



DAFTAR PUSTAKA

- Ahmad, P. 2016. *Plant Metal Interaction Emerging Remediation Techniques*. Elsevier. Amsterdam, pp. 2-15.
- Alasfar, R. H., and Isaifan, R. J. 2021. Aluminum environmental pollution: the silent killer. *Environmental Science and Pollution Research*. 28: 44587-44597.
- Alvarez, I., Sam, O., Reynaldo, I., Testillano, O., Risueno, M. C., and Arias, M. 2012. Morphological and cellular changes in rice roots (*Oryza sativa* L.) caused by Al stress. *Botanical Studies*. 53: 67-73.
- Atabayeva, S., Asradina, S., Narmuratova, M., and Alybayeva, R. 2016. Anatomical peculiarities in wheat (*Triticum aestivum* L.) varieties under copper stress. *Pak. J. Bot.* 48(4): 1399-1405.
- Barabasz, W., Albinska, D., Jaskowska, M., and Lipiec, J. 2002. Ecotoxicology of Aluminium. *Polish Journal of Environmental Studies*. 11(3): 199-203.
- Batista, M. F., Moscheta, I. S., Bonato, C. M., Batista, M. A., de Almeida, O. J. G., and Inoue, T. T. 2013. Aluminum in corn plants: Influence on growth and morpho-anatomy of root and leaf. *R. Bras. Ci. Solo*. 37: 177-178.
- Batool, R., Hameed, M., Ashraf, M., Fatima, S., Nawaz, T., and Ahmad, M. S. A. 2014. Structural and functional response to metal toxicity in aquatic *Cyperus alopecuroides* Rottb. *Limnologica*. 48: 46-56.
- Blancaflor, E. B., Jones, D. L., and Gilroy, S. 1998. Alterations in the Cytoskeleton Accompany Aluminum-Induced Growth Inhibition and Morphological Changes in Primary Roots of Maize. *Plant Physiol.* 118: 159-172.
- Blamey, F. P. C., Nishizawa, N. K., and Yoshimura, E. 2004. Timing, Magnitude, and Location of Initial Soluble Aluminum Injuries to Mungbean Roots. *Soil Sci. Plant Nutr.* 50(1): 67-76.
- Budikova, S. 1999. Structural changes and aluminium distribution in maize root tissues. *Biologia Plantarum*. 42(2): 259-266.
- Ciamporova, M. 2000. Diverse responses of root cell structure to aluminium stress. *Plant and Soil*. 226: 113-16.
- Ciamporova, M. 2002. Morphological and structural responses of plant roots to aluminum at organ, tissue, and cellular levels. *Biologia Plantarum*. 45(2): 161-171.
- Crang, R., Lyson-Sobaski, S., and Wise, R. 2018. *Plant Anatomy A Concept-Based Approach to the Structure of Seed Plants*. Springer. Switzerland, p. 336.
- Cotton, F. A., and Wilkinson, G. 1972. *Advanced Inorganic Chemistry a Comprehensive Text* 3rd Ed. Interscience Publishers. London, pp. 261-262.
- de Jesus, D. S., Martins, F. M., and Neto, A. D. A. 2016. Structural changes in leaves and roots are anatomical markers of aluminum sensitivity in sunflower. *Pesq. Agropec. Trop., Goiania*. 4(4): 383-309.
- Fahruruddin. 2022. *Mikrobiologi Pengolahan Limbah Tambang*. Penerbit Qiara Media. Pasuruan, hal. 144.
- Fan, W., Lou, H. Q., Gong, Y. L., Liu, M. Y., Wang, Z. Q., Yang, J. L., and Zheng, S. J. 2014. Identification of early Al-responsive genes in rice bean (*Vigna umbellata*) roots provides new clues to molecular mechanism of Al toxicity and tolerance. *Plant, Cell and Environment*. 37: 1586-1597.



- Farina, M. P. W., Summer, M.E., Plank, C.O., and Letzsch, W.S. 1980. Aluminum toxicity on corn at near neutral soil pH levels. *Journal of Plant Nutrition*. 2(6): 983-697.
- Fladila, Q., and Maryani. 2020. *Anatomical Responses of Zinnia violacea Cav. Roots and Stems to Batik Wastewater*. AIP Conference Proceedings 2260, 030016.
- Handayanto, E., Nuraini, Y., Muddarisna, N., Syam, N., dan Fiqri, A. 2017. *Fitoremediasi dan Phytomining Logam Berat Pencemar Tanah*. UB Press. Malang, hal. 1-2, 27-28.
- Hajiboland, R., Farhanghi, F., and ALiasgharpour. 2012. Morphological and anatomical modifications in leaf, stem and roots of four plant species under boron deficiency conditions. *Anales de Biología*. 34: 15-29.
