

DAFTAR PUSTAKA

- Ali, A., M. Tahir, M. Amin, S. M. A. Basra, M. Maqbool, and D. J. Lee. 2013. Si induced stress tolerance in wheat (*Triticum aestivum* L.) hydroponically grown under water deficit conditions. *Bulgarian Journal of Agriculture Science*. 19:951-957.
- Ahmad, M., G. Zaffar, S. Razvi, Z. A. Dar, S. D. Mir, S. A. Bukhari, and M. Habib. 2014. A review: resilience of cereal crops to abiotic stress. *Afr J Biotechnol*. 13(29): 2908–2921.
- Anderson, C. M., and L. Endres. 2013. Silicon: fertilization and nutrition in higher plant. *Amazonia Journal of Agriculture and Environmental Science*. 56(4):380-388.
- Bates, L. S, R. P. Waldren and I.D. Teare. 1973. *Rapid determination of free proline for water stress studies. Plant and soil*. 39:205-207.
- Bauer, P., R. Elbaum, I.M. Weiss. 2011. Calcium and silicon mineralization in land plants: transpor, structure and function. *Plant Science*. 180:746-756. <http://dx.doi.org/10.1016/j.plantsci.2011.01.019>.
- BPTP. 2009. *Budidaya padi gogo*. Aceh (NAD). Hal. 1-20.
- Bunnag, S., and P. Pongthai. 2013. Selection of rice (*Oryza sativa* L.) cultivars tolerant to drought stress at the vegetative stage under field conditions. *Am J Plant Sci*. 4(9): 1701–1708.
- Casey, W. H., S. D. Kinrade, C. T. G. Knight. D. W. Rains, and E. Epstein. 2004. Aqueous silicate complexes in wheat, *Triticum aestivum* L. *Plant Cell and Environment*. 27:51–54.
- Chandra, A., A. Miryanti, L. B. Widjaja, dan A. Pramudita. 2012. Isolasi dan karakterisasi silika dari sekam padi. *Lembaga Penelitian dan Pengabdian kepada Masyarakat*. Universitas Katolik Prahayangan. Hal. 7, 16-18.
- Chartzoulakis, K., A. Pratakas, G. Kofindis, A. Bosabalidis, and A. Nastou. Water stress affect leaf anatomy, gas exchange, water relations and growth of two avocado cultivars. 2002. *Scientia holticulture*. 95:39-50.
- Delfine, S., R. Tognettir, F. Loreto, and A. Alvino. 2002. Physiological and growth responses to water stress in field grown bell pepper (*Capsicum annum*, L.). *J. Hort. Sci. Biotechnol*. 77 (6):697–704.
- Donegá, M. A. 2009. Ratio K:Ca and application of silicon in them nutrient solution for the hydroponic cultivation of coriander. *Dissertation*. Piracicaba High School of the Agriculture. P. 1–62.
- Emam, M. M., H. E. Khatlab, N. M. Helal, and A. E. Deraz. 2014. Effect of selenium and silicon on yield quality of rice plant grown under drought stress. *Aust J Crop Sci*. 8:596–605
- Fedina, I. S., K. Georgieva and I. Grigorova. 2002. Light-dark changes in proline content of barley leaves under salt stress. *Inst. Plant Physiol*. 45(1): 59-63.

- Feng, F. J., X. Y. Xu, X. B. Du, H. H. Tong, L. J. Luo, and H. W. Mei. 2012. Assessment of drought resistance among wild rice accessions using a protocol based on single-tiller propagation and PVC-tube cultivation. *Aust J Crop Sci.* 6:1205–1211.
- Filho, O. F. I. and Paiva. 2006. The effects of sooty mold photosynthesis and mesophyll structure of mahogany (*Swietenia macrophylla*. King.,Meliaceae). *Brag Camp.* 65:11-17.
- Fraser, T., W. Silk and T. Rosr. 1990. Effect of low water potential on cortical cell length in growing region on maize roots. *Plant Physiol.* 93: 648-651.
