

## DAFTAR PUSTAKA

- Abahmane, L. 2017. Cultivar-dependent direct organogenesis of date palm from shoot tip explants. In: Al-Khayri, J.M. (Ed). Date Palm Biotechnology Protocols Vol 1. Tissue Culture Application. Springer Protocols. Humana Press. Hatfield. UK. pp: 3-15.
- Acquaah, G. 2012. Principles of Plant Genetics and Breeding. 2<sup>nd</sup> Edition. Wiley-Blackwell. USA. 740 p.
- Ahmad, R.S., M.S. Butt, N. Huma, M.T. Sultan, M.U. Arshad, Z. Mushtaq & F. Saeed. 2014. Quantitative and qualitative portrait of green tea catechins (GTC) through HPLC. International Journal of Food Properties. 17: 1626-1636. <https://doi.org/10.1080/10942912.2012.723232>.
- Ahmed, S., J.R. Stepp, C. Orians, T. Griffin, C. Matyas, A. Robbat, S. Cash, D. Xue, C. Long, U. Unachukwu, S. Buckley, D. Small & E. Kennely. 2014. Effects of extreme climate events on tea (*Camellia sinensis*) functional quality validate indigenous farmer knowledge and sensory preferences in tropical China. PloS One. 9(10):e109126.
- Ahmed, S., T.S. Griffin, D. Kraner, M.K. Schaffner, D. Sharma, M. Hazel, A.R. Leitch, C.M. Orians, W. Han, J.R. Stepp, A. Robbat, C. Matyas, C. Long, D. Xue, R.F. Houser & S.B. Cash. 2019. Environmental factors variably impact tea secondary metabolites in the context of climate change. Frontiers in Plant Science. 10. 939. <https://doi.org/10.3389/fpls.2019.00939>.
- Akula, A. & C. Akula. 1999. Somatic Embryogenesis in Tea (*Camellia sinensis* (L.) O. Kuntze). In: Jain, S.M. (Ed). Somatic Embryogenesis in Woody Plants. Vol 5. Forestry Sciences. Kluwer Academic Publishers. pp. 239-257.
- Anwar, M., L. Chen, Y. Xiao, J. Wu, L. Zeng, H. Li, Q. Wu & Z. Hu. 2021. Recent advance metabolic and genetic engineering of phenylpropanoid biosynthetic pathways. International Journal of Molecular Sciences. 22. 9544. <https://doi.org/10.3390/ijms22179544>.
- Anjarsari, I.R.D. 2016. Katekin teh Indonesia : prospek dan manfaatnya. Jurnal Kultivasi. 15(2): 99-106.
- Astika, W. & D. Muchtar. 1978. Anjuran bahan tanaman teh tahun 1978. Warta BPTK. 4(3/4):297-306.
- Astika, W., Sutrisno & B. Sriyadi. 2001. Pengujian daya perakaran calon klon dari hasil seleksi pohon induk. Laporan Hasil Penelitian Tahun Anggaran 2000. 33-36.
- Bag, N., L.M.S. Palni & S.K. Nandi. 2019. An efficient method for acclimatization: in vitro hardening of tissue culture-raised tea plants (*Camellia sinensis* (L.) O. Kuntze). Current Science. 117(2):288-293. <https://doi.org/10.18520/cs/v117/i2/288-293>.

- Bag, N. & L.M.S. Palni. 2010. A two-step procedure for in vitro rooting of micropropagated tea (*Camellia sinensis* L. (O) Kuntze) microshoots. *Journal of Horticultural Science & Biotechnology*. 85(3): 197-204. <https://doi.org/10.1080/14620316.2010.11512654>.
- Baldauf, J.A., M. Liu, L. Vedder, P. Yu, H-P. Piepho, H. Schoof, D. Nettleton & F. Hochholdinger. 2022. Single-parent expression complementation contributes to phenotypic heterosis in maize hybrids. *Plant Physiology*. 189: 1625-1638. <https://doi.org/10.1093/plphys/kiac180>.
- Banerjee, B. 1992a. Botanical classification of tea. *In*: K.C. Willson, M.N. Clifford (Eds.). *Tea: Cultivation to Consumption*. Chapman and Hall. London. 29-51.
- Banerjee, B. 1992b. Selection and breeding of tea. *In*: K.C. Willson, M.N. Clifford (Eds.). *Tea: Cultivation to Consumption*. Chapman and Hall. London. 52-86.
- Barth, S., A.K. Busimi, H.F. Utz & A.E. Melchinger. 2003. Heterosis for biomass yield and related traits in five hybrids of *Arabidopsis thaliana* L. Heynh. *Heredity*. 91: 36-42.
- Bhatia, S., K. Sharma, R. Dahiya & T. Bera. 2015. *Modern Applications of Plant Biotechnology in Pharmaceutical Sciences*. Elsevier Inc. pp: 31-107.
- Bidarigh, S., A. Hatamzadeh & E. Azarpour. 2012. The study effect of IBA hormone levels on rooting in micro cuttings of tea (*Camellia sinensis* L.). *World Applied Sciences Journal*. 20(7): 1051-1054. <https://doi.org/10.5829/idosi.wasj.2012.20.07.1523>.
- Bidarigh, S. & E. Azarpour. 2013. Evaluation of the effect of MS medium levels on rooting in micro cuttings of tea (*Camellia sinensis* L.). *ARPN Journal of Agricultural and Biological Science*. 8(1):24-28.
- Borchetia, S., S.C. Das, P.J. Handique & S. Das. 2009. High multiplication frequency and genetic stability for commercialization of the three varieties of micropropagated tea plants (*Camellia* spp.). *Scientia Horticulturae*. 120: 544-550.
- Botet, R. & J.J.B. Keurentjes. 2020. The role of transcriptional regulation in hybrid vigor. *Frontiers in Plant Science*. 11: 410.
- Brassard, N., L. Brissette, D. Lord & S. Laliberte. 1996. Elongation, rooting and acclimatization of micropropagated shoots from mature material of hybrid larch. *Plant Cell, Tissue and Organ Culture*. 44: 37-44.
- Bruno, R.S., J.A. Bomser & M.G. Ferruzzi. 2013. Antioxidant capacity of green tea (*Camellia sinensis*). *In*: V.R. Preedy (Eds.). *Processing and Impact on Antioxidants in Beverages*. Elsevier. Amsterdam. 33-39.
- Buddhika, U.V.A., M.T.K. Gunasekare, S. Hettiarachi, M.A.B. Ranatunga & K.K.G.U. Hemamali. 2009. Preliminary study of the segregating pattern of anthocyanin

pigmentation as a marker to facilitate tea breeding. Proceedings of the Sixth Academic Sessions. 6: 32-38.

