

REFERENCES

- Al-Dous, E. K., B, George., M. E, Al-Mahmoud., M. Y. Al-Jaber., H, Wang., Y. M, Salameh., E. K, Al-Azwani., S, Chaluvadi., A. C, Pontaroli., J, DeBarry, V, Arondel., J, Ohlrogge., I. J, Saie., K. M, Suliman-Elmeer., J. L, Bennetzen., R. R, Kruegger., & J. A, Malek. (2011). De novo genome sequencing and comparative genomics of date palm (*Phoenix dactylifera*). *Nature Biotechnology*, 29(6), 521–527. <https://doi.org/10.1038/nbt.1860>
- Al-Qurainy, F., A. A, Al-Ameri., S, Khan., M, Nadeem., A. Z, Gaafar., & M, Tarroum. (2018). SCAR marker for gender identification in date palm (*Phoenix dactylifera* L.) at the seedling stage. *International Journal of Genomics*, 2018, 3035406. <https://doi.org/10.1155/2018/3035406>
- Amiteye, S. (2021). Basic concepts and methodologies of DNA marker systems in plant molecular breeding. *Heliyon*, 7(10), e08093. <https://doi.org/10.1016/j.heliyon.2021.e08093>
- Antonius, & V. S. I. S, Putri. (2022). Potensi, pemanenan dan pemanfaatan rotan jernang di kawasan ekobudaya hutan rawa gambut Penam Sengkuang Lebuk. *Piper*, 18(1). <https://doi.org/10.51826/piper.v18i1.626>
- Arnone, A., G, Nasini., & L, Merlini. (1990). Constituents of dragon's blood. Part 4. Dracoflavan A, a novel secotri flavonoid. *Journal of the Chemical Society, Perkin Transactions 1*, 1990(10), 2637–2640. <https://doi.org/10.1039/P19900002637>
- Arsyad, M. A., I, Boer., Y. F, Cahyaningsih., S. H, Larekeng., & Iswanto. (2022). Polimorfisme primer RAPD pada tanaman jambu mete asal tiga kabupaten di Sulawesi Tenggara. *Jurnal Galung Tropika*, 11(2). <https://doi.org/10.31850/jgt.v11i2.888>
- Asra, R., D, Andryani., A, Adriadi., I. A, Fijridiyanto., J. R, Witono., & O, Gailing. (2021). Etnobotani rotan jernang (*Calamus* spp.) pada masyarakat Sarolangun, Jambi. *Buletin Kebun Raya*, 24(2). <https://doi.org/10.14203/bkr.v24i2.724>
- Asra, R., Syamsuardi, Mansyurdin, & J. R, Witono. (2018). Genetic diversity in *Daemonorops draco* (Willd.) Blume (Arecaceae) among wild and cultivated populations inferred by RAPD markers. *SABRAO Journal of Breeding and Genetics*, 50(2),
- Asra, R., Syamsuardi, Mansyurdin, & J. R, Witono. (2012). Rasio seks jernang (*Daemonorops draco* (Willd.) Blume) pada populasi alami dan budidaya: Implikasi untuk produksi biji. *Buletin Kebun Raya*, 15(1). <https://doi.org/10.14203/bkr.v15i1.10>
- Asra, R., Syamsuardi, Mansyurdin, & J. R, Witono. (2014). The study of genetic diversity of *Daemonorops draco* (Palmae) using ISSR markers. *Biodiversitas*, 15(2), 201–207. <https://doi.org/10.13057/biodiv/d150201>

- Bardakci, F. (2001). Random amplified polymorphic DNA (RAPD) markers. *Turkish Journal of Biology*, 25(2), 185–196.
- Barrett, S.C.H. 2002. The evolution of plant sexual diversity. *Nature Review Genetics*, 3(4), 274–284. <https://doi.org/10.1038/nrg776>
- Choong, C. Y., & R, Wickenswari. (2016). Sexing in rattans. *Malaysian Applied Biology*, 45(2).