- Gandul-Rojas B., M. Roca, M. I. Mínguez-Mosquera. 2004. Chlorophyll and carotenoid degradation mediated by thylakoid-associated peroxidative activity in olives (*Olea europaea*) cv. Hojiblanca. *Journal of Plant Physiology.* 161: 499–507
- Gong, H. J., X. Y. Zhu, K. M. Chen, S. M. Wang, and C. L. Zhang. 2005. Silicon alleviates oxidative damage of wheat plants in pots under drought. *Plant Science.* 169:313–321.
- Gonzalez-Guzman, M., G. A. Pizzio, R. Antoni, F. Vera-Sirera, E. Merilo, G. W. Bassel, M. A. Fernandez, M. J. Holdsworth, M. A. Perez-Amador, H. Kollist, and P. L. Rodriguez. 2012. *Arabidopsis* PYR/PYL/RCAR receptors play a major role in quantitative regulation of stomatal aperture and transcriptional response to abscisic acid. *Plant Cell.* 24(6): 2483-2496
- Gowda, V. R. P., A. Henry, A. Yamauchi, H. E. Shashidhar, R. Serraj. 2011. Root biology and genetic improvement for drought avoidance in rice. *Field Crops Res.* 122(1): 1–13
- Guntzer, F., C. Keller, and J. D. Meunier. 2012. Benefit of plant silicon for crops: a review. *Agron. Sustain. Dev.* 32: 201-213.
- Ha, P. T. T. 2014. Physiological responses of rice seedlings under drought stress. *J Sci Devel.* 12(5): 635–640.
- Hattori, T., S. Inanaga, E. Tanimoto, A. Lux, M. Luxova, and Y. Sugimoto. 2003. Silicon induced changes in viscoelastic properties of sorghum root cell wall. *Plant and Cell Physiology.* 44:743-749.
- Henriet, C., X. Draye, I. Oppitz, R. Swennen, and B. Delvaux. 2006. Effects, distribution and uptake of silicon in banana (*Musa* spp.) under controlled conditions. *Plant and Soil.* 287:359–374.
- Hare, P. D. 2003. A regulatory role for proline metabolism in stimulating *Arabidopsis thaliana* seed germination. *Plant Growth Regul.* 39:41–50.
- Hudson, M. J., P. J. White, A. Mead, and M. R. Broadley. 2005. Phylogenetic variation in the silicon composition of plants. *Ann Bot.* 96:1027–1046.
- Hopkins, W. G., and Huner, N. P. A. 2009. *Introduction to plant physiology*. Fourth edition. John Wiley and Sons, Ins. USA. P. 66.
- Hanson, A. D., W.J. Peacock, L.T. Evans, C.J. Arntzen, and G.S. Khus. 1995. Development of drought resistant cultivars using physiomorphological traits in rice. *Field Crop Res.* 40: 67-86.
- Iqbal, S., 2009. Physiology of heat (*Triticum aestivum* L.) accessions and the role of phytohormones under water stress. *Thesis.* Islamabad. P. 83–154

- Janislampi, K. W. 2012. Effect of silicon on plant growth and drought stress tolerance. *All graduate these and dissertasion*. <http://digitalcommons.usu.edu/etd/1360>. P.5-6.
- Ji, K. X., Y. Y. Wang, W. Sun, Q. J. Lou, H. W. Mei, S. H. Shen, and Chen H. 2012. Drought responsive mechanisms in rice genotypes with contrasting drought tolerance during reproductive stage. *J Plant Physiol*. 169(4): 336–344.
- Korndörfer, G. H., and I. Lepsch. 2001. Effect of silicon on plant growth and crop yield. In: Datnoff LE, Snyder GH, Korndorfer G. H (eds) Silicon in agriculture. *Studies in Plant Science*. Elsevier. Amsterdam. 8:133–147.
- Kadioglu, A., and R. Terzi. 2007. A dehydration avoidance mechanism: Leaf rolling. *Bot Rev*. 73(4): 290–302.
- Kristamini dan Prajitno. 2009. Karakterisasi padi beras merah segreng varietas unggul lokal Gunung Kidul. *Jurnal-jurnal Ilmu Pertanian*. 5(1):45-51.