- Hanum, C., Mugnisjah, W. Q., Yahya, S., Sopandy, D., Idris, K, dan Sahar, A. 2007. Pertumbuhan Akar Kedelai pada Cekaman Aluminium, Kekeringan dan Cekaman Ganda Aluminium dan Kekeringan. *Agritrop*. 26(1): 13-18.
- Haridjaja, O., Baskoro, D. P. T., dan Setianingsih M. 2013. Perbedaan Nilai Kadar Air Kapasitas Lapang Berdasarkan Metode Alhricks, Drainase Bebas, dan Pressure Plate pada Berbagai Tekstur Tanah dan Hubungannya dengan Pertumbuhan Bunga Matahari (*Helianthus annuus* L.). *J. Tanah Lingk*. 15(2): 52-59.
- Haynes, W. M. 2012. *CRC Handbook of Chemistry and Physics* 93rd Ed. CRC Press/Taylor and Francis. Florida, pp. 3-4.
- He, H., He, L., and Gu, M. 2014. Role of microRNAs in aluminum stress in plants. *Plant Cell Rep*. 33: 831-836.
- Hizh, S., Karaoglu, G., Goren, A. Y., and Koby, M. 2023. Identifying Geogenic and Anthropogenic Aluminum Pollution on Different Spatial Distributions and Removal of Natural Waters and Soil in Canakkale, Turkey. *ACS Omega*. 8: 8557-8568.
- GBIF [Internet]. 2014. *Cyperus mindorensis* (Steud.) Huygh, from the Global Biodiversity Information Facility System online database, dapat diakses pada <http://www.gbif.org> (Diakses pada 5 April 2022 pukul 14.14 WIB).
- Gomes, M. P., Marques, T. C. L. L., Nogueira, M. G., Castro, E. M., and Soares, A. M. 2011. Ecophysiological and anatomical changes due to uptake and accumulation of heavy metal in *Brachiaria ducumbens*. *Sci. Agric. (Piracicaba, Braz.)*. 68(5): 566-573.
- Kidd, P. S., and Proctor, J. 2000. Effects of aluminium on the growth and mineral composition of *Betula pendula* Roth. *Journal of Experimental Botany*. 51(347): 1057-1066.
- Kochian, L. V., Hoekenga, O. A., and Pineros, M. A. 2004. How Do Crop Plants Tolerate Acid Soils? Mechanism of Aluminium Tolerance and Phosphorous Efficiency. *Annu. Rev. Plant. Biol.* 55: 459-493.
- Kopittke, P. M., Blamey, F. P. C., and Menzles, N. W. 2008. Toxicities of soluble Al, Cu, and La include ruptures to rhizodermal and root cortical cells of cowpea. *Plant Soil*. 303: 217-227.
- Lambers, H., Chapin, F. S., and Pons, T. L. 2008. *Plant Physiological Ecology*, 2nd Ed. Springer. New York, pp. 284-287.
- Latiff, A. A., Karim, A. T., Ahmad, A. S., Riszuan, M. B., and Hung, Y. 2012. Phytoremediation of Metals in Industrial Sludge by *Cyperus kyllinga*-



- rasiga*, *Asystasia Intrusa* and *Scindapus Pictus Var Aryyaeus* Plant Species. *International Journal of Integrated Engineering*. 4(2): 1-8.
- Lidon, F. C., and Barreiro, M. G. 1998. Threshold aluminum toxicity in maize. *Journal of Plant Nutrition*. 21(3): 413-419.
- Liu, H., Zhu, R., Shu, K., Lv, W., Wang, S., and Wang, C. 2022. Aluminum stress signaling, response, and adaptive mechanisms in plants. *Plant Signaling & Behavior*. 17(1): 1-11.
- Markesteijn, L., Poorter, L., Paz, H., Sack, L., and Bongers, F. 2011. Ecological differentiation in xylem cavitation resistance is associated with stem and leaf structural traits. *Plant, Cell & Environment*. 34: 137-148.
- Marschner, H. 1991. Mechanisms of adaptation of plants to acid soils. *Plant and Soil*. 134: 1-20.
- Morgan, J. B., and Connolly, E. L. 2013. Plant-Soil Interactions: Nutrient Uptake. *Nature Education Knowledge*. 4(8): 2.
- Mossor-Pietraszewska, T. 2001. Effect of aluminium on plant growth and metabolism. *Acta Biochimia Polonica*. 48(3): 673-686.
- Muhammad, N., Zvobgo, G., and Guo-ping, Z. 2018. A review: the beneficial effect of aluminum on plant growth in acid soil and the possible mechanisms. *Journal of Integrative Agriculture*. 17(0): 50345-7.