- Darmayani, S., M, Shofi., & A. R. P, Raharjeng. (2018). RAPD analysis of the genetic diversity among accessions of micropropagation bananas from Indonesia. In *Journal of Physics: Conference Series*, 1114(1), 012137. <https://doi.org/10.1088/1742-6596/1114/1/012137>
- Dhawan, C., P, Kharb., R, Sharma., S, Uppal., & R. K, Aggarwal. (2013). Development of male-specific SCAR marker in date palm (*Phoenix dactylifera* L.). *Tree Genetics & Genomes*, 9(5), 1169–1176. <http://dx.doi.org/10.1007/s11295-013-0617-9>
- Dransfield, J., & N, Manokaran. (1996). *Sumber daya nabati Asia Tenggara: Rotan*. Yogyakarta: UGM & PROSEA.
- Dwiati, M., Z, Aziiza., & A. H, Susanto. (2021). Sex identification in *Nepenthes adrianii* from Baturraden Botanical Garden: Genetic analysis using RAPD markers. *Jurnal Ilmiah Biologi*, 9(1), 11–17. <https://doi.org/10.24252/bio.v9i1.15750>
- Ediwirman, I, Suliansyah., Gustian, & Jamsari. (2015). Specific RAPD fragments related with sex type in salacca (*Salacca edulis* L.). *Indonesian Journal of Agricultural Science and Technology (IJASc)*, 1(1), 34–46. <https://doi.org/10.25077/ijasc.1.1.34-46.2015>
- Farchiyah, E. L., S, Arumingtyas., R, Widyarti., & S, Rahayu. (2016). *Biologi molekuler: Prinsip dasar analisis*. Jakarta: Penerbit Erlangga.
- Fitriandi, D., J. H, Mulyo., & D. H, Darwanto. (2020). Forecasting the demand of jernang extract (*Daemonorops* spp.) in the export market. *Jurnal Penelitian Kehutanan Wallacea*, 9(1), 75–82. <http://dx.doi.org/10.18330/jwallacea.2020.vol9iss1pp75-82>
- Friedman, J., & S. C. H, Barrett. (2011). The evolution of ovule number and flower size in wind-pollinated plants. *The American Naturalist*, 177(2), 246–257. <https://doi.org/10.1086/657954>
- Giacomazzi, S., F, Lerol., & J. J, Joffraud. (2005). Comparison of three methods of DNA extraction from cold-smoked salmon and impact of physical treatments. *Journal of Applied Microbiology*, 98(6), 1230–1238. <https://doi.org/10.1111/j.1365-2672.2005.02574.x>
- Gusmiaty., M, Restu., I, Pongtuluran. (2012). Seleksi primer untuk analisis keragaman genetik jenis bitti (*Vitex cofassus*). *Jurnal Perennial*, 8(1). <https://doi.org/10.24259/perennial.v8i1.211>

- Govindaraju, D. R. (1989). Variation in gene flow levels among predominantly self-pollinated plants. *Journal of Evolutionary Biology*, 2(3), 173–181. <https://doi.org/10.1046/j.1420-9101.1989.2030173.x>
- Hamrick, J. L., & M. J. W, Godt. (1996). Effects of life history traits on genetic diversity in plant species. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 351, 1291–1298. <http://dx.doi.org/10.1098/rstb.1996.0112>
- Hadrys, H., M, Balick., & B, Schierwater. (1992). Applications of random amplified polymorphic DNA (RAPD) in molecular ecology. *Molecular Ecology*, 1(1), 55–63. <https://doi.org/10.1111/j.1365-294x.1992.tb00155.x>
- Harnov., E, Amzu., & R, Soekmadi. (2016). Konservasi hutan: Belajar dari nilai-nilai etik & tradisi berjernang Suku Anak Dalam di Taman Nasional Bukit Dua Belas, Provinsi Jambi. *Risalah Kebijakan Pertanian dan Lingkungan*, 3(1), 24–38. <http://dx.doi.org/10.20957/jkebijakan.v3i1.1523>
- Hassan, A. H. M., M. H, Hussein., E, G, Ibrahim., & S. E. S, El-Assal. (2020). Characterization, sex identification and gene expression for fruit quality genes in date palm (*Phoenix dactylifera* L.). *Plant Archives*, 20(2), 9593–9610.