- Kumar, S., S. K. Dwivedi, S. S. Singh, B. P. Bhatt, P. Mehta, R. Elanchezhian, V. P. Singh, and O. N. Singh. 2014. Morphophysiological traits associated with reproductive stage drought tolerance of rice (*Oryza sativa* L.) genotypes under rain-fed condition of eastern Indo genetic plant. *Ind J Plant Physiol*. 19(2):87-93.
- Latif, H. H. 2014. Physiological responses of *Pisum sativum* plant to exogenous ABA application under drought conditions. *Pak J Bot*. 46(3):973–982.
- Ma, J. F., N. Mitani, S. Nagao, S. Konishi, K. Tamai, T. Iwashita, and M. Yano. 2004. Characterization of the silicon uptake system and molecular mapping of the silicon transporter gene in rice. *Plant Physiology*. 136:3284–3289.
- Ma, J. F., and E. Takahashi. 2002. *Soil, fertiliser, and plant silicon research in Japan*. Elsevier. Amsterdam.
- Ma, J. F., and N. Yamaji. 2006. Silicon uptake and accumulation in higher plants. *Trends in Plant Science*. 11:392–397.
- Maisura, M. A., I. Chozin, A. Lubis, H. Junaedinand, and H. Ehara. 2014. Some physiological character responses of rice under drought conditions in a paddy system. *J Int Soc Southeast Asian Agric Sci*. 20(1): 104–114.
- Maiti, P. Satya, D. Rajkumar, and A. Ramaswamy. 2012. *Crop plant anatomy*. CPI Group Ltd. London. P. 44-50.
- Makabe, S., K. Kakuda, Y. Sasaki, T. Ando, and H. Fujii. 2009. Relationship between mineral composition or soil texture and available silicon in alluvial paddy soils on the Shounai Plain. *Soil Science and Plant Nutrition*. Japan. 55:300–308.
- Makarim, A. K., E. Suhartatik., dan A. Kartohardjono. Badan Penyuluhan dan Pengembangan Sumber Daya manusia Pertanian. Diakses tanggal 11 Februari 2016.
- Masruroh, U. 2016. Pengaruh abu sekam padi terhadap respon fisiologis tanaman padi (*Oryza sativa* L.'Segreng dan Cempo Merah') pada cekaman kekeringan. *Tesis*. Fakultas Biologi Universitas Gadjah Mada. Hal. 119.
- Matsuo, T. Y. and K. Hoshikawa. 1993. Science of the Rice Plant. *Morphology, Ford and Agricultural Policy Research Center*. Tokyo. 1:686.

- Marcinska, I., I. Czyczyo-Mysza, E. Skrzypek, M. Filek, S. Grzesiak, M. T. Grzesiak, Janowiak, F. Hura, T. Dziurka, M. Dziurka, K. Nowakowska, and S. A. Quarrie. 2013. Impact of osmotic stress on physiological and biochemical characteristics in drought susceptible and drought-resistant wheat genotypes. *Acta Physiol. Plant.* 35:451–461.
- Meena, V. D., M. L. Dotaniya, V. Coumar, S. Rajendran, Ajay, A. Kundu, and A. S. Rao. 2014. A case for silicon fertilization to improve crop yield in tropical soil. *Proc. Natl. Acad. Sci., India, Sect. B Biol. Sci.* 84(3) : 505-518.
- Meyer, J. H., and M. G. Keeping. 2001. Past, present and future research of the role of silicon for sugarcane in southern Africa. In: Datnoff LE, Snyder GH, Korndorfer GH (eds) Silicon in agriculture. *Studies in plant science*. Elsevier. Amsterdam. (8):257–275.
- Motomura, K., T. Fuji, and M. Suzuki. 2004. Silica deposition in relation to ageing of leaf tissues in *Sasa veitchii* (Carrière) Rehd. (Poaceae: Bambusoideae). *Ann Bot.* 93:235–248.