- Mumtaz, S., Hameed, M., Ahmad, F., Ahmad, M. S. A., Ahmad, I., Ashraf, M., and Saleem, M. H. 2021. Structural and Functional Determinants of Physiological Pliability in *Kyllinga brevifolia* Rottb. for Survival in Hyper-Saline Saltmarshes. *Water Air Soil Pollut*. 232(424): 1-22.
- Murti, V. M., and Maryani. 2020. *Anatomical Responses of Marigold (Tegetes erecta L.) Roots and Stems to Batik Wastewater*. AIP Conference Proceedings 2260, 030018.
- Muslim, A. 2020. *Merkuri dan Keberadaannya*. Syiah Kuala University Press. Banda Aceh, hal. 113-114.
- Ozyigit, I. I., Vardar, F., Yasar, U., and Akinci, S. 2013. Long-Term Effects of Aluminum and Cadmium on Growth, Leaf Anatomy, and Photosynthetic Pigments of Cotton. *Communications in Soil Science and Plant Analysis*. 44: 3076-3091.
- Panda, S. K., Baluska, F., and Matsumoto, H. 2009. Aluminum stress signalling in plants. *Plant Signaling & Behavior*. 4(7): 592-597.
- Pavan, M. A., and Bingham, F. T. 1982. Toxicity of Aluminum to Coffee Seedlings Grown in Nutrient Solution. *Soil. Sci. Soc. AM. J.* 46: 993-997.
- Proklamasiningsih, E., Prijambada, I. D., Rachmawati, D., dan Sancayaningsih, R. P. 2012. Pengaruh Pemberian Garam Aluminium (Al) terhadap Serapan Al dan Pertumbuhan Akar Kedelai pada Media Tanam Masam. *Bionatura-Jurnal Ilmu-ilmu Hayati dan Fisik*. 14(2): 107-114.
- Raharja, R. A., Hamim, H, Sulistyaningsih, Y. C., Tridiati, T. 2020. Analisis Morfofisiologi, Natomi, dan Histokimia pada Lima Spesies Tanaman Gulma sebagai Respons terhadap Merkuri dan Timbal. *Jurnal Ilmu Pertanian Indonesia*. 25(3): 412-423.
- Rabelo, F. H. S., Vangronsveld, J., Baker, A. J. M., van der Ent, A., and Alleoni, L. R. F. 2021. Are Grasses Really Useful for the Phytoremediation of Potentially Toxic Trace Elements? A review. *Frontiers in Plant Science*. 12: 1-28.



- Ribeiro, M. A. Q., Furtado de Almeida, A., Mielke, M. S., Gomes, F. P., Pires, M. V., and Baligar, V. C. 2013. Aluminum effects in growth, photosynthesis, and mineral nutrition of cacao genotypes. *Journal of Plant Nutrition*. 36: 1161-1179.
- Roslim, D. I. Miftahudin., Suharsono, U., Aswidinnoor, H., dan Hartana, A. 2010. Karakter *Root Re-Growth* sebagai Parameter Toleransi Aluminium pada Tanaman Padi. *Jurnal Natur Indonesia*. 13(1): 82-88.
- Roth-Nebelsick, A., and Krause, M. 2023. The Plant Leaf: A Biomimetic Resource for Multifunctional and Economic Design. *Biomimetics*. 8(145): 1-32.
- Rout, G. R., Samantaray, S., Das, P. 2001. Aluminium toxicity in plants: a review. *Agronomie*. 21: 3-21.
- Roy, B., and Bhadra, S. 2014. Effects of Toxic Levels of Aluminium on Seedling Parameters of Rice under Hydroponic Culture. *Rice Science*. 21(4): 217-223.
- Rucinska-Subkowiak, R. 2016. Water relations in plants subjected to heavy metal stresses. *Acta Physiol Plant*. 38(257): 1-13.
- Salazar-Chavarria, V., Sanchez-Nieto, S., Cruz-Ortega, R. 2020. *Fagopyrum esculentum* at early stages copes with aluminum toxicity by increasing ABA levels and antioxidant system. *Plant Physiology and Biochemistry*. 152: 170-176.
- Sathyaseelan, N., and Karthika, K. S. 2019. Aluminium Toxicity in Soil and Plants. *Harit Dhara*. 2(1): 15-19.
- Septiani, M. N., Mukarlina., Wardoyo, E. R. P. 2017. Pertumbuhan dan Karakter Anatomi Mimosa Air (*Neptunia oleracea* Lour.) pada Air yang Terpapar Logam Aluminium (Al). *Protobiont*. 6(3): 75-82.