- Indira, E. P., & P. V, Anto. (2002). Karyotype analysis in *Calamus palustris* Griff. *Journal of Bamboo and Rattan*, 1(3), 199–203. <https://doi.org/10.1163/156915902760184268>
- Intha, N., & P, Chaiprasart. (2018). Sex determination in date palm (*Phoenix dactylifera* L.) by PCR-based marker analysis. *Scientia Horticulturae*, 236, 190–195. <https://doi.org/10.1016/j.scienta.2018.03.039>
- Kaur, P., D. K, Pandey., R. C, Gupta., & A, Dey. (2019). Assessment of genetic diversity among different population of five *Swertia* species by using molecular and phytochemical markers. *Industrial Crops and Products*, 138, 111569. <https://doi.org/10.1016/j.indcrop.2019.111569>
- Kaplan, S. M. (1972). Seed production and sex ratio in anemophilous plants. *Heredity*, 28(3), 281–285. <https://doi.org/10.1038/hdy.1972.40>
- Kumari, N., & S. K, Thakur. (2014). Randomly amplified polymorphic DNA—A brief review. *American Journal of Animal and Veterinary Sciences*, 9(1), 6–13. <https://doi.org/10.3844/ajavsp.2014.6.13>
- Kurian, B., A. S, Hemanthakumar., J, Jacob., & M. A, Noushad. (2018). Rapidly evolving sex-specific sequences in *Calamus travancoricus* Bedd. ex. Becc. and *Calamus nagbetta* R.R. Fernald & Dey. *Tree Genetics & Genomes*, 14, 11. <https://doi.org/10.1007/s11295-017-1220-2>
- Lestari, S., B. T, Premono., & E, Martin. (2017). Dragon's blood as the community life support: Case of Muara Enim Regency, South Sumatra Province. *Jurnal Penelitian Sosial dan Ekonomi Kehutanan*, 14(3), 191–203. <https://doi.org/10.20886/jpsek.2017.14.3.191-203>

- Lewis, K. R., & B, John. (1968). The chromosomal basis of sex determination. *International Review of Cytology*, 23, 277–379. [https://doi.org/10.1016/S0074-7696\(08\)60274-0](https://doi.org/10.1016/S0074-7696(08)60274-0)
- Li, R., J, Li., G, Yin., J, Yang., W, Zou., & L, Bai. (2015). A male-specific SCAR DNA marker and sex ratio of seedlings in salak (*Salacca zalacca* var. *zalacca*). *Journal of Forestry Research*, 28, 47–50. <https://doi.org/10.1007/s11676-016-0296-0>
- Mahlinda., A, Thalib., L, Maurina., R, Kurniawan., & M. D, Supardan. (2020). Extraction of dragon's blood (*Daemonorops draco*) wet system by two-step process: Effect of yield and quality. *Jurnal Riset Industri Hasil Hutan*, 12(1). <http://dx.doi.org/10.24111/jrihh.v12i1.5924>
- Mansyurdin. (2024). *Embriologi dan biologi reproduksi tumbuhan: Pembungaan dan ekspresi seks tumbuhan*. Padang: Andalas University Press.