- Monika, N. L. G. M. 2016. Pengaruh abu sekam padi terhadap ketahanan oksidatif non-enzimatik dan produktivitas padi (*Oryza sativa* L. 'Segreng' dan 'Cempo merah') pada cekaman kekeringan. *Tesis*. Hal. 1-129.
- Namich, and A. M. Alia. 2007. Response of cotton cultivar Giza 80 to application of glycine betaine under drought conditions. *Minufiya J. Agric. Res.* 32(6):1637–1651.
- Ning, D., A. Song, F. Fan, Z. Li, Y. Liang. 2014. Effects of Slag-Based Silicon Fertilizer on Rice Growth and Brown-Spot Resistance. *PLOS ONE*. doi:10.1371/journal.pone.010268. 9(7):1-9.
- Nugroho, H., Purnomo, dan I. Sumardi. 2012. Struktur dan perkembangan tumbuhan. Penebar Swadaya. Jakarta. Hal. 17-19.
- Pandey, V., and A. Shukla. 2015. Acclimation and Tolerance Strategies of Rice under Drought Stress. *Rice Science*. Elsevier. 22(4):147-161.
- Pireivatloun, J., N. Qasimov and H. Maralian. 2010. Effect of soil water stress on yield and proline content of four wheat lines. *Afr. J. Biotech.* 9: 36-40.
- Ponzi, R., and P. Pizzolongo. 2003. Morphology and distribution of epidermal phytoliths in *Triticum aestivum* L. *Plant Biosystems*. 137:3–10.
- Prathepha, P. 2008. Genetic variation of wild rice populations from Thailand and the Lao PDR based on molecular markers. *Pakistan J. Biol. Sci.* 11:26-33.
- Patakas, A., N. Nikoanou, E. Zioziou, K. Radoklou, and B. Noitsakis. 2002. The role of organic solute and its accumulation in osmotic adjustment in drought-stressed grapevines. *Plant Sci.* 163:361-367.
- Rahayu, A. Y., dan T. Harjoso. 2010. Aplikasi abu sekam pada kondisi dibawah kapasitas lapang pada lima varietas padi gogo: hasil dan komponen hasil. *Agrovigor*. 3(2):118-124.
- Ranjbarfordoei, R., P. V. Samson, Damne and R. Lemeur. Effects of Drought Stress Induced by Polyethylene Glycol on Pigment Content and Photosynthetic Gas Exchange of *Pistacia khinjuk* and *P. mutica*. *Photosynthetic*. 38(3):443-447.

- Raven, J. A. 2001. Silicon transpor at the cell and tissue level. In: Datnoff LE, Snyder GH, Korndorfer GH (eds) Silicon in agriculture. *Studies in plant science*. Elsevier. Amsterdam. 8:41–55.
- Ridley, E. J., and G.W. Todd. 1966. Anatomical variations in the wheat leaf following internal water stress. *Bot. Gaz.* 127: 235–8.
- Rhizopolou, S., and G. K. Psaras. 2003. Development and structure of drought-tolerant leaves of the Medditerranean shrub *Capparis spinosa* L. *Annals of botany*. 92:377-383.
- Santi, R. *Makalah budidaya padi gogo*. Diakses tanggal 15 September 2016. <http://ayotanioke.blogspot.co.id/2015/08/makalah-budidaya-padi-gogo.html>.
- Salwa, A. R. H., and A. M. A. Osama. 2014. Physiological and biochemical studies on drought tolerance of wheat plant by application of amino acids and yeast extract. *Annals of Agricultural Science*. Elsevier. 59(1):133-145.
- Sharma, P., and R. S. Dubey. 2005. Modulation of nitrate reductase activity in rice seedlings under aluminium toxicity and water stress: role of osmolytes as enzyme protectant. *J Plant Physiol*. 162:854–864
- Silva, O. N., A. K. S. Lobato, F.W. Ávila, R. C. L. Costa, C.F.O. Neto, B.G.S. Filho, A. P. M. Filho, R. P. Lemos, J. M. Pinho, M. B. C. L. Medeiros, M. S. Cardoso, and I. P. Andrade. 2012. Silicon-induced increase in chlorophyll is modulated by the leaf water potential in two water-deficient tomato cultivars. *Plant Soil Environ*. 58 (11):481-486.