- Cao, H., J. Li, Y. Ye, H. Lin, Z. Hao, N. Ye & C. Yue. 2020. Integrative transcriptomic and metabolic analyses provide insights into the role of trichomes in tea plant (*Camellia sinensis*). *Biomolecules*. 10(311):1-20.
- Chan, E.W.C., Y.Y. Lim & Y.L. Chew. 2007. Antioxidant activity of *Camellia sinensis* leaves and tea from a lowland plantation in Malaysia. *Food Chemistry*. 102: 1214-1222.
- Chen, L., J. Bian, S. Shi, J. Yu, H. Khanzada, G.M. Wassan, C. Zhu, X. Luo, S. Tong, X. Yang, X. Peng, S. Yong, Q. Yu, X. He, J. Fu, X. Chen, L. Hu, L. Ouyang & H. He. 2018. Genetic analysis for the grain number heterosis of a superior-hybrid rice WFYT025 combination using RNA-Seq. *Rice*. 11(37): 1-13.
- Chen, L., Z-X. Zhou Y-J & Yang. 2007. Genetic improvement and breeding of tea plant (*Camellia sinensis*) in China: from individual selection to hybridization and molecular breeding. *Euphytica*. 154:239-248.
- Chen, X., P. Wang, Y. Zheng, M. Gu, X. Lin, S. Wang, S. Jin & N. Ye. 2020. Comparison of metabolome and transcriptome of flavonoid biosynthesis pathway in a purple-leaf tea germplasm Jinmingzao and a green-leaf tea germplasm Huangdan reveals their relationship with genetic mechanisms of color formation. *International Journal of Molecular Sciences*. 21. 4167. <https://doi.org/10.3390/ijms21114167>.
- Chen, Z.M. & L. Chen. 2012. Delicious and Healthy Tea: An Overview. *In*: L. Chen, Z. Apostolides, Z.M. Chen (Eds.). *Global Tea Breeding Achievements, Challenges and Perspectives*. Zhejiang University Press, Hangzhou and Springer-Verlag Berlin Heidelberg. 1-11.
- Das, S.C., S. Das & M. Hazarika. 2012. Breeding of the tea plant (*Camellia sinensis*) in India. *Global Tea Breeding*. Zhejiang University Press. Springer. pp. 69-124. Davies, P.J. 2010. *Plant hormones: biosynthesis, signal transduction, action*. 3<sup>rd</sup> Edition. Cornell University. New York. 1-15.
- De Klerk, G-J. 2002. Rooting of microcuttings: Theory and practice. *In Vitro Cellular & Developmental Biology-Plant*. 38: 415-422. <https://doi.org/10.1079/IVP2002335>.
- Debergh, P., J. De Riek & D. Matthys. 1994. Nutrient supply and growth of plants in culture. *In*: *Physiology, growth and development of plants in culture*. pp: 58-68. Springer.
- Do, C.T., B. Pollet, J. Thevenin, R. Sibout, D. Denoue, Y. Barriere, C. Lapierre & L. Jouanin. 2007. Both caffeoyl Coenzyme A 3-O-methyltransferase 1 and caffeic acid O-methyltransferase 1 are involved in redundant functions for

lignin, flavonoids and sinapoyl malate biosynthesis. *Planta*. 226: 1117–1129.  
<https://doi.org/10.1007/s00425-007-0558-3>.

Dong, C., C. Yang, Z. Liu, R. Zhang, P. Yan., T. An, Y. Zhao & Y. Li. 2021. Nondestructive testing and visualization of catechin content in black tea fermentation using hyperspectral imaging. *Sensors*. 21(23). 8051.  
<https://doi.org/10.3390/s21238051>.

Druege, U., P. Franken & M.R. Hajirezaei. 2016. Plant hormone homeostasis, signaling, and function during adventitious root formation in cuttings. *Frontiers in Plant Science*. 7(381):1-14.

Du, G-J., Z. Zhang, X-D. Wen, C. Yu, T. Calway, C-S. Yuan & C-Z. Wang. 2012. Epigallocatechin gallate (EGCG) is the most effective cancer chemopreventive polyphenol in green tea. *Nutrients*. 4:1679-1691.  
[doi:10.3390/nu4111679](https://doi.org/10.3390/nu4111679).

Du, Z., Y. Hu & N.A. Buttar. 2020. Analysis of mechanical properties for tea stem using grey relational analysis coupled with multiple linear regression. *Scientia Horticulturae*. 260. <https://doi.org/10.1016/j.scienta.2019.108886>

Ermer, J. & H.M. Miller. 2014. Method validation in pharmaceutical analysis. a guide to best practice. Wiley-VCH Verlag GmbH & Co.KgaA. Weinheim. 418 p.

Eskundari, R.D. 2019. Perbanyak tanaman teh klon TRI-2025 melalui budidaya jaringan dengan eksplan aksis embrio. Disertasi. Universitas Gadjah Mada.

Feng, L., T. Yang, Z. Zhang, F. Li, Q. Chen, J. Sun, C. Shi, W. Deng, M. Tao, Y. Tai, H. Yang, Q. Cao & X. Wan. 2018. Identification and characterization of cationic amino acid transporters (CATs) in tea plant (*Camellia sinensis*). *Plant Growth Regulation*. 84: 57-69. <https://doi.org/10.1007/s10725-017-0321-0>.

Firoozabady E. & Y. Moy. 2004. Regeneration of pineapple via somatic embryogenesis and organogenesis. *In vitro Cell Dev Biol-Plant*. 40: 67-74.

Fu, J., L. Li, S. Wang, N. Yu, H. Shan, Z. Shi, F. Li & X. Zhong. 2023. Effect of gibberellic acid on photosynthesis and oxidative stress response in maize under weak light conditions. *Frontiers in Plant Science*. 14: 1128780.  
<https://doi.org/10.3389/fpls.2023.1128780>.

Gaba, V.P. 2005. Plant growth regulators in plant tissue culture and development. *In: R.N. Trigiano, D.J. Gray. Plant Development and Biotechnology*. CRC Press. New York. 87-99.

Gahan, P.B. 2007. Totipotency and the cell cycle. *In: S.M. Jain, H. Haggman. Protocols for Micropropagation of Woody Trees and Fruits*. Springer. Netherlands. 3-14.

- George, E.F., M.A. Hall & G-J. De Klerk. 2008. Plant Propagation by Tissue Culture 3<sup>rd</sup> Edition. Volume 1. The Background. Springer. Netherlands. p 73.
- Gerats, A.M. & C. Martin. 1992. Flavonoid synthesis in *Petunia hybrida*; Genetics and molecular biology of flower colour. In: H.A. Stafford & R.K. Ibrahim (Eds). Phenolic Metabolism in Plants. pp. 167-175. Plenum Press. New York.
- Ghabru, A. & R.G. Sud. 2017. Qualitative and quantitative evaluation of flavanols in green tea (*Camellia sinensis* (L.) O Kuntze). The Pharma Innovation. 6(9): 404-410.
- Goba, V.P. 2005. Plant growth regulators in plant tissue culture and development. In Trigiano R.N. & D.J. Gray. Editors. Plant Development and Biotechnology. CRC Press. p. 355.
- Gonbad, R.A., U.R. Sinniah, M.A. Aziz & R. Mohamad. 2014. Influence of cytokinins in combination with GA<sub>3</sub> on shoot multiplication and elongation of tea clone Iran 100 (*Camellia sinensis* (L.) O. Kuntze). The Scientific World Journal. 1-9. <http://dx.doi.org/10.1155/2014/943054>.
- Gonzales-Sarrias, A., E. Combet, P. Pinto, P. Mena, M. Dall'Asta, M. Garcia-Aloy, A. Rodriguez-Mateos, E.R. Gibney, J. Dummont, M. Massaro. 2017. A systematic review and meta-analysis of the effects of flavanol-containing tea, cocoa and apple products on body composition and blood lipids: Exploring the factors responsible for variability in their efficacy. Nutrients. 9: 746. <https://doi.org/10.3390/nu9070746>.
- Grabherr, M.G., B.J. Haas, M. Yassour, J.Z. Levin, D.A. Thompson, I. Amit, X. Adiconis, L. Fan, R. Raychowdhury, Q. Zeng, et al. 2011. Full-length transcriptome assembly from RNA-Seq data without a reference genome. Nature Biotechnology. 29: 644-652. <https://doi.org/10.1038/nbt.1883>.
- Gunasekare, M.T, M.A.B. Ranatunga, J.H.N. Piyasundara & J.D. Kottawa-Arachchi. 2012. Tea genetic resources in Sri Lanka: collection, conservation, and appraisal. International Journal of Tea Science. 8:51-60.
- Guo, Y., C. Zhu, S. Zhao, S. Zhang, W. Wang, H. Fu, X. Li, C. Zhou, L. Chen, Y. Lin & Z. Lai. 2019. De novo transcriptome and phytochemical analysis reveal differentially expressed genes and characteristic secondary metabolites in the original oolong tea (*Camellia sinensis*) cultivar 'Tieguanyin' compared with cultivar 'Benshan'. BMC Genomics. 20: 265.
- Hajiboland, R. 2017. Environmental and nutritional requirements for tea cultivation. Folia Hortic. 29(2):199-220.
- Haq, M.S., Y. Rachmiati & Karyudi. 2014. Pengaruh pupuk daun terhadap hasil dan komponen hasil pucuk tanaman teh (*Camellia sinensis* (L.) O. Kuntze var. *assamica* (Mast.) Kitamura). Jurnal Penelitian Teh dan Kina. 17(2): 47-56.

