

## DAFTAR PUSTAKA

- Adiningsih, E. S. 2014. Tinjauan metode deteksi parameter kekeringan berbasis data penginderaan jauh. *In*: M. Kartasasmita, B. Hasyim, D. Kushardono, E. S. Adiningsih, R. Dewanti & K. A. Sambodo (Eds.). Prosiding Seminar Nasional Penginderaan Jauh. Bogor 21 April 2014. 210-220.
- Ai, N. S. & Y. Banyo. 2011. Konsentrasi klorofil daun sebagai indikator kekurangan air pada tanaman. *Jurnal Ilmiah Sains* 11: 166-173.
- Alexieva, V., I. Sergiev, S. Mapelli & E. Karanov. 2001. The effect of drought and ultraviolet radiation on growth and stress markers in pea and wheat. *Plant, Cell and Environment* 24: 1337–1344.
- Anderson, D, K. & E. D. Means. 1985. Iron-induced lipid peroxidation in spinal cord: Protection with mannitol and methylprednisolone. *Journal of Free Radicals in Biology & Medicine* 1: 59-64.
- Arcan, İ. 2005. Characterization and modification of antioxidant proteins from plant materials. Thesis. The Graduate School of Engineering and Sciences of Izmir Institute of Technology. Turkey.
- Arjenaki, F. G., R. Jabbari & A. Morshedi. 2012. Evaluation of drought stress on relative water content, chlorophyll content and mineral elements of wheat (*Triticum aestivum* L.) varieties. *International Journal of Agriculture and Crop Sciences* 4: 726-729.
- Asada, K. 2006. Production and scavenging of reactive oxygen species in chloroplasts and their functions. *Plant Physiology* 141: 391–396.
- Ashraf, M. & M. R. Foolad. 2007. Roles of glycine betaine and proline in improving plant abiotic stress resistance. *Environmental and Experimental Botany* 59: 206–216.
- Bakoumé, C., N. Shahbudin, S. Yacob, C. S. Siang & M. N. A. Thambi. 2013. Improved method for estimating soil moisture deficit in oil palm (*Elaeis guineensis* Jacq.) areas with limited climatic data. *Journal of Agricultural Science* 5: 57-65.
- Bray, E. A. 2001. Plant response to water-deficit stress. *ENCYCLOPEDIA OF LIFE SCIENCES* 2001. Nature Publishing Group: 1-5.
- Calatayud, A., D. J. Iglesias, M. Talon & E. Barreno. 2004. Response of spinach leaves (*Spinacia oleracea* L.) to ozone measured by gas exchange, chlorophyll a fluorescence, antioxidant systems, and lipid peroxidation. *PHOTOSYNTHETICA* 42: 23-29.
- Campbell, K. 2003. Ototoxicity: understanding oxidative mechanisms. *J. Am. Acad. Audiol.* 14: 121-123.
- Campbell, N. A, J. B. Reece & L. G. Mitchell. 2003. *Biologi* Jilid 1 (diterjemahkan oleh R. Lestari). Erlangga. Jakarta.

- Cao, H-X., C-X. Sun., H-B. Shao & X-T. Lei. 2011. Effects of low temperature and drought on the physiological and growth changes in oil palm seedlings. *African Journal of Biotechnology* 10: 2630-2637.
- Carr, M. K. V. 2011. The water relations and irrigation requirements of oil palm (*Elaeis guineensis*). *Review. Expl Agric.* 47: 629–652.
- Çelik, Ö. & Ç. Atak. 2012. The effect of salt stress on antioxidative enzymes and proline content of two Turkish tobacco varieties. *Turk J. Biol.* 36: 339-356.
- Cha-um, S., N. Yamada, T. Takabe & C. Kirdmanee. 2010. Osmotic potential, photosynthetic abilities and growth characters of oil palm (*Elaeis guineensis* Jacq.) seedlings in responses to polyethylene glycol-induced water deficit. *African Journal of Biotechnology* 9: 6509-6516.
- Cha-um, S., N. Yamada, T. Takabe & C. Kirdmanee. 2013. Physiological features and growth characters of oil palm (*Elaeis guineensis* Jacq.) in response to reduced water-deficit and rewatering. *Australian Journal of Crop Science* 7: 432-439.
- Chun, O. Y, D-O. Kim & C. Y. Lee. 2003. Superoxide radical scavenging activity of the major polyphenols in fresh plums. *J. Agric. Food Chem.* 51: 8067-8072.