- Setiadi, Y., dan Anira, F. C. 2015. Deteksi Dini Keracunan Aluminium Tanaman *Bridelia monoica* Merr. Pada Tanah Pasca Tambang Batu Bara PT. Jorong Baturama Greston Kalimantan Selatan. *Jurnal Silvikultur Tropika*. 6(2): 101-106.
- Sirait, M. 2018. *Cleaner production options for reducing industrial waste: the case of batik industry in Malang, East Java-Indonesia*. IOP Conf. Series: Earth and Environmental Science. 106, 012069.
- Steiner, F., Zoz, T., Junior, A. S. P., Castagnara, D. D., and Dranski, J. A. L. 2012. Effects of aluminum on plant growth and nutrient uptake in young physic nut plants. *Semina: Ciencias Agrarias, Londrina*. 33(5): 1779-1788.
- Su, Z., Liang, C., Bao, Y., Liu, X., Sun, Y., Song, C., Chen, J., Guo, Q., and Zhang, J. 2017. Effects of Heavy Metal: Copper on the Ultrastructure of Wheat. *Chemical Engineering Transaction*. 61: 289-294.
- Sun, P., Tian, Q., Chen, J., and Zhang, W. 2010. Aluminium-induces inhibition of root elongation in Arabidopsis is mediated by ethylene and auxin. *Journal of Experimental Botany*. 61(2): 347-365.
- Sutikno. 2014. Petunjuk Praktikum Mikroteknik Tumbuhan. Fakultas Biologi Universitas Gadjah Mada. Yogyakarta, pp. 28-32.
- Tabuchi, A., and Matsumoto, H. 2001. Changes in cell-wall properties of wheat (*Triticum aestivum*) roots during aluminum-induced growth inhibition. *Physiologia Plantarum*. 112: 353-358.



- Taiz, L., Zeiger, E., Moller, I. A., and Murphy, A. 2015. *Plant Physiology and Development*, 6th Ed. Sinauer Associates, Inc. Massachusetts, pp. 122-123, 737.
- Tauhida, N., Harnelly, E., Nasir, M., and Bahi, M. 2022. Anatomical changes of *Ipomoea reptans* due to mercury uptake and accumulation in contaminant soil. *Jurnal Natural*. 22(1): 31-35.
- Toufiq, I. 2014. Effect of elevated Al and pH on the growth and root morphology of Al-tolerant and Al-sensitive wheat seedlings in an acid soil. *Spanish Journal of Soil Science*. 4(1): 61-77.
- Tupan, C. I., and Azrianingsih, R. 2016. Accumulation and deposition of lead heavy metal in the tissues of roots, rhizomes and leaves of seagrass *Thalassia hemprichii* (Monocotyledoneae, Hydrocharitaceae). *AACL Bioflux*. 9(3): 580-589.
- Vangronsveld, J., Herzig, R., Weyens, N., Boulet, J., Adriaensen, K., Ruttens, A., Thewys, T., Vassilev, A., Meers, E., Nehnevajova, E., van der Leile, D., and Mench, M. 2009. Phytoremediation of contaminated soils and groundwater: lessons from the field. *Environ Sci Pollut Res*. 1-31.
- Ventosa-Febles E, 2017. *Kyllinga nemoralis* (white kyllinga). *Invasive Species Compendium*. Wallingford, UK: CABI. DOI:10.1079/ISC.115089.20203483366
- Walia, U. S., and Singh, S. 2010. *Identification of Weeds and Their Control Measures*. Scientific Publishers. India, p. 30.
- Wade, K., and Banister, A. J. 2016. *The Chemistry of Aluminium, Gallium, Indium and Thallium Comprehensive Inorganic Chemistry*. Elsevier Science. Amsterdam, p. 993.
- Wagatsuma, T., Kaneko, M., and Hayasaka, Y. 1987. Destruction Process of Plant Root Cells by Aluminum. *Soil Sci. Plant Nutr*. 33(2): 161-175.
- Watanabe, T., Osaki, M., and Tadano, T. 1997. Aluminum-Induced Growth Stimulation in Relation to Calcium, Magnesium, and Silicate Nutrition in *Melastoma malabathricum* L. *Soil Sci. Plant Nutr*. 43(4): 827-837.
- Yan, A., Wang, Y., Tan, S. N., Yusof, M. L. M., Ghosh, S., and Chen, Z. 2020. Phytoremediation: A Promising Approach for Revegetation of Heavy Metal-Pollutes Land. *Frontiers in Plant Science*. 11(359): 1-15.
- Ye, Z. 2002. Vascular Tissue Differentiation and Pattern Formation in Plants. *Annu. Rev. Plant Biol.* 53: 183-202.