- Sokoto, M. B., and A. Muhammad. 2014. Response of rice varieties to water stress. *J Biosci Med*. 2(1): 68–74.
- Szabados, L., and A. Savoure. 2009. Proline: a multiunctional amino acid. *Trends in plant*. Elsevier. 15(2): 89-95.
- Taiz, L., and Zeiger, E. 2002. *Plant physiology*. Third edition. Sinauer Associates Inc. P. 67, 70.
- Theodorou, N., S. Koundouras, E. Zioziou, and N. Nikolaou. 2012. Responses of leaf stomatal density and anatomy to water defisit in four winegrape cultivars (*Vitis vinifera* L.). Greece. P. 1-8.
- Toha, H. M., K. Permadi, dan Juliardi. 2005. Peningkatan produksi padi gogo melalui pendekatan model pengelolaan tanaman dan sumberdaya terpadu (PTT). Seminar rutin pusat penelitian dan pengembangan tanaman pangan. Bogor. Hal. 18.
- Usman, M., Z. F. Raheem, T. Ahsan, A. Iqbal, Z. N. Sarfaraz, and Z. Haq. 2013. Morphological, physiological and biochemical attributes as indicators for drought tolerance in rice (*Oryza sativa* L.). *Eur J Biol Sci*. 5(1): 23–28
- Umeda, J., and K. Kondoh. 2008. High-purity amorphous silica originated in rice husks via carboxylic acid leaching process. *Journal of Materials Science*. 43(22):7084-7090.
- Utama, Z. H. 2015. *Budidaya padi pada lahan marjinal, kiat meningkatkan produksi padi*. ANDI. Yogyakarta. Hal. 1-4.
- Vajrabhaya, M., W. Kumpun, and S. Chadchawan. 2001. The solute accumulation: The mechanism for drought tolerance in RD23 rice (*Oryza sativa* L.) lines. *Sci Asia*. 27: 93–97.

- Wang S. Q, C. M. Gu, H. H. Zhao, L. M. Zhao, L. P. Wang, and H. Wang, 2010. Research and Application Prospects of Micro-silicon Fertilizer on Rice Production. Rice Research Institute of Heilongjiang Academy of Land Reclamation Sciences, Jiamusi Heilongjiang. China.
- Purwaningsih, H., dan Kristantini. 2009. Menyelamatkan sumber daya genetik padi beras merah. *Warta Plasma Nutfah Indonesia*. Hal. 4-7.
- Watanabe, S., T. Fujiwara, T. Yoneyama, H. Hayashi. 2002. Effects of silicon nutrition on metabolism and translocation of nutrients in rice plants. *Developments in Plant and Soil Sciences*. 92: 174–175.
- Zhang, Z., and R. Huang. 2013. Analysis of malondialdehyde, chlorophyll, proline, soluble sugar, and glutathione content in *Arabidopsis* seedling. *Bio-protocol*. 3(14):3-5.
- Zhu, J. K. 2002. Salt and drought stress signal transduction in plants. *Annu Rev Plant Biol*, 53: 247–273.
- Zhou, L., H. Xu, S. Mischke, L. W. Meinhardt, D. P. Zhang, X. J. Zhu, X. H. Li, and W. P. Fang. 2014. Exogenous abscisic acid significantly affects proteome in tea plant (*Camellia sinensis*) exposed to drought stress. *Hort Res*. 1: 14029.
- Yang, P. M., Q. C. Huang, G. Y. Qin, S. P. Zhao, J. G. Zhou. 2014. Different drought-stress responses in photosynthesis and reactive oxygen metabolism between autotetraploid and diploid rice. *Photosynthetica*. 52(2): 193–202.
- Yokota, A., K. Takahara and K. Akashi. Physiology and molecular biology of stress tolerance in plants. Springer. P. 15-40.
- Yukamgo, E., dan N. W. Yuwono. 2007. Peran silikon sebagai unsur bermanfaat pada tanaman tebu. *Jurnal Ilmu Tanah dan Lingkungan*. 7(2):103-116.