- Corley, R. H. V. 1976. Photosynthesis and productivity. *In*: R. H. V. Corley, J. J. Hardon, B. J. Wood (Eds.). *Oil Palm Research*. Elsevier Scientific. Amsterdam. 55-76.
- Corley, R. H. V. & P. B. Tinker 2003. *The Oil Palm* (4th Edition). Blackwell Publishing. Oxford.
- Cvikrová, M., L. Gemperlová, O. Martincová & R. Vanková. 2013. Effect of drought and combined drought and heat stress on polyamine metabolism in proline-over-producing tobacco plants. *Plant Physiology and Biochemistry* 73: 7-15.
- Dedywiryanto, Y. 2006. Respon bibit dan kajian karakter ketahanan terhadap cekaman kekeringan pada kelapa sawit (*Elaeis guineensis* Jacq.). Skripsi. Institut Pertanian Bogor. Bogor.
- Delauney, A. J. & D. V. S. Verma. 1993. Proline biosynthesis and osmoregulation in plant. *The Plant Journal* 4: 215-223.
- Dobra, J., V. Motyka, P. Dobrev, J. Malbeck, I. T. Prasil, D. Haisela, A. Gaudinova, M. Havlova, J. Gubis, & R. Vankova. 2010. Comparison of hormonal responses to heat, drought and combined stress in tobacco plants with elevated proline content. *Journal of Plant Physiology* 167: 1360–1370.
- Farooq, M., M. Hussain, A. Wahid & K. H. M. Siddique. 2012. Drought stress in plants: an overview. *In*: R. Aroca (Ed.) *Plant Responses to Drought Stress From Morphological to Molecular Features*. Springer-Heidelberg New York Dordecht. London. 1-33.

- Fitriana, J., K. K. Pukan & L. Herlina. 2012. Aktivitas enzim nitrat reduktase kedelai akibat variasi kadar air pada awal pengisian polong. *Unnes Journal of Life Science* 1: 13-21.
- Fitter A. H. & Hay, R. K. M. 1991. Fisiologi Lingkungan Tanaman (diterjemahkan oleh Sri Andani & E. D. Purbayanti). Gadjah Mada University Press. Yogyakarta.
- Foyer, H. C., H. M. Valadier, M. Andrea & W. T. Becker. 1998. Drought induced effect of nitrate reduktase activity and mRNA and on the coordination of nitrogen and carbon metabolism in maize leaves. *Plant Physiol.* 117: 283-292.
- Foyer, H. & J. Harbinson. 1999. Relationships between antioxidant metabolism and carotenoids in the regulation of photosynthesis. *In*: H. A. Frank, A. J. Young, G. Britton & R. J. Cogdell (Eds.). *The Photochemistry of Carotenoids*. Springer Netherlands. 305-325.
- Gardner, F. P., R. B. Pearce & R. L. Mitcheli. 1991. Fisiologi Tanaman Budidaya (diterjemahkan oleh Herawati Susilo). UI Press. Jakarta.
- Gerritsma, W. & Wessel, M. 1997. Oil palm: domestication achieved? *Netherlands Journal of Agricultural Science* 45: 463-475.
- Ge, T-D., F-G. Sui, L-P. Bai, Y-Y. Lu & G-S. Zhou. 2006. Effects of water stress on the protective enzyme activities and lipid peroxidation in roots and leaves of summer maize. *Agricultural Sciences in China* 5: 101-105.
- Hameed, A., M. Goher & N. Iqbal. 2013. Drought induced programmed cell death and associated changes in antioxidants, proteases, and lipid peroxidation in wheat leaves. *BIOLOGIA PLANTARUM* 57: 370-374.
- Hartley, C. W. S. 1977. *The Oil Palm* (2<sup>nd</sup> edition). Longman. London and New York.
- Hossain, Md., Md., Ashrafuzzaman & M. R. Ismail. Salinity triggers proline synthesis in peanut leaves. *Maejo Int. J. Sci. Technol.* 5: 159-168.
- Ibrahim, M. H. & H. Z. E. Jaafar. 2012. Primary, secondary metabolites, H<sub>2</sub>O<sub>2</sub>, malondialdehyde and photosynthetic responses of *Orthosiphon stamineus* Benth. to different irradiance levels. *Molecules* 17: 1159-1176.
- Jones, M. M., N. C. Turner & C. B. Osmond. 1981. Mechanisms of drought resistance. *In*: L. G. Paleg & D. Aspinall (Eds.). *The Physiology and Biochemistry of Drought Resistance in Plants*. Academic Press. Australia.