- Harbowy, M.E. & D.A. Ballentine. 1997. Tea chemistry. *Critical Reviews in Plant Sciences*. 16:415-480.
- He, X., X. Zhao, L. Gao, X. Shi, X. Dai, Y. Liu, T. Xia & Y. Wang. 2018. Isolation and characterization of key genes that promote flavonoid accumulation in purple leaf tea (*Camellia sinensis* L.). *Scientific Reports*. 8(130):1-13. <https://doi.org/10.1038/s41598-017-18133-z>.
- Herdiana, N., A.H. Lukman & K. Mulyadi. 2008. Pengaruh dosis dan frekuensi aplikasi pemupukan NPK terhadap pertumbuhan *Shorea ovalis* Korth. (Blume). *Jurnal Penelitian Hutan dan Konservasi Alam*. 5(1):289-296.
- Hernandez, M.M., S. Song & C.M. Menendez. 2015. Influence of genetic and vintage factors in flavan-3-ol composition of grape seeds of a segregating *Vitis vinifera* population. *Journal of the Science of Food and Agriculture*. <https://doi.org/10.1002/jsfa.7720>.
- Hochholding, F. & J.A. Baldauf. 2018. Heterosis in plants. *Current Biology*. 28: 1089-1092.
- Hoisington, D., M. Khairallah, T. Reeves, J.M. Ribaut, B. Skovmand, S. Taba & M. Warburton. 1999. Plant genetic resources: What can they contribute toward increased crop productivity?. *Proceedings of the National Academy of Sciences* 96(11): 5937-5943. National Academy of Sciences Colloquium "Plants and Population: Is There Time?". 1998 Des 5-6. Irvine. USA. US: Arnold and Mabel Beckman Center.
- Horzic, D., D. Komes, A. Belscak, K.K. Ganic, D. Ivekovic & D. Karlovic. 2009. The composition of polyphenols and methylxanthines in teas and herbal infusions. *Food Chemistry*. 115: 441-448.
- Hsu, C.P., Y.T. Shih, B.R. Lin, C.F. Chiu & C.C. Lin. 2012. Inhibitory effect and mechanisms of an anthocyanins and anthocyanidins rich extract from purple-shoot tea on colorectal carcinoma cell proliferation. *Journal of Agricultural Food Chemistry*. 60:3686-3692.
- IPGRI. 1997. Descriptor for tea (*Camellia sinensis*). International Plant Genetic Resources Institute. Roma.
- Jha, T. & S.K. Sen. 1992. Micropropagation of an elite Darjeeling tea clone. *Plant Cell Reports*. 11:101-104.
- Jiang, L., X. Shen, T. Shoji, T. Kanda, J. Zhou & L. Zhao. 2013. Characterization and activity of anthocyanins in Zijuan tea (*Camellia sinensis* var. *kitamura*). *Journal of Agricultural and Food Chemistry*. 1-5.
- Jin, J-Q., Y-F. Liu, C-L. Ma, J-Q. Ma, W-J. Hao, Y-X. Xu, M-Z. Yao & L. Chen. 2018. A novel *F3'5'H* allele with 14 bp deletion is associated with high catechin index trait of wild tea plants and has potential use in enhancing tea quality. *Journal of Agricultural and Food Chemistry*. 66(40): 10470-10478. <https://doi.org/10.1021/acs.jafc.8b04504>.
- Joshi, R., A. Rana & A. Gulati. 2015. Studies on quality of orthodox teas made from anthocyanin-rich tea clones growing in Kangra valley, India. *Food Chemistry*. 176:357-366. <http://dx.doi.org/10.1016/j.foodchem.2014.12.067>



- Joshi, R., A. Rana, V. Kumar, D. Kumar, Y.S. Padwad, S.K. Yadav & A. Gulati. 2017. Anthocyanins enriched purple tea exhibits antioxidant, immunostimulatory and anticancer activities. *Journal of Food Science and Technology* 54. 1953–1963. <https://doi.org/10.1007/s13197-017-2631-7>.
- Kamunya, S.M., F.N. Wachira, R.S. Pathak, R.C. Muoki & R.K. Sharma. 2012. Tea improvement in Kenya. *In*: L. Chen, Z. Apostolides, Z.M. Chen (Eds.). *Global Tea Breeding. Achievement, Challenges and Perspectives*. Zhejiang University Press. pp. 177-226.
- Kamunya, S.M., F.N. Wachira, R.S. Pathak, R.C. Muoki, J.K. Wanyoko, W.K. Ronno & R.K. Sharma. 2009. Quantitative genetic parameters in tea (*Camellia sinensis* (L.) O. Kuntze): I. combining abilities for yield, drought tolerance and quality traits. *African Journal of Plant Science*. 3(5): 93-101.
- Kamunya, S.M., N.M. Lubang'a, O. Kiplagat, J.K. Wanyoko, R.M. Chalo. 2017. Heterosis for catechins and caffeine in Kenyan tea (*Camellia sinensis* (L.) O. Kuntze). *International Journal of Tea Science*. 13(1&2):1-12.
- Kaur, L., S. Jayasekera & P.J. Moughan. 2013. Antioxidant quality of tea (*Camellia sinensis*) as affected by environmental factors. *In*: V.R. Preedy (Eds.). *Processing and Impact on Antioxidants in Beverages*. Elsevier. Amsterdam. 121-129.
- Kerio, L.C., F.N. Wachira, J.K. Wanyoko & M.K. Rotich. 2012. Characterization of anthocyanins in Kenyan teas: extraction and identification. *Food Chemistry*. 131:31-38.
- Kerio, L.C., F.N. Wachira, J.K. Wanyoko & M.K. Rotich. 2013. Total polyphenols, catechin profiles and antioxidant activity of tea products from purple leaf coloured tea cultivars. *Food Chemistry*. 136:1405-1413. <https://doi.org/10.1016/j.foodchem.2012.09.066>.
- Khan, N. & H. Mukhtar. 2018. Tea polyphenols in promotion of human health. *Nutrient*. 11(1). 39. <https://doi.org/10.3390/nu11010039>.
- Kilel, E.C., A.K. Faraj, J.K. Wanyoko, F.N. Wachira & V. Mwingirwa. 2013. Green tea from purple leaf coloured tea clones in Kenya-their quality characteristics. *Food Chemistry*. 141:769-775.
- Kim, H.M. & J. Kim. 2013. The effects of green tea on obesity and type 2 diabetes. *Diabetes and Metabolism Journal*. 37(3):173-175.
- Kingori, S.M., S.O. Ochanda, E.J. Kipsura & K. Titus. 2019. Effects of processing technologies on the levels of chlorogenic acid, gallic acid and theanine in selected Kenyan tea cultivars by HPLC-PDA. *Journal of Food Science and Nutrition Research*. 2(1):38-48.
- Koch, W., W. Kukula-Koch, L. Komsta, Z. Marzec, W. Szwerz & K. Glowinski. 2018. Green tea quality evaluation based on its catechins and metals composition in combination with chemometric analysis. *Molecules*. 23(7):1689. <https://doi.org/10.3390/molecules23071689>.
- Kottawa-Arachchi, J.D., M.T.K. Gunasekare, M.A.B. Ranatunga, P.A.N. Punyasiri & L. Jayasinghe. 2013. Use of biochemical compounds in tea germplasm

