- Weising, K., Atkinson, R. G., & Gardner, R. C. 1995. Genomic Fingerprinting by Microsatellite-Primed PCR—a Critical Evaluation. *PCR Methods and Applications*, 4: 249–255.
- Weiss, E., 2002. Spice Crops. *Journal of the Science of Food and Agriculture*, 84: 390.
- White, Bruns, T., Lee, S., & Taylor, J. 1990. Amplification and Direct Sequencing of Fungal Ribosomal RNA Genes for Phylogenetics. *PCR Protocols: A Guide to Methods and Applications*, 38: 315-322.
- Wiens, J. J. 2004. The Role of Morphological Data in Phylogeny Reconstruction. *Systematic Biology*, 53 (4): 653–661.
- Yan, J. X. 2010. Study on Cross-Breeding and Molecular Genetics of the Genus *Curcuma*. Thesis. Guangzhou: Zhongkai University of Agriculture and Engineering.
- Yao, H., Song, J., Liu, C., Luo, K., Han, J., Li, Y., Pang, X., Xu, H., Zhu, Y., Xiao, P., & Chen, S. 2010. Use of ITS2 Region as the Universal DNA Barcode for Plants and Animals. *Plos One*, 5 (10): 1-9.
- Zaveska, E., Fer, T., Sida, O., Krak, K., Maknoi, C., Marhold, K., & Leong-Skornickova. 2012. Conquest of Ginger Paradise: First Insights into *Curcuma* Phylogeny Based on Plastid and Nuclear Sequences. (<https://www.ncbi.nlm.nih.gov/nuccore/JQ409983.1>). Diakses tanggal 26 November 2019.
- Záveská, E., Fér, T., Šídá, O., Leong-Škorníková, J., Sabu, M., & Marhold, K. (2011). Genetic Diversity Patterns in *Curcuma* Reflect Differences in Genome Size: Genetic Diversity Patterns in *Curcuma*. *Botanical Journal of the Linnean Society*, 165(4): 388–401.
- Zhang, L., Yang, Z., Wei, J., Su, P., Chen, D., Pan, W., Zhou, W., Zhang, K., Zheng, X., Lin, L., Tang, J., & Du, Z. 2017. Contrastive Analysis of Chemical Composition of Essential Oil from Twelve *Curcuma* Species Distributed in China. *Industrial Crops and Products*, 108: 17–25.



- Zhang, S., Liu, N., Sheng, A., Ma, G., & Wu, G. 2011. Direct and Callus-Mediated Regeneration of *Curcuma soloensis* Valeton (Zingiberaceae) and Ex Vitro Performance of Regenerated Plants. *Scientia Horticulturae*, 130 (4): 899–905.
- Zietkiewicz, E., Rafalski, A., & Labuda, D. 1994. Genome Fingerprinting by Simple Sequence Repeat (SSR)-Anchored Polymerase Chain Reaction Amplification. *Genomics*, 20 (2): 176–183.
- Zullfahmi. 2013. Penanda DNA untuk Analisis Genetik Tanaman. *Jurnal Agroteknologi*, 3 (2): 41-52.
- Zuraida, N., & Sumarno, S. 2007. Pengelolaan Plasma Nutfah secara Terpadu Menyertakan Industri Perbenihan. *Iptek Tanaman Pangan*, 2 (2): 242-252.