- Matangaran, J. R., & L, Puspitasari. (2012). Potensi dan pemanenan buah rotan jernang. *Jurnal Silvikultur Tropika*, 3(1). <https://doi.org/10.29244/j-siltrop.3.1.%25p>
- Meagher, T. R. (1981). Population biology of *Chamaelirium luteum*, a dioecious lily. II. Mechanisms governing sex ratio. *Evolution*, 35(3), 712–720. <https://doi.org/10.1111/j.1558-5646.1981.tb04917.x>
- Melo, J. M., M, Sousa., J. A, Parola., S. S, de-Melo., F, Catarin., J, Maraalo., & F, Pina. (2007). Identification of 7,4'-Dihydroxy-5-methoxyflavylium in dragon's blood: To be or not to be an anthocyanin. *Chemistry – A European Journal*, 13(5), 1417–1422. <https://doi.org/10.1002/chem.200600837>
- Mohammed, I. A., & I. A, Mohamed. (2019). Validation of RAPD and ISSR markers used for sex determination in date palm grown under Sudan conditions. *Advanced Research in Life Sciences*, 3(1), 17–22. <https://doi.org/10.2478/arls-2019-0005>
- Nasini, G., & F, Piozzi. (1981). Pterocarpol and triterpenes from *Daemonorops draco*. *Phytochemistry*, 20, 514–516. [https://doi.org/10.1016/S0031-9422\(00\)84180-1](https://doi.org/10.1016/S0031-9422(00)84180-1)
- Patil, C. G., R. C, Baratakke., & A. M, Sandigwad. (2012). Development of a RAPD-based SCAR marker for sex identification in *Momordica dioica* Roxb. *Israel Journal of Plant Sciences*, 60, 457–465. <https://doi.org/10.1560/IJPS.60.4.457>
- Prana, K. D., & N. S, Hartati. (2003). Identifikasi sidik jari DNA talas (*Colocasia esculenta* L. Schott) Indonesia dengan teknik RAPD (Random Amplified Polymorphic DNA). Skrining primer dan optimasi kondisi PCR. *Jurnal Natur Indonesia*, 5(2), 107–112.
- Prasanthi, L., B. V. B, Reddy., K. R, Rani., P. M, Reddy., & K. R, Reddy. (2010). RAPD and SCAR marker for determination of sex in *Simarouba glauca* for improved production. *Journal of Research ANGRAU*, 38(1&2), 1–5.

- Priya, K., E. P, Indira., V. B, Sreekumar., & C, Renuka. (2019). Identification of female sex-specific DNA marker in a dioecious rattan (*Calamus travancoricus* Bedd. ex Becc.). *Journal of Non-Timber Forest Products*, 26(1), 45–48. <http://dx.doi.org/10.54207/bsmps2000-2021-565NN4>
- Promkaew, N., P, Umpunjun., N, Chuenboonngarm., & U, Viboonjun. (2024). Development of a molecular marker for sex identification in Thai commercial date palm (*Phoenix dactylifera* L.). *Plant Biotechnology*. <https://doi.org/10.5511/plantbiotechnology.23.1214b>
- Purwanto, Y., R, Polosokan., S, Susiarti., & B. E, Wahyu. (2005). Ekstraktivisme jernang (*Daemonorops* sp.) dan kemungkinan pengembangan: Studi kasus di Jambi, Sumatera, Indonesia. *Valuasi Ekonomi Produksi Hutan Non-Kayu* (hlm. 409–411).
- Razumova, O. V., M. G, Divashuk., O. S, Alexandrov., & G.I, Karlov. (2023). GISH painting of the Y chromosomes suggests advanced phases of sex chromosome evolution in three dioecious Cannabaceae species (*Humulus lupulus*, *H. japonicus*, and *Cannabis sativa*). *Protoplasma*, 260, 249–256. <https://doi.org/10.1007/s00709-022-01774-x>
- Renner, S. S., & R. E, Ricklefs. (1995). Dioecy and its correlates in the flowering plants. *American Journal of Botany*, 82, 596–606. <https://doi.org/10.1002/j.1537-2197.1995.tb11504.x>
- Rizko, N., H. P, Kusumaningrum., R. S, Ferniah., S, Pujiyanto., T, Erfianti., S. N, Mawarni., D, Khairunnisa. (2020). Isolasi DNA daun jeruk bali merah (*Citrus maxima* Merr.) dengan modifikasi metode Doyle and Doyle. *Berkala Bioteknologi*, 3(2).
- Rustiami, H. (1999). *Phenetic study on dragon's blood species of genus Daemonorops section Piptospatha (Family Arecaceae)* [M.Sc. thesis, University of Reading].
- Rustiami, H. (2002). A new species of *Daemonorops* section *Piptospatha* (Arecaceae) from Siberut Island, West Sumatra. *Kew Bulletin*, 57, 729–733. <https://doi.org/10.2307/4111007>
- Rustiami, H., F. M, Setyowati., & K, Kartawinata. (2004). Taxonomy and uses of *Daemonorops draco* (Willd.) Blume. *Journal of Tropical Ethnobiology*, 1(2), 65–75.