characterization and its implications in tea breeding in Sri Lanka. Journal of the National Science Foundation of Sri Lanka. 41(4):309-318.

- Kottawa-Arachchi, J.D., M.T.K. Gunasekare & M.A.B. Ranatunga. 2017. Variations in yield related traits of tea (*Camellia sinensis* L.) germplasm accessions and its utilization in tea breeding programme. Sri Lanka Journal of Tea Science. 80(1/2):55-66.
- Kottawa-Arachchi, J.D., M.A.B. Ranatunga & K.K. Ranaweera. 2019. Recent progress of intra-specific hybridization of tea (*Camellia sinensis* (L.) O. Kuntze) in Sri Lanka. Sri Lanka J. Food Agric. 5. 19–26. <https://doi.org/10.4038/slifa.v5i1.67>.
- Law, M., N. Wald & J. Morris. 2003. Lowering blood pressure to prevent myocardial infarction and stroke: a new preventive strategy. Health Technology Assessment. 7(31):1-94.
- Lee, L-S. S-H. Kim, Y-B. Kim & Y-C. Kim. 2014. Quantitative analysis of major constituents in green tea with different plucking periods and their antioxidant activity. Molecules. 19. 9173-9186. <https://doi.org/10.3390/molecules19079173>.
- Li, C.F., Y. Zhu, Y. Yu, Q.Y. Zhao, S.J. Wang, X.C. Wang, M.Z. Yao, D. Luo, X. Li, L. Chen & Y.J. Yang. 2011. Global transcriptome and gene regulation network for secondary metabolite. BMC Genomics. 16(560):1-21.
- Li, D., N. Martini, Z. Wu & J. Wen. 2012. Development of an isocratic HPLC method for catechin quantification and its application to formulation KAJIANes. Fitoterapia. 83:1267-1274. <https://doi.org/10.1016/j.fitote.2012.06.006>.
- Li, P., Y. Xu, Y. Zhang, J. Fu, S. Yu, H. Guo, Z. Chen, C. Chen, X. Yang, S. Wang & J. Zhao. 2020. Metabolite profiling and transcriptome analysis revealed the chemical contributions of tea trichomes to tea flavors and tea plant defenses. Journal of Agricultural and Food Chemistry. <https://dx.doi.org/10.1021/acs.jafc.0c04075>.
- Liu, C., X. Chen, P. Ma, S. Zhang, C. Zeng, X. Jiang & W. Wang. 2018. Ethylene responsive factor MeERF72 negatively regulates sucrose synthase 1 gene in cassava. International Journal of Molecular Sciences. 19: 1281. <https://doi.org/10.3390/ijms19051281>.
- Liu, M., H-lu. Tian, J-H. Wu, R-R. Cang, R-X. Wang, X-H. Qi, Q. Xu & X-H. Chen. 2015. Relationship between gene expression and the accumulation of catechin during spring and autumn in tea plants (*Camellia sinensis* L.). Horticulture research. 2.15011. <https://doi.org/10.1038/hortres.2015.11>.
- Liu, S., Y. An, F. Li, S. Li, L. Liu, Q. Zhou, S. Zhao & C. Wei. 2018. Genome-wide identification of simple sequence repeats and development of polymorphic SSR markers for genetic KAJIANes in tea plant (*Camellia sinensis*). Molecular Breeding. 38(59):1-13.
- Liu, W., Y. Zhang, H. He, G. He & X.W. Deng. 2022. From hybrid genomes to heterotic trait output: challenges and opportunities. Current Opinion in Plant Biology. 66. 1022193. <https://doi.org/10.1016/j.pbi.2022.102193>.



- Liu, X., S. Zhang, M. Sun, Y. Guo, S. Zhao, X. Zhou, X. Bai, K. Dai, H. Li, X. Yuan, W. Shi, P. Guo & J. Guo. 2023. *SiMYBS3*, encoding a *Setaria italica* heterosis-related MYB transcription factor, confers drought tolerance in *Arabidopsis*. *International Journal of Molecular Sciences*. 24. 5418.
- Liu, Y., L. Gao, L. Liu, Q. Yang, Z. Lu, Z. Nie, Y. Wang & T. Xia. 2012. Purification and characterization of novel galloyltransferase involved in catechin galloylation in the tea plant (*Camellia sinensis*). *The Journal of Biological Chemistry*. 287(53):44406-44417.
- Lubang'a, N.M., S.M. Kamunya, O. Kiplagat, J.K. Wanyoko & R.M. Chalo. 2017. Heterosis for catechins and caffeine in Kenyan tea (*Camellia sinensis* (L.) O. Kuntze). *International Journal of Tea Science*. 13(1&2): 60-71. <https://doi.org/10.20425/ijts.v13i01-02.11397>.
- Magoma, G.N., F.N. Wachira, M. Obanda, M. Imbuga & S.G. Agong. 2000. The use of catechins as biochemical markers in diversity studies of tea (*Camellia sinensis*). *Genetic Resources and Crop Evolution*. 47: 107-114.
- Malyukova, L.S., L.S. Samarina & N.V. Zagoskina. 2022. Genetic mechanisms of the biosynthesis of catechins, caffeine and L-theanine in the tea plant *Camellia sinensis* (L.) Kuntze. *Agricultural Biology*. 57(5): 882-896. <https://doi.org/10.15389/agrobiology.2022.5.882eng>.
- Marimuthu, S. & R.R. Kumar. 2001. Physiological and biochemical responses of micropropagated tea plants. *In Vitro Cellular & Developmental Biology-Plant*. 37: 618-621.
- Martini, A.N., G. Vlachou & M. Papafotiou. 2022. Effect of explant origin and medium plant growth regulators on in vitro shoot proliferation and rooting of *Salvia tomentosa*, a native sage of the Northeastern Mediterranean Basin. *Agronomy*. 12. 1889.
- Martono, B. & L. Udarno. 2015. Kandungan kafein dan karakteristik morfologi pucuk enam genotipe teh. *Jurnal Tanaman Industri dan Penyegar*. 2(2): 69-76.
- Martono B. & Syafaruddin. 2018. Analisis keragaman genetik 21 genotipe teh (*Camellia sinensis* (L.) O. Kuntze) berdasarkan penanda RAPD. *Jurnal Tanaman Industri dan Penyegar*. 5(2):77-86.
- Mehraj, H., T. Kawanabe, M. Shimizu, N. Miyaji, A. Akter, E.S. Dennis, & R. Fujimoto. 2020. In *Arabidopsis thaliana* heterosis level varies among individuals in an F1 hybrid population. *Plants*. 9. 414.
- Mitrowihardjo S. 2012. Kandungan katekin dan hasil pucuk beberapa klon teh (*Camellia sinensis* (L.) O. Kuntze) unggulan pada ketinggian yang berbeda di kebun Pagilaran. Disertasi Program KAJIAN Pemuliaan Tanaman. Fakultas Pertanian UGM. Yogyakarta.
- Mitrowihardjo, S., W. Mangoendidjojo, H. Hartiko, P. Yudono. 2012. Kandungan katekin dan mutu (warna air seduhan, flavor, kenampakan), enam klon teh

(*Camellia sinensis* (L.) O. Kuntze) di ketinggian yang berbeda. *Agritech*. 32(2):199-206.