- Kahkonen, M. P., A. I. Hopia, H. J. Vuorela, J. P. Rauha, K. Pihlaja, T. S. Kujala & M. Heinonen. 1999. Antioxidant activity of extracts containing phenolic compounds. *J. Agric. Food Chem.* 47: 3954-3962.
- Kartika, E. 2012. Peranan cendawan mikoriza arbuskular dalam meningkatkan daya adaptasi bibit kelapa sawit terhadap cekaman kekeringan pada media tanah gambut. *Program Studi Agroekoteknologi Fakultas Pertanian Universitas Jambi* 1: 52-63.

- Kholova', J., C. T. Hash, A. Kakkera, M. Koc'ova' & V. Vadez. 2010. Constitutive water conserving mechanisms are correlated with the terminal drought tolerance of pearl millet [*Pennisetum glaucum* (L.) R. Br.]. *Journal of Experimental Botany* 61: 369–377.
- Kikuzaki, H. M. Hisamoto, K. Hirose, K. Akiyama & H. Taniguchi. 2002. Antioxidant properties of ferulic acid and it's related compounds. *J. Agric. Food Chem.* 50: 2161-2168.
- Kurniawan, I. 2013. Pembibitan Main Nursery Kelapa Sawit. <http://cybex.deptan.go.id/lokalita/pembibitan-main-nursery-kelapa-sawit>. (diakses 5 Agustus 2014).
- Lakitan, B. 2001. Dasar-dasar fisiologi tumbuhan. Raja Grafindo Persada. Jakarta.
- Laloi, C., K. Apel & A. Danon. 2004. Reactive oxygen signalling: the latest news. *Current Opinion in Plant Biology* 7: 323–328.
- Legros, S., I. Mialet-Serra, J-P. Caliman, F. A. Siregar, A. Cle'ment-Vidal & M. Dingkuhn. 2009. Phenology and growth adjustments of oil palm (*Elaeis guineensis*) to photoperiod and climate variability. *Annals of Botany* 104: 1171–1182.
- Levitt, J. 1980. Respon of Plants to Environmental Stress. 2nd Edition (Vol. 2). Academic Press Inc. New York.
- Liwang, T., A. Daryanto, E. Gumbira-Said & N. Nuryartono. 2012. Analisa dinamika perkembangan industri benih kelapa sawit di Indonesia. *Jurnal Ilmu Ekonomi dan Sosial* 1: 115-125.
- Maslachah, L., R. Sugihartuti & R. Kurniasanti. 2008. Hambatan produksi reactive oxygen species radikal superoksida ( $O_2^{\cdot-}$ ) oleh antioksidan vitamin E ( $\alpha$ -tocopherol) pada tikus putih (*Rattus norvegicus*) yang menerima stressor renjatan listrik. *Media Kedokteran Hewan* 2: 21-26.
- Mafakheri, A., Siosemardeh, A., Bahramnejad, B., Struik, P.C. & Y. Sohrabi. 2010. Effect of drought stress on yield, proline, and chlorophyll contents in three chickpea cultivars. *Australian Journal of Crop Science* 4: 580-585.
- Mafakheri, A., A. Siosemardeh, B. Bahramnejad, P.C. Struik & Y. Sohrabi. 2011. Effect of drought stress and subsequent recovery on protein, carbohydrate contents, catalase, and peroxidase activities in three chickpea cultivars. *Australian Journal of Crop Science* 5: 1255-1260.
- Mangoensoekarjo & H. Semangun. 2005. Manajemen Agribisnis Kelapa Sawit. Gadjah Mada University Press. Yogyakarta.
- Masinde, P. W., H. Stutzel & A. Fricke. 2006. Plant growth, water relations and transpiration of two species of African nightshade (*Solanum villosum* Mill. ssp. *Miniatum* (Bernh. ex Willd.) edmonds and *S. sarrachoides* Sendtn.) under water-limited conditions. *Scientia Horticulturae* 110: 7–15.

- Mega, I. M. & D. A. Swastini. 2010. Screening fitokimia dan aktivitas anti radikal bebas ekstrak metanol daun gaharu (*Gyrinops versteegii*). JURNAL KIMIA 2: 187-192.
- Mhanhmad, S., P. Leewanich, V. Punsuvon, S. Chanprame & P. Srinives. 2011. Seasonal effects on bunch components and fatty acid composition in Dura oil palm (*Elaeis guineensis*). African Journal of Agricultural Research 6: 1835-1843.