- Sahwalita., & H, Nanang. (2016). *Panduan budidaya nilam (Pogostemon cablin Benth.) dan produksi minyak atsiri*. Palembang: GIZ Bioclimate Project.
- Saifuddin., Nahar, & I, Mawardi. (2018). Ekstraksi resin dari buah jernang (dragon blood) metode under kritis pelarut untuk peningkatan kualitas mutu resin jernang sesuai SNI 1671:2010. *Jurnal Teknologi Kimia Unimal*, 6(1). <https://doi.org/10.29103/jtku.v6i1.464>
- Sambrook, J., & D. W, Russell. (2001). *Molecular cloning* (3rd ed.). Cold Spring Harbor Laboratory Press.

- Schmidt, L., N. N, Widianingsih., A. P, Kaad., & I, Theilade. (2020). The impact of deforestation on collection and domestication of jernang (*Daemonorops* spp.) and other NTFPs in southern Sumatra, Indonesia. *NJAS: Wageningen Journal of Life Sciences*, 92, 100325. <https://doi.org/10.1016/j.njas.2020.100325>
- Sharma, A., G, Zinta., S, Rana., & P, Shirkot. (2010). Molecular identification of sex in *Hippophae rhamnoides* L. using isozyme and RAPD markers. *Forestry Studies in China*, 12(2), 62–66. <https://doi.org/10.1007/s11632-010-0012-7>
- Shirkot, P., A, Sharma., G, Zinta., & S, Rana. (2010). Identification of gender in dioecious *Hippophae salicifolia* using isozymes as sex markers. *Forest Studies in China*, 12(2), 62–66. <https://doi.org/10.54207/bsmps1000-2009-AZCE67>
- Siljak-Yakovlev, S., M, Cerbah., A, Sarr., S, Benmalek., N, Bounaga., P. T, Cobade-la & S. C, Brown. (1996). Chromosomal sex determination and heterochromatin structure in date palm. *Sexual Plant Reproduction*, 9(3), 127–132. <https://doi.org/10.1007/bf02221391>
- Sinaga, A. L. A. P., & M. K, Bangun. (2017). Analisis pola pita Andaliman (*Zanthoxylum acanthopodium* D.C) berdasarkan primer OPD 03, OPD 20, OPC 07, OPM 20, OPN 09. *Jurnal Agroekoteknologi FP USU*, 5(1). <https://doi.org/10.32734/ja.v5i1.2289>
- Soemarna, Y. (2009). Budidaya Rotan Jernang (*Daemonorops draco* Willd.). *Jurnal Litbang Kehutanan*, 2(3), 5–1. <https://doi.org/10.32502/sylva.v10i1.3508>
- Stadhouders, R., S. D, Pas., J, Anber., J, Voermans., T. H. M, Mes., & M, Schutten. (2010). The effect of primer-template mismatches on the detection and quantification of nucleic acids using the 5' nuclease assay. *Journal of Molecular Diagnostics*, 12(1), 109–117. <https://doi.org/10.2353/jmoldx.2010.090035>
- SulasmI, I. S., Nisyawati, Y, Purwanto., & S, Fatimah. (2012). Jernang rattan (*Daemonorops draco*) management by Anak Dalam Tribe in Jebak Village, Batanghari, Jambi Province. *Biodiversitas*, 13(3). <https://doi.org/10.13057/biodiv/d130309>
- Syamsuardi, Jamsari, & D, Pohan. (2008). Genetic variation within population and gene flow between populations of *Morus macroura* Miq. var. *macroura* in West Sumatra. Paper presented at *The Sixth Regional IMT-GT UNINET Conference*, Penang.