- Mitsis, T., A. Efthimiadou, F. Bacopoulou, D. Vlachakis, G.P. Chrousos & E. Eliopoulos. 2020. Transcription factors and evolution: An integral part of gene expression (Review). *World Academy of Sciences Journal*. 2: 3-8. <https://doi.org/10.3892/wasj.2020.32>.
- Molina, S.P., M.L. Perez, H.Y. Rey & L.A. Mroginski. 2013. Plant regeneration of tea (*Camellia sinensis*) by in vitro culture of meristems, axillary buds and uninodal segments. *FCA UNCUYO*. 45(1): 127-134.
- Moncousin, C.H. 1991. Rooting of in vitro cuttings. In: *Biotechnology in Agriculture and Forestry*. Volume 17. Bajaj, Y.P.S., Ed. Springer-Verlag, Berlin. Germany. pp: 231-261.
- Mondal, T.K. 2014. Breeding and biotechnology of tea and its wild species. Springer. New Delhi. 19-123.
- Mondal, T.K. 2020. Tea: Genome and Genetics. Springer Nature. Singapore. p. 240.
- Mukhopadhyay, M. & T.K. Mondal. 2017. Cultivation, improvement and environmental impacts of tea. *Oxford Research Encyclopedia*. 1-23.
- Nadia, M.D. & O. Alicia. 2014. Corset: enabling differential gene expression analysis for de novo assembled transcriptomes. *Genome Biology*. 15. 1-14.
- Nakamura, Y. 1991. In vitro propagation techniques of tea plants. *JARQ*. 25: 185-194.
- Nesumi, A., A. Ogino, K. Yoshida, F. Taniguchi, Y.M. Maeda, J. Tanaka & A. Murakami. 2012. 'Sunrouge', a new tea cultivar with high anthocyanin. *JARQ-Japanese Journal of Agricultural Research*. 46:321-328.
- Nilasari, A.N., J.B.S. Heddy & T. Wardiyati. 2013. Identifikasi keragaman morfologi daun manga (*Mangifera indica* L.) pada tanaman hasil persilangan antara varietas Arumanis 143 dengan Podang Urang umur 2 tahun. *Jurnal Produksi Tanaman*. 1(1):61-69.
- Nuryana, I., S. Ratnakomala, Fahrurrozi, A.B. Juanssilfero, A. Andriani, F.J.N. Putra, E. Rezamela, R. Wulansari, M.I. Prawira-Atmaja & P. Lisdiyanti. 2020. Catechin contents, antioxidant and antibacterial activities of different types of Indonesian tea (*Camellia sinensis*). *Annales Bogorienses*. 24(2): 106-113. <https://doi.org/10.14203/ann.bogor.2020.v24.n2>.
- Obanda, M. & P.O. Owuor. 1997. Flavanol composition and caffeine content of green leaf as quality potential indicators of Kenyan black teas. *Journal of the Science of Food and Agriculture*. 74:209-215.
- Owuor, P.O. & I. McDowell. 1994. Changes in theaflavin composition and astringency during black tea fermentation. *Food Chemistry*. 51:251-254.

- Ozden-Tokatli, Y., E.A. Ozudogru & A. Akein. 2005. In vitro response of pistachio nodal explants to silver nitrate. *Scientia Horticulturae*. 106: 415-426. <https://doi.org/10.1016/j.scienta.2005.04.001>.
- Pacurar, D.I., I. Perrone & C. Bellini. 2014. Auxin is a central player in the hormone cross-talks that control adventitious rooting. *Physiologia Plantarum*. 151:83-96.
- Pamungkas, M.A. & Supijatno. 2017. Pengaruh pemupukan nitrogen terhadap tinggi dan percabangan tanaman teh (*Camellia sinensis* (L.) O. Kuntze) untuk pembentukan bidang petik. *Buletin Agronomi*. 5(2): 234-241. <https://doi.org/10.29244/agrob.v5i2.16804>.
- Pang, D., Y. Liu, Y. Sun, Y. Tian & L. Chen. 2021. Menghai Huangye, a novel albino tea germplasm with high theanine content and a high catechin index. *Plant Science*. 311(110997). <https://doi.org/10.1016/j.plantsci.2021.110997>.
- Perrot-Rechenmann, C. 2010. Cellular responses to auxin: Division versus expansion. *Cold Spring Harbor Perspectives in Biology*. 2. A001446. <https://doi.org/10.1101/cshperspect.a001446>.
- Piyasundara, J.H.N., M.T.K. Gunasekare, T.U.S. Peiris & I.P. Wickramasinghe. 2006. Phenotypic diversity of Sri Lankan tea (*Camellia sinensis* L) germplasm based on morphological descriptors. *Tropical Agriculture Research* 18: 237-243.
- Preedy, V.R. 2013. Tea in health and disease prevention. Academic Press. Cambridge. 3-125.
- Purwati, R.D., T.D.A. Anggraeni & H. Sudarmo. 2015. Keragaman karakter morfologi sumber daya genetik wijen (*Sesamum indicum* L.). *Buletin Tanaman Tembakau, Serat dan Minyak Industri*. 7(2): 69-78.
- Qi, T.C., S.S. Song, Q.C. Ren, D.W. Wu, H. Huang, Y. Chen, M. Fang, W. Peng, C.M. Ren, D.X. Xie. 2011. The jasmonate-ZIM-domain proteins interact with the WD-Repeat/bHLH/MYB complexes to regulate jasmonate-mediated anthocyanin accumulation and trichome initiation in *Arabidopsis thaliana*. *Plant Cell*. 23: 1795-1814. <https://doi.org/10.1105/tpc.111.083261>.
- Rahadi, V.P., H.S. Khomaeni & B. Sriyadi. 2016a. Pengujian daya tumbuh setek klon teh (*Camellia sinensis*) hasil persilangan klon-klon generasi pertama. *Jurnal Penelitian Teh dan Kina*. 19(2):124-130.
- Rahadi, V.P., H.S. Khomaeni, L. Chaidir & B. Martono. 2016b. Keragaman dan kekerabatan genetik koleksi sumber daya genetik teh berdasarkan karakter morfologi daun dan komponen hasil. *Jurnal Tanaman Industri dan Penyegar*. 3(2): 103-108.
- Rainiyati, D. Martino, Gusniwati & Jasminarni. 2007. Perkembangan pisang raja nagka (*Musa* sp.) secara kultur jaringan dari eksplan anakan dan meristem bunga. *Jurnal Agronomi*. 11(1): 35-40.

- Rajkumar, S., S. Karthigeyan, R.K. Sud, R. Rajkumar, S.C. Das & P.S. Ahuja. 2010. Genetic diversity of Indian tea (*Camellia sinensis* (L.) Kuntze) germplasm detected using morphological characteristics. *Journal of Cell & Plant Sciences*. 1(1):13-22.
- Ranatunga, M.A.B. 2019. Advances in tea ((*Camellia sinensis* (L.) O. Kuntze) breeding. *In*: J.M. Al-Khayri, S.M. Jain, D.V. Johnson. *Advances in Plant Breeding Strategies*. Nut and Beverage Crops. Vol. 4. Springer. Switzerland. 517-565.
- Ranatunga, M.A.B., M.T.K. Gunasekara & M. Ratnayake. 2009. Morphological attributes for prediction of quality of made tea during early selection stages of tea breeding. *S. L. J. Tea Sci*. 74(1): 19-30.
- Rashid, K., F.N. Wachira, J.N. Nyabuga, B. Wanyonyi, G. Murilla & A.O. Isaac. 2014. Kenyan purple tea anthocyanins ability to cross the blood brain barrier and reinforce brain antioxidant capacity in mice. *Nutritional Neuroscience*. 17(4):178-185.
- Rieseberg, L.H., M.A. Archer & R.K. Wayne. 1999. Transgressive segregation, adaptation and speciation. *Heredity*. 363-372. <https://doi.org/10.1038/sj.hdy.6886170>.
- Rout, G.R. 2006. Effect of auxins on adventitious root development from single node cuttings of *Camellia sinensis* (L.) Kuntze and associated biochemical changes. *Plant Growth Regulation*. 48: 111-117. <https://doi.org/10.1007/s10725-005-5665-1>.
- Routaboul, J.-M., L. Kerhoas, I. Debeaujon, L. Pourcel, M. Caboche, J. Einhorn & L. Lepiniec. 2006. Flavonoid diversity and biosynthesis in seed of *Arabidopsis thaliana*. *Planta*. 224: 96–107. <https://doi.org/10.1007/s00425-005-0197-5>.
- Ru, S., D. Main, K. Evans & C. Peace. 2015. Current applications, challenges, and perspectives of marker-assisted seedling selection in Rosaceae tree fruit breeding. *Tree Genetics & Genomes*. 11(8):1-12.
- Saha, S., H. Mori & K. Hattori. 2007. Synergistic effect of kinetin and benzyl adenine plays a vital role in high frequency regeneration from cotyledon explants of bottle gourd (*Lagenaria siceraria*) in relation to ethylene production. *Breeding Science*. 57: 197-202. <https://doi.org/10.1270/jsbbs.57.197>.
- Sanchez, M., S.H. Gurusinghe, K.J. Bradford & J.M. Vazquez-Ramos. 2005. Differential response of PCNA and Cdk-A proteins and associated kinase activities to benzyladenine and abscisic acid during maize seed germination. *Journal of Experimental Botany*. 56: 5515-423.
- Sang, S., J.D. Lambert, C-T. Ho & C.S. Yang. 2011. The chemistry and biotransformation of tea constituents. *Pharmacological Research*. 64:87-99.
- Sharma, S., S. Kaushik & S.N. Raina. 2018. Estimation of nuclear DNA content and its variation among Indian Tea accessions by flow cytometry. *Physiology and Molecular Biology of Plants*. 25(2):339-346.

- Shiji, P.C. & E.A. Siril. 2018. An improved micropropagation and ex vitro rooting of a commercially important crop Henna (*Lawsonia inermis* L.). *Physiology and Molecular Biology of Plants*. 24(6): 1273-1284. <https://doi.org/10.1007/s12298-018-0600-x>.
- Singh, B.N., S. Shankar & R.K. Srivastava. 2011. Green tea catechin, epigallocatechin-3-gallate (EGCG): mechanisms, perspectives and clinical applications. *Biochem Pharmacol*. 82(12): 1807-1821. <https://doi.org/10.1016/j.bcp.2011.07.093>.
- Singh, K., S. Kumar, A. Rani, A. Gulati, P.S. Ahuja. 2009. Phenylalanine ammonia-lyase (PAL) and cinnamate-4-hydroxylase (C4H) and catechins (flavan-3-ols) accumulation in tea. *Functional & Integrative Genomics*. 9: 125-134. <https://doi.org/10.1007/s10142-008-0092-9>
- Singh, S., R.K. Sud, A. Gulati, R. Joshi, A.K. Yadav & R.K. Sharma. 2012. Germplasm appraisal of western Himalayan tea: a breeding strategy for yield and quality improvement. *Genetic Resources and Crop Evolution*. 60: 1501-1513.
- Sriyadi, B. 2015. Penilaian hubungan genetik klon teh berdasarkan komponen senyawa kimia utama dan potensi hasil. *Jurnal Penelitian Teh dan Kina*. 18(1): 1-10.
- Sriyadi, B. 2011. Pelepasan klon teh sinensis unggul GMBS 1, GMBS 2, GMBS 3, GMBS 4, dan GMBS 5. *Jurnal Penelitian Teh dan Kina*. 14(2): 59-71.
- Sriyadi, B., R. Suprihatini & H.S. Khomaeni. 2012. The development of high yielding tea clones to increase Indonesian tea production. *In*: L. Chen, Z. Apostolides, Z.M. Chen. *Global Tea Breeding: Achievements, Challenges and Perspectives*. Zhejiang University Press, Hangzhou and Springer-Verlag Berlin Heidelberg. pp. 299-308.
- Suganthi, M., S. Arvinth & R.R. Kumar. 2012. Impact of osmotica and abscisic acid on direct somatic embryogenesis in tea. *International Journal of Plant Research*. 2:22-27.
- Sun, B., Z. Zhu, R. Liu, L. Wang, F. Dai, F. Cao & S. Liu. 2020. Transparent testa glabra1 (TTG1) regulates leaf trichome density in tea *Camellia sinensis*. *Nordic Journal of Botany*. 1-10.
- Syafaruddin. 2017. Laporan Tahunan 2017. Balai Penelitian Tanaman Industri dan Penyegar. 4-6 pp.
- Syahbudin, A., A. Widyastuti, N.W. Masruri & A. Meinata. 2019. Morphological classification of tea clones (*Camellia sinensis*, *Theaceae*) at the mount Lawu forest, East Java, Indonesia. *IOP Conference Series: Earth and Environmental Science*. <https://doi.org/10.1088/1755-1315/394/1/012014>
- Tahardi, J.S., T. Raisawati, I. Riyadi & W.A. 2000. Dodd. Direct somatic embryogenesis and plant regeneration in tea by temporary liquid immersion. *Menara Perkebunan*. 68(1):1-9.