- Michalak, A. 2006. Phenolic compounds and their antioxidant activity in plants growing under heavy metal stress. Review. Polish J. of Environ. Stud. 15: 523-530.
- Mirzaee, M., A. Moieni & F. Ghanati. 2013. Effects of drought stress on the lipid peroxidation and antioxidant enzyme activities in two canola (*Brassica napus* L.) cultivars. J. Agr. Sci. Tech. 15: 593-602.
- Mittler, R., S. Vanderauwera, M. Gollery & F. V. Breusegem. 2004. Abiotic stress series, reactive oxygen gene network of plants. Review. TRENDS in Plant Science 9: 490-498.
- Mittler, R. & E. Blumwald. 2015. The roles of ROS and ABA in systemic Acquired acclimation. Review. The Plant Cell 27: 64-70.
- Mu'nisa, A., T. Wresdiyati, N. Kusumorini & W. Manalu. 2012. Aktivitas antioksidan ekstrak daun cengkeh. Jurnal Veteriner 13: 272-277.
- Mullet, J. E. & M. S. Whitsitt. 1996. Plant cellular responses to water deficit. Plant Growth Regulation 20: 119-124.
- Neill, S. J., R. Desikan, A. Clarke, R. D. Hurst, and J. T., Hancock. 2002. Hydrogen peroxide and nitric oxide as signaling molecules in plants. Journal of Experimental Botany 1237-1247.
- Nezhadahmadi, A., Z. H. Prophan & G. Faruq. 2013. Drought tolerance in wheat. Review. Hindawi Publishing Corporation The Scientific World Journal 2013: 1-12.
- Ni, F-T., L-Y. Chu, H-B. Shao & Z-H. Liu. 2009. Gene expression and regulation of higher plants under soil water stress. Current Genomics 10: 269-280.
- Nugraheni, W. 2010. Variasi pertumbuhan, kandungan prolin dan aktivitas nitrat reduktase tanaman ganyong (*Canna edulis* Ker.) pada ketersediaan air yang berbeda. Skripsi. Universitas Sebelas Maret. Surakarta.
- Nurita, T-M., W. Gede, G. Edi, A. Hajrial, Y. Sudirman & Subronto. 2001. Respon tanaman kelapa sawit (*Elaeis guineensis* Jacq.) terhadap cekaman kekeringan. Menara Perkebunan 69: 29-45.
- Ochs, R. & C. Daniel. 1976. Research on techniques adapted to dry regions. In: R. H. V. Corley, J. J. Hardon & B. J. Wood (Eds.). Oil Palm Research. Elsevier Scientific. Amsterdam. 315-330.

- Pangaribuan, Y. 2001. Studi karakter morfofisiologi tanaman kelapa sawit (*Elaeis guineensis* Jacq.) di pembibitan terhadap cekaman kekeringan. Tesis. Institut Pertanian Bogor. Bogor.
- Parwata, I. G. M. A., D. Indradewa, P. Yudono, B. J. Kertonegoro & R. Kusmarwiyah. 2012. Physiological responses of *Jatropha* to drought stress in coastal sandy land conditions. *Makara Journal of Science*: 115-121.
- Paul, H. Y. 2005. Organic osmolytes as compatible, metabolic and counteracting cytoprotectants in high osmolarity and other stresses. *The Journal of Experimental Biology* 208: 2819-2830.
- Pokorny, J., N. Yanishlieva & M. Gordon. 2001. *Antioxidant in Food; Practical Applications*. CRC Press. New York.
- Powers, S. K. & M. J. Jackson. 2008. Exercise-induced oxidative stress: cellular mechanisms and impact on muscle force production. *Physiol. Rev.* 88: 1243–1276.
- Rachmawati, R. Y., Kuswanto & S. L. Purnamaningsih. 2014. Uji keseragaman dan analisis sidik lintas antara karakter agronomis dengan hasil pada tujuh genotip padi hibrida japonica. *Jurnal Produksi Tanaman* 2: 292-300.
- Rohman, A., S. Riyanto & N. K. Hidayati. 2007. Aktivitas antioksidan, kandungan fenolik total, dan flavonoid total daun mengkudu (*Morinda citrifolia* L.). *AGRITECH* 27: 147-151.