- Vaidya, G., & G. R, Naik. (2014). Molecular identification of sex in *Simarouba glauca* by RAPD markers for crop improvement strategies. *Biotechnology Reports*, 15(4), 56–59. <https://doi.org/10.1016/j.btre.2014.08.003>
- Vinod, M. S., P. S, Raghavan., S, George., & A, Parida. (2007). Identification of a sex-specific SCAR marker in dioecious *Pandanus fascicularis* L. (Pandanaceae). *Genome*, 50(9), 834–839. <https://doi.org/10.1139/g07-066>
- Vos, P., R, Hogers., M, Bleeker., M, Reijans., T. V. D, Lee., M, Hornes., A, Friters., J, Pot., J, Paleman., M, Kuiper., & M, Zabeau. (1995). AFLP: A new technique

- for DNA fingerprinting. *Nucleic Acids Research*, 23(21), 4407–4414. <https://doi.org/10.1093/nar/23.21.4407>
- Wang, R. R. C., J. Chen., & L. R. Joppa. (1995). Production and identification of chromosome specific RAPD markers for Langdon durum wheat disomic substitution lines. *Crop Science*, 35(3), 886–888. <https://doi.org/10.2135/cropsci1995.0011183x003500030042x>
- Wang, K.-L., J. Xie., T. Zhang., & Z. J. Gu. (2005). A karyological study of four species in *Calamus* (Palmae: Calamoideae). *Acta Botanica Yunnanica*, 27, 87–91. <https://doi.org/10.1360/biodiv.050022>
- Westergaard, M. (1958). The mechanism of sex determination in dioecious flowering plants. *Advances in Genetics*, 9, 217–281. [https://doi.org/10.1016/s0065-2660\(08\)60163-7](https://doi.org/10.1016/s0065-2660(08)60163-7)
- Williams, J. G. K., A. R. Kubelik., K. J. Livak., J. A. Rafalski., & S. V. Tingey. (1990). DNA polymorphisms amplified by arbitrary primers are useful as genetic markers. *Nucleic Acids Research*, 18(22), 6531–6535. <https://doi.org/10.1093/nar/18.22.6531>
- Witono, J. R., & K. Kondo. (2007). Genetic relationship of *Pinanga coronata* accessions by RAPD markers. *Chromosome Botany*, 2, 93–97. <https://doi.org/10.3199/iscb.2.93>
- Wulandari, M., A. Arianto., & Yuandani. (2021). Phytochemical screening and emulgel formulation of jernang resin extract (*Daemonorops draco* (Willd) Blume). *Asian Journal of Pharmaceutical Research and Development*, 9(1). <http://dx.doi.org/10.22270/ajprd.v9i1.918>
- Yang, H., S. M. Gan., G. T. Yan, ., & H. C. Xu. (2005). Identification of random amplified polymorphic DNA markers linked to sex determination in *Calamus simplicifolius* C. F. Wei. *Journal of Integrative Plant Biology*, 47(10), 1249–1253. <https://doi.org/10.1111/j.1744-7909.2005.00113.x>
- Yang, L., M. A. Khan., Z. Mei., M. Yang., T. Zhang., C. Wei., W. Yang., L. Zhu., Y. Long., & J. Fu. (2014). Development of RAPD-SCAR markers for *Lonicera japonica* (Caprifoliaceae) variety authentication by improved RAPD and DNA cloning. *Revista de Biología Tropical*, 62(4), 1649–1657. <https://doi.org/10.15517/rbt.v62i4.13493>
- Yetty., B, Hariyadi., & P. Murni. (2013). Ethnobotany of jernang (*Daemonorops* spp.) in the community of Lamban Sigatal and Sepintun, Pauh, Sarlongun, Jambi. *Biospecies*, 6(1). <https://doi.org/10.22437/biospecies.v6i1.689>
- Younis, R. A. A., O. M. Ismail., & S. S. Soliman. (2008). Identification of sex-specific DNA markers for date palm (*Phoenix dactylifera* L.) using RAPD and ISSR techniques. *Research Journal of Agriculture and Biological Sciences*, 4(4), 278–284.
- Zhou, W., Y. Wang., G. Zhang., G. Luan., S. Chen., J. Meng., H. Wang., N. Hu., & Y. Suo. (2018). Molecular sex identification in dioecious *Hippophae*

rhamnoides L. via RAPD and SCAR markers. *Molecules*, 23(5), 1048.
<https://doi.org/10.3390/molecules23051048>