- Tai, Y., C. Wei, H. Yang, L. Zhang, Q. Chen, W. Deng, S. Wei, J. Zhang, C. Fang, C. Ho & X. Wan. 2015. Transcriptomic and phytochemical analysis of the biosynthesis of characteristic constituents in tea (*Camellia sinensis*) compared with oil tea (*Camellia oleifera*). *BMC Plant Biology*. 15(190):1-13.
- Tanaka, T., C. Mine & S. Watarumi. 2009. Production of theaflavins and theasinensins during tea fermentation. *In*: H.G. Cutler (Eds.). *Biologically active natural products*. American Chemical Society. Washington DC. 188-196.
- Tang, H., M. Zhang, J. Liu & J. Cai. 2022. Metabolomic and transcriptomic analyses reveal the characteristics of tea flavonoids and caffeine accumulation and regulation between chinese varieties (*Camellia sinensis* var. *sinensis*) and assam varieties (*C. sinensis* var. *assamica*). *Genes*. 13.1994. <https://doi.org/10.3390/genes13111994>.
- Tanton, T.W. 1992. Tea crop physiology. *In*: K.C. Willson, M.N. Clifford (Eds.). *Tea: Cultivation to Consumption*. Chapman and Hall. London. pp. 173 – 199.
- Taryono, W. Sriyanto & Sholehan. 2014. Adventitious root characteristics of some Assamica tea clones (*Camellia sinensis* L. Kuntze). *Ilmu Pertanian*. 17: 37-45.
- Thawonsuwan, J., V. Kiron, S. Satoh, A. Panigrahi & V. Verlhac. 2010. Epigallocatechin-3-gallate (EGCG) affects the antioxidant and immune defense of the rainbow trout, *Oncorhynchus mykiss*. *Fish Physiology and Biochemistry*. 3:687-697. <https://doi.org/10.1007/s10695-009-9344-4>.
- Thomas, P. & J.W. Schiefelbein. 2004. Roles of leaf in regulation of root and shoot growth from single node softwood cuttings of grape (*Vitis vinifera*). *Annals of Applied Biology*. 144: 27-37.
- Thuvaraki, B., M.A.B. Ranatunga, J.D. Kottawa-Arachchi & V.A. Sumanasinghe. 2017. Characterization of new tea (*Camellia sinensis* L.) hybrid hibridaes based on morphological traits. *International Journal of Tea Science*. 13(1&2): 1-9. <https://doi.org/10.20425/ijts.v13i01-02.9980>.
- Tomohiro, A., H. Yoshitaka, K. Toshiyuki. 2013. Chemical synthesis of tea polyphenols and related compounds. *Current Pharmaceutical Design*. 19: 6207-6217.
- Too, J.C., T. Kinyanjui, J.K. Wanyoko, F.N. Wachira. 2015. Effect of sunlight exposure and different withering durations on theanine levels in tea (*Camellia sinensis*). *Food and Nutrition Sciences*. 6(11): 1014-1021. <https://doi.org/10.4236/fns.2015.611105>.
- Topal, A., C. Aydin, N. Akgun & M. Babaoglu. 2004. Diallel cross analysis in durum wheat (*Triticum durum* Desf.): Identification of best parents for some kernel physical features. *Field Crops Research*. 87: 1-12.
- Tounekti, T., E. Joubert, I. Hernandez, S. Munne-Bosch. 2013. Improving the polyphenol content of tea. 32: 192-215.

- Wang, C., J. Han, Y. Pu, & X. Wang. 2022. Tea (*Camellia sinensis*): A review of nutritional composition, potential applications, and omics research. *Applied Science*. 12. 5874. <https://doi.org/10.3390/app12125874>.
- Wang, L., D. Pan, M. Liang, Y.S. Abubakar, J. Li, J. Lin, S. Chen & W. Chen. 2017. Regulation of Anthocyanin biosynthesis in purple leaves of Zijuan tea (*Camellia sinensis* var. kitamura). *International Journal of Molecular Sciences*. 18. 833. <https://doi.org/10.3390/ijms18040833>.
- Wang, L., P.C. Liu, L.M. Wu, J. Tan, W.J. Peacock & E.S. Dennis. 2019. Cotyledons contribute to plant growth and hybrid vigor in Arabidopsis. *Planta*. 249: 1107-1118. <https://doi.org/10.1007/s00425-018-3068-6>.
- Wang, P., M. Gu, S. Shao, X. Chen, B. Hou, N. Ye & X. Zhang. 2022. Changes in non-volatile and volatile metabolites associated with heterosis in tea plants (*Camellia sinensis*). *Journal of Agricultural and Food Chemistry*. 70(9): 3067-3078. <https://doi.org/10.1021/acs.jafc.1c08248>.
- Wang, P., M. Gu, X. Yu, S. Shao, J. Du, Y. Wang, F. Wang, S. Chen, Z. Liao, N. Ye & X. Zhang. 2022. Allele-specific expression and chromatin accessibility contribute to heterosis in tea plants (*Camellia sinensis*). *The Plant Journal*. 112(5): 1194-1211. <https://doi.org/10.1111/tpj.16004>.
- Wei, C., H. Yang, S. Wang, J. Zhao, C. Liu, L. Gao, E. Xia, Y. Lu, Y. Tai, G. She, J. Sun, H. Cao, W. Tong, Q. Gao, Y. Li, W. Deng, X. Jiang, W. Wang, Q. Chen, S. Zhang, H. Li, J. Wu, P. Wang, P. Li, C. Shi, F. Zheng, J. Jian, B. Huang, D. Shan, M. Shi, C. Fang, Y. Yue, F. Li, D. Li, Swei, B. Han, C. Jiang, Y. Yin, T. Xia, Z. Zhang, J.L. Bennetzen, S. Zhao & X. Wan. 2018. Draft genome sequence of *Camellia sinensis* var. *sinensis* provides insights into the evolution of the tea genome and tea quality. *PNAS Latest Articles*. 1-8.
- Wei, K., L-Y. Wang, L-Y. Wu, C-C Zhang, H-L Li, L-Q. Tan, H-L Cao & H. Cheng. 2014. Transcriptome analysis of indole-3butyric acid-induced adventitious root formation in nodal cuttings of *Camellia sinensis* (L.). *Plos One*. 9(9). e107201. <https://doi.org/10.1371/journal.pone.0107201>.
- Wei, K., L. Ruan, L. Wang & H. Cheng. 2019. Auxin-induced adventitious root formation in nodal cutting of *Camellia sinensis*. *International Journal of Molecular Sciences*. 20(4817):1-10.
- Weisshaar, B. & G.I. Jenkins. 1998. Phenylpropanoid biosynthesis and its regulation. *Current Opinion in Plant Biology*. 1: 251-257. [https://doi.org/10.1016/S1369-5266\(98\)80113-1](https://doi.org/10.1016/S1369-5266(98)80113-1).
- Werck-Reichhart, D. 1995. Cytochromes P450 in phenylpropanoid metabolism. *Drug Metabolism and Drug Interactions*. 12(3-4): 221-243.
- Widhianata, H. & Taryono. 2019. Organogenesis responses of tea (*Camellia sinensis* (L.) O. Kuntze) var. assamica and sinensis. *AIP Conference Proceedings*. 020026. <https://doi.org/10.1063/1.5098431>.

- Wijaya, A., Susantidiana, M.U. Harun & M. Surahman. 2013. Evaluation on performance and heterosis of progenies derived from crossing of several *Jatropha* accessions. *Indonesian Journal of Agronomy*. 41(1): 83-87.
- Wijeratne, M.A. 2003. Harvesting policies of tea (*Camellia sinensis* L.) for higher productivity and quality. *Tropical Agricultural Research and Extension*. 6:91-97.
- Winursito, M.W. Suyadi & S. Waluyo. 2012. Hasil dan keragaman genetik tujuh klon teh (*Camellia sinensis* (L.) Kuntze) di dua lokasi dengan ketinggian berbeda. *Vegetalika*. 1(4):1-10.
- Wu, W., K. Du, X. Kang & H. Wei. 2021. The diverse roles of cytokinins in regulating leaf development. *Horticulture Research*. 8. 118. <https://doi.org/10.1038/s41438-021-00558-3>.
- Wu, X., Y. Liu, Y. Zhang & R. Gu. 2021. Advances in research on the mechanism of heterosis in plants. *Frontiers in Plant Science*. 12: 745726.
- Wu, Z-J., X-H. Li, Z-W. Liu, Z-S. Xu & J. Zhuang. 2014. De novo assembly and transcriptome characterization: novel insights into catechins biosynthesis in *Camellia sinensis*. *BMC Plant Biology*. 14(277):1-16.
- Xia, E-H., H.B. Zhang, J. Sheng, K. Li, Q.J. Zhang, C. Kim, Y. Zhang, Y. Liu, T. Zhu, W. Li, H. Huang, Y. Tong, H. Nan, C. Shi, C. Shi, J.J. Jiang, S.Y. Mao, J.Y. Jiao, D. Zhang, Y. Zhao, L.P. Zhang, Y.L. Liu, B.Y. Liu, Y. Yu, S.F. Shao, D.J. Ni, E.E. Eicher & L.Z. Gao. 2017. The tea tree genome provides insights into tea flavor and independent evolution of caffeine biosynthesis. *Molecular Plant*. 10:866-877.
- Xia, E-H., W. Tong, Q. Wu, S. Wei, J. Zhao, Z-Z. Zhang, C-L. Wei & X-C. Wan. 2020. Tea plant genomics: Achievements, challenges and perspectives. *Horticulture Research*. 7(7):1-19.
- Xie, D.Y., S.B. Sharma, N.L. Paiva, D. Ferreira & R.A. Dixon. 2003. Role of anthocyanidin reductase, encoded by BANYULS in plant flavonoid biosynthesis. *Science*. 299: 396-399. <https://doi.org/10.1126/science.1078540>.
- Xu, W., C. Dubos & L. Lepiniec. 2015. Transcriptional control of flavonoid biosynthesis by MYB-bHLH-WDR complexes. *Trends in Plant Science*. 20(3): 176-185. <https://doi.org/10.1016/j.tplants.2014.12.001>.
- Yamanishi T. 1991. Flavor characteristics of various teas. *World Tea Record of the Opening International Symposium on Tea Science*. International Symposium on Tea Science. Shizuoka. Japan. 108p.
- Yanai, O., E. Shani, K. Dolezal, P. Tarkowski, R. Sablowski, G. Sanberg, A. Samach & N. Ori. 2005. Arabidopsis KNOX1 proteins activate cytokinin biosynthesis. *Current Biology*. 15(17):1566-1571.

- Yang, T., H. Li, Y. Tai, C. Dong, X. Cheng, E. Xia, Z. Chen, F. Li, X. Wan & Z. Zhang. 2012. Transcriptional regulation of amino acid metabolism in response to nitrogen deficiency and nitrogen forms in tea plant root (*Camellia sinensis* L.). *Scientific Reports*. 10:6868. <https://doi.org/10.1038/s41598-020-63835-6>.
- Yao, L., N. Caffin, B.D. Arcy, Y. Jiang, J. Shi, R. Singanusong, X. Liu, N. Datta, Y. Kakuda, & Y. Xu. 2005. Seasonal variations of phenolic compounds in Australia grown tea (*Camellia sinensis*). *Journal of Agricultural and Food Chemistry*. 53:6477-6483.
- Yao, M.Z. & L. Chen. 2012. Tea germplasm and breeding in China. *In*: L. Chen, Z. Apostolides, Z.M. Chen (Eds.). *Global Tea Breeding: Achievement, Challenges and Perspectives*. Zhejiang University Press. Hangzhou and Springer Verlag. Berlin Heidelberg. 13-58.
- Zeng, L., X. Zhou, Y. Liao, Z. Yang. 2020. Roles of specialized metabolites in biological function and environmental adaptability of tea plant (*Camellia sinensis*) as a metabolite studying model. *Journal of Advanced Research*. <https://doi.org/10.1016/j.jare.2020.11.004>
- Zhang, C-C., L-Y. Wang, K. Wei, L-Y. Wu, H-L. Li, F. Zhang, H. Cheng & D-J. Ni. 2016. Transcriptome analysis reveals self-incompatibility in the tea plant (*Camellia sinensis*) might be under gametophytic control. *BMC Genomics*. 17(359):1-15.
- Zhang, J., H. Jia, B. Zhu, J. Li, T. Yang, Z.Z. Zhang & W.W Deng. 2021. Molecular and biochemical characterization of jasmonic acid carboxyl methyltransferase involved in aroma compound production of methyl jasmonate during black tea processing. *Journal of Agricultural and Food Chemistry*. 69: 3154–3164. <https://doi.org/10.1021/acs.jafc.0c06248>.
- Zhang, L-Q., K. Wei, H. Cheng, L-Y. Wang & C-C. Zhang. 2016. Accumulation of catechins and expression of catechin synthetic genes in *Camellia sinensis* at different developmental stages. *Botanical studies*. 57:31. <https://doi.org/10.1186/s40529-016-0143-9>.
- Zhang, S., L. Zhang, Y. Tai, X. Wang, C-T. Ho & X. Wan. 2018. Gene discovery of characteristic metabolic pathways in the tea plant (*Camellia sinensis*) using 'Omics'-based network approaches: A future perspective. *Frontiers in Plant Science*. 9(480):1-12.
- Zhang, X., Y. He, W. He, H. Su, Y. Wang, G. Hong & P. Xu. 2019. Structural and functional insights into the LBD family involved in abiotic stress and flavonoid synthases in *Camellia sinensis*. *Scientific Reports*. 9. 15651. <https://doi.org/10.1038/s41598-019-52027-6>.
- Zhang, Y., K. Wei, H. Li, L. Wang, L. Ruan, D. Pang & H. Cheng. 2018. Identification of key genes involved in catechin metabolism in tea seedlings based on transcriptomic and HPLC analysis. *Plant Physiology and Biochemistry*. 133: 107-115. <https://doi.org/10.1016/j.plaphy.2018.10.029>.

- Zheng, Y., P. Wang, X. Chen, Y. Sun, C. Yue, N. Ye. 2020. Transcriptome and metabolite profiling reveal novel insights into volatile heterosis in tea plant (*Camellia sinensis* (L.) O. Kuntze). Research Square. 1-33.
- Zhou, C., X. Mei, D.O. Rothenberg, Z. Yang, W. Zhang, S. Wan, H. Yang & L. Zhang. 2020. Metabolome and transcriptome analysis reveals putative genes involved in anthocyanin accumulation and coloration in white and pink tea (*Camellia sinensis*) flower. Molecules. 25. 190. <https://doi.org/10.3390/molecules25010190>.
- Zhou, Q., W. Sun & Z. Lai. 2015. Differential expression of genes in purple-shoot tea tender leaves and mature leaves during leaf growth. Journal of the Science of Food and Agriculture. 96: 1982-1989.
- Zhou, X., L. Zeng, Y. Chen, X. Wang, Y. Liao, Y. Xiao, X. Fu & Z. Yang. 2020. Metabolism of gallic acid and its distributions in tea (*Camellia sinensis*) plants at the tissue and subcellular levels. International Journal of Molecular Sciences. 21. 5684. <https://doi.org/10.3390/ijms211656684>.
- Zhu, J.Y., Q.S. Xu, S.Q. Zhao, X.B. Xia, X.M. Yan, Y.L. An, X.Z. Mi, L.X. Guo, L. Samarina & C.L. Wei. 2020. Comprehensive co-expression analysis provides novel insights into temporal variation of flavonoids in fresh leaves of the tea plant (*Camellia sinensis*). Plant Science. 290.110306. <https://doi.org/10.1016/j.plantsci.2019.110306>.
- Zulkarnain, H. 2009. Kultur Jaringan Tanaman. Bumi Aksara. Jakarta.