- Rupani, P. F., R. P. Singh, M. H. Ibrahim & N. Esa. 2010. Review of current palm oil mill effluent (POME) treatment methods: vermicomposting as a sustainable practice. *World Applied Sciences Journal* 10: 1190-1201.
- Sairam, R. K. & G. C. Srivastava. 2000. Induction of oxidative stress and antioxidant activity by hydrogen peroxide treatment in tolerant and susceptible wheat genotypes. *Biol. Plant.* 43: 381–386.
- Sakamoto, A. & N. Murata. 2002. The role of glycine betaine in the protection of plants from stress: clues from transgenic plants. *Plant, Cell and Environment* 25: 163–171.
- Salisbury, F. B. & C. W. Ross. 1995. *Fisiologi Tumbuhan* (diterjemahkan oleh Lukman dan Sumaryono). Institut Teknologi Bandung. Bandung.
- Sarmidi, M. R., H. A. El Enshasy & M. A. Hamid. 2009. Oil palm: the rich mine for pharma, food, feed and fuel industries. *American-Eurasian J. Agric. & Environ. Sci.*, 5: 767-776.
- Sekmen, A. H., R. Ozgur, B. Uzilday & I. Turkan. 2014. Reactive oxygen species scavenging capacities of cotton (*Gossypium hirsutum*) cultivars under combined drought and heat induced oxidative stress. *Environmental and Experimental Botany* 99: 141-149.
- Singh, R. P., M. H. Ibrahim, N. Esa & M. S. Iliyana. 2010. Composting of waste from palm oil mill: a sustainable waste management practice. *Rev. Environ. Sci. Biotechnol.* 9: 331–344.

- SMARTRI. 2014. SOP of Experimental Nursery.
- Smirnoff, N. 1993. The role of active oxygen in the response of plants to water deficit and desiccation. *New Phytologist* 125: 27-58.
- Smirnoff, N. 2005. Ascorbate, tocopherol, and carotenoids: metabolism, pathway engineering and functions. In: Smirnoff, N. (Ed.), *Antioxidants and Reactive Oxygen Species in Plants*. Blackwell Publishing Ltd., Oxford, UK.: 53–86.
- Soeyono, A. 2008. Induksi pembentukan senyawa sekunder tanaman sidaguri (*Sida rhombifolia* Linn) melalui perlakuan cekaman air. Skripsi. Institut Pertanian Bogor. Bogor.
- Sun, C., H. Cao, H. Shao, X. Lei & Y. Xiao. 2011. Growth and physiological responses to water and nutrient stress in oil palm. *African Journal of Biotechnology* 10: 10465-10471.
- Suresh, K., C. Nagamani, K.Ramachandrudu & R. K. Mathur. 2010. Gas-exchange characteristics, leaf water potential and chlorophyll a fluorescence in oil palm (*Elaeis guineensis* Jacq.) seedlings under water stress and recovery. *PHOTOSYNTHETICA* 48: 430-436.
- Taiz, L. & E. Zeiger. 2002. *Plant Physiology*, Third Edition. Sinaeur Associates Inc.. USA.
- Trovato, M., R. Mattioli & P. Costantino. 2008. Multiple roles of proline in plant stress tolerance and development. *Rendiconti Lincei* 19: 325–346.
- Wang, L. F. 2014. Physiological and molecular responses to drought stress in rubber tree (*Hevea brasiliensis* Muell. Arg.). *Plant Physiology and Biochemistry* 83: 243-249.
- Winarsi, H. 2007. *Antioksidan Alami & Radikal Bebas*. Kanisius. Yogyakarta.
- Wilcove, D. S. & L. P. Koh. 2010. Addressing the threats to biodiversity from oil-palm Agriculture. *Biodivers Conserv.* 19: 999–1007.
- Xu, Z., G. Zhou, G. Han & Y. Li. 2011. Photosynthetic potential and it's association with lipid peroxidation in response to high temperature at different leaf ages in maize. *J. Plant Growth Regul.* 30: 41–50.
- Yang, L., J. Zhang, J. He, Y. Qin, D. Hua, Y. Duan, Z. Chen & Z. Gong. 2014. ABA-mediated ROS in mitochondria regulate root meristem activity by controlling PLETHORA expression in arabidopsis. *PLOS Genetics* 10: 1-18.
- Zhang, C. & Z. Huang. 2013. Effects of endogenous abscisic acid, jasmonic acid, polyamines, and polyamine oxidase activity in tomato seedlings under drought stress. *Scientia Horticulturae* 159: 